

**INQUIRY INTO PERFORMANCE OF THE NSW  
ENVIRONMENT PROTECTION AUTHORITY**

**Organisation:** NSW Environment Protection Authority  
**Date received:** 29/08/2014

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Director  
General Purpose Standing Committee 5  
Legislative Council  
Parliament House  
Macquarie Street  
SYDNEY NSW 2000

Dear Director

**Inquiry into the performance of the NSW Environment Protection Authority**

Thank you for the opportunity to provide a submission to the Inquiry regarding the performance of the NSW Environment Protection Authority (EPA).

Please note that the EPA Board, at its meeting on meeting 28 August 2014, resolved to support the attached submission prepared by EPA management. The Board also agreed that the statement by the Independent Board members should be included as part of the EPA submission.

The EPA tenders the attached submission to inform the Inquiry and looks forward to participating in the Public Hearings.

Yours sincerely

**BARRY BUFFIER**  
Chair and CEO  
Environment Protection Authority



**NSW EPA submission:  
Inquiry into the performance  
of the NSW Environment  
Protection Authority**

**General Purpose Standing  
Committee No. 5**

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### **Part C: Other related matters**

The EPA has provided a detailed submission in relation to the terms of reference. The EPA has no other related matters to report under Part C.



## Terms of Reference statement

That the General Purpose Standing Committee inquire and report on the performance of the NSW Environment Protection Authority (EPA) and in particular:

- (a) Measure the EPA's recent performance against its objectives pursuant to section 6 of the *Protection of the Environment Administration Act 1991*

### 6 Objectives of the Authority

(1) The objectives of the Authority are:

- (a) to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development, and
- (b) to reduce the risks to human health and prevent the degradation of the environment, by means such as the following:
- promoting pollution prevention
  - adopting the principle of reducing to harmless levels the discharge into the air, water or land of substances likely to cause harm to the environment,
  - minimising the creation of waste by the use of appropriate technology,
  - regulating the transportation, collection, treatment, storage and disposal of waste,
  - encouraging the reduction of the use of materials, encouraging the re-use and recycling of materials and encouraging material recovery,
  - adopting minimum environmental standards prescribed by complementary Commonwealth and State legislation and advising the Government to prescribe more stringent standards where appropriate,
  - setting mandatory targets for environmental improvement,
  - promoting community involvement in decisions about environmental matters,
  - ensuring the community has access to relevant information about hazardous substances arising from, or stored, used or sold by, any industry or public authority,
  - conducting public education and awareness programs about environmental matters.

(2) For the purposes of subsection (1) (a), ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

- (a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by:

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
- (ii) an assessment of the risk-weighted consequences of various options,

- (b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,
- (c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,
- (d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:
  - (i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,
  - (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,
  - (iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

- (b) That the following cases be considered:
  - (i) land contamination issues at Botany and Hillsdale
  - (ii) EPA investigations and public statements about the effects of coal dust pollution in the Hunter
  - (iii) EPA investigation into ground water contamination in the Pilliga by Santos' coal seam gas exploration
  - (iv) the prosecution of Du Pont (Australia) Ltd for the alleged offence of land pollution in the western Sydney suburb of Girraween
  - (v) the regulation of cruise passenger ships at the White Bay Cruise Terminal at Balmain
  - (vi) the regulation of forestry practices in Royal Camp State Forest.
- (c) Any other related matters.



## Executive summary

This is the NSW Environment Protection Authority's (EPA) submission to the General Purpose Standing Committee No. 5 of the NSW Legislative Council charged with inquiring into and reporting on the performance of the EPA. The focus of the inquiry is on the EPA's recent performance against its objectives under section 6 of the *Protection of the Environment Administration Act 1991* and detailed consideration of a number of specific cases.

The EPA welcomes this opportunity to describe its role, responsibilities, the scope and challenges of its work, its regulatory practice and its approach to problem solving and issues management.

The EPA was re-established by the NSW Government in February 2012, as an independent statutory authority reporting to an expertise-based governance Board. This has seen the EPA's mandate clarified and resourcing increased over the past three budgets.

The EPA is now mid-way through a five-year program to enhance and build upon its capacities to provide the people of NSW with a credible and responsive regulator – a regulator that listens to the community and is objective and firm in exercising its environment protection functions.

This submission demonstrates the significant and large body of work by the EPA in meeting its objectives in the two and a half year period since its re-establishment, the successful outcomes it has achieved and the important work currently in train. It also highlights:

- the rigorous and robust methodology with which the EPA approaches its technical and policy responsibilities
- the integrity, expertise and dedication of its staff
- the work the EPA has put into increasing the transparency of its processes
- its commitment to informing and engaging with the community
- programs and initiatives to keep the EPA at the forefront of environmental regulation best practice.

## Improving environmental outcomes

Since its establishment in 1991, the EPA has made significant progress in maintaining or improving the state's environment, including the management and proper use of hazardous substances, improved air and water quality and increased recycling rates. These significant achievements have been made during a period of population and economic growth and increased energy consumption and vehicle use.

Across its responsibilities, the EPA has played a central role in the development of national environment initiatives, including chairing a review of the *National Environment Protection (Ambient Air Quality) Measure* standards for particulate matter as well as advocating for changes to the national air quality standards to reflect the health impacts of smaller particles.

**Air quality** in NSW has significantly improved over the past few decades but ozone and particle pollution still remain a challenge. In recent years, an expanding coal sector has increased concern about the impacts of particle pollution in the Hunter Valley. Air quality continues to be a priority area for the EPA with significant additional resources provided in the past two years for programs aimed at reducing emissions in the Newcastle and Upper Hunter regions.

**Waste and resource recovery** is a priority area for the EPA. Despite an increase in population and consumption levels, NSW's recycling rates have significantly increased while the total amount of waste going to landfill has remained stable. Innovative solutions to reduce the generation of waste and promote recycling feature in a comprehensive set of

programs under the *Waste Less, Recycle More* initiative which commenced last year. The Government has committed a record \$465.7 million over five years to these programs.

The EPA's role in improving **water quality** has been significant. Its success in reducing litter reduces the amount of rubbish entering stormwater drains. The EPA's work has a positive impact on waterways in NSW by reducing discharges from larger industry and government activities, such as regulating sewage treatment plants. These activities have seen emission levels remain stable despite increases in the population and economic activity.

The EPA has regulated the remediation of the largest and most complex **contaminated sites** in the Southern Hemisphere. Currently the EPA is requiring Orica to remediate its Botany site and manage its chemical legacies. The projected expenditure on these activities is estimated at \$315 million, with additional annual costs of \$10 million. This work will clean up the site, reduce off-site risks and enable the land to be used productively.

The EPA is adopting the recommendations of a recent NSW Auditor-General report to improve the effectiveness and transparency of the management of contaminated sites and is well advanced in implementation.

In managing **hazardous substances** (the transport of dangerous goods, pesticides and industrial chemicals, hazardous waste and radiation), the EPA works very closely with the Commonwealth and other states and territories to harmonise a consistent national approach. The EPA takes the lead in Australia, in implementing important health and safety initiatives in NSW, such as banning commercial UV tanning services (solariums) and mandating the use of electronic stability devices to prevent rollovers of trucks that transport dangerous goods.

The **emergency management** framework in NSW requires an integrated approach with clearly defined roles and responsibilities. In the wake of a serious pollution incident at Kooragang Island in August 2011, a comprehensive incident response capacity was developed by the EPA, including supportive legislation that requires all incidents to be reported immediately and all EPA-licensed activities to have pollution incident response management plans in place and operating. The EPA has trained 227 staff in its improved incident management since 2012.

The EPA aims to maintain the balance between protecting environmental values and sustainable native forest management. In the last two years the EPA has increased auditing and compliance of all native **forestry** practices in NSW and is piloting innovative approaches to achieve better protection for threatened and native species. The EPA has recently published its forestry compliance strategies and annual priorities.

In addition, the government has recently expanded the EPA's role to include the environmental regulation of all stages of **coal seam gas** and large-scale wind farms. The EPA has now issued environment protection licences to all CSG activities in NSW and has undertaken strong community engagement in relation to its new role.

## Compliance and enforcement

The EPA has a 95% success rate for **prosecutions** in the courts. The recent successful prosecution of Orica, with penalties amounting to \$768,250, is a good example of strong regulatory action. The determination of the restoration and enhancement projects to be implemented by Orica was undertaken in conjunction with the local community following the principles of restorative justice. The EPA's other regulatory actions have driven an additional investment of more than \$200 million by Orica to upgrade its Kooragang Island, Newcastle plant resulting in improved environmental performance.

The EPA takes punitive action where appropriate but it also uses innovative and flexible tools such as environmental service orders, enforceable undertakings and more recently restorative justice approaches to redress environmental and human health impacts from

offending industry and individuals. As demonstrated by the Du Pont case, the EPA does not shy away from prosecuting where it is clearly in the public interest, despite the challenging circumstances. The EPA is transparent about its decision-making process in taking enforcement decisions and has published both its compliance policies and prosecution guidelines.

The EPA's application of pollution reduction programs through legally binding licence conditions has driven major environmental improvements across the state. The 2012–13 annual report showed a total expenditure of an estimated \$165.6 million for these programs.

## Better tools to work with

The EPA has been very active over the past two years in developing leading-edge compliance and enforcement tools. The EPA's regulatory powers, practices and responses have been significantly sharpened, including:

- changes to waste regulations to reduce the licensing thresholds for waste recycling and storage activities and stop stockpiling
- a tenfold increase to penalty notice amounts (fines) to act as a real deterrent to the most serious environmental offences
- a focus on accountability through an expansion of the community's right to know about issues of concern
- the introduction of risk-based licensing.

The robustness of the EPA's regulatory approach has its foundation in understanding environmental risk to inform systems, policy, programs, legislation, and compliance and enforcement actions.

## Better ways of working

The EPA is committed to being a world class regulator and an **exemplar organisation** and to meet this commitment, it has placed a strong emphasis on developing its **stakeholder engagement** capabilities.

The past two years has seen the public release of more accessible information for communities about their local environment. This includes information such as new air quality monitoring networks, industry monitoring data, information about current incidents, upgraded public registers, and a new air emissions inventory tool to tailor the data for the user's requirements.

The EPA's commitment to stakeholders is also reflected in more direct engagement in community committees and improved avenues for communication. These include a comprehensive review and upgrade of information and communication technologies and systems and developing multiple channels of communication, such as social media and a stakeholder newsletter.

The focus on improved engagement has been supported by the establishment of a Stakeholder Engagement and Governance Branch and the undertaking of a comprehensive Stakeholder Survey to inform the development of approaches. The results from the survey highlighted the sometimes complex nature of stakeholder relationships, with many groups expressing competing interests and conflicting critical opinions of the EPA's role.

The EPA aims to be an exemplar organisation and its staff are supported through targeted training; significant new investments in information technology systems; and improved governance and other processes.

The success in re-establishing the EPA would not have been possible without highly dedicated and professional staff. The quality of the EPA's staff and the health of the organisation are reflected in the 2014 *People Matter Employee Survey* where the EPA

scored better than the average for the NSW Public Service on 99 of the 106 measures surveyed.

## Learning from the cases considered

The cases analysed in this submission highlight the resources the EPA commits to issues of concern. The examination of these cases also demonstrates the:

- EPA's evidence-based approach to the problems
- challenges in communicating what has been done by the EPA
- complexity of cases.

The experiences of the EPA in these seven cases have provided the EPA with valuable insight into improvements to inform the way it works:

- continuous improvements to processes that help to clarify responsibilities and operating procedures
- the value of scientific rigour including peer review and use of independent experts
- more effective ways of communicating scientific findings and processes, especially with the public
- more effective engagement with stakeholders.

The EPA continues to find and implement new ways to improve the effectiveness of its communication and its stakeholder engagement in line with its practice of continuous improvement.

To effectively fulfil its role, the EPA must balance the challenges inherent in maintaining its vision of a healthy environment, healthy community and healthy business.

The EPA is operating in a complex and challenging environment in which, it continues to review and learn. Much has been achieved in the past two and half years.

The EPA is confident that it has the capacity to meet its objectives and to provide better environmental outcomes for NSW.

## Statement by Independent Board Members

We, the independent board members of the EPA, are submitting our assessment to the Upper House Parliamentary Inquiry into the recent performance of the EPA against its objectives pursuant to section 6 of the *Protection of the Environment Administration Act 1991* (POEA Act).

This submission addresses the issues of governance of the EPA in accordance with the requirements laid down in the Act.

### Re-establishment of EPA as independent statutory authority

In 2012, the NSW Government established the EPA as an independent statutory authority, rather than as part of the Office of Environment and Heritage (OEH). An independent skills-based board was appointed to:

- determine the policies and long-term strategic plans of the EPA
- oversee the effective, efficient and economic management of the EPA
- develop and make available for public information, guidelines relating to the institution of criminal and related proceedings
- determine whether the EPA should institute proceedings for serious environment protection offences referred to in s.17 of the POEA Act
- advise the Minister on any matter relating to the protection of the environment.

The Board is comprised of five members: a Chair and CEO, and four independent members. Further details of the four independent members and their qualifications is in Attachment 1.

The EPA is an independent statutory authority:

- The Chair of the EPA is appointed by the Governor and is responsible for managing and controlling the affairs of the EPA in accordance with the policies and decisions of the Board.
- The Board is not subject to the control and direction of the Minister in the exercise of any of its functions.

### Regulatory Assurance Statement

Each year under s.16 of the POEA Act, the Board of the EPA is required to submit a Regulatory Assurance Statement to the Minister on the performance of the EPA. These are available in the annual report of the EPA and through the [EPA website](#).

NSW is the only jurisdiction to have a statutory reporting requirement that can assess the performance of its leading environmental regulator in reducing risks to the environment and human health and the performance of those industries that it regulates. The legislation also allows us to make recommendations that address opportunities for improving both the authority's performance and regulated industries.

Pending the release of the Statement for 2013–14 with the next EPA annual report, we are able to indicate that the EPA has continued to ensure that risks to human health and the environment are reduced through the establishment of new regulatory systems, legislative renewal and focused environmental programs. This and previous statements also show that the EPA is continuing on a path of improvement to achieve better outcomes linked to its objectives.

## Board meetings

The Board meets eight times a year in both Sydney and in regional centres. When the Board meets in regional centres it also meets with external stakeholders. The Board also meets regularly with the staff of the EPA.

The Chief Environmental Regulator attends all board meetings and other executives attend for issues that are relevant to their responsibilities. In addition the Board meets regularly without management present.

All of the specific issues raised in the terms of reference of the current inquiry have been discussed at EPA board meetings, in some cases on multiple occasions. The independent directors believe that these matters have been presented to the Board in a transparent and honest manner. While there have been some areas for improvement identified in the body of this report, the independent members believe these issues have been dealt with competently by the EPA. Where particular issues have been reviewed independently, by Professor Fell and Professor Ryan, they have supported the EPA position.

## Finance Audit and Risk Committee

The EPA's Finance Audit and Risk Committee was constituted in April 2012 to assist the EPA Board to fulfil its corporate governance and oversight responsibilities in relation to the EPA's financial reporting, internal control systems, risk management systems and the internal and external audit functions.

Members of the Committee consist of two independent members of the EPA Board plus the CFO of the Office of Environment and Heritage.

Two representatives from the Audit Office of NSW attend every meeting.

The EPA has an Internal Audit Charter. Regular internal audits of the EPA are conducted by the Internal Audit Bureau in line with the EPA's internal audit program, which has been approved by the Committee.

The EPA reports on its actions to implement audit recommendations to the Committee.

## EPA accountability – internal and external controls

The Board is confident that the EPA has strong arrangements for accountability and internal and external controls. Both the Audit Office and the Internal Audit Bureau report regularly on the EPA. In addition, under its service agreement with OEH, there are reviews of EPA activities, including governance, finance, legal, scientific services and HR services.

Further, the EPA has to account for its actions to the Minister for the Environment and Heritage and other government bodies, including the Public Service Commission, Department of Premier and Cabinet, the NSW Ombudsman and the Independent Commission Against Corruption.

## Progress since establishment of the EPA as an independent authority

**Planning:** In 2012, the EPA CEO facilitated the preparation of a new three-year Strategic Plan for the organisation. The Strategic Plan set the vision, values, purpose and key performance areas for the EPA. The plan is subject to annual review to ensure it meets best practice, and changing circumstances and performance against the key performance areas is reported regularly to the Board.

**Policies:** The Board reviews and approves policies that relate to corporate governance of the EPA. These policies include, among other things, a Code of Ethical Conduct and a Statement of Business Ethics as well as policies on bullying, whistleblowers and respectful

workplace. All policies are discussed at the Finance, Risk and Audit Committee prior to a recommendation to the EPA Board.

**Stakeholder engagement:** Substantial work has been done to lift EPA performance in the area of stakeholder engagement. In 2012, a Stakeholder Engagement and Governance Branch was formed with a senior executive appointed to lead this area. A Stakeholder Engagement Plan was developed and approved. In 2013, a comprehensive stakeholder survey was undertaken with results published on the EPA website. The EPA leads and/or participates in a number of Community Consultation Committees and engages with other community and environment groups across the state.

**EPA culture:** The Board has been impressed with both the quality and integrity of the EPA staff. The issue of integrity was reinforced in the recent People Matter Employee Survey administered by the Public Service Commission. In addition to scoring very well on integrity, the EPA results were strong on virtually all dimensions compared to other groups surveyed. The EPA is seen by its people as a good place to work where they can make a real contribution to achieving the organisation's objectives.

**Prosecutions:** The EPA has a strong track record on prosecutions with a 95% success rate over the 2012–2014 period. The Board has unfettered access to the Director of Legal Services in respect of any prosecution matters. Since 2012, penalties for breaches under the Act have been substantially increased.

**Challenges:** The nature of the environment protection work means that the EPA deals with a broad range of issues. A significant challenge has been the tight timeframes that are required for responses when a significant issue arises. This can become very resource-intensive and may lead to a diversion of resources from other high priority areas. In general, we believe that the EPA requires more resources, but we do acknowledge that, in the two and a half years since establishment, the budget has increased significantly.

**Performance:** The overall performance of the EPA Executive and senior management has been very impressive. All the independent board members have extensive experience in managing a range of organisations ranging from non-government organisations to large commercial enterprises, either at executive and/or board level. It is our assessment that the EPA is close to the some of the best of these organisations that we are associated with.

If you would like further details we are willing to appear at any of the public hearings.

Yours sincerely,

J Savet Ward

C Covington

A Brennan AM

C Knoblanche AM



## Attachment 1: NSW Environment Protection Authority Board Members

**Ms Savet Ward** has a Bachelor of Science (Honours) degree, a Master of Landscape Planning, is a Fellow of the Australian Institute of Company Directors and has over 25 years' experience in science, planning and the environment. She has a deep understanding of the planning, approval, design, construction and delivery of infrastructure, property and natural resource projects. She has 20 years' experience on boards and currently chairs SGS Economics and Planning, a consulting company, and Link Housing, a community housing provider which is a charity. Ms Savet Ward chaired the Expert Reference Group that guided the development of the 2013–21 NSW Waste Avoidance and Resource Recovery Strategy.

**Ms Covington** is a solicitor of the Supreme Court of NSW. She has over 28 years' experience in environmental, planning and property law and currently sits on the Corrs' Chambers Westgarth Board and the National Practice Group Leader of the Environment and Planning Group at the law firm, Corrs Chambers Westgarth. She has served as a NSW Government appointee to the Central Sydney Planning Committee, chairs the NFP affordable housing provider, City West Housing Pty Ltd and was recently appointed to the Barangaroo Delivery Authority Board. Ms Covington has experience in working with local governments and on community engagements. She also has extensive experience in the NSW Land and Environment Court and the Supreme Court in planning appeals and environmental prosecutions. Ms Covington was member of the Waste Strategy Expert Reference Group.

**Mr Knoblanche AM** was, until recently, CEO/Head of Corporate and Investment Banking at Citigroup Australia. He holds a number of board positions. In 2003 he was awarded the Centenary Medal by the Australian Government for services to business, the arts and the finance sector. In 2014 he was made a Member of the Order of Australia for significant service to arts administration, to the community, and to the business sector. He has been advising local and multinational companies for over 32 years in areas such as corporate strategy, financing, risk control and management. He holds a Bachelor of Commerce (Accounting and Financial Management) degree, is a Member of the Institute of Chartered Accountants and a Fellow of the Australian Society of Certified Practising Accountants. Mr Knoblanche also chairs the EPA's Finance Audit and Risk Committee.

**Mr Brennan AM** brings to the EPA Board 40 years' experience in business across a range of manufacturing, resources and distribution industries including more than 20 years' experience as a public company director. He has a Bachelor of Science (Food Technology) degree, and a Master of Business Administration, both with honours. He is a Fellow of the Australian Institute of Company Directors and Chair of publicly-listed Emeco Holdings Limited. Mr Brennan is a Fellow of Senate and Pro Chancellor, Sydney University and chairs two key Senate committees, the Finance and Audit Committee and the Human Resources Committee. He is also involved in a number of other not-for-profit activities.

Mr Brennan is a Member of the Order of Australia (AM) for significant service to business and commerce, to tertiary education administration, and to the community. He brings to the Board extensive business experience in areas such as strategy, process management, governance and finance and risk management. Mr Brennan also sits on the EPA's Finance Risk and Audit Committee.



## Introduction

This is the NSW Environment Protection Authority's (EPA's) submission to the General Purpose Standing Committee No. 5 of the NSW Legislative Council.

The Committee is charged with inquiring into and reporting on the performance of the EPA, particularly its recent performance against its objectives under section 6 of the [Protection of the Environment Administration Act 1991](#) (POEA Act), and considering a number of specified cases.

Regarding recent performance, this submission largely relates to the period since February 2012 when the EPA was re-established as an independent regulatory authority.

Since most of the cases identified for detailed consideration began before this period, this submission also covers the previous exercise of EPA functions relating to these cases.

The EPA welcomes this opportunity to describe its role and responsibilities, how it works, the scope of its portfolio and its approach to the management of specific issues. The timing is appropriate, as the EPA is at the mid-point of a five-year program to reinvigorate itself as the primary environmental regulator in Australia

## The EPA then and now

### *The beginnings*

In 1991, the establishment of the NSW EPA under the POEA Act brought with it a new approach to environment protection.

The objectives of the EPA were – and remain – visionary. The objectives set in place an approach to environment protection that is multi-dimensional, flexible and responsive with a firm focus on environmental outcomes, informed by the principles of ecologically sustainable development.

When the bill was introduced in the NSW Parliament in 1991, there was extensive debate about the objectives, and particularly the new concept of ecologically sustainable development. The landmark [Protection of the Environment Operations Act 1997](#) (PEOA Act) continued the flexible approach of the POEA Act by integrating environmentally specific legislation into the one Act and providing the EPA with regulatory tools for protecting the environment through best practice regulation.

A decade after it was established in 1991, the EPA had built a strong reputation as an effective and innovative environmental regulator and became a recognised and respected brand in government, business, the community and the media.

In 2003, the EPA was incorporated, with other environment-related agencies including the NSW National Parks and Wildlife Service, into a new Department of Environment and Conservation. This led to a change in the delivery of the EPA's core functions as environmental priorities shifted from pollution prevention and control to conservation. Between 2003 and early 2012, the EPA's functions were exercised within a succession of larger government agencies that were responsible for administering other legislation and prioritising actions in line with a much broader range of responsibilities.

This decreased the visibility of the EPA's regulatory profile and also led to some confusion in the community and business as to the EPA's role.

This situation changed in 2011, with a significant pollution incident at Kooragang Island in Newcastle as the catalyst. The NSW Government commissioned an independent report on

the handling of that incident, the O'Reilly Report<sup>1</sup>, whose recommendations the Government accepted in full. The [NSW Legislative Council Select Committee on the Kooragang Island Orica chemical leak](#) also conducted an inquiry into the same incident.

### *The new era*

Implementation of the O'Reilly Report led directly to the re-establishment in February 2012 of the EPA as a separate NSW government agency. A program was developed to rebuild the EPA's capacities, update the laws it administers, strengthen its powers and improve its engagement with its stakeholders. In Parliament, the then Minister for the Environment described the EPA and its legislation as 'an environment protection regime that had stalled and a regulator that lost its public profile as strong and visible'.

The EPA was given a clearly defined mandate as NSW's primary environmental regulator with enhanced powers to deliver on its responsibilities as an independent and accountable agency. During the Parliamentary debate, the then Minister underscored the objectives of the EPA as:

a single consolidated environmental regulator, which means a regulator that is responsible not only for pollution control but also for protecting human health and the environment, including ecosystems and biodiversity.

The passing of this Bill, with an acknowledgement of the EPA's objectives in the exact terms used in the 1991 Act, can be seen as an affirmation in 2011 by Parliament of the scope of the EPA's objectives.

A new governing [EPA Board](#) was established with expertise in environmental law, science, corporate and financial management and risk planning. A new Chair and Chief Executive Officer, and Chief Environmental Regulator were appointed for five-year terms to rebuild the EPA's capacity to meet its objectives under the POEA Act, review and administer the legislation for which it has responsibility, and address key environmental priorities identified by the Government in its overarching strategy, *NSW 2021*.

The new Board and management are now at the halfway point of this mission.

After appointment of the EPA Chair and CEO, the EPA moved swiftly to develop [a strategic plan](#). The vision adopted by the EPA through its strategic plan is Healthy Environment, Healthy Community, Healthy Business.

The strategic plan has six key result areas:

- informed planning decisions
- innovative waste management
- improved environmental outcomes
- effective stakeholder engagement
- responsive incident management
- exemplar organisation.

The EPA has been progressively working towards developing the full set of capacities required to meet its mandate. Starting with a core set of operational branches, the EPA then built up its Waste Management Branch, and established a dedicated Hazardous Incidents Section (a recommendation from the O'Reilly Report) and a Stakeholder Engagement and Governance Branch.

Initially, the Office of Environment and Heritage (OEH) through a service agreement provided administrative, communications, legal, scientific and technical support in air and

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<sup>1</sup> [A Review into the response to the serious pollution incident at Orica Australia Pty Ltd ammonium nitrate plant at Walsh Point, Kooragang Island on August 8, 2011](#)

water. The EPA has re-acquired from OEH some important capacities in communications, air policy and, as recently as July 2014, water policy.

The EPA has also been building its capacities by developing an information and communication strategy (see Chapter 3) and developing a growing tailor-made training program (see Chapter 4).

Since 2012, the EPA has conducted a significant number of reviews of the laws it administers to ensure they achieve environmental outcomes in accordance with the EPA's objectives. This process is continuing. Highlights include:

- requiring industry to **notify pollution incidents immediately** and doubling fines for failing to do so (an O'Reilly Report recommendation)
- expanding the **community's right to know** provisions, including requirements for industry to have pollution incident management plans, report incidents to residential and commercial neighbours and make monitoring results publicly available. These measures are complemented by expanding air quality monitoring networks in NSW with real-time information, and developing an air emissions interactive web tool that lets people zero-in on emissions in their community.
- reviewing **penalties and alternative sentencing mechanisms** in 2013, that resulted in new laws introduced to Parliament in August 2014 to encourage the use of mechanisms such as monetary benefit orders to recover penalties from non-compliance, and restorative justice provisions. Penalty notice amounts for the most serious environmental offences have been increased up to ten-fold to act as a stronger deterrent.
- developing new mechanisms to effectively enforce **illegal dumping** that have been put into effect in legislative amendments in 2013 and August 2014.
- reviewing the operation of the **load-based licensing scheme** – this thorough and evidence-based review commenced in late 2013 and is looking at how well the scheme meets its objectives.
- introducing in 2014 a **risk-based licensing scheme** under the POEO Act to ensure holders of environment protection licences receive a level of regulation based on the risk their activities pose, with strong incentives for industry to improve environmental performance.
- developing new laws introduced to Parliament in August 2014 to extend **cost recovery** for certain fees and providing for charges under legislation relating to hazardous substances to be paid into the Environment Protection Authority Fund instead of to consolidated revenue. These changes are an accelerated implementation of the recommendation of the NSW Auditor-General's report, *Performance Audit Managing Contaminated Sites* released in July 2014, and will provide extra resourcing to enable the remaining recommendations to be implemented that will upgrade the EPA's capacity to manage contaminated sites.

A timeline of the EPA's achievements in the last two years and details of associated legislative reform are also provided in this submission.

This short introduction provides a sense of the scale of the newly-reconstituted EPA's ambitions to comprehensively meet its objectives and its responsibilities under the legislation it administers. A substantial amount has been achieved since 2012 and there is a significant program of changes for the next two and a half years.

As has been observed by the Auditor-General in July 2014 and by many EPA stakeholders in a survey conducted in 2013, resourcing remains an issue. To go some way towards addressing this challenge, the EPA is moving towards a greater reliance on cost recovery rather than recurrent budget from consolidated revenue.

In 2013, the EPA implemented cost recovery for its administration of environment protection licences amounting to approximately \$18 million. As noted above, new laws just introduced will see the EPA access cost recovery mechanisms.

This approach closely aligns with one of the key principles of ecologically sustainable development – that of ‘polluter pays’ – with those who generate pollution and waste bearing the cost of containment, avoidance or abatement.

The above review shows that while the EPA has come a long way in a short time, there are more new initiatives to pursue as well as reviewing practices and processes that have been in place for a long time and carried into the new EPA.

Many of these tried and tested practices will continue to deliver the outcomes the EPA is required to meet. Others are being updated to reflect current best practice or changed circumstances, or supplemented to ensure the EPA meets its responsibilities.

Part B of this Inquiry is an examination of how well the EPA has managed specific cases and provides an opportunity to gain the benefit of external viewpoints on how the EPA has managed each of these issues. The EPA looks forward to considering any recommendations arising out of the Inquiry in connection with these cases.

### *An expansive approach ... within boundaries*

The powers of the EPA in its enforcement and regulatory roles are well-defined for the legislation it is tasked to administer. The legislation uses the concept of ‘appropriate regulatory authority’ to allocate responsibility to the appropriate level. For example, local government is generally the appropriate regulatory authority for pollution from households.

Many issues are either multi-jurisdictional (as between the Commonwealth and the States and Territories) or involve co-regulation with other NSW government agencies. In all these cases, the EPA can only act within its powers.

## **Navigating this submission**

In this submission, the EPA has reflected on the issues, the causes for concern and opportunities for improvement.

As with the terms of reference, this submission is divided into parts:

This introduction provides a sense of the scale of the newly-reconstituted EPA’s ambitions to comprehensively meet its objectives and its responsibilities under legislation it administers. A substantial amount has been achieved since 2012 and there is a significant program of changes for the next two-and-a-half years. The introduction also includes the timeline of the EPA’s achievements in the last two years, including the range of legislative reforms.

Part A of the submission explains the work of the EPA’s operations staff; provides information on policies and resources that guide and inform industry, local government and the community; details the extensive range of programs and national initiatives led by the EPA and looks at the EPA’s recent performance in meeting its objectives.

Within Part A, Chapter 1 describes ways in which the objectives of the EPA are integral to its actions, processes and outcomes.

Chapters 2–4 describe ways in which the EPA works to achieve its objectives. It examines the principles and processes involved in decision making, the EPA’s engagement with stakeholders and the work involved in building a healthy organisation.

Chapters 5–12 describe what the EPA does in each of its major spheres of operation – water, noise, air, waste, contaminated sites, hazardous substances, emergency management and forestry.

Part B examines the cases identified for detailed consideration.

The EPA has no other related matters to report under Part C.

### ***What is ‘the EPA’?***

The EPA has been a dedicated independent agency since February 2012. From 2003 until that time its powers and functions were exercised by officers who also were administering regulations for various other environment-related areas.

To avoid confusion, where EPA functions and powers have been exercised in this way, this submission will refer to those as having been exercised by the EPA.

After 2012, the actions of the EPA and OEH are differentiated.

# EPA achievements since February 2012

## Actions

NSW the first state to ban UV tanning services

Legislation amended to establish EPA Board and its functions and pollution incident notification and reporting

Pesticide compliance inspections of 54 licensed marinas

Audit of 280 underground petroleum storage systems

Appointment of EPA Chair and Board

Chief Environmental Regulator appointed

200 heavy vehicles transporting dangerous goods inspected

EPA Board disclosures regulated

Contaminated sites capacity building workshop with 10 rural councils

Appointment of EPA Director of Stakeholder Engagement and Governance

Pesticide compliance inspections of 23 horticultural farms

Wood smoke reduction program 2013: \$1.3m for councils

Upper Hunter Fine Particle Characterisation Study initiated

Incident management system reviewed

## Communications

Marina guidelines released

EPA Staff Training Strategy 2012–2015 available

Audit report on high-risk premises released

Private native forestry DVD and video series released

Protocols for industry notification of pollution incidents and response management plans

Release of *Air Emissions Inventory 2008*

Illegal dumping online resource for public land managers

Motor vehicle pollution reporting APP available

*EPA Statement of Business Ethics* released

December 2012

# January 2013 EPA achievements

Management Order: Orica Botany mercury contamination clean-up

Pesticide compliance inspections of 14 Livestock Health and Pest Authority depots

Successful prosecution of George Weston Foods Ltd: \$20,000 + \$25,000 costs

\$460-million *Waste Less, Recycle More* initiative announced

12-month review of requirements for providing pollution monitoring data

Experts reports on odour in western Sydney

Independent expert report on reuse of excavated soil from Barangaroo

Dangerous goods prosecution of Kitco Transport Pty Ltd: \$18,000

MOU with Fire and Rescue NSW

Legislated regulation by the EPA of coal seam gas and large-scale wind farms

National intergovernmental agreement on agricultural and veterinary chemicals

\$2 million in funding for the Environmental Trust Emergency Pollution Clean-up Program and illegally dumped asbestos

Report by Professor Fell on EPA handling of Botany contamination

234 EPA staff trained in incident management awareness

78 EPA staff trained for Environmental Services Commander

Risk-based licensing review commenced

Completion of BHP's remediation of contamination of the Hunter River

Legislated regulation for risk-based licensing and radiation security

Newcastle particle characterisation study released and public forum held

EPA stakeholders surveyed

Illegal dumping grants for charities and councils

Summit held on waste tyres

\$125 million in *Waste Less, Recycle More* grants announced

Pesticide inspections of 13 Livestock Health and Pest Authority depot

2012 Hunter Valley air quality summary results

EPA website goes live

*NSW State of the Environment 2012* release

*Upper Hunter Air Particles Action Plan*

*EPA Compliance Policy* release

Compliance strategies for native forestry on private and public lands available

Private native forestry fact sheets released

EPA available via Twitter

Environmental Services Functional Area Supporting Plan (Enviroplan) available

*Noise Guide for Local Government* revised

Release of rail infrastructure noise guideline

*NSW Local Government Waste and Resource Recovery Data Report 2011–12* released

Launch of *Air emissions in my community* web tool

*EPA Strategic Plan 2013–16*

*EPA Sponsorship Policy* released

Compliance report on pollution incident response management plans

EPA Anti-bullying Policy available

*EPA Annual Report 2012–13* and regulatory assurance statement released

*EPA Prosecution Guidelines* revised

*Managing particles and improving air quality in NSW*

*Upper Hunter Fine Particle Characterisation Study* available

# December 2013



# January 2014 EPA achievements

Ecology Business Support grants program open

Advice available on managing asbestos in and on soils

Closure of Woodsreef asbestos mine access road

Summary of test results for the Belmore Basin sewage seep

220 EPA staff attend ICAC training

Release of *NSW Energy from Waste Policy Statement*

Professor Louise Ryan's findings on ARTC Hunter coal rail transport report

Maintenance Order: long-term environmental management of Homebush Bay

*Best Practice Note: Land farming presents EPA's expectations on soil remediation*

Monitoring information released on the Port Kembla Copper stack demolition

Reducing locomotive emissions project commenced

*Technical Note: Investigation of service station sites released*

Additional \$6-million Environmental Trust contaminated land management program

Compliance audit on the requirements for publishing pollution monitoring data

Local councils receive regional waste avoidance and resource recovery strategy guidance

Remediation Order: Orica clean-up of arsenic contamination at Kooragang Island

EPA-wide Information and Communication Technology Strategy

Legislated regulation provided for risk-based licensing

Mandatory electronic stability control for dangerous goods tanker trailers commences: an Australian first

\$11.1 million in Bin Trim business grants

Release of *NSW Illegal Dumping Strategy 2014-16*

Consultation on protocol for managing asbestos during resource recovery of construction and demolition waste

\$2-million industrial Ecology Business Support network grants

Chester Hill fire in Sydney extinguished

First edition of *EPA Connect* newsletter

L&E Court fine of \$768,250 for Orica Pty Ltd

Diesel emissions management workshop held

*EPA Grants Policy* finalised

Pest management technicians inspected during compliance campaign

Integrated licensing system for EPL, radiation, dangerous goods and pesticide licences

*Hey Tosser!* litter campaign launched

Consultation on draft guideline for duty to report contamination

NEPC paper for ambient air quality standards for particles released

Introduction of pest management technicians and fumigators legislative amendments and licensing scheme

EPA scores better than the sector average on 93.4% of issues surveyed (People Matter Employee NSW)

# August 2014



## EPA legislative reform since February 2012

### 2012

*Forestry Act 2012*

Protection of the Environment Operations (General) Amendment (Pollution Incident Response Management Plans) Regulation 2012

### 2013

Contaminated Land Management Regulation 2013

*Protection of the Environment Operations Amendment (Illegal Waste Disposal) Act 2013*

Protection of the Environment Operations Amendment (Scheduled Activities) Regulation 2013

Protection of the Environment Operations (Clean Air) Amendment (Miscellaneous) Regulation 2013

Protection of the Environment Operations (General) Amendment (Glebe Island) Regulation 2013

Protection of the Environment Operations (General) Amendment (M5 East Tunnel) Regulation 2013

Protection of the Environment Operations (General) Amendment (Royal Botanic Gardens and Domain Trust) Regulation 2013

Protection of the Environment Operations (General) Amendment (Upper Hunter Air Quality Monitoring Network) Regulation 2013

Protection of the Environment Operations (Waste) Amendment (Contributions) Regulation 2013

Radiation Control Amendment (Classification of Laboratories) Regulation 2013

Radiation Control Regulation 2013

Review of the Protection of the Environment Operations (Hunter River Trading Scheme) Regulation 2002

### 2014

Dangerous Goods (Road and Rail) Transport Regulation 2014

Draft Protection of the Environment Operations (Waste) Regulation 2014

Protection of the Environment Legislation Amendment Bill 2014

Protection of the Environment Operations (Clean Air) Amendment (Prescribed Storage Tanks) Regulation 2014

Protection of the Environment Operations (General) Amendment (Fees and Penalty Notices) Regulation 2014

Protection of the Environment Operations (General) Amendment (Licensing Fees) Regulation 2014

Protection of the Environment Operations (General) Amendment (Native Forest Bio-material) Regulation 2013

Protection of the Environment Operations (Underground Petroleum Storage Systems)  
Regulation 2014

Protection of the Environment Operations (Waste) Amendment (Coal Washery Rejects  
Levy) Regulation 2014

Protection of the Environment Operations (Waste) Amendment (Removal of Exemption)  
Regulation 2014

## Future EPA initiatives and deliverables

*EPA Strategic Plan 2014–17* outlines all the EPA's goals and deliverables into the future: some of the key initiatives are provided below:

### **Environment protection licensing: pollution reduction**

Finalise the review of load-based licensing

Implement the risk-based licensing scheme

### **Strengthening EPA regulatory capacity**

[Protection of the Environment Legislation Amendment Bill 2014](#) (regarding fees and penalty notices)

Coal seam gas (CSG):

- complete the CSG methane gas project
- complete the CSG produced water management project
- roll out the CSG training program and use of virtual theatre

### **Air**

Finalise a National Clean Air Agreement

Remake the *National Environment Protection (Ambient Air Quality) Measure* under the National Environment Protection Council

Explore the use of a Protection of the Environment Policy to strengthen implementation of the AAQ NEPM review

Finalise the review of the approved methods for air assessment

Grow the air emissions monitoring network: Lower Hunter in 2014 and the proposed New England North-West network

Develop a Non-road Diesel Emissions Management Strategy by the end of 2014 to cover equipment used in mining, construction, shipping and locomotives

Drive compliance with requirements for the installation of vapour recovery equipment at service stations in Sydney's greater metropolitan area and thereby improve ozone pollution

Introduce the Protection of the Environment Operations (Clean Air) Amendment (Heaters and Fireplaces) Regulation 2014

Introduce the Protection of the Environment Operations (General) Amendment (Newcastle Air Monitoring) Regulation 2014

Licence performance reporting by NSW open-cut coal mines in August 2014

### **Noise**

Finalise the *NSW Industrial Noise Policy*

### **Waste**

Finalise [NSW Waste Avoidance and Resource Recovery Strategy 2014–21](#)

Introduce the final *Protocol for Managing Asbestos During Resource Recovery of Construction and Demolition Waste*

Complete the *NSW Litter Strategy*

Introduce the Protection of the Environment Operations (Waste) Regulation 2014

## **Forestry**

Make a consolidated [Integrated Forestry Operations Approval for NSW coastal forests](#)

Sponsor a Bill to amend the *Forestry Act 2012*, *National Parks and Wildlife Act 1974*, *Threatened Species Conservation Act 1995*, *Protection of the Environment Operations Act 1997* and *Protection of the Environment Administration Act 1991* to deliver the revised coastal IFOA

## **Hazardous substances**

Major staged review of legislation governing the use and storage of pesticides and chemicals to ensure consistency with national initiatives

Remake of the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008 by 1 September

Bill to amend the *Pesticides Act 1999* and Regulation

Bill to amend the *Environmentally Hazardous Chemicals Act 1985*

## **Contaminated sites**

Overhaul of range and size of penalties under the *Contaminated Land Management Act 1997*

Manage contaminated sites via cost recovery so that associated fees and charges are paid into the Environment Protection Authority Fund and the backlog of sites for assessment is eliminated

Revised *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* released

## **Radiation**

Implement the ban on commercial UV tanning services (solaria) from 31 December 2014

## **Healthy EPA organisation**

Development of e-learning online training for EPA staff

Finalise the review of the EPA staff training strategy from 2015 onwards

Implement a program for graduates and subject matter specialists

Achieve accreditation of the EPA as a Registered Training Organisation

Restructure EPA to comply with GSE guidelines

Develop the EPA Knowledge Management Framework and Implementation Plan to identify and improve current knowledge and information management practices within the organisation

## **Stakeholder engagement**

Implement smarter information and communication technology systems to:

- deliver integrated online services for business via an EPA portal
- strengthen management of contaminated sites
- implement a mobile workforce capability
- improve stakeholder engagement through access to information, such as air quality reports, for the broader community's benefit
- develop a new interactive website

**Part A:**  
**The EPA's objectives –  
how we work  
and recent performance**



# Part A:

## The EPA's objectives – how we work and recent performance

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*Chapter 1: Foundation stones – the EPA's objectives*

*Chapter 2: EPA toolbox*

*Chapter 3: The EPA and its stakeholders*

*Chapter 4: A healthy organisation*

*Chapter 5: Water and the EPA*

*Chapter 6: Noise and the EPA*

*Chapter 7: Air and the EPA*

*Chapter 8: Waste and the EPA*

*Chapter 9: Contaminated sites and the EPA*

*Chapter 10: Hazardous substances and the EPA*

*Chapter 11: Emergencies and the EPA*

*Chapter 12: Forestry and the EPA*





## Chapter 1: Foundation stones – the EPA's objectives

### 1.1 Introduction

The objectives of the NSW Environment Protection Authority are set out in section 6 of the Protection of the Environment Administration Act 1991 (POEA Act).

There are two parts to the objectives.

The first part (section 6(1)(a)) sets out the EPA's role: to protect, restore and enhance the quality of the environment in NSW having regard to maintaining ecologically sustainable development (ESD).

The Act specifies that ESD requires the effective integration of economic and environmental considerations. Importantly, this provision is mirrored in other key legislation impacting on land use decisions: the Environmental Planning and Assessment Act 1979<sup>1</sup>, the Local Government Act 1993<sup>2</sup> and the Mining Act 1992<sup>3</sup>. This legislation places the principle of ESD at the heart of land use legislation.

Since the POEA Act was introduced, the Land and Environment Court has further defined and clarified the principles of ESD.<sup>4</sup> Land and Environment Court Chief Justice Preston observed that the effective integration of economic and environmental considerations ensures mutual respect and reciprocity between both considerations.

The POEO Act sets out further additional principles through which ESD can be achieved:

- the precautionary principle
- inter-generational equity
- conservation of biological diversity and ecological integrity
- improved valuation, pricing and incentive mechanisms through means such as:
  - polluter pays
  - full life cycle costing
  - cost-effective means such as incentive or market structures.

The Land and Environment Court has noted that these principles do not exhaustively describe the full ambit of the concept of ESD but they offer guidance in most situations<sup>5</sup>.

The second part of the objectives (section 6(1)(b)) requires the EPA to reduce risks to human health and prevent environmental degradation, and sets out examples of actions to achieve these aims. Although these aims are inherent in the first part of the objectives, by explicitly addressing them and giving examples of the types of actions for achieving them in the second part, the Act defines more precisely the role of the EPA.

With the re-establishment of the EPA as a separate statutory authority in 2012 the EPA sought to reflect the centrality of ESD to its work in its new vision statement – which is also the foundation for its [strategic plan](#). The EPA's vision statement is 'Healthy Environment, Healthy Community, Healthy Business'. This recognises that a healthy environment is the foundation for healthy communities and businesses because if the environment is not healthy then the economy and the community are not sustainable in the long term.

The EPA's statutory objectives also underpin:

- the range of legislation that the EPA administers

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<sup>1</sup> Section 5 and Parts 4 and 5

<sup>2</sup> Section 7

<sup>3</sup> Section 3A

<sup>4</sup> *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 133

<sup>5</sup> *Telstra Corporation Ltd v Hornsby Shire Council* [2006] NSWLEC 133

- the approach of the EPA in its role in the NSW planning process
- the EPA's policies and programs
- the EPA's compliance framework.

This chapter will look at the principles of ESD and outline the ways in which the EPA integrates these principles with its mandate to protect, restore and enhance the environment, including reducing risks to human health.

## 1.2 ESD in EPA – administered legislation

The legislation administered by the EPA has ESD as a common objective, aiming to protect the environment and reduce risks to human health. The EPA has responsibilities and functions under the following legislation:

<i>Protection of the Environment Administration Act 1991</i>	The Act that establishes the EPA and the EPA Board. It sets out the EPA's objectives and responsibilities.
<i>Protection of the Environment Operations Act 1997</i>	This is the principal Act for protecting the environment from pollution. It contains measures to prevent or minimise pollution and provides regulatory tools to make this happen.
<i>Waste Avoidance and Resource Recovery Act 2001</i>	This Act targets waste avoidance and resource recovery, promoting extended producer responsibility and providing for a Waste and Environment Levy
<i>Contaminated Land Management Act</i>	This Act sets up a management regime for significantly contaminated land.
<i>Pesticides Act 1990</i>	This Act controls and regulates the use of pesticides in NSW.
<i>Environmentally Hazardous Chemicals Act 1985</i>	This Act sets up a management regime for environmentally hazardous chemicals
<i>Radiation Control Act 1990</i>	This Act provides for the regulation and control of radioactive substances, sources and apparatus but does not apply to radioactive ore while it is being mined or treated.
<i>Ozone Protection Act 1999</i>	This Act sets up a system of controls on substances that act as atmospheric pollutants, contributing to the depletion of the stratospheric ozone layer.
<i>National Environment Protection Council (NSW) Act 1995</i>	This Act supports the establishment of a National Environment Protection Council with power to make national environment protection measures (NEPMs).
<i>Dangerous Goods (Road and Rail Transport) Act 2008</i>	This Act regulates the transport of dangerous goods by road and rail to promote public safety and protect property and the environment
<i>Forestry Act 2012</i>	The EPA is responsible for Parts 5A and 5B of this Act dealing with native forestry agreements and Integrated Forestry Operations Approvals.

This legislation integrates ESD into the protection of the environment, including human health, by:

- prohibiting or mandating actions
- providing a range of flexible regulatory tools to encourage compliance and to facilitate the integration of environmental and economic considerations.

Chapters 5–12 contain relevant information on the substantive regulatory provisions in this legislation while Chapter 2 includes the EPA's approach to compliance and enforcement.

### 1.3 ESD in planning

Chapter 2 outlines the EPA's role in planning: in essence, an advisory role in relation to strategic planning and within the development assessment process, and either an advisory or concurrence role depending on the type of development.

At the strategic planning level, the EPA provides advice consistent with its objectives. This advice may be broad or more specific, depending on the level of detail provided in a plan.

The standard EPA requirements for environmental impact assessment, together with the General Terms of Approval, not only include ESD but also an extensive list of requirements that reflect ESD objectives.

The Land and Environment Court has examined ways in which environmental impact assessment in the planning process contributes to achieving ESD, as described in the POEA Act:<sup>6</sup>

- it facilitates achievement of the **principle of integration** since it is necessary to assess the environmental impacts and risks associated with proposed activities
- it assists the implementation of the **precautionary principle** through:
  - enabling an assessment of whether there are threats of damage to the environment
  - enabling an evaluation of the conclusiveness or certainty of scientific evidence on the impacts of a proposed development
  - enabling informed decisions to be made to avoid or mitigate, wherever practicable, serious or irreversible damage to the environment
  - shifting the burden of proof (evidentiary presumption) to persons responsible for potentially harmful activities to demonstrate that their actions will not harm the environment
- it enables the present generation to meet its obligation of intergenerational equity by ensuring the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations
- it can facilitate the internalisation of external environmental costs by including environmental factors in the valuation and costs of assets and services by implementing the user pays or polluter pays principle (those who harm the environment should bear the cost of containment, avoidance or abatement). It can also facilitate this by ensuring that users of goods and services pay the costs of providing goods and services, including the use of natural resources and assets.

### 1.4 ESD in the EPA's policies and programs

Chapter 2 outlines the process by which the EPA responds to managing a new or emerging environmental issue.

The first stage – strengthening and acting on the evidence – is based on the precautionary principle as clarified by the Land and Environment Court<sup>7</sup>. The Court notes that 'the threat of

<sup>6</sup> *Bentley v BGP Properties Pty Ltd* [2006] NSWLEC 34

<sup>7</sup> *Telstra Corporation Limited v Hornsby Shire Council* [2006] NSWLEC 133

environmental damage must be adequately sustained by scientific evidence' and cites with approval an adaptive management approach that involves the following core elements:

- 'monitoring of impacts of management or decisions based on agreed indicators;
- promoting research, to reduce key uncertainties;
- ensuring periodic evaluation of the outcomes of implementation, drawing of lessons, and review of adjustment, as necessary of the measures or decisions adopted; and
- establishing an efficient and effective compliance system'.

ESD can also be realised by using innovative approaches through a combination of regulation and education, business and community partnerships, and economic mechanisms that are consistent with its principles and the list of actions included in section 6 of the POEA Act.

Every policy action developed to address a new or emerging issue is aimed at meeting the EPA's objectives set out in section 6 of the POEA Act. Policy responses may be at the national, state or local level and may involve developing standards, legislation, programs, incentives, education or regulatory practices.

As options develop, they will be assessed for cost effectiveness through mechanisms such as consultation or cost-benefit analysis, in accordance with the requirements of ESD.

Chapters 5–12 demonstrate the full range of options available to the EPA for different environmental issues.

## 1.5 ESD in the EPA's compliance framework

Chapter 2 sets out the EPA's compliance framework and its decision making processes. Chapters 5–12 illustrate how the EPA manages issues relating to air water, noise, waste, contaminated sites, hazardous substances, emergencies and native forestry in accordance with the EPA's objectives.

ESD is integrated into the EPA's legislation, its role in planning, and its policies and programs. Sections 1.5.1–1.5.4 provide examples of the incorporation of ESD at the operational level.

### 1.5.1 Environment protection licences

The use of environment protection licences (EPLs) for industry and government (see Chapter 2) is a clear example of the EPA's implementation of ESD to effectively integrate economic and environmental considerations in decision making. Conditions are placed on licence holders to mitigate the impacts of their activities. These conditions reflect the best available knowledge and controls to reduce environmental impact from the activity.

EPA officers use standard guidance that takes into account the detailed consideration of the precautionary principle set out by the Land and Environment Court in the *Telstra Corporation Limited v Hornsby Shire Council* judgment.<sup>8</sup> In this judgement, Preston CJ outlined 18 points providing guidance on interpreting and applying the precautionary principle. The key principles are:

- the principle and the concomitant need to take precautionary measures is 'triggered' when two conditions or thresholds are met:
  - the threat of serious or irreversible environmental damage
  - scientific uncertainty as to the extent of damage
- the degree of scientific uncertainty that needs to exist varies, depending on the magnitude of the threat

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<sup>8</sup> *Telstra Corporation Limited v Hornsby Shire Council* [2006] NSWLEC 133

- the type and level of appropriate precautionary measures depend on the combined effect of the degree of seriousness/irreversibility and the degree of uncertainty
- the measures adopted should be proportionate to the threat.

The judgement also contained the following observations in applying these principles:

- a zero risk precautionary standard is not appropriate and the principle should not be used to try to avoid all risks
- determining the appropriate precautionary measures involves an assessment of risk as it is usually formulated – that is, the probability of an event occurring and the seriousness of the consequences
- the precautionary principle should not be viewed in isolation, but as part of the package of ESD principles

The guidance contained in this judgment has been incorporated into standard EPA guidelines for considering issues raised under the *Protection of the Environment Operations Act 1997* (POEO Act), when making a decision on issuing general terms of approval for an EPL. It should be noted that the precautionary principle is not a standalone process but one process to be considered during an assessment of various risk-weighted consequences and options in the approvals process.

The EPA's guidelines specifically state that invoking the precautionary principle:

- does not mean that all developments with uncertain environmental, social or economic outcomes should not proceed. Alternatives must be carefully explored at the outset to respond to threats of serious or irreversible damage to the environment.
- when there are significant uncertainties about risks of damage, the options include refusal, deferral of approval, or conditional or staged approval. Conditional or staged approval means impacts should be able to be reversed until there is greater certainty about the risks. If possible, the impacts of the decision should be monitored at each step, to assist in making decisions on the next course of action.

Ways in which officers can apply the precautionary principle in licensing include:

- encouraging cleaner production from the outset
- setting appropriate limits in licence conditions, including safety margins when risks are high
- attaching pollution reduction programs to licences to progressively reduce pollution over time
- ensuring monitoring and reporting procedures are in place to improve information and transparency in decision making
- encouraging industry to conduct regular environmental audits
- promoting assessment of options and consideration of worst case scenarios before reaching decisions
- seeking predictive information or modelling to improve the understanding of possible impacts and examine cumulative impacts, where possible, when assessing specific developments.

This approach is also consistent with the principles being implemented for the EPA's new risk-based licensing system for NSW (see Chapter 2 for more details).

The guidelines note that for inter-generational equity to occur, efforts should be made to ensure that at least an equivalent set of environmental, economic and social opportunities are available for succeeding generations. Ways in which EPA officers can apply the principle of inter-generational equity in licensing include:

- promoting assessment of options to clarify the consequences for future generations, preferably using an appropriately long timeframe
- setting licence limits to ensure the environment is not degraded

- promoting cleaner production to minimise waste and pollution at the source and achieve energy efficiencies
- encouraging incentives to reduce pollution and waste
- promoting the use of sustainable resources as far as possible
- taking action to prevent cumulative environmental impacts wherever possible;
- using financial assurances to ensure that the cost of repairing environmental damage is met by the present generation.

**Conservation of biological diversity and ecological integrity** is addressed in the guidelines though setting out ways that officers can apply the principle:

- considering available information and indicators of biodiversity when assessing proposals
- applying policy frameworks that promote biodiversity conservation
- applying total catchment management principles and integrated pollution control
- encouraging urban and transport planning approaches to conserve biodiversity
- reducing emissions by developing pollution reduction programs with industry.

See Chapter 2 for information on **valuation, pricing and incentive mechanisms** particularly the load-based licensing scheme and trading mechanisms.

### **1.5.2 Contaminated sites management order**

The objective of a contaminated sites management order is to establish a framework to mitigate risks associated with contaminants and to prevent the further migration of the contaminants offsite. Similar to the consideration of ESD as above for EPLs, when preparing a management order for a significantly contaminated site under the *Contaminated Land Management Act 1997*, in accordance with section 9(1) of the Act, ESD principles comprise a standard set of considerations by EPA officers in framing a management order.

### **1.5.3 Pollution reduction programs**

Within EPLs an important tool for ESD is the use of a condition that a licensee must carry out a pollution reduction program (PRP). PRPs are very flexible and aim to reduce the environmental impact of an activity over time. The PRP can include requirements to carry out works or install plant to prevent, control, abate or mitigate pollution, and can require the commissioning of independent studies to inform the development of the best abatement options. PRPs are another clear example of integrating environmental and economic considerations, and a number of specific examples of how the EPA uses PRPs are contained in Chapters 5–19.

### **1.5.4 ESD in sentencing**

When the EPA is successful in prosecuting an offence, in sentencing the Court may take into account the principles of ESD, including the polluter pays principle.

Justice Preston has observed that<sup>9</sup> the polluter pays principle is an economic rule of cost allocation. The principle involves the polluter taking responsibility for, or internalising, the external costs (environmental, economic and social) of their own pollution. Under the polluter pays principle, the polluter should pay for the costs of:

- preventing pollution or reducing pollution to comply with applicable standards and laws
- preventing, controlling, abating and mitigating damage to the environment caused by pollution

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<sup>9</sup> Preston, Brian J, *Water and Ecologically Sustainable Development in the Courts* [2009] MqJILCEnvLaw 6; (2009) 6 Macquarie Journal of International and Comparative Environmental Law 129

- repairing any resultant environmental damage, such as cleaning up pollution, restoring the environment and making reparation (including compensatory damages and compensatory restoration) for irreparable injury.

Continuous reforms to environmental legislation administered by the EPA have provided the Court with the necessary tools to ensure the polluter pays principle can work effectively through sentencing options. In further expression of the polluter pays principle, amendments to the POEO Act in 2013, which will be supplemented by amendments currently before Parliament, propose (amongst other amendments) that monetary benefit orders (MBOs) will be more readily available to the EPA under the POEO Act, the *Contaminated Land Management Act 1997* and the *Radiation Control Act 1990*. These amendments will make it easier for the EPA to seek monetary benefit orders and will also expand the cases in which the EPA can seek such orders.

A monetary benefit order puts the defendant back in the position they would have been in if they had complied with the legislation. It involves the Court making an order to recover the monetary benefit obtained by the offender in committing the crime. This is in addition to any penalty imposed such as imprisonment, a fine or environmental restoration order so the penalty will not just represent 'the cost of doing business'.

The EPA is currently working on a calculation protocol that will facilitate the EPA seeking such orders in the Land and Environment Court in sentencing proceedings. The advantages of a protocol are that it is transparent, repeatable, equitable and defensible in Court.

A second amendment currently before the Parliament provides for restorative justice orders. At present, while the Court has the power to make an order for restoration of the environment, the new provisions will permit an order to be made that benefits the community that has been impacted on by the offence.



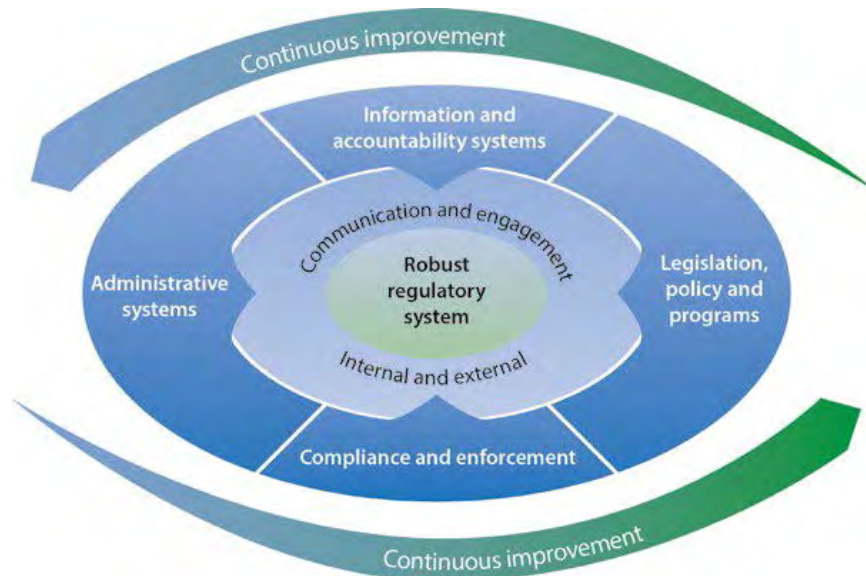


## Chapter 2: EPA toolbox

### 2.1 Introduction

The EPA has a robust and credible regulatory system that incorporates four key elements:

- **clear and appropriate legislation, policies and programs** that underpin and guide EPA regulatory decisions, approaches and strategic directions
- **administrative systems** to support the EPA's statutory functions, financial management and programs
- **information and accountability systems** – information provides the knowledge and data that allow for problem identification and decision making, while systems record the decisions taken to measure, report on and review performance, and to help determine environmental and compliance priorities
- **compliance and enforcement**, which provide understanding and assistance to the regulated community through education and support campaigns; compliance assurance activities, such as inspections and audits; and enforcement action to address non-compliances.



Effective two-way communication between the EPA and business, the community and government is integral to all elements of the regulatory system to ensure that the EPA:

- forms strong and productive relationships
- effectively communicates its regulatory approaches and actions, including why decisions have been made and the outcomes it expects.

This chapter will look at how the EPA regulates and makes decisions:

- Section 2.2 provides a brief overview of the role of **risk assessment** and how that informs the decisions taken at every level within the EPA.
- Section 2.3 examines the EPA's approach to managing **new or emerging environmental problems** especially those that are not yet anticipated in existing programs or legislation. This also applies to a review of existing policies or legislation.
- Section 2.4 explains the EPA's role in the **planning process** where significant environmental gains can be made at the strategic planning level and in site-specific development assessment.

- Section 2.5 explains the EPA's **compliance framework**, examining ways in which compliance decisions are made, including whether or not to prosecute; the central role of licensing in setting the criteria for environmental management by large industrial or government activities; and an introduction to the role of the EPA Operations Officers.

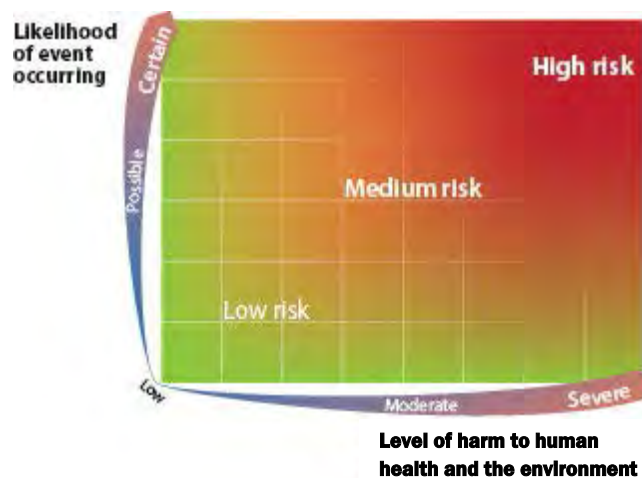
## 2.2 Risk-based regulation

The EPA applies a responsive and risk-based approach to its regulatory functions. In an environmental context, risk is measured in terms of the likelihood of an event occurring and the level of harm to human health and the environment if the event occurred.

Applying a risk-based approach helps the EPA make informed regulatory decisions that ensure its compliance and enforcement activities focus on the highest risks to the environment and health, and target the activities of those who are least likely to comply. This approach is consistent with the Australian/New Zealand Joint Standard on Risk Management (AS/NZ ISO 31000:2009) and internal risk management policies and procedures.

The EPA considers the following factors when it assesses environmental risk:

- the environmental medium involved (water, noise, air, odour, waste, native forestry, biodiversity, contaminated sites, hazardous substances – chemicals, pesticides and radiation)
- the processes and operations that may have an impact on the environment and the controls that avoid or mitigate them
- the sensitivity of the local environment, such as proximity to residential premises or waterways, or the impacts on the local or regional air shed
- the compliance history of businesses or people being regulated.



**EPA's environmental risk matrix**

## 2.3 Environmental problem definition and policy approach

The development of new policy is always evidence based. It starts with a thorough identification and analysis of the problem to be solved and the improvement sought. The following principles are applied in the development and implementation of new policies to give effect to interventions for protecting, restoring and enhancing the environment and reducing the risks to human health:







- build and act on the evidence to ensure a rigorous evidence base for policies and programs

- use innovative and effective tools by combining regulation and education, business and community partnerships and economic mechanisms
- develop least cost pathways to maximise net benefits using robust economic analysis
- engage with and inform the community
- collaborate with all levels of government – NSW, local and national.

A good example of this approach is in the management of air particles:

### *Continuous improvement cycle: how the EPA manages air particles*

The EPA prioritises and targets pollution control actions to areas where population health is most affected and to the most polluting activities impacting on public health in those areas. For particles, as for other air pollutants, the steps in developing a set of actions are similar:

-  **Ambient air quality monitoring** to characterise regional air quality, show where national particulate matter goals are and are not being met or are threatened, and focus EPA attention where action is needed
-  **The EPA air emissions inventory** to quantify emissions from all sources in the NSW Greater Metropolitan Region and identify the principal sources of particles impacting on air quality in a region
-  **Particle characterisation studies** to examine the characteristics of particles to determine what sources are impacting on an areas' ambient air quality and in what proportions
-  **Particle modelling** to estimate future concentrations of particles under different scenarios and what emission reductions are required to achieve air quality targets
-  **Research and economic analysis** to identify and develop best practice particle control measures that are feasible and cost-effective and will deliver the greatest overall gains for the community
-  **Stakeholder communication and consultation** to understand how communities and businesses are impacted on, increase community understanding of air quality issues and provide greater opportunity for stakeholders to provide input into EPA initiatives to improve air quality in NSW
- Continued monitoring, modelling and evaluation** of specific strategies, including further consultation, to provide feedback to assess and continue improving EPA management of particles.

Chapters 5–12 illustrate ways in which strategy, policies, programs, compliance and enforcement, and stakeholder consultation combine to produce better outcomes for the environment and manage risks to human health.

## **2.4 The EPA and planning**

Based on the precautionary principle, the EPA takes the view that preventing pollution by engaging in strategic planning and development assessment processes upfront is more effective than imposing conditions once approvals have been obtained.

Under the [Environmental Planning and Assessment Act 1979](#), (EP&A Act) the EPA is involved in:

- strategic land use planning
- the pre-planning and the subsequent development assessment process.

#### **2.4.1 Strategic land use planning: environmental planning instruments**

The EPA is consulted by the Department of Planning and Environment (DPE) about potential impacts on air or water quality, and on noise management when it makes or amends state environmental planning policies that set requirements for development that has an environmental impact; or in relation to strategies such as to deliver employment and housing growth, or regional plans.

The EPA is also consulted by local councils when making or amending local environmental plans and development control plans.

In addition, the EPA advises on other matters it regulates including waste, chemical and radiation issues.

##### ***Lockhart Local Environmental Plan***

The EPA encourages councils to establish dedicated industrial zones in their local environmental plans to accommodate industries where potential land-use conflicts may arise if sited elsewhere. Industrial zones are designed to be close to all the required services, including road and rail access, but well separated from sensitive land uses such as housing.

In 2012–13, land-use conflicts arose in the Lockhart Local Government Area between residential and commercial zones, leading to complaints about noise to both the local council and the EPA.

Following discussions with the EPA, Lockhart Shire Council identified land and rezoned it to create Lockhart Industrial Park, which is surrounded by predominantly agricultural land. This simple and effective strategy allows for the consolidation of industries into a single industrial service centre for the agricultural sector while also protecting sensitive land uses like residential areas from such issues as noise and odour emissions.

#### **2.4.2 Pre-planning processes**

The EPA has a significant role in pre-planning major development and infrastructure proposals. The EPA:

- regularly liaises with proponents and informally provides advice on plans for development projects
- generally participates in steering groups who scope development projects before an environmental impact assessment is conducted and a planning application is submitted
- may comment on draft planning documents for major projects.

#### **2.4.3 Development assessment**

The EPA is consulted by DPE and local government on any development application, where the proposed activity will later require an environment protection licence (EPL) from the EPA.

Integrated development assessment procedures streamline the approval process for developments that require consent under Part 4 of the EP&A Act and approvals under other legislation, such as an EPL.

The EPA also has an advisory role only for state significant development and state significant infrastructure.

The EPA:

- sets out the environmental criteria to be addressed in the environmental impact assessment
- reviews the environmental impact assessment report (EIA) and supporting documentation
- requests more information if required
- assesses the development application and the EIA, and either refuses to grant approval or issues its 'General Terms of Approval' – these terms of approval constitute the general licence conditions for the activity that is the subject of the development application and, if approval is granted, the EPA is obliged to issue the corresponding EPL
- provides comments on environmental standards for state significant development and state significant infrastructure.

The EPA's guidance for both environmental assessment and its general terms of approval include consideration of the principles of ecologically sustainable development (see Chapter 1).

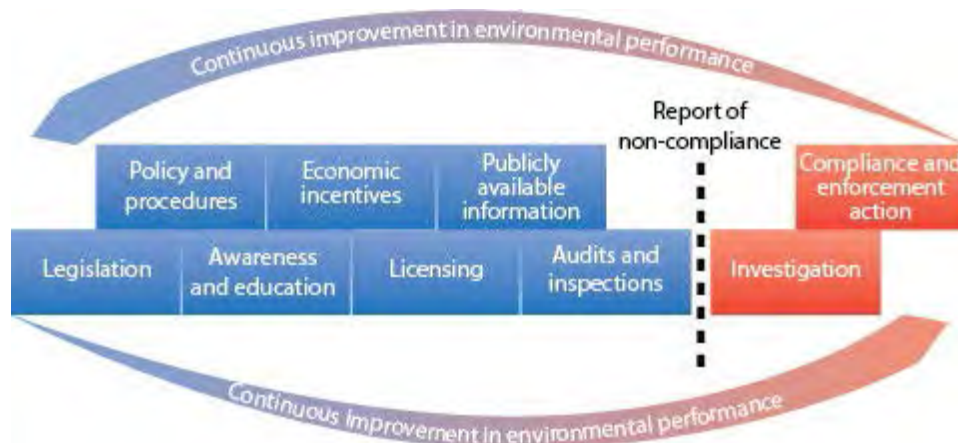
## 2.5 The EPA compliance framework

The NSW Government, the community and business expect that the EPA will promote compliance with relevant legislation and deliver improved environmental outcomes.

The EPA assists those it regulates to understand and meet their legislative obligations and drives compliance through transparent, consistent and accountable regulatory actions that target those who choose not to comply with the law.

The EPA continually evaluates the effectiveness of its compliance approaches and, where they are not working, changes them or develops new approaches.

The EPA's regulatory framework consists of an integrated series of components, including legislation, policy, education, incentives, licensing, the community's right to know, audit, investigation, and compliance and enforcement action.



### 2.5.1 The EPA's approach to compliance

Compliance and enforcement actions are most effective when they raise environmental awareness and encourage behavioural change. These changes in attitudes and behaviour improve compliance rates and secure long-term environmental improvements.

The EPA identifies what motivates business and individuals to comply with the law, and the factors that lead to non-compliant behaviour. This approach helps in understanding the



causes for non compliance and in deciding the appropriate tool to use to reduce incidences of reoffending and repair environmental damage.

The EPA escalates its regulatory response according to the risk to the environment and human health, the seriousness of the non-compliance, the apparent attitude to compliance, and the compliance history and frequency of issues arising. The following figure provides a hierarchy of the types of regulatory tools the EPA may use to influence positive changes in attitudes and behaviours.



Adapted from Ian Ayres & John Braithwaite (1992), *Responsive Regulation: Transcending the deregulation debate*, Oxford University Press, New York

### Establishing compliance priorities

Priorities for the EPA's compliance efforts are based on achieving significant outcomes for the environment while making the best use of available resources.

Identifying the most important environmental problems allows the EPA to decide what compliance priorities it will focus on and maximises the return on available resources. To identify the problems and their associated environmental risks, the EPA collects and analyses data from a range of information sources, including:

- feedback from the community
- results of industry site monitoring
- information from EPA reporting systems, such as the Air Monitoring Network, and local and regional monitoring networks
- inspections, campaigns and audits
- trends in non-compliances
- analysis of reports to the EPA Environment Line
- information from other sources, such as the National Pollutant Inventory, the EPA Air Emissions Inventory, and NSW State of the Environment reports.

### Providing information and compliance assistance

The EPA provides information to the regulated community to promote understanding and encourage voluntary compliance. Being clear about the environmental outcomes expected helps remove barriers to compliance and overcomes factors that encourage non-compliance. It also raises awareness about the benefits of complying with legislation as well as the potential consequences of failing to do so.

Education programs, formal and informal advice, campaigns and audits are some of the proactive approaches the EPA uses to achieve compliance and environment protection. These are tailored to areas where there are environmental risks or where there may be a lack of understanding about compliance. The EPA also adapts its education and communication approaches as required to meet the needs of sometimes diverse industry sectors, such as using bilingual extension services to reach users of pesticides from various cultural backgrounds.

The EPA maintains several public registers that can be accessed online to search for information about specific companies, circumstances or events, such as environment protection measures and regulatory actions. These registers include information about EPLs, licence applications, notices issued under the [\*Protection of the Environment Operations Act 1997\*](#) (POEO Act) and pollution studies and reduction programs; contaminated sites, determinations, exemptions and approvals, transport of dangerous goods and native forestry approvals.

The EPA also provides targeted assistance to the regulated community and, in some cases, the general public to encourage compliance with regulatory requirements. Assistance can be general in nature or specific, relating to a particular environmental issue.

The EPA works with other government agencies, peak bodies, the community and local councils to facilitate access to information regarding protection of the environment.

### Using economic incentives

Economic incentives that the EPA uses to improve environmental outcomes include:

- the Waste and Environment Levy – the EPA administers this levy which provides a financial incentive that drives waste avoidance and resource recovery
- the Hunter River Salinity Trading Scheme – this tradeable emissions scheme manages discharges of saline water in the Hunter River catchment; the scheme uses a credit trading system to regulate the timing and quantity of the discharges
- load-based licensing – this ‘polluter pays’ scheme applies to the biggest activities in the state and puts a price on pollution by establishing a pollutant load fee to reduce air and water emissions.

### Compliance monitoring

The EPA monitors and determines levels of compliance with the requirements of legislation, licences and other statutory instruments. The aim is to ensure that incidents of non-compliance and any potential impacts do not occur. Mechanisms used to monitor compliance and detect breaches include:

- **Environment Line reports** – these public reports assist the EPA in identifying potential environmental impacts and non-compliances. The EPA follows up all reports received by the Environment Line.
- **other regulatory authorities** – breaches of regulatory requirements may be detected by officers from other regulatory authorities during their own compliance activities or as part of joint activities with the EPA.
- **industry accountability and monitoring** – the EPA requires regulated industry to report on its compliance, particularly:
  - all environment protection licensees must provide an annual compliance statement detailing their compliance with licence conditions – the statement must be signed off by the Chief Executive Officer or equivalent
  - the POEO Act requires notification to the EPA and other relevant authorities immediately material harm to the environment or human health is caused or threatened
  - all licensees must have a pollution incident response management plan that includes protocols for notification of an incident.

- **inspections and campaigns** – the EPA uses routine site inspections to collect information and monitor compliance as well as campaigns to raise awareness or crack down on particular environmental issues that arise, especially when they are common or widespread.
- **audits** – the EPA uses various audit tools to assess compliance and environmental performance, including:
  - mandatory environmental audits conducted by an agreed third party, which may be required as a condition of an EPL
  - accredited third party auditors (the Site Auditor Scheme) for contaminated land
  - compliance audits by EPA officers (generally unannounced)
  - statewide strategic environmental compliance and performance reviews to assess compliance and benchmark performance.

These reporting requirements and audit findings are also used to inform the regular licence reviews required under the POEO Act. These licence reviews ensure that licence conditions are appropriate, reasonable, understandable and enforceable and provide an opportunity for public involvement in the licence conditions.

- **investigations**, which assess, report or detect incidents of alleged environmental harm or other breaches of legislation to determine the priority for further compliance and enforcement action.

### Choosing the appropriate compliance action

Any action taken by the EPA will aim to ensure that environmental impacts are minimised, contained or repaired, and the sanction applied reflects the seriousness of the incident and provide a deterrence.

When identifying the appropriate compliance action to take, the EPA considers the following:

- the enforcement measures necessary to ensure compliance and produce the best environmental outcome
- the seriousness of the incident, based on its actual or potential impacts on the environment and the community
- the potential or actual risk of environmental harm caused by the incident
- voluntary action by the offender to mitigate any harm to the environment from the incident, and any mechanisms put in place to prevent a recurrence
- failure by the offender to notify or delay notification of the incident as required
- failure by the offender to comply with EPA requests, lawful directions or statutory notices
- cooperation with the EPA by the offender and their willingness to commit to appropriate remedial actions
- whether effective implementation of measures or procedures to address impacts are already in place
- the offender's history of compliance with EPA legislation and the frequency of offences committed by them
- whether the offender has made false or misleading statements about the incident
- the culpability of the offender, including any mitigating or aggravating circumstances
- public interest and community expectation about the action taken to provide specific or general deterrence
- any precedent which may be set by not taking action
- statutory time limits for taking action
- the legislative procedures and policy requirements, including potential rights of appeal.

Factors for deciding whether to pursue a prosecution are contained in Section 2.2.8 of the [EPA Prosecution Guidelines](#).



### *Compliance and enforcement tools*

The EPA uses various approaches and tools to address the environmental issues and non-compliances it detects:

- **advisory letters** may be appropriate where it is considered possible that a breach has occurred but there is insufficient evidence. Advisory letters often remind licensees of their compliance responsibilities and the need to meet and avoid any future breaches.
- **formal warnings** are used for incidents where the aim is to avoid escalating environmental harm or the opportunity exists to achieve prompt voluntary compliance with legislative requirements where the non-compliance is not serious.
- **show cause letters** invite the recipient to explain an alleged breach of environment protection legislation, and may request details of the incident, the recipient's response to the incident and any mitigating circumstances.
- **official cautions** may be appropriate in situations where the offence is minor in nature or was not knowingly or deliberately committed. It does not prevent the EPA from taking alternative enforcement action later if it becomes apparent that this response is more appropriate.
- **pollution reduction programs** may be required to improve the environmental performance of environment protection licensees and reduce pollution. These are legally binding and generally require licensees to undertake studies before addressing environmental problems by, for example, significantly upgrading controls and equipment.
- **variation, suspension or cancellation of regulatory instruments** may be used to vary a regulatory instrument, such as an EPL, if the regulated party is not complying with its conditions. For very serious issues, the EPA can suspend or revoke a regulatory instrument.
- **notices, directions and orders** are available under various laws to address environmental harm that has occurred or is about to occur. Not meeting the requirements of these laws is an offence. These instruments include:
  - clean-up notices
  - prevention notices
  - compliance cost notices, to recover EPA costs associated with clean-up or prevention notices
  - notices to recover the costs of human health, and environmental risk analysis.
- **mandatory environmental audits** may be required of licence holders where there is a history of poor environmental performance. These audits, undertaken by a qualified environmental auditor, aim to improve the environmental performance of a licensed operation where other approaches have failed or there has been a history of non-compliance.
- **penalty notices** can be issued under a wide range of legislation administered by the EPA and allow the person served with the notice to pay a fine rather than have the alleged offence dealt with in Court. While they are primarily designed for one-off minor breaches that can be remedied easily, penalty notices are also used in conjunction with other regulatory tools in response to an offence, especially when the circumstances of the case do not meet the criteria for prosecution (see below).
- **enforceable undertakings** are an alternative to administrative action where there has been a serious breach of legislation. Under the POEO Act, the EPA can accept a written undertaking from a company or individual to take action to deal with an actual or potential breach. This gives the EPA a legislative basis for negotiating environmental

improvements, enforceable by the Court. When choosing between civil or criminal action, the EPA will select the approach which is most likely to produce the best results in terms of ongoing compliance, redress for environmental harm and obtaining a lasting benefit for the environment.

- **prosecution**, the basic pre-requisite for any prosecution is that the evidence available establishes a *prima facie* (that is, legally sufficient) case. For serious breaches or repeat offenders, prosecution may be the appropriate option. However the EPA will examine the compliance tools available and severity of the offence and may proceed with prosecution if this is the most appropriate course of action, consistent with the EPA Prosecution Guidelines.

## Prosecution

Parliament has recognised that prosecution may not always be the appropriate response to an alleged non-compliance with environment protection legislation. The EPA has a discretion as to how to proceed in relation to environmental breaches and section 219(3) of the POEO Act envisages that the EPA may pursue non-prosecution options to prevent, control, abate or mitigate any harm to the environment caused by an alleged offence or to prevent the continuance or recurrence of an alleged offence.

Under the [Prosecution Guidelines of the Office of the Director of Public Prosecutions NSW](#), the dominant factor in the exercise of that discretion is the public interest. Prosecution will be used, therefore, as part of the EPA's overall strategy for achieving its objectives. Each case will be assessed on its merits to determine whether prosecution is the appropriate regulatory response. It will be used as a strategic response where it is in the public interest to do so.

### *Prosecutions: Orica at Kooragang Island and Botany*

The EPA took action in the NSW Land and Environment Court, with nine charges brought against Orica for pollution incidents at its Kooragang Island and Botany plants, heard on December 2012. The EPA's prosecution of Orica involved thorough investigations into the pollution incidents that occurred from October 2010 to December 2011 by EPA operational staff, specialist investigators, expert scientific officers and the legal team. This included six pollution incidents at Orica's Kooragang Island plant and one incident at Orica's Botany plant.

In a landmark decision by the Court, Orica Australia Pty Ltd was convicted and penalised \$768,250. This included a fine of \$211,750 for the pollution incident that affected residents of Stockton, Newcastle, on Monday 8 August 2011. This is the largest penalty handed to a company by the NSW Land and Environment Court for a series of prosecutions brought by the EPA.

The NSW Land and Environment Court also required Orica to pay the EPA's investigation costs of approximately \$65,000 and the EPA's legal costs.

The Court ordered that the fine be paid to fund six projects in Newcastle and one at Botany aimed at restoring and enhancing the environment. The projects were developed through consultation with the affected community:

- The Hunter River Health Monitoring Program
- The Lower Hunter Particle Characterisation Study
- The Stockton Cycleway Revegetation Works
- The Restoration of Kooragang Dykes
- The Tomago Wetland Rehabilitation Project
- The Pitt Street Reserve Public Domain Enhancement
- The Bush Regeneration Project for Sir Joseph Banks Reserve.

The sentence is a good outcome and precedent.

In addition, the EPA's regulatory actions have directly influenced Orica's decision to invest more than \$200 million to upgrade their Kooragang Island, Newcastle Plant.

The EPA has an admirable success rate in environmental prosecutions, with an over 95% success rate for 2012–14. In 2012–13, 72 prosecutions were completed during the year, resulting in 69 convictions, 0 matters where the offence was proven but a conviction was not recorded and 3 acquittals. In 2013–14 EPA completed 59 prosecutions, resulting in 54 convictions, 2 matters where the offence was proven but a conviction was not recorded and 3 acquittals.

### ***Getting the balance right: compliance outcomes at the Rosalind Park coal seam gas facility***

A compliance audit undertaken by the EPA at the AGL's Rosalind Park coal seam gas facility found a number of non-compliances that were assessed as either of lower environmental risk or related to administrative/monitoring or reporting requirements (considered important to the integrity of the regulatory system).

ALG had already taken a number of actions to address non-compliances and prevent similar ones in future. Although there was no significant damage, to enhance the local environment and provide a deterrent to further non-compliances, the EPA determined that an enforceable undertaking requiring environmental restoration would be a timely and effective response. The views of the AGL Community Consultative Committee and local residents were sought on appropriate environmental works as part of the enforceable undertaking. AGL was required to pay \$150,000 to the University of Western Sydney for the project: 'Love your lagoons: place based learning and environmental action in South-Western Sydney'.

In addition, penalty notices associated with the breaches were issued.

Prosecution would have had uncertain outcomes in the absence of significant environmental harm. In addition, any financial penalties would be retained in consolidated revenue, rather than benefiting the local environment. Prosecution would also have involved significant delays and the use of EPA resources that were required for cases more suitable for prosecution.

Factors which alone or in conjunction arise for consideration in determining whether the public interest requires a prosecution include:

- (a) the seriousness or, conversely, the triviality of the alleged offence or that it is of a 'technical' nature only
- (b) the harm or potential harm to the environment caused by the offence
- (c) any mitigating or aggravating circumstances
- (d) the degree of culpability of the alleged offender in relation to the offence
- (e) the availability and efficacy of any alternatives to prosecution
- (f) the antecedents of the alleged offender and whether the alleged offender had been dealt with previously by prosecutorial or non-prosecutorial means
- (g) whether the alleged offender had been prosecuted by another agency for a related offence, arising from the incident for which the EPA is considering prosecution
- (h) whether the breach is a continuing or repeat offence
- (i) whether the issue of Court orders are necessary to prevent a recurrence of the offence or to recompense for the harm caused by the offence

- (j) the prevalence of the alleged offence and the need for deterrence, both specific and general
- (k) the length of time since the alleged offence
- (l) the age, physical or mental health or special infirmity of the alleged offenders or witnesses
- (m) whether there are counter-productive features of the prosecution
- (n) the length and expense of a Court hearing
- (o) the likely outcome in the event of a finding of guilt, having regard to the sentencing options available to the Court
- (p) any precedent which may be set by not instituting proceedings
- (q) whether the consequences of any conviction would be unduly harsh or oppressive
- (r) whether proceedings are to be instituted against others arising out of the same incident
- (s) whether the alleged offender acted in accordance with EPA advice or advice from another government agency
- (t) whether or not the alleged offender is willing to cooperate or has cooperated in the investigation or prosecution of others.

### ***Stronger environmental penalties and alternative sentencing options***

Over the last two years, the Government and the EPA have particularly focused on strengthening penalties and making available to the Court a full suite of sentencing options for greater consistency across environmental legislation.

In 2013, amendments were made to the POEO Act to tackle the problems associated with a growing problem of illegal waste dumping that:

- introduced a new penalty of imprisonment for repeat waste-related strict liability offences
- provided the EPA with powers to seize vehicles for repeat waste-related offences and allowed forfeiture on conviction of an offence
- introduced the offence of fraudulently providing false or misleading information in relation to waste, that included imprisonment
- facilitated the use of monetary benefits orders by the Court by providing for the use of a monetary benefits calculation model.

A Bill that is currently before Parliament will provide a consistent range of orders to the Court to align with the POEO Act, where appropriate, when an offence is proven under the Contaminated Land Management Act and the Radiation Control Act. These include orders to:

- publicise the offence
- provide financial assurance
- restore or enhance the environment
- recover monetary benefits accruing to the offender from the offence
- attend training
- establish a training course.

The Bill also includes the option of a restorative justice order that is not restricted to benefiting the environment, but may instead directly benefit those affected by an offence.

In line with the amendments introduced last year in the POEO Act, the Regulations under these Acts will prescribe higher penalties for repeat offenders.

At the same time, penalties for offences under the Contaminated Land Management Act will increase significantly to align with the POEO Act which already has some of the highest maximum penalties in Australia for environmental offences.

The Government has also increased by up to ten-fold penalty notice amounts for the ten most serious environmental offences.

### ***2.5.2 Environment protection licences***

The POEO Act includes a schedule of activities that require an EPL. These activities have been included in the Act based on their potential for impacting on the environment.

EPLs set legally binding operating conditions, concentration and load limits for pollutants, monitoring and reporting conditions and special conditions to prevent or reduce pollution.

All licence holders must:

- comply with the conditions of their licence
- [prepare pollution incident response management plans](#)
- publish and make pollution monitoring data available
- pay annual administrative fees and, in some cases, [additional load-based fees](#)
- [submit annual returns reporting on their level of compliance](#).

Information on EPLs is available on the EPA's on-line [public register](#), which also contains information on licence reviews, prosecutions and other related issues.

The EPA manages a [strategic compliance audit program](#), which assesses ways in which licence holders comply with existing requirements and provides industry with examples of best practice to encourage improved environmental performance.

The annual licence fee is made up of two components:

- an administrative fee based on the type and scale of licensed activity
- where applicable, a load-based fee proportionate to the quantity and types of pollutants discharged and the conditions of the receiving environment.

### **Load-based Licensing Scheme**

The Load-Based Licensing Scheme (LBL scheme) links fees to pollutant loads by placing a price on pollutants. It is an economic incentive that applies the 'polluter pays' principle of ecologically sustainable development to provide a greater incentive for licensees to control, reduce and prevent air and water pollution.

The load-based fee is proportionate to the quantity and types of pollutants discharged and the conditions of the receiving environment.

The LBL scheme complements a standard licensing approach to pollution control because it provides a financial incentive and price signal to go beyond compliance with licence conditions and use the best available actions to reduce pollution. Under the LBL scheme, industry is required to pay fees for pollutants emitted, but is able to reduce the fees payable through pollution controls or reuse programs.

The EPA is currently undertaking a wide-ranging [review of the LBL scheme](#), aiming to:

- assess whether changes are needed to ensure the scheme achieves its objectives as per clause 13 of the [Protection of the Environment Operations \(General\) Regulation 2009](#)
- improve the effectiveness of the LBL scheme in driving reductions in air and water pollutant emissions
- improve the efficiency and ease of use of the scheme for licensees and the EPA

- ensure the scheme has a range of tools that can be used to respond to emerging pollution-related issues.

### **Risk-based licensing**

The EPA has introduced a [risk-based licensing](#) system that will commence on 1 July 2015. Risk-based licensing aims to ensure that all environment protection licensees receive an appropriate level of regulation based on the environmental risk of the activity. This allows the EPA to better target regulatory efforts to high risk and poor performing licensees.

The EPA will assess the site-specific risks posed by each licensed activity and identify any environmental issues that a licensee needs to address, and where the EPA needs to focus its regulatory attention.

The EPA will undertake an environmental risk assessment with each licensee. Licensees with a higher risk level will receive an increased level of regulatory and compliance oversight and higher fees, whereas licensees with a lower risk level will benefit from reduced red tape and a reduced regulatory burden and lower fees.

The risk levels allocated to each licence will be available on the EPA's [public register](#), providing the community with more information on the environmental risks and compliance performance of licensees.

Risk-based licensing will also provide greater transparency and insight into the EPA's regulatory decision-making process.

In conjunction with risk-based licensing, the EPA is implementing a licence fee structure that provides financial incentives for licensees to improve and maintain environmental performance and compliance. Licensees who perform well and minimise their environmental risk will be rewarded with reduced administrative fees, while poor performing licensees will need to pay higher licence fees.

From September 2014, the EPA will progressively undertake a risk assessment of each facility that holds an EPL. The outcomes of these assessments will inform where the EPA needs to focus its regulatory attention.

The EPA will work closely with licensees as the risk assessments are being undertaken to ensure that all relevant issues are considered, and the risk assessment outcomes are well understood. The EPA sees this as an important chance to have a new conversation with licensees about their performance and the EPA's priorities.

Undertaking formal, structured and evidence-based risk assessments of all licensed activities provides a significant opportunity for the EPA to directly engage licensees and review all 2,564 licensed premises, to identify environmental risks and the steps that can be taken to reduce those risks.

### **2.5.3 The work of EPA operational officers**

Although many of the EPA's achievements take place behind the scenes, putting in place frameworks to support medium-term to long-term targets, the community generally knows of the EPA through the work of its officers, for example:

- the 24/7 Environment Line that receives reports of environmental impacts, incidents or risks
- the EPA's management of prominent environmental incidents and compliance and prosecution actions, as well as community education campaigns such as 'Hey Tosser' for litter
- 'unlicensed' businesses interact with the EPA when the EPA implements policies and programs that improve sector performance or respond to serious environmental incidents (local government otherwise generally regulates the environmental performance of this sector)



- facilities that are required to hold EPLs (there are currently 2,564 EPLs) or other licensing requirements, environmental orders or permits – generally larger industry, local government and some other government agencies – have contact with the EPA through approvals, licence or permit conditions, audits, pollution reduction programs, compliance and enforcement activities and pollution incident response.

These aspects of the EPA's work are managed by operational staff throughout NSW although to ensure efficiency of delivery, offices are generally based in Sydney and the larger regional centres.

While staff located in Sydney have specific responsibilities or specialities, those in regional offices are responsible for administering environment protection legislation covering air and water quality, waste, contaminated land, noise control, pesticides, hazardous chemicals and transport of dangerous goods. Their responsibilities include undertaking a wide range of regulatory activities including coordinating the EPA's response to major incidents during business hours and through an After Hours Incidents Service, investigating pollution reports, inspecting premises and issuing EPLs. Some offices also have specialist staff dealing with waste, forestry and threatened species.

Operational staff work with the community, industry, business and government on environmental matters that affect human health or the environment. They not only administer the EPA's legislation but are also responsible for input into land use planning decisions at strategic and site-specific levels.

The work undertaken by operations officers falls broadly into three categories:

- responding to pollution incidents and emergencies
- environmental regulation
- strategic influence.

Each category includes community and other stakeholder engagement.

### ***EPA operations officers***

#### **Respond to pollution incidents and emergencies**

EPA operations officers collaborate with other agencies such as local councils, Fire and Rescue, WorkCover, NSW Health and NSW Police, to respond to and manage incidents that involve actual or potential environmental impact. They:

- respond to emergency situations such as chemical or oil spills
- determine measures to prevent and prepare for incidents that may impact on the environment
- facilitate the protection of the environment during incident response and recovery
- facilitate clean-up of land and inland waters affected by pollution incidents.

#### **Environmental regulation**

EPA officers ensure compliance with relevant environmental regulations and develop approaches for better environmental outcomes. They:

- handle reports from the public via the EPA's Environment Line
- develop and issue licences and other statutory instruments that place controls on activities that could have environmental or human health impacts or require a polluter to undertake specific actions
- regularly assess the adequacy of licence conditions in achieving the intended environmental controls, including the development of and compliance monitoring for pollution reduction programs
- conduct site inspections and audits of premises and activities, to check compliance with relevant licence conditions or regulations – site inspections and audits can be initiated

- by the EPA or carried out in response to feedback from the public
- monitor emissions to check compliance with licence conditions and regulations
- identify and recommend actions to address poor environmental performance of industry, public sector agencies and the general community, to ensure the environment is protected and encourage better environmental performance
- investigate and require follow-up actions including stricter operating conditions
- impose pollution reduction programs, audits and clean up, potential prosecution or other non-regulatory responses, to ensure effective compliance with legislative responsibilities
- investigate incidents to determine the appropriate regulatory response, gather evidence and appear in Court.

### **Strategic influence**

EPA officers influence the attitudes and priorities of the community, industry and public sector. They:

- advise planning authorities through the assessment and review of environmental assessments for local government areas, major projects, sites and premises in relation to environmental requirements, and ensure appropriate regulatory controls are in place – for example, they advise on the adequacy of environmental assessments undertaken by proponents or recommend environmental requirements to be included in development approvals
- contribute to the development of EPA work programs, policies and strategies to address regional issues; and protection of the environment
- advise officers in the EPA and other agencies, and maintain a network with local government, industry, other groups, and the community on regional planning and development issues
- represent the EPA at relevant meetings, committees and conferences
- assess the efficiency of standards and guidelines in protecting the environment.

In addition, they respond to requests for information, maintain and develop professional capacities, and contribute to organisational health and capacity through training others, mentoring, recruiting, planning and reporting.

### **2.5.4 Setting priorities for EPA operations**

Priorities for the EPA's compliance efforts are based on achieving the greatest outcomes for the environment while making the best use of available resources.

Relative priorities for core regulatory actions may be based on factors such as:

- the evidence base – data and information on industry or sector performance
- the risk profile of a particular activity or industry
- emerging or cumulative environmental risks/impacts
- the regulatory history and environmental performance
- implementing strategic initiatives such as the new regulatory scheme of risk-based licensing.

Proactive work is important and, when strategically undertaken can pre-empt some of the reactive work by preventing incidents and non-compliances. This work can offer some of the biggest environmental gains, especially through cumulative impacts of smaller actions.

Each of the EPA's operational areas has to assess the best way of allocating resources to get the best environmental outcomes. This means that operations officers and their managers are making judgement calls every day (every call from the EPA's Environment Line referred to an office gets addressed) and thousands of decisions are routinely made about what actions to take, with what resources, to get the best outcomes.



These decisions are based on assessing where a particular issue is in terms of the relative risk to human health and environmental impact, and may not always meet the expectations of some in the community. However, to meet the EPA's legislated objectives and responsibilities, the EPA needs to stay firmly focused on achieving better environmental outcomes, informed by risk assessment.



## Chapter 3: The EPA and its stakeholders

### 2012–2014 selected highlights

The EPA:

- expanded the public register to include information on environment protection licences (EPLs), penalty notices, prosecutions and records of contaminated sites
- developed and published its Compliance Policy, outlining its approach to regulation and enforcement
- created a new Stakeholder Engagement and Governance Branch to improve engagement with stakeholders
- established new partnerships and worked with consultative committees to develop effective working relationships with stakeholders
- developed and launched a new EPA website
- established an EPA Twitter presence
- launched the new EPA newsletter to inform stakeholders and invite feedback – *EPA Connect*
- surveyed stakeholders to seek frank and honest views of the EPA's performance from all stakeholder groups and the general public
- developed a new EPA-wide Information and Communication Technology Strategy.

### 3.1 Context

The EPA engages with any individual, group and organisation that affects, could be affected by, or who is interested in the EPA's activities.

Mutual respect and trust built on effective two-way communication can lead to more productive relationships which, in turn, will promote better environmental solutions, sound decision-making and improved environmental performance by stakeholders and the general community.

Effective consultation and communication with its stakeholders is fundamental for the EPA to ensure the best environmental outcomes:

- **The community has a right to know** about environmental decisions and outcomes and the EPA's performance as a regulator under the [Protection of the Environment Operations Act 1997](#) (POEO Act).
- **The EPA consults** with the community, business, and government to manage and reduce pollution and waste. To motivate its stakeholders to make informed decisions that lead to better environmental outcomes, the EPA delivers education and awareness programs and informs, consults and engages with stakeholders.
- **The EPA ensures that policy proposals will be effective and efficient** by recognising the valuable contribution that stakeholders make to improving project, policy and operational outcomes, and works productively with stakeholders to ensure that policy solutions when implemented will be effective and efficient. When the EPA develops options for addressing a problem or seeking an improvement, it consults with stakeholders at an early stage to ensure that actions, including potential regulatory measures, are effective, well understood and realistic.
- **The EPA listens to stakeholders about the issues that concern them:** Governments that listen to their citizens are more responsive to their needs. By enabling people to contribute to issues that are important to them, the EPA provides more motivation to take responsibility and improves community outcomes.

- **The EPA develops trust and understanding of its role** by ensuring that the flow of information between stakeholders and the EPA is transparent, accessible and timely, and fostering trust and understanding of its role, approach to decision-making and processes.

Making it easier for stakeholders to interact with the Government through modern, innovative and engaging tools leads to better informed communities, increases opportunities for participation and supports the development of services and policies that best meet the needs of the community.

### 3.2 The community's right to know

The EPA adopted Community Right to Know principles which were brought in under the POEO Act, with the introduction of the public register. Since the establishment of the new EPA, the EPA has introduced further measures to ensure accountability and transparency to the public. This recognises the EPA's important role in providing information to government, industry, business, media and the community about environment protection and regulation and the [state of the NSW environment](#).

The EPA provides information to the community about its performance in several ways:

- reporting e.g. State of the Environment Report, annual report, audit reports
- public registers of information on EPLs, penalty notices, prosecutions and records of contaminated sites
- release of data and other statistics, and information on current incidents
- release of its environmental audits
- release of EPA policies under the Government Information Public Access Act
- standards and environmental requirements
- industry compliance and best practice
- explaining legislation via guidelines
- educational and technical information
- media releases.

This information is available online or from EPA offices, the EPA Library, or by telephoning Environment Line on 131 555.

#### 3.2.1 Expanding the public register and information disclosure requirements

The EPA legislated for new standards of disclosure by expanding the public register to include mandatory environmental audits, pollution studies, pollution reduction programs and penalty notices.

Before 2012, there was no requirement for industry to make its environmental and pollution monitoring data publicly available. The government and the EPA brought in mandatory requirements for industry to make its pollution monitoring results available through a website or hard copy to any member of the public. These results include information about mandatory environmental audits required by the EPA and undertaken by industry, pollution studies and pollution reduction programs required by licence conditions and the details of penalty notices issued by a regulatory authority.

The EPA has written guidance materials to ensure that licensees provide this information in a meaningful way, presenting data which is practical for licensees but can also be easily understood by the public.

The EPA displays regulatory actions and prosecutions on its public register on the EPA website.

## Public registers

Information about specific businesses and activities is required under EPA laws to be publicly available. This information can be accessed on the EPA website. Any person can use the public registers to lodge or search for information about:

- EPLs
- prosecutions under environmental law
- contaminated land sites
- dangerous goods in transit
- approved property vegetation plans
- forest agreements and operations approvals
- the Hunter River Salinity Trading Scheme.

There is information about specific companies and specific circumstances or events, such as environment protection measures and regulatory actions.

There are Privacy Act exemptions for public registers maintained by the EPA where persons have the right to request their personal details to be suppressed for reasons of protection and security.

### Protection of the Environment Operations Act (POEO) public register

[This register](#) contains information about EPLs, licence applications, notices issued under the POEO Act, pollution studies and reduction programs, and other regulatory information such as convictions and results of civil proceedings.

### Contaminated Land Public Record

This record contains information about contaminated sites and other details required under the *Contaminated Land Management Act 1997* and the *Environmentally Hazardous Chemicals Act 1985*.

The contaminated land public record is a searchable database of:

- orders made under Part 3 of the *Contaminated Land Management Act 1997*
- approved voluntary management proposals under the Act that have not been carried out fully and where the approval of the EPA has not been revoked
- site audit statements provided to the EPA under the Act that relate to significantly contaminated land
- where practicable, copies of anything formerly required to be part of the public record
- actions taken by EPA under section 35 or 36 of the *Environmentally Hazardous Chemicals Act 1985*.

### Dangerous Goods Register

[This register](#) contains information about the transport of dangerous goods required under the *Road and Rail Transport (Dangerous Goods) Act 1997* and regulations, including determinations, exemptions and approvals. It also includes links to information about driver and vehicle licences.

### Native forestry

The public register of approved private native forestry property vegetation plans contains information about approvals for clearing of native vegetation under the *Native Vegetation Act 2003*.

### 3.2.2 Other information online

#### Hunter River Salinity Trading Scheme

Details about the Hunter River Salinity Trading Scheme are published on the EPA website, including a list of scheme participants and an online credit exchange facility. River Registers indicate when salt discharges can occur.

#### Native forestry agreements

NSW Forest Agreements and integrated forestry operations approvals approved under the *Forestry Act 2012* are published online.

#### Community news

The EPA administers a number of community groups to enable communities to engage with their industrial neighbours, the environmental regulator and key stakeholders on local environmental issues.

The [EPA website](#) contains:

- information about these community groups, minutes of meetings, reports and presentations from meetings, access to documents and contact details.
- media releases, Ministerial media releases and 'what's new'.

#### NSW air quality and alerts

The Office of Environment and Heritage (OEH) operates a comprehensive air quality monitoring network to provide the community with accurate and up-to-date information about air quality. Data from the monitoring network is presented as [ambient concentrations and air quality index \(AQI\) values](#) which are updated hourly and stored in a database.

#### Guidelines and publications

The EPA publishes a range of guidelines to [inform the community](#) and to [assist industry](#).

The EPA provides information to the regulated community to promote understanding and encourage voluntary compliance. Being clear about the environmental outcomes expected helps remove barriers to compliance and overcomes factors that encourage non-compliance. It also raises awareness about the benefit of complying with legislation as well as the potential consequences of failing to do so.

Recently the EPA published its [Compliance Policy](#), which reflects the agency's values as an independent, accountable and modern regulator. It summarises the EPA's approach to compliance and enforcement and explains how it works to achieve compliance and drive improved environmental performance.

### 3.2.3 Reports

#### State of the environment reports

Prepared every three years, the [NSW State of the Environment](#) reports on the status of the main environmental issues in NSW. It provides credible, scientifically-based, statewide environmental information for environmental policy and decision makers who manage the state's natural resources, as well as the general community.

#### Annual reports

Under the Annual Report Act, the EPA provides a yearly [annual report](#) where it reports on its achievements and provides other information such as financial information.

The EPA Annual Report 2012–13 has been tabled in Parliament. This is the first standalone annual report for the NSW EPA as an independent authority. The report includes information

on the EPA's operations and its performance in 2012–13 under the EPA Strategic Plan 2012–15.

The EPA's activities, performance and finances for the 2011–12 financial year are reported in the Department of Premier and Cabinet's Annual Report 2011–12. The EPA Board's first annual regulatory assurance statement was also included in this report. (The EPA was part of the Department of Premier and Cabinet during the 2011–12 reporting period.)

The [air emissions inventory](#) is a detailed listing of pollutants discharged into the atmosphere by each source type during a given time period and at a specific location. The study area covers 57,330 km<sup>2</sup>, which includes the greater Sydney, Newcastle and Wollongong regions, known collectively as the Greater Metropolitan Region. The air emissions inventory information and data are available in a number of ways, ranging from a relatively simple brochure through to specialised queries from the Emissions Data Management System.

### Compliance audit reports

The EPA undertakes focused [compliance audits](#) for enterprises it regulates. Compliance audits assess an enterprise's compliance with environmental legislation and regulatory requirements. These audits are generally unannounced.

The findings of each audit and a follow-up action program based on the findings are reported in a compliance audit report which is sent to the enterprise. Copies of each audit report are available to the public through the EPA's library. [Performance reviews and compliance audit reports published on industry sectors](#) are available online.

### 3.2.4 Government Information (Public Access) Act

Under the *Government Information (Public Access) Act 2009* (GIPA Act) the public has the right to access information on request unless there is an overriding public interest against its release. The Act requires government agencies to make certain sorts of information freely available and to release as much other information as possible.

There are four ways in which the EPA makes its information available under the GIPA Act:

- **mandatory disclosure:** the EPA provides open access information free of charge, including a register of government contracts, policies, media releases, annual reports and a disclosure log
- **proactive release:** the EPA will release as much information as possible in an appropriate manner online.
- **informal release:** specific information, including personal information, can be informally requested
- **formal release:** under a formal application for the information.

In addition, the EPA has released the *EPA Government Information (Public Access) Act – Information Guide* as part of its mandatory open access requirement. The guide is published on the EPA website and explains ways in which the public can access information the EPA holds.

### 3.2.5 Environment Line

Members of the community are encouraged to report pollution incidents or other environmental issues to the EPA's Environment Line on 131 555. Public reports play a vital role in assisting the EPA to identify potential environmental impacts and non-compliances. The EPA assesses all reports received by Environment Line.

## 3.3 Supporting and engaging with community groups

The EPA recognises that community members need timely, meaningful and transparent information and opportunities to provide input into EPA activities, participate in decisions that

affect them and be confident in the EPA's responsibilities and processes. The EPA supports the right to know and aims to provide information to communities to meet their needs.

Community members are encouraged to report pollution, ask questions and raise concerns with the EPA. They are also invited to provide input into many of the EPA's decisions and programs.

In addition to providing information and engagement opportunities, the EPA also aims to motivate individuals to protect local environments through education and awareness campaigns.

### **3.3.1 Stakeholder engagement**

The degree of stakeholder engagement and the types of consultation being undertaken will depend on the characteristics of the problem or nature of the improvement being addressed.

The EPA provides a range of tools to engage with and inform its stakeholders, including:

- formal public consultation documents such as discussion papers and regulatory impact statements
- studies, reports or other information advising the community to get involved with public consultation processes
- targeted consultation with local communities, community or industry groups, and relevant Commonwealth and State agencies
- consultation workshops and seminars
- formal consultative community groups
- face-to-face meetings
- the EPA website
- Environment Line
- media releases
- a quarterly stakeholder newsletter – *EPA Connect*
- social media
- educational programs and campaigns

### **3.3.2 EPA-established community groups**

#### **Orica Mercury Independent Review Steering Panel**

In response to community concerns about mercury contamination outside Botany Industrial Park, the EPA established the Orica Mercury Independent Review Steering Panel. This panel enables the local community to participate, along with health and technical experts, in undertaking an independent review of the environmental and health impacts of historic mercury emissions from Orica's former chlor-alkali plant at Matraville.

The panel has selected independent consultants to review documentation and information relating to the historic emissions and mercury-contaminated material from the former plant. The panel has reviewed the final consultant's report. [Stage one of this review](#) is now complete.

#### **Other community groups**

The EPA coordinates a number of community advisory committees, particularly in the Hunter Region, to enable local communities to engage with the EPA, industry and key stakeholders on local air quality issues.

**Newcastle Community Consultative Committee (NCCCE):** the NCCCE was established by the Minister for the Environment in 2011. It enables Newcastle residents to identify important environmental and amenity issues associated with nearby industrial activities, and helps the EPA and local industry understand community concerns.



This committee has provided advice on establishing the Newcastle Local Air Quality Monitoring Network. It also advises on other environmental issues and on ways in which the community wishes to be notified and kept informed in the event of an environmental incident. The EPA supported the NCCCE in holding a community forum on air quality issues in November 2012.

**Upper Hunter Air Quality Monitoring Network Advisory Committee:** this committee was established in 2010 to advise on the design and operation of an air quality monitoring network in the region. Installation of the 14-station network was completed in early 2012 and is fully operational. The committee was formalised under the *Protection of the Environment Administration Act 1991* in November 2013.

Representatives of the EPA meet with individuals representing three other local environment groups: Coal Terminal Action Group, Hunter Community Environment Centre and Correct Planning and Consultation for Mayfield Group to discuss their concerns.

The EPA is working with industry and the community to evaluate ways of reducing emissions from air particles to protect the health and environment. For example, a NCCCE member is on the project management group for the Lower Hunter Particle Characterisation Study and the EPA has commissioned a Lower Hunter Dust Deposition Study. This community-led study will examine deposited dust in key areas in Newcastle where complaints have been received, including along the rail corridor.

**The Rutherford Air Quality Liaison Committee:** this committee was established in 2011 as part of an election commitment to bring together community, local business, scientific and regulatory experts to identify the most prominent sources of odour on the Rutherford Industrial Estate.

The committee advised on the development of an odour source sampling and analysis campaign and the EPA published the final report of the Rutherford Odour Investigation on the committee's webpage in May 2014. The report identified a course of regulatory action to address odour issues on the estate.

**The Port Kembla Pollution Meeting:** the Port Kembla Pollution Meeting was established by the community in 1986 in response to concerns regarding industrial emissions in and around Port Kembla. The aim of the meeting is to provide an open forum for local community, industry and relevant government agencies to work cooperatively to reduce levels of pollution that impact on the health and comfort of the community. Local residents and representatives from industry and government are invited to attend this monthly meeting, which is led and chaired by the community.

The EPA has been a regular attendee since it began. This commitment has enabled the EPA to engage with community representatives on a host of environmental issues and, as a result, facilitate a strong working relationship with them.

### ***Establishment of the Macleay River Working Group***

The Macleay River Working Group (MRWG), chaired by the EPA until 2014, was established to provide a whole-of-government approach to dealing with the mobilisation of soils and metals in the upper Macleay River catchment and floodplains as a result of historic mining practices.

The working group's role has been to identify outstanding issues, review new information to determine appropriate responses and raise stakeholder awareness of how they can manage real or perceived risks, and address community concerns. The local community looks to the MRWG to provide advice on potential health impacts.

### 3.4 Improving engagement with stakeholders

The EPA recognises the valuable contribution that stakeholders make in improving EPA project, policy and operational outcomes.

By ensuring that the flow of information back to stakeholders is transparent, accessible and timely, the EPA aims to foster trust and understanding of what it does, the evidence-based approach to decision-making and processes.

Building mutual respect and trust by providing more effective two-way communication can lead to more productive relationships which, in turn, will promote better environmental solutions, sound decision making and improved environmental performance by stakeholders and the community.

#### *Varying BHP Endeavour Coal's Environment Protection Licence*

BHP Endeavour Coal owns and operates West Cliff mine, an underground coal mine near Appin in the Illawarra region, and holds an EPL for its operations.

The EPA engaged and consulted effectively with the community to vary BHP Endeavour Coal's EPL for West Cliff mine in 2013 to protect the waters and ecology of the Upper Georges River.

In determining these changes, the EPA spent significant time consulting with and considering community concerns and submissions, and reviewing scientific evidence and written submissions from the mine.

#### *3.4.1 Stakeholder engagement objectives*

- Improve stakeholder understanding of the EPA's roles, responsibilities and parameters.
- Motivate all stakeholders and the broader community to take responsibility for the environment and provide valuable input into EPA objectives.
- Encourage stakeholders to make informed and sound environmental decisions, and improve environmental performance and legislative compliance, and provide support.
- Increase the EPA's understanding of stakeholder and community needs and priorities.
- Promote the purpose and parameters of the EPA's engagement with stakeholders.
- Develop a consistent approach to engagement throughout the organisation.
- Be seen as a trustworthy, transparent and responsive statutory authority.
- Be widely known as a trusted source of scientific and technical expertise and a credible regulator.
- Identify more opportunities for proactive engagement.
- Use available resources wisely, and deliver efficiencies wherever possible.

#### *Community engagement in 2014*

Highlights of community engagement activities in 2014 included:

- a Diesels Emissions Management Workshop held in June 2014 and attended by approximately 115 government, research, industry and community representatives
- a workshop held in June 2014 with key operators in the liquid waste treatment industry to obtain industry input into guidelines being prepared by the EPA on *Performance standards for the liquid waste treatment industry*
- release in February 2014 of a discussion paper on the key elements of the new proposed coastal Integrated Forestry Operations Approvals and associated legislative amendments, followed by six community workshops in Sydney and coastal NSW.

Since mid-2012, the EPA has consulted on:

- an independent review of the waste and environment levy
- the Draft Waste Avoidance and Resource Recovery Strategy
- the energy from waste policy statement
- the Illegal Dumping Strategy
- the Draft NSW Litter Strategy
- the Draft Protection of the Environment Operations (Waste) Regulation
- the draft protocol for managing asbestos during resource recovery of construction and demolition of waste
- the extension of the Waste Levy Options Paper.

### **3.4.2 Stakeholder survey**

In 2013, the EPA commissioned Ipsos Social Research Institute to [independently survey](#) stakeholders. The EPA sought the views of members of the community, environment groups, government and industry and asked for their frank and honest feedback, opinions and perceptions of the EPA and its management of environmental issues.

The stakeholder survey outlined a number of recommendations focused on improving stakeholder relationships, resulting in the EPA's Stakeholder Engagement Strategy, and Engagement Guidelines. The stakeholder survey is published on the EPA website.

### **3.4.3 EPA stakeholder newsletter**

In 2014, the EPA launched a new stakeholder newsletter called *EPA Connect*. This newsletter provides a regular update on the EPA's work, programs and initiatives.

The newsletter is emailed to subscribers four times a year and is available on the EPA website.

### **3.4.4 Stakeholder engagement strategy**

To deliver effective engagement, the EPA is committed to informing, consulting and involving all stakeholders as outlined in the International Association for Public Participation's model, the IAP2 Public Participation Spectrum.

The EPA is developing and implementing tools and protocols that ensure consistency across all engagement activities. These will:

- formalise internal and external processes for all engagement activities
- establish clear lines of communication, and set engagement parameters and expectations
- provide the necessary capability building to enable EPA staff to effectively engage with stakeholders.

The Stakeholder Engagement Strategy outlines the EPA's approach to effective engagement and is an internal working document that will be regularly updated. It is not a public document.

The Stakeholder Engagement Strategy is just one element in a comprehensive approach the EPA is developing to meet the objectives in its Strategic Plan 2013-16 of delivering effective stakeholder engagement and being an exemplar organisation.

### **3.4.5 EPA engagement guidelines**

To work more effectively with stakeholders to protect the environment and human health, the EPA is developing Engagement Guidelines which will outline how and when the EPA informs and consults with its stakeholders during the course of its work.

The Engagement Guidelines will be published on the EPA website later this year.

### **3.5 Improved communication avenues**

The EPA develops and maintains collaborative working partnerships and relationships with all external and internal stakeholders.

#### **3.5.1 EPA website**

The EPA launched a new website in 2013, which provides various features including:

- a navigational home page
- information about air quality updated hourly
- community pages
- media announcements on programs
- information about penalty notices, remediation projects, investigations, asbestos disposal, and air quality and waste programs.

A further upgrade to the site is planned for 2014–15.

#### **3.5.2 New systems**

The EPA is embarking on a major, four-year project to upgrade its information and communication (ICT) systems to improve its service delivery, information management and engagement activities.

The ICT strategy will assist the EPA to achieve more effective stakeholder engagement and improved information management, recognising that the EPA relies on technology to improve its interface with its stakeholders and customers through online regulation and licensing activities.

The ICT strategy aims to deliver integrated online services for businesses, strengthen the management of contaminated sites, introduce a mobile workforce capability and improve stakeholder engagement through better access to information. It will also provide streamlined information management to enhance operational efficiencies.

The plan includes 16 major programs of work to be delivered over a four-year timeframe to achieve key business outcomes.

When ICT programs are implemented, EPA's business capabilities will be significantly enhanced and provide stakeholders with the following benefits:

- seamless interaction with the EPA across a range of communication channels including digital channels
- improved service from the EPA through a single portal
- easy access to relevant public information
- a consistent source of verified quality data
- improved reporting and analytics on the effectiveness of the EPA's activities and programs for various types of stakeholders, including communities
- improved efficiencies through systems aligned to business capabilities and sharing of information between systems
- better support for decision making through a full view of stakeholder licensing, incidents, investigations and compliance activities
- increased mobility and improved efficiency for EPA field operations via mobile devices.

#### **3.5.3 EPA Digital Strategy**

The EPA is currently developing a new Digital Strategy and Digital Reference Architecture to help support and improve the EPA's interactive engagement with its stakeholders. The

strategy will define the digital solutions required to engage more effectively with stakeholders across a range of digital channels, facilitate easy navigation and search functions, and identify opportunities for delivering better online services.

#### **3.5.4 Social media**

The EPA uses Twitter to provide regular and timely announcements to the public about environmental projects or incidents, and where to seek further advice. There are currently more than 460 followers.

#### **3.5.5 Guidelines on stakeholder partnerships**

The EPA has produced several guidelines on ways in which it interacts with partners.

##### **Statement of Business Ethics**

In 2012, the EPA published a Statement of Business Ethics on its website.

This statement guides the business sector, other government agencies and non-government organisations when doing business or dealing with the EPA. It outlines the EPA's ethical values and what the EPA expects of other organisations and individuals when it interacts with them.

##### **Sponsorship Policy**

The Sponsorship Policy (external document) and procedures (internal document) were developed and released in early 2013. They set out evaluation criteria to ensure a consistent and transparent process in line with EPA and NSW Government priorities, and to maximise benefits and minimise risks associated with sponsorship.

##### **Grants Policy**

Released in 2014, the Grants Policy applies to all grant programs funded by the EPA. The EPA uses grant programs to promote and achieve its community, environment and conservation objectives. The partnership between the EPA and a grant recipient allows external participants to contribute to and participate in environmental and conservation initiatives with the NSW Government.

The policy outlines the EPA's considerations when establishing and funding grant programs.

### **3.6 Stakeholder Engagement and Governance Branch**

When the EPA was first established as an independent agency in February 2012, its mandate was to listen and respond to community views and concerns, and to reconnect with the community.

The priority for the newly appointed EPA Chair and CEO was to work with the Executive on a strategic plan for the new EPA. One of the six key goals for the EPA was effective stakeholder engagement.

A Director, Stakeholder Engagement and Governance was appointed in November 2012.

The Stakeholder Engagement and Governance Branch aims to provide a more consistent and transparent approach to all EPA stakeholder engagement activities. The branch includes Public Affairs and Communications, Governance, Risk and Finance, Board Secretariat, Executive Services, Knowledge Strategy and Reporting, and Information and Communications Technology.



## Chapter 4: A healthy organisation

### 2012–14 selected highlights

- The [results of the People Matter Employee Survey 2014](#) demonstrated that the EPA rated highly regarding good workplace culture and experiences of staff, with 99 of the 106 measures in the survey rating better than average for the NSW public sector.
- EPA developed and released its Statement of Business Ethics, Sponsorship Policy, Grants Policy, and Government Information Access Act Information Guide.
- EPA took a strong stance on bullying, developing and implementing its Anti-Bullying Policy, and staff awareness and training.
- EPA developed its first corporate risk assessment framework and legislative compliance register, conducted a fraud assessment across the agency and produced a Fraud Control Plan.
- EPA developed a robust training program under the EPA Training Strategy 2012–15, and trained 1691 participants through 88 courses.
- 220 staff, over 55% of EPA staff, completed a fraud and corruption prevention half-day training course delivered by the Independent Commission Against Corruption (ICAC), while remaining staff attend information sessions regarding ethical conduct.

### 4.1 The context

A regulatory agency requires a robust corporate governance and risk management structures, and clear values.

The EPA is a credible and effective regulator with staff who are passionate about protecting the environment. Its five core values are integrity, service, respect, innovation and transparency.

The EPA's strategic plan recognises the importance of the characteristics of a healthy organisation, thus one of the goals is for the EPA to be 'an exemplar organisation'.

A good indicator of the EPA's organisational health is the results from the People Matter Employee Survey (PMES) undertaken across the NSW Public Service by the Public Service Commission. This survey aims to measure employee perceptions about the workplace culture and their experiences in their organisation, and is open to all employees in the NSW public sector. It was first conducted in 2012 and the 2014 survey results have been released.

#### *People Matter Employee Survey 2014 results show the EPA performing well*

The [2014 survey results](#) showed that the EPA achieved a better score than average on 99 of the 106 measures surveyed. The measures covered issues such as integrity, trust, service, accountability, career development, engagement, equity and diversity, and anti-bullying. Nearly 75% of all EPA staff participated in the survey.

This chapter summarises how the EPA has been performing in meeting the goal of being an exemplar organisation.

### 4.2 Integrity

To be an exemplar organisation, the EPA must have integrity. The results of the staff survey highlight organisational integrity as high both in absolute terms and relative to the rest of the NSW public sector.



<i>Integrity: results 2014 PMES</i>		
Question	% EPA staff agree	Difference to rest of sector (+)
My organisation has procedures and systems that ensure objectivity in decision-making	91%*	14%
I feel that senior managers model the values of my organisation	85%	15%
My manager emphasises the need for fairness in decision-making	89%	10%
My manager would take appropriate action if decision-making processes were found to be biased	91%	15%
My manager talks to me about how the values apply to my work	74%	8%
People in my work group are honest, open and transparent in their dealings	93%	17%
People in my work group do not show bias in decisions affecting customers/clients	90%	12%
Average	87.5%	13%

\* The EPA's score on this measure has increased from the 2012 survey result of 83%.

### 4.3 Fostering staff excellence, development and respect

The EPA encourages excellence in its staff, promoting personal development, innovation and standards to be achieved.

#### 4.3.1 Personal growth and professional standards

##### Establishing a Training Strategy and dedicated training unit

The EPA Training Unit was established in 2012 and implements the EPA's Training Strategy 2012–15, developed to support the EPA in becoming an exemplar organisation. The strategy specifies the training requirements for all EPA staff and builds on the NSW Public Sector Capability Framework. It includes competency-based training and incorporates technical and practical skills to ensure staff receive training that is both up-to-date and relevant to their role.

The Training Unit aims to:

- ensure staff are trained to best practice standards
- provide clear career development pathways to attract and retain employees
- minimise risk to both EPA employees and to the EPA as an organisation.

The Training Unit also manages the Australasian Environmental Law Enforcement and Regulators Network (AELERT) Professional Development and Training Program. Under the program, the EPA trains environmental regulators such as local council officers from NSW and other jurisdictions. EPA staff can attend courses run through this program and it provides an excellent opportunity to network with co-regulators.

Since the program's commencement, 1,691 participants have been trained through 88 courses, with most participants being NSW environmental regulators.



Under the strategy, the EPA offers the following courses that contribute to the maintenance of the ongoing program of operational and technical training.

**Introduction to EPA:** This course is designed for new entrants to the EPA. During this course, participants gain an overview of:

- EPA knowledge, skills and values
- EPA guiding principles
- communication and customer service
- working with Public Affairs
- EHub and the library
- workplace health and safety
- respectful workplace and ethics
- documenting decision making
- record keeping
- reporting smoke and litter from vehicles.

**EPA Authorised Officers:** This is an introductory course for staff who must be authorised under legislation they administer. It is designed to establish a clear, transparent and consistent approach to regulation across the EPA. It provides staff with the necessary knowledge, skills and confidence to undertake regulatory functions and secure enough evidence to take regulatory action.

**Certificate IV in Government (Investigation):** This nationally accredited course is designed for staff in environmental regulatory agencies who are authorised to investigate breaches of legislation, regulations, mandated government and organisational policy. This course is mandatory for all EPA Environmental Officers grade 8 and above.

**Diploma in Government (Investigation):** This nationally accredited course is designed for staff in environmental regulatory agencies who are responsible for coordinating, conducting and supervising investigations into non-compliance with statutory obligations. This is in line with the Australian Government Investigation Standards issued in 2011. This Diploma is mandatory for all EPA Environmental Officers grade 12 and above.

**ICAC and ethics training:** Information on training in relation to ethics can be found in Section 4.5.4.

### **Access to Office of Environment and Heritage learning and development courses**

In addition to the EPA staff training program, under the service agreement with the Office of Environment and Heritage (OEH), EPA staff have access to additional developmental programs and workshops. These include professional development courses such as writing, technical courses such as IT training and management courses.

### **Staff opinions**

In the PMES, 81% of EPA staff, 11 % higher than in the rest of the sector, agreed that their manager considered their needs and career aspirations when approving their development plan.

Eighty-five percent of EPA staff reported they had a performance plan that set out their individual objectives. This is 33 % higher than in the rest of the sector.

### **4.3.2 Encouraging knowledge management and innovation**

The EPA is developing a Knowledge Management Framework and Implementation Plan. This will assist in delivering improved outcomes for the organisation and help better inform the community, business and government.

The EPA encourages innovation, with all staff having the chance to present an idea to the Executive for possible implementation. Innovation is supported by the Executive and an

informal Innovation Action Team who help identify and promote opportunities to think more laterally when trying to solve a complex problem or simple barrier within the organisation. The EPA is also piloting a more formal problem solving approach for addressing environmental problems that are intractable, overlooked or under-recognised.

## 4.4 A health and safety culture

The EPA maintains a friendly and safe working environment.

Overall, 77% of EPA respondents to the PMES said they would recommend the EPA as a great place to work. This statistic is 20% higher than the average for other organisations in the NSW public sector. In addition, 83% of respondents said they were proud to tell others they work for the EPA.

### 4.4.1 Providing flexibility

The EPA strives to create flexible working arrangements for its employees that benefit the employer and the employee. EPA encourages work–life balance with a number of its staff in job-share or part time arrangements.

Since the EPA has become independent, it has developed the Working from Home Policy. The policy guides EPA managers and staff who may be seeking, considering and managing working from home arrangements. It sets out the obligations of staff, supervisors and managers when considering working from home as a suitable option to ensure a safe working environment.

In addition, the EPA is working with the Spokeswomen's Program to support part-time working arrangements. The mobile workforce project is a focus for the EPA in its Information and Communication Technology Strategy, explained in Chapter 3.

#### *EPA provides the flexibility staff need*

In the PMES, 92% of EPA respondents agreed that they had enough flexibility at work to handle their family and caring responsibilities and 87% thought the EPA helped them achieve a work–life balance, a 23% higher response than in the rest of the sector.

### 4.4.2 Equity and valuing diversity

The EPA strives to be an equal opportunity employer.

The EPA is represented on and supports the OEH Spokewomen's Program, which helps to identify and act on matters affecting women in the workplace, provide information and development opportunities and increase overall equity.

Current programs being run by the Spokeswomen's Program include training and development courses for women, raising awareness of flexible work options for all staff, and the annual Spokeswomen's Awards which recognise the achievements of women. Representatives from the program also work closely with human resources staff to ensure the impacts of new human resources and other work practices policies are taken into account.

The results from the staff survey indicate that EPA has performed well in this area.

<b>PMES 2014 question</b>	<b>% EPA staff agree</b>	<b>Difference to rest of sector (+)</b>
Equal employment opportunity is provided in my organisation	94%	9%
Senior management genuinely support the career advancement of women	87%	7%
Cultural background is not a barrier to success in my organisation	95%	4%
My organisation is committed to creating a diverse workforce	92%	4%
Age is not a barrier to success in my organisation	86%	4%
Disability is not a barrier to success in my organisation	93%	8%
Sexual orientation is not a barrier to success in my organisation	99%	5%
Gender is not a barrier to success in my organisation	90%	1%
In my organisation women are able to lead just as effectively as men	97%	4%
Women and men are given the same opportunities to take the lead on important work in my organisation	87%	1%

#### **4.4.3 Anti-Bullying Policy**

The EPA does not tolerate bullying of any kind. In 2013, the EPA developed its Anti-Bullying Policy and procedures and case management system.

Staff awareness training was conducted with all staff as part of ICAC training. Subsequently, the EPA has produced an online training awareness program for all staff on anti-bullying and the EPA's policy.

The results of the PMES indicated that 93% of EPA respondents agreed that members of their workgroup treated each other with respect, with 97% reporting that members of their workgroup treated customers and clients with respect.

In relation to bullying, 21% of respondents had witnessed bullying compared with 41% in the rest of the sector, and 10% had been subjected to bullying in the last 12 months compared with 23% in the rest of the sector. The EPA is striving to lower these numbers, and has made significant progress since the 2012 survey when this statistic for the EPA was 17%.

#### **4.4.4 Work health and safety**

The EPA is committed to the health, safety and welfare (WHS) of all its employees, contractors, volunteers, and visitors to its workplaces. Under the service agreement, OEH provides the WHS Risk Management System to the EPA, which has been developed to support a systematic way of managing various obligations at all levels of the organisation. The system assists in meeting the WHS legislative and government policy requirements in managing the many and diverse hazards associated with work performed by the EPA.

In addition, WHS is a standing item for the EPA Executive, and the EPA Board meetings.

In the PMES, 97 % of EPA respondents said they were encouraged to report health and safety incidents and injuries.

## 4.5 High governance standards

Over the last two-and-a-half years, the EPA has put all the necessary processes in place to achieve high governance standards. Independent reviews by the Internal Audit Bureau are an indication of ways in which the EPA is performing in this area.

### *Internal Audit Bureau*

‘Our overall conclusion is that the EPA has made impressive progress in developing and implementing a robust risk management framework. Strong leadership by the Chair/CEO and the Executive team and active engagement of the Finance, Audit and Risk (FAR) Committee have established a positive “tone at the top”. Combined with diligent support by the Stakeholder Engagement and Governance Branch this has resulted in an implementation approach which can serve as a good practice model for the rest of the public sector.’

### *4.5.1 EPA Board*

On the Government’s recommendations, a reconstituted EPA Board was established to modernise the EPA as an independent, strengthened authority. The Board members were appointed on 29 February 2012. The members are Mr Alec Brennan, Ms Christine Covington, Mr Chris Knoblanche and Ms Julie Savet Ward headed by the EPA Chair and CEO Barry Buffier.

The current Board members have expertise in environmental law and science, corporate, financial and risk planning and management, as well as established ties to business and community groups.

The EPA’s Finance Audit and Risk Committee was constituted in April 2012. The Committee plays a key role in assisting the EPA Board to fulfil its corporate governance and oversight responsibilities in relation to the EPA’s financial reporting, internal control systems, risk management systems and the internal and external audit functions.

A statement by the independent members of the Board is made at the beginning of this submission.

### *4.5.2 Managing corporate risk*

The EPA manages its corporate risks, including key corporate environmental risks, in line with the NSW Treasury’s Internal Audit and Risk Management Policy for the NSW Public Sector (TPP 09-05).

TPP 09-05 requires department heads and governing boards of statutory bodies to establish and maintain a risk management process that is consistent with the current Australian/New Zealand standard on risk management. For this purpose, NSW Treasury has developed the Risk Management Toolkit for the NSW Public Sector (TPP12-03) to support agencies to develop and implement their risk management framework and processes.

One principle is that risk management, like other management systems, should be designed to meet an agency’s specific needs.

The EPA conducted its first risk assessment as an independent agency shortly after its establishment, concluding it in July 2012. Subsequently, further work was done to:

- re-assess and write up 120 risk descriptions to capture the nature of the risk and its cause.

- evaluate risk management procedures to ensure that risks were being assessed in line with Treasury requirements including an evaluation of risk probability definitions, consequence descriptors and the risk matrix. The outcome was a new EPA Risk Management Procedure.
- develop and implement an online tool which converted the paper-based risk assessment and register to a live, interactive risk management tool in line with modern risk assessment standards and methodologies.
- devise an assessment evaluation and reporting framework for the six-monthly EPA Executive review and the annual review to the Finance, Audit and Risk Committee. This entailed development of a 'how to' guide and a reporting standard and template to report on risk changes by exception in line with Treasury reporting standards.

A Risk Management Plan, made up of actions for each risk, is developed annually and there is six-monthly assessment and reporting against actions to the EPA Executive and the Finance Audit and Risk Committee. New risks are added to the register as they are identified.

The EPA Executive continues to assess its corporate risks on a six-monthly basis, reporting to the EPA's Finance Risk and Audit Committee annually. Directors defer to their managers and staff to assist in this process.

#### ***4.5.3 Meeting legislative compliance objectives***

The EPA has statutory obligations under legislation it administers. Some are mandatory and others are optional.

A NSW Treasury guideline (TPP09-05) requires each agency, as part of its Risk Management Framework, to assess compliance with its own legislation and develop a plan to address any potential risk of partial compliance or non-compliance.

Before its reconstitution as a separate agency, the EPA did not have a register of mandatory statutory obligations for legislation it administered. The EPA's 2012 risk assessment process identified the development of a Legislative Compliance Register as a control to mitigate risk. The Legislative Compliance Register was developed in November 2012, and included:

- assessing and documenting all 438 statutory obligations for the EPA
- developing an online tool so assessment and compliance could be evaluated for each statutory obligation
- developing guidance and staff training material
- developing a risk assessment and compliance check exercise for all 438 statutory obligations
- developing risk management plans to address potential or actual risks of non-compliance
- developing a reporting system to the EPA Executive and the Finance Audit and Risk Committee.

The register is a live document, which is reviewed six-monthly and updated as part of the Executive's risk assessment processes.

#### ***4.5.4 Dealing with the risk of fraud, corrupt conduct, bias***

The EPA takes very seriously its obligations relating to staff conduct when they undertake their regulatory duties.

## Regulatory capture

Chapter 2 explains the EPA's approach to managing issues or non-compliances. These can be addressed using one or more of the regulatory tools and approaches available including compliance and enforcement, pollution reduction programs, market mechanisms, technical assistance and guidance or education.

The availability of a broad suite of options and the mix of those options tailored for a particular issue leads to a more timely, effective and multi-faceted approach to managing an issue with better outcomes for the environment.

In working closely with stakeholders, there is an inherent vulnerability to regulatory capture or the perception of regulatory capture.

The EPA understands that its credibility as a regulator can be easily lost through public perception of a weak or captured regulator.

For the EPA, the possibility of regulatory capture might present itself as a tendency to ease off in imposing regulatory requirements due to a regulated entity or interest group seeking special consideration, often due to alleged financial impact.

The EPA recognises and addresses the risk of regulatory capture through clear systems, procedures and processes, governance structures, training and transparency that expose regulatory decisions to external scrutiny and processes.

Ultimately, individual regulatory decisions are subject to scrutiny and review by management tiers separated from the direct regulation of the entity or group. If necessary, this decision making role is escalated up to and finally rests with the Chief Environmental Regulator. For the most serious offences, described in the [Protection of the Environment Operations Act 1997](#) as 'Tier One' offences, the decision on whether to prosecute rests with the EPA Board.

In 2014, the EPA organised training by ICAC for over 55% of the EPA's staff on a range of topics. Workshops addressed issues in relation to regulatory decision making, regulatory capture, gifts and benefits and conflicts of interest. The remaining staff attended two-hour information sessions on EPA governance requirements and obligations.

Since 2012, the EPA has:

- updated staff on the new ethical structure applicable to public servants under the newly commenced Government Sector Employment Act
- included a component addressing regulatory capture in both the Introduction to the EPA and the Authorised Officers courses
- updated and improved licensing systems
- put in place operating procedures directed to minimising the risk, such as working in pairs and rotation of staff
- improved public notification of regulatory decisions through expanding public registers and media releases about key regulatory actions such as penalty notices, and making all compliance audit reports publicly available
- developed a detailed risk register overseen by the Finance, Audit and Risk Sub-committee of the EPA Board.

A perception of regulatory capture can arise when some stakeholders see the EPA as working too closely with the regulated community, especially when those stakeholders believe the EPA should undertake a different course of action, for example prosecution in the courts. As discussed in Chapter 2, prosecution is an important option, although the EPA will make its regulatory decisions based on the best outcome for human health and the environment, including the role of deterrence in achieving those outcomes.

As has been noted elsewhere in this submission (see Chapter 3), the best way of managing misconceptions is to improve EPA communications with stakeholders.

## **Planning for fraud control**

When the EPA was established, it used OEH's Fraud and Corruption Prevention Framework, as delivered under the service agreement. In 2013, the EPA engaged the Internal Audit Bureau (IAB) to assess the adequacy and robustness of the OEH's Fraud and Corruption Prevention Framework, as it applied to the EPA.

The IAB recommend two primary actions that the EPA needed to take:

- perform a detailed fraud and corruption risk assessment, which would feed into the development of a Fraud and Corruption Control Plan
- provide comprehensive training for EPA staff on fraud and corruption prevention.

Later that year, the EPA engaged an expert who worked with EPA staff and the Executive to review all its processes to identify fraud and corruptions risks, current controls and what more needed to be done to address outstanding risks. From this exercise, the EPA produced a Fraud Control Plan. This plan was presented to the EPA's Finance Audit and Risk Committee and now forms part of the EPA Executive's corporate risk assessment program.

## **Extensive staff training and awareness**

Through the development of the ethics component as part of the Introduction to the EPA course, new staff are made aware of their obligations. These are reinforced through the ICAC training and the Authorised Officers course.

The EPA Conflicts of Interest Form was developed in 2013 and staff were trained on their obligations to declare all conflicts of interest, including perceived conflicts.

The NSW Ombudsman was invited by the EPA to present the Public Interest Disclosures General Awareness Information Session, which was attended by 39 EPA staff. In addition, a half-day Public Interest Disclosures Management Training session was conducted by the Ombudsman for all EPA Nominated Disclosure Officers. Information regarding public interest disclosure and EPA policy were provided to staff at the ICAC training and information sessions. An EPA Addendum to the OEH Public Interest Disclosures Policy and Procedures was written to ensure EPA staff were aware of the EPA-nominated Disclosure Officers. This was reinforced by the EPA Chair and CEO in a staff email.

The EPA Chair and CEO send out reminders to staff twice a year to remind them to report any gift or benefit that is \$30 and over. Any gift or benefit, including hospitality and gift vouchers, which is intended to influence an officer is strictly forbidden. This was reinforced at the ICAC training and other information sessions, and related back to regularity capture. In 2013, the EPA was one of a number of regulatory agencies audited by the Audit Office on its management of gifts and benefits. An EPA addendum to the OEH Gifts and Benefits procedure was produced to ensure that EPA requirements, including the audit recommendations, were adhered to.

Previously, OEH handled all GIPA formal and informal requests for the EPA. When the EPA became independent it took on the duty to handle informal EPA GIPA requests. OEH staff trained over 70 EPA senior staff on handling informal GIPA requests and conducting a review. In addition, information sessions were delivered across the EPA to the remaining staff.





## Chapter 5: Water and the EPA

### 2012–2014 selected highlights

- Stringent [new conditions and three new pollution reduction programs for West Cliff Colliery](#) aimed at protecting the waters and ecology of the Upper Georges River. The conditions include new limits, chemical and biological monitoring, and three important new pollution reduction programs, with the total costs to the company expected to cost many millions of dollars. The new licence conditions for West Cliff mine water discharge are also profiled on page 29 of the [EPA Annual Report 2012–13](#).
- [Enforceable Undertaking from the Hunter Water Corporation](#) for a spill of corrosive liquid contaminating an underground bore to ensure remedial works, future preventative measures and \$60,000 to the Lake Macquarie City Council for regeneration works.
- Court order that saw [Bulga Coal fined](#) \$65,000 for polluting Nine Mile Creek, in addition to clean-up costs of \$300,000 and measures to prevent a similar incident. Successful program to address soil erosion and sediment pollution from public infrastructure construction developed in the EPA's south-east regional office now being rolled out statewide.
- Ensured that measures at the Barangaroo construction site protect the shoreline and water quality in Sydney Harbour.
- Court order that saw Greater Taree City Council ordered to pay \$37,000 in funding for bushland regeneration costs as a penalty for polluting a local creek, as well as cleaning up the site and improving the council's landfill management systems.
- [Enforceable Undertaking with Namoi Cotton Cooperative](#) for pollution of the Namoi Gully and Namoi River to ensure clean-up, future preventative measures and \$100,000 to the Narrabri Shire Council.
- A [pollution reduction program with Shoalhaven City Council](#) for major upgrades of two sewage treatment plants to stop the discharge of treated sewage effluent to the sensitive natural environment.

### 5.1 The context

Healthy rivers, lakes, wetlands, groundwater, coastal waters and water catchments are integral to the economy and lifestyle of the people of NSW.

The water quality in our waterways influences the way in which communities use the water for:

- drinking water
- recreation (swimming, boating)
- irrigating crops and watering stock
- industrial processes
- navigation and shipping
- production of edible fish, shellfish and crustaceans
- protection of aquatic ecosystems
- wildlife habitats
- scientific study and education.

Our water resources are of major environmental, social and economic value to NSW and, if water quality becomes degraded, this resource will lose its value. If water quality is not maintained, it is not just the environment that suffers: the commercial and recreational value of our water resources will also be diminished.

Water quality is closely linked to the surrounding environment and land use. Other than in its vapour form, water is never pure and is affected by community uses, such as agriculture, urban and industrial use, and recreation. It is also affected by such factors as the weather (especially droughts) and the modification of natural stream flows by dams and weirs.

Pollution of water generally originates from diffuse sources or point sources.

Point source water pollution comes from a discrete source, such as a pipe or drain flowing from an industrial activity. Point source pollution can be critical to the health of a river as it occurs independent of flow conditions and can impact a waterway when it has the least capacity to accommodate the pollution, especially in dry conditions.

Diffuse source water pollution arises from a multitude of diverse urban and rural land use activities across a catchment, rather than a discrete point source. Diffuse source water pollution is mainly driven by rainfall runoff, particularly from storms, although contamination of underground water systems and aquifers can occur over long periods independently of rainfall and may be linked to current or past land uses on the ground.

Many decisions across government and by the community can influence the health of our waterways and the impact of pollution. Decisions on land use, for example, may increase the impact of diffuse pollution while those about regulatory requirements for a new industrial development might affect point source pollution.

## 5.2 How we regulate

### 5.2.1 Working nationally

Management of water quality throughout Australia has a broadly common approach developed cooperatively by the states and territories and detailed in the [National Water Quality Management Strategy](#). This strategy includes policies; an implementation guideline; a series of water quality benchmarks; and guidelines for managing groundwater, stormwater and effluent, and on water recycling. It is a fundamental input to the EPA's decision-making on pollution that can have an impact on the water quality in our waterways.

The central technical reference document within the strategy is the [Australian and New Zealand guidelines for fresh and marine water quality](#) (2000) (ANZECC guidelines). These guidelines provide an agreed framework for assessing water quality according to whether the water is suitable for a range of environmental values, including human uses.

Using the ANZECC guidelines, the [NSW Water Quality and River Flow Objectives](#) were developed and are the agreed environmental values and long-term goals for NSW surface waters. They set out:

- the community's values and uses for our rivers, creeks, estuaries and lakes (healthy aquatic life, water suitable for recreational activities like swimming and boating, and drinking water)
- a range of water quality indicators to help us assess whether the current condition of our waterways supports those values and uses.

The *National Water Quality Management Strategy* is grounded in the principles of ecologically sustainable development, especially the precautionary principle and the conservation of biological diversity and ecological integrity which in turn flow through to inter-generational equity. 'Polluter pays' and other valuation, pricing and incentive mechanisms are fundamental principles underlying the EPA's approach to regulating in NSW see Chapter 2.

### 5.2.2 The EPA and planning

The strategic planning and development assessment process under the [Environmental Planning and Assessment Act 1979](#) (EP&A Act) plays a vital role in managing water quality impacts. The EPA provides input to both the strategic land use planning processes and

those that involve proposals that will require an environment protection licence. For more detail on the EPA's role in the planning process, see Chapter 2

New or expanding developments and activities generally require an environmental impact assessment through regulatory tools under the EP&A Act. This assessment may be done by a local council, the Department of Planning and Environment, another state agency or a planning panel. The EPA provides input to the Department of Planning and Environment on the appropriate process and criteria for assessment of development proposals.

### ***National Water Quality Management Strategy***

Since 1992, the [National Water Quality Management Strategy](#) has been developed and updated by the Australian and New Zealand governments in collaboration with state and territory governments including NSW.

The strategy aims to protect the nation's water resources by improving water quality while supporting the businesses, industry, environment and communities that depend on water for their continued development. It provides a framework for action and a series of guidelines and scientific criteria that help improve water quality.

A key framework document of the strategy since 2000 has been the [Australian and New Zealand guidelines for fresh and marine water quality](#) (ANZECC guidelines), which are now under review. The ANZECC guidelines are the central technical reference of the strategy, which all Australian jurisdictions have adopted for managing water quality.

In NSW, the environmental values and, where appropriate, associated numerical criteria have been identified for each catchment. These [water quality objectives](#) recognise the environmental values and uses local communities want to see protected for different waterways. These include recreational use, healthy aquatic ecosystems, and water for drinking and irrigation. Following consultation with communities, these objectives have been established for surface waters. A similar process was followed to develop [Marine Water Quality Objectives](#).

The ANZECC guidelines include extensive lists of chemical and other parameters such as temperature that can affect waterways. Default trigger values are provided for the listed parameters and these are used to help guide local decision-making in achieving environmental values. The ANZECC guidelines also recognise the natural variability that can occur between waterways due to geology or climate and provide a method for deriving specific local criteria.

Planning and regulatory decisions recognise that activities and decisions made upstream affect water quality downstream. In addition, the effects of other environmental conditions are also taken into account in decision-making, such as the flow pattern and volume of a water body.

The EPA recommends that water pollution be avoided in the first instance. When this is not possible, the NSW Water Quality and River Flow Objectives and ANZECC guidelines should be used to assess potential impacts and develop impact mitigation measures that prevent or minimise impacts on water quality. This includes when the EPA reviews development applications, makes recommendations to consent authorities and negotiates with project proponents to prevent or minimise impacts from development on water quality.

The guiding principles are that where the environmental values are being achieved in a waterway, they should be protected; where they are not, all activities should work towards their achievement over time.

For areas of significant urban growth, the EPA also recommends that planning authorities adopt an integrated approach to managing the water cycle that optimises the coordination of sustainable water supply, wastewater and stormwater.

The EPA makes use of a [range of material](#) on urban and rural soil erosion and sediment control, stormwater management, unsealed road maintenance, and other resource guides for planners, local councils and developers, published by the Office of Environment and Heritage.

### 5.2.3 General regulatory framework

The EPA, local councils and many other NSW government agencies work together to improve or maintain water quality which supports a productive environment and economy through healthier waterways.

The NSW Office of Water (NOW) is responsible for managing access to water and ensuring water is shared between the environment, towns and cities, agriculture, industry and Aboriginal cultural activities. NOW also looks after water licensing, extraction and allocation.

Pollution of waters without permission is an offence under the [Protection of the Environment Operations Act 1997](#) (POEO Act) and there is a long history of successful enforcement of this against major point sources of pollution by the EPA, its predecessors and local councils.

The wide range of potential water pollution sources means that the EPA shares responsibility for enforcement of the water pollution provisions under the POEO Act with local councils and many other agencies who also have powers of enforcement. Local government has a significant on-ground presence under the POEO Act. While the EPA regulates licensed premises, councils regulate other activities through notice and enforcement powers.

Apart from enforcement, agencies share a number of additional major roles:

- The EPA focuses on point source pollution and diffuse water pollution from activities regulated under the POEO Act or other legislation such as the *Forestry Act 2012*.
- The Office of Environment and Heritage (OEH) concentrates on diffuse sources of water pollution and general improvement in environmental condition related to water quality. The cumulative effect of many widely dispersed sources of diffuse water pollution mean it is most practically and efficiently reduced through education, input to planning decisions and providing support for improved waterway health. For example, OEH manages protected wetlands and wild rivers on the parks estate, provides input to the planning system on the biodiversity impacts of proposed developments, purchases water for the benefit of targeted wetlands and river systems, and educates stakeholders.
- Other relevant NSW land managers and agencies include the Forestry Corporation of NSW, Agriculture NSW and NSW Fisheries.

A number of other regulatory and planning controls are in place to manage diffuse sources of pollution and prevent land degradation. For example, councils regulate on-site sewage management systems under the *Local Government Act 1993*. Other legislation relevant to broader waterway health includes the *Native Vegetation Act 2003*, *Noxious Weeds Act 1993*, *Fisheries Management Act 1994* and *Water Management Act 2000*.

#### **Regulating licensed industry: environment protection licences**

The EPA uses a range of approaches to regulate water pollution for those premises and facilities required to hold environment protection licences (EPLs). This includes direct regulatory measures such as:

- recommendations on licence applications and their conditions
- changing licence conditions
- revoking and suspending licences
- issuing notices.

The EPA also uses also market-based approaches, such as load-based licensing, trading schemes and 'bubble' licensing. Market-based approaches provide the EPA with a more economically efficient means of regulating complex scenarios, such as multiple sources of

pollution within a catchment or region to ensure that pollutant levels remain within the capacity of the catchment.

### *Licensing decisions*

For a general description of the role of the EPA in the development assessment and approval process, go to Chapter 2.

Section 45 of the POEO Act provides an exhaustive list of matters that the EPA is required to take into consideration when exercising its licensing functions. On water, section 45(f1) provides that:

‘In relation to an activity or work that causes, is likely to cause or has caused water pollution, the EPA must consider:

- the environmental values of water affected by the activity or work
- the practical measures that could be taken to restore or maintain those environmental values.’

Similar requirements apply in relation to the issue of prevention notices (section 96(3A)).

The POEO Act Dictionary defines the environmental values of water as those specified in the ANZECC guidelines, as in force from time to time, providing a clear link with the nationally agreed water quality assessment framework. The environmental values of water, the water quality objectives and the ANZECC guidelines:

- apply to ambient waters
- are not applied directly to activities as licence limits.

The requirement to consider the environmental values of water provides for unambiguous consideration in EPA licensing of the community’s values and uses for waterways. These vary according to the waterway under consideration and may include such matters as swimming, boating, drinking water supply, agriculture and aquatic ecosystems.

The EPA must balance consideration of the environmental values of water affected by the activity or work, with consideration of the practical measures that can be taken to maintain or restore those environmental values. This means considering, on a case-by-case basis, what level of environmental performance is reasonable and feasible for the type of activity being regulated.

In exercising its licensing functions, the EPA considers (and requires licensees or applicants to consider) practical measures beyond simply treating and discharging to waters. For example, the most practical measures to maintain or restore the environmental values of water may be to reduce wastewater, stormwater and the generation of sediment, to recycle water, to irrigate treated wastewater and to discharge only under certain circumstances.

The EPA regulates discharges to water using conditions it places in EPLs issued under the POEO Act. This takes into account a number of factors, including the community’s values for a waterway and their uses of it, how much the waterway has been modified and the practical measures available to ensure that pollution does not compromise these values and uses.

Conditions on an EPL may:

- restrict the amount of various pollutants that a licence holder can discharge to waters
- require the licence holder to monitor discharges to waters
- require the licence holder to report on their discharges to waters
- require the licence holder to ensure their pollution control equipment operates properly and efficiently
- require the licence holder to undertake a pollution reduction program to manage, investigate or address the discharges to waters.



### ***Ensuring environmental safety through licensing***

In 2012, Australian Zirconia Ltd proposed to develop an open-cut mine supplying ore containing zirconium and rare earth metals to a processing plant approximately 25 kilometres south of Dubbo.

The EPA's review of the Environmental Impact Statement identified a potential for contaminated water containing radioactive dusts and sediments to be discharged to waterways with potential impacts on aquatic ecosystems, downstream users (such as livestock and irrigation water supply) and drinking water supply.

Through the assessment process, the proponent modified mine operations and the associated water quality controls to remove the potential for discharges to waterways by capturing and containing all potentially contaminated water on site.

### **Market-based instruments and other economic incentives**

The EPA uses market-based instruments and other economic incentives to regulate water pollution in the most economically efficient manner by harnessing market forces to meet environmental requirements. Market-based instruments are particularly useful in managing complex water pollution issues, in particular to manage the cumulative impacts of water pollution from multiple sources.

Several of the market-based mechanisms below (Hunter River salinity trading and the South Creek bubble licensing) saw the NSW EPA leading Australia on the use of these approaches to reduce emissions.

#### ***Risk-based licensing***

The EPA will commence its risk-based licensing system on 1 July 2015. Risk-based licensing aims to ensure that all environment protection licensees receive an appropriate level of regulation based on the level of risk they pose to human health and the environment. The risk assessment process identifies site-specific risks posed by each licensed premises and identifies any environmental issues that a licensee needs to address, and where the EPA needs to focus its regulatory attention.

Licensees who perform well and minimise their environmental risk will be rewarded with a reduction in their administrative fees, while those who lag will need to pay licence fees that provide them with an incentive to improve their performance.

#### ***Load-based licensing***

This economic incentive scheme sets limits on the pollutant loads emitted by the holders of environment protection licences and links licence fees to pollutant emissions: the larger the load, the higher the fee.

#### ***Hunter River Salinity Trading Scheme***

This trading scheme was introduced in 2002 to reduce salinity in the Hunter River. The scheme ensures that Hunter River salinity targets are not exceeded due to saline discharges from facilities with environment protection licences. Participants may only discharge when the river is in 'high' or 'flood' flow and they must hold enough credits (in accordance with the scheme rules) to cover the amount of saline water they wish to discharge.

#### ***South Creek Bubble Licensing Scheme***

Introduced in July 1996 by the EPA, the South Creek Bubble Licensing Scheme is a small, self-contained emissions trading scheme in the South Creek area of the Hawkesbury–Nepean catchment. This 'bubble' scheme allows the three participating sewage treatment systems to adjust their individual discharges, provided the total pollutant load limit for the



scheme is not exceeded. This enables efforts to reduce pollution to be focused where the costs are lowest.

The load limits mandated under the scheme required an 83% reduction in total phosphorus and 50% reduction in total nitrogen by 2004 when compared to a 'business as usual' scenario.

### ***Regulation of Sydney Water***

The EPA is the primary environmental regulator of Sydney Water.

The EPA uses a range of tools to regulate the environmental impacts of Sydney Water activities, including environment protection licences issued under the [\*Protection of the Environment Operations Act 1997\*](#) (POEO Act). Sydney Water holds over 30 environment protection licences and pays the highest load-based licencing fees in NSW. These licences include strict conditions to minimise the environmental impacts of Sydney Water's activities.

Sydney Water's operational licences detail the expected effluent treatment standards and specify limits for effluent discharged to the environment. The licences also require Sydney Water to undertake a range of programs to improve the environmental performance of its sewerage systems. These include targets and limits on the permitted number of sewage overflows that reach waterways and requirements to help reduce leakage from the sewerage network.

The EPA's requirements have led to a significant reduction in the frequency of wet weather overflows from Sydney Water's systems and provides ongoing benefits to the community and environment. The EPA is aiming to ensure that urban growth does not lead to excessive levels of nutrients discharged to the river. The EPA is currently negotiating a new set of requirements for sewer overflows with Sydney Water that aims to better target investments in areas that will provide the optimum benefit to the environment and community.

The EPA is also working with Sydney Water to minimise increases in nutrient loads in the Hawkesbury–Nepean River catchment from Sydney Water activities. The EPA also negotiates with Sydney Water to achieve reductions in nutrient loads through site specific plant and equipment upgrades.

The EPA also regulates Sydney Water's response to, and management of, environmental incidents. Over the past two years, the EPA has issued five penalty notices and several warning letters to Sydney Water in response to a range of matters, including both sewage and potable water incidents. These regulatory responses help increase Sydney Water's understanding of its responsibilities when managing environmental incidents and act as a deterrent to help prevent future incidents.

In order to aid efficient regulation, the EPA may enter into a Memorandum of Understanding (MoU) with regulated authorities. The EPA's MoU with Sydney Water outlines cooperative structures and processes that allow for joint consideration of strategic, operational and regulatory issues. The MoU aids the alignment of Sydney Water's commitment to ongoing environmental improvements with the EPA's broader environmental protection charter, and helps ensure that the EPA regulates Sydney Water in a manner consistent with its regulation of other organisations.

### **Policies, guidelines and programs**

Policies and guidance developed by the EPA assist enforcement by other agencies; assist licensed facilities or other water users with compliance; and encourage and facilitate better water practices.

In addition, proactive measures are initiated and implemented through programs by EPA regional offices to help the community, local authorities and other government agencies and businesses better understand their obligations and how best to comply.

<b>Key water policies and guidelines used by the EPA</b>	
<a href="#"><u>Local planning for healthy waterways – using NSW Water Quality Objectives</u></a>	Outlines how incorporating water quality objectives into the strategic planning of development is a key way that local councils, state government agencies, developers and the community can contribute to improving the health of waterways
<a href="#"><u>Approved methods for the sampling and analysis of water pollutants in NSW</u></a>	Outlines the sampling and analysis methods to be used when complying with a requirement by the environment protection legislation or a licence or notice under that legislation to test for the presence or concentration of matter in water and the volume, depth and flow of water or wastewater
<a href="#"><u>Licensing guidelines for sewage treatment systems</u></a>	Guidance for licensees in non-metropolitan areas – generally local councils and water authorities – on the process for licensing whole sewage treatment systems
<a href="#"><u>Considering the environmental values of water when issuing prevention notices</u></a>	Guidance for local government officers in issuing prevention notices
<a href="#"><u>Environmental guidelines: use of effluent by irrigation</u></a>	Guidance on the beneficial use of effluent by irrigation and how this can be accomplished in an ecologically sustainable and socially responsible way
<a href="#"><u>Environmental guidelines: use and disposal of biosolids products</u></a>	Guidance for planners, designers and operators of sewerage systems and those involved with the processing and end-use of biosolids products
<a href="#"><u>Using environment protection licences to control water pollution</u></a>	Aims to raise the awareness of licence holders and the community about the use of environment protection licences to regulate discharges to water by setting out how the EPA makes its regulatory decisions and focuses its effort on managing potential impacts on the environment

## 5.3 The EPA and the community

### 5.3.1 Community involvement in decision-making

In line with its standard practice (see Chapter 3), the EPA seeks to involve the community in decisions about the environment by:

- consulting with the public when developing new policies and guidelines by making non-technical explanatory documents available including questions and answers that explain the proposed initiative and also meeting with the community and potentially affected groups
- taking account of public submissions on environmental impact statements for new developments when deciding on appropriate limits in licences
- preparing guidance for the community and local government on how to manage a range of activities that can cause water pollution where it is regulated by local government or community behaviour is a factor
- EPA apps, webpages and the Environment Line phone service that provide the community with opportunities to report pollution

For most NSW waterways, the environmental values of water were endorsed by the NSW Government as the Water Quality and River Flow Objectives following community consultation.

### *Working with the Cooks River Alliance of local councils*

The Cooks River Alliance is a partnership of eight councils in the south of Sydney who work together with communities to achieve a healthy Cooks River Catchment. The alliance covers the local government areas of Ashfield, Bankstown, Canterbury, City of Sydney, Hurstville, Marrickville, Rockdale and Strathfield.

Although the Cooks River runs through heavily urbanised and industrialised areas, many parts offer cherished riverside walkways, cycle paths, extensive parklands and an abundance of native flora and fauna.

The EPA has responded to community concerns about impacts on amenity caused by litter in the Cooks River. In early 2014, the EPA negotiated for Sydney Water to remove rubbish and clean up targeted sections of the river to help reduce the impacts of litter. This includes sweeps of rubbish floating in the river and the manual removal of rubbish from mangroves. So far approximately 580 kilograms of rubbish has been removed as a result of the initiative. The EPA is currently liaising with Sydney Water and Independent Pricing and Regulatory Tribunal to secure additional funding to ensure the program continues into the future, providing ongoing benefits for the community and the environment.

The EPA is also committed to eliminating pollution at its various sources to avoid the need for reactive responses such as this manual litter removal. The EPA is leading implementation of the NSW Government's \$465.7-million, five-year Waste Less, Recycle More initiative, which is expected to help reduce the litter that enters the Cooks River.

### *5.3.2 Communicating with the public*

The EPA makes available online all relevant guidance material. Of particular interest to the community are:

- [EPA Licensing Fact Sheet – Using environment protection licensing to control water pollution](#)
- [Using the ANZECC Guidelines and Water Quality Objectives in NSW](#)
- [Local planning for healthy waterways – using NSW Water Quality Objectives](#)

## **5.4 Upgraded focus on water**

In July 2014, the EPA increased its capacity to regulate water pollution through the transfer of four officers with expertise in the assessment and management of water pollution from OEH. These officers previously provided advisory services to the EPA under a service agreement with that agency.

This is expected to lead to a more 'hands on' and responsive provision of advice while better integrating the EPA response to the management of water quality in environment protection licences.



## Chapter 6: Noise and the EPA

### 2012–2014 selected highlights

- [Rail infrastructure noise guideline](#) developed and released May 2013
- Updated [Noise guide for local government](#) released May 2013
- [NSW road noise policy](#) published March 2011
- Engagement between 2012 and 2014 with local industry and innovative actions deliver more liveable noise levels for a community affected by mining noise north of Mudgee
- Successful independent monitoring of noise and vibration issues during the [demolition of the Port Kembla Copper stack](#) and [continued monitoring of the clean-up](#)
- Review of the NSW Industrial Noise Policy underway

### 6.1 The context

Excessive noise can interfere with sleep, speech, work, concentration and other daily activities. The degree of disturbance depends not only on the level and type of noise, but on non-acoustic factors as well, including a person's opinion of the noise source and its contribution to their perceived social and economic well-being.

Several large-scale epidemiological studies have shown that excessive noise can lead to increased annoyance, sleep disturbance and other health impacts (both short- and long-term) that can affect quality of life during subsequent waking hours.

Although the understanding of the link between noise and health effects has progressed in recent years, there is not yet a clear consensus that allows the adoption of harmonised, practical, and justifiable health-based noise trigger levels for use in assessing and setting noise limits at a project level. However, protecting people from high levels of annoyance is expected to assist in protecting their health.

Noise pollution is the second most common type of complaint received by the EPA's Environment Line. In 2010–11, Environment Line received 2635 noise incident reports. Noise from 'scheduled' premises – which are required to hold an environment protection licence and are regulated directly by the EPA – was the most common complaint (46%), followed by noisy vehicles (39%) and noise from other premises (15% or 390 incident reports).

However, calls to Environment Line are only a fraction of total societal complaints about noise with most directed to councils, the police and other agencies also responsible for dealing with noise issues.

### 6.2 How we regulate

#### 6.2.1 Working nationally

The NSW Government, through the EPA and NSW Health, is working collaboratively with the Australian Department of Health and other states and territories to review the enHealth Council report, [The health effects of environmental noise – other than hearing loss](#) (2004). This involves a systematic review of the evidence relating to the health effects of noise overseen by an expert group that includes relevant academics and representatives from NSW Health and the EPA.

This review will provide us with the most up-to-date science on how best to manage noise and its impacts. The review will be one of many sources of information to be taken into account when preparing or revising NSW noise policies and guidelines.

### 6.2.2 The EPA and planning

The strategic planning and development assessment process under the [Environmental Planning and Assessment Act 1979](#) (EP&A Act) plays a vital role in managing noise impacts. The EPA provides input to both the strategic land use planning processes and those that involve proposals that will require an environment protection licence. For more detail on the EPA's role in the planning process, see Chapter 2.

New or expanding developments and activities generally require an environmental impact assessment through regulatory tools under the EP&A Act. The EPA's noise policies and guidelines are considered by planning authorities when assessing planning submissions and environmental impact assessments required under the Act.

The EPA provides input to the Department of Planning and Environment on the appropriate process and criteria for assessment of development proposals. The EPA reviews development applications, makes recommendations to consent authorities and works with the department to negotiate with project proponents to minimise and manage impacts from noise and vibration.

Noise limits developed through application of NSW policies and guidelines are formalised in development consents, environment protection licences and in pollution reduction programs.

### 6.2.3 General regulatory framework

Noise pollution comes from all sectors: households, businesses, industry, transport and government. The EPA works closely with transport and planning authorities and local councils. NSW Health advises the EPA on the human health effects of noise and also during the EPA's establishment of noise criteria and preparation of noise guidance material.

To effectively regulate noise, responsibility for its management is shared across a range of agencies and local government as explained in the following sections.

Noise legislation and key regulatory instruments	
Acts and Regulations	
<a href="#">Protection of the Environment Operations Act 1997</a> (POEO Act)	Regulation of activities listed in Schedule 1 of the Act ('scheduled' activities) using environment protection licences containing noise and vibration limits and notices to prevent, control and mitigate noise
<a href="#">Protection of the Environment Operations (Noise Control) Regulation 2008</a> (Noise Control Regulation)	Controls noise from motor vehicles, marine vessels and miscellaneous articles used in the home
<i>Liquor Act 2007</i>	Provides a framework for managing undue disturbance associated with a licence under the Act, including noise
<a href="#">Environmental Planning and Assessment Act 1979</a> (EP&A Act)	Approval regime for development in NSW, including dealing with noise
State environmental planning policies and Department of Planning and Environment policies	
<a href="#">State Environmental Planning Policy (Infrastructure) 2007</a>	Sets internal noise goals for residential and sensitive development built alongside infrastructure



Noise legislation and key regulatory instruments	
<a href="#"><u>State Environmental Planning Policy (Exempt and Complying Codes) 2008</u></a>	Includes restrictions on permissible hours of construction or demolition works with reference to the <i>Protection of the Environment Operations Act 1997</i> and the <i>Protection of the Environment Operations (Noise Control) Regulation 2008</i>
<i>Development near rail corridors and busy roads: interim guidelines (2008)</i>	Provides planning and design advice on how to achieve the noise goals specified in <i>SEPP (Infrastructure) 2007</i>

Key EPA policies and guidelines are reported on in a later section.

### Regulating noise from transport

Transport noise	
Motor vehicles	NSW Police, Roads and Maritime Services (RMS), local councils and the EPA all have responsibilities for regulating noise from motor vehicles.
Marine vessels	RMS primarily regulates noise from marine vessels but the picture can be more complex for shipping. See Chapter 18.
Rail	The EPA is responsible for regulating noise from existing rail activities. Railway access providers (not the actual trains) are required to hold environment protection licences under the POEO Act.
Aircraft	Typically noise from aircraft on the ground, other than at Sydney Airport, is the responsibility of local councils, while aircraft in flight and at Sydney Airport are a Commonwealth responsibility.

The EPA maintains and uses equipment to assess compliance with noise and vibration limits in environment protection licences and resolve complaints of excessive noise.

The legislation and key regulatory instruments that determine or strongly influence decisions on noise management of projects that have the potential to have noise impacts on the community are set out below.

#### *Noise from motor vehicles*

The EPA, RMS and NSW Police regulate on-road vehicle noise standards through the Noise Control Regulation. These standards are sourced from Australian Design Rules for motor vehicles adopted by the Commonwealth Department of Infrastructure and Regional Development in consultation with state and territory jurisdictions through the Council of Australian Governments.

The EPA provided input to the Department of Planning and Environment document *Development near rail corridors and busy roads: interim guidelines*. This sets noise and other criteria to ensure that new residential developments adjacent to busy roads and rail corridors achieve appropriate acoustic amenity.

#### *Noise from aircraft*

Noise from aircraft in flight or when taking off, landing or taxiing is a Commonwealth responsibility under the Air Navigation (Aircraft Noise) Regulation 1984, while local government regulates noise from maintenance on the ground at privately operated airports. Noise on the ground from airports operated by NSW public authorities, such as local councils, is an EPA responsibility.



### ***Motor vehicle compliance program***

The EPA's motor vehicle compliance program has been designed to promote pollution prevention associated with motor vehicle noise, air emissions and littering from vehicles.

The EPA regularly participates in motor vehicle operations with NSW Police that target noisy and highly modified vehicles in problem areas. In 2013–14, the EPA issued 2960 notices which required vehicle owners to make repairs to noisy or polluting vehicles, and to present their vehicle for a noise test and inspection at an EPA approved inspection station. The EPA also suspended 447 vehicle registrations because vehicle owners failed to comply with the notice by not presenting their vehicle for inspection, or by not undertaking necessary repairs on the vehicle.

The EPA also has a robust littering from motor vehicles compliance program as part of its overall strategy to reduce the amount of litter discarded from motor vehicles. This includes reporting of littering by both authorised officers and members of the public. During the 2013–14 financial year, the EPA issued 492 penalty notices for littering from motor vehicles based on reports from authorised officers and 6360 advisory letters to vehicle owners based on reports from members of the community.

The EPA is also a partner with Roads and Maritime Service in the M5 East Air Quality Improvement Program which aims to improve air quality in the M5 East tunnel. During 2013–14, the EPA issued 259 penalty notices to owners of vehicle that were detected emitting excessive air impurities (smoke) in the tunnel.

### ***Noise from rail***

Rail noise is generally regulated by the EPA through environment protection licences for rail access providers under the POEO Act.

Acceptable noise from rail infrastructure developments is assessed under the *Rail infrastructure noise guideline*. This deals with noise and vibration from new and redeveloped rail infrastructure projects to ensure potential impacts are assessed consistently and transparently. The Department of Planning and Environment's *Development near rail corridors and busy roads: interim guidelines* applies where new residential developments are proposed near existing rail corridors.

### ***Better management of noise (and air and spills) pollution from rail***

Currently, EPA regulation of rail noise (and air emissions) covers the networks that trains run on. This has constrained environmental improvements because there is no direct regulation of the rolling stock.

The EPA wants to improve environmental outcomes from the licensing of rail activities and has released a position paper for public consultation that proposes three kinds of licensing requirements:

- construction activities in the rail sector
- rail access providers
- the trains themselves.

The EPA is seeking feedback on this proposal.

### **Regulating noise from scheduled activities and government**

The EPA is the lead agency for regulating environmental noise from scheduled premises which are required to hold an environment protection licence and activities carried out by state and public authorities. This includes large industries and infrastructure developments.

### *Licensing decisions*

The EP&A Act requires consultation with the Environment Minister and/or the EPA for both State Significant Development and Infrastructure where the EPA has a licensing role under the POEO Act.

As noted above, the EPA reviews development applications, makes recommendations to consent authorities and works with the Department of Planning and Environment to negotiate with project proponents to minimise and manage noise and vibration impacts to the fullest extent practicable.

Decisions on noise requirements are guided by the POEO Act (section 45) which sets out the considerations for licensing decisions together with the EPA's published policies and guidelines.

The process for determining noise requirements is:

- Determine the noise trigger level or criteria for the development or activity: This is the level above which noise mitigation measures must be considered. Measurement of existing background levels is often a key component of this step.
- Predict or measure the noise levels produced by the development or activity: Penalty weightings can be required for annoying noise characteristics, such as tonality, impulsiveness and low frequency. Meteorological effects on the noise produced, such as wind and temperature inversions, must also be taken into account where appropriate.
- Compare the predicted or measured noise level with the noise trigger level or criteria: Where exceedences are identified, 'feasible' and 'reasonable' noise management measures are identified and evaluated.
- Where residual noise impacts exceed the noise trigger levels or criteria after feasible and reasonable noise mitigation measures have been applied, the economic, social and environmental costs and benefits from the proposed development must be balanced against the noise impacts on the community to determine its ultimate acceptability. Further noise mitigation may be considered and negotiated.
- The regulatory or consent authority sets conditions on noise and vibration levels reflecting the achievable and agreed limits for the development or activity.

At the conclusion, noise criteria will apply at the point specified in the relevant policy for affected receivers. This is generally the most affected point on or within a residential property. Detailed technical instructions are provided in guidelines.

### *Conditions in environment protection licensing*

The EPA regulates noise through conditions it places in licences it issues under the POEO Act. This takes into account a number of factors, including noise criteria and the ability to undertake work and activities in accordance with the licence conditions.

Conditions on an environment protection licence may:

- restrict the permissible hours for noise generation, such as for construction work
- set limits on the level of noise emitted from activities on a premises for day, evening and night periods and the range of meteorological conditions under which the limits apply
- require the licence holder to monitor noise emissions
- require the licence holder to report on their compliance with noise conditions
- require the licence holder to ensure their works and activities are in accordance with the licence conditions
- require the licence holder to undertake a pollution reduction program (PRP).

### *Noise impacts not addressed in a licence*

Where a new or potential noise impact is identified after the grant of a licence (such as where the nature of the noise emission has changed or the impacts have become better

understood), the EPA can vary the licence and attach new or revised conditions. These could require the licence holder to:

- undertake pollution studies or a PRP to investigate the extent of the pollution and the impacts caused by the pollution (where this information is not available)
- determine possible measures that can be taken to mitigate the pollution
- implement additional requirements as needed.

### ***Regulating impacts of coal mine noise on neighbouring residents***

The Central West Region of the EPA regulates 10 coal mines in the Western Coalfields between Lithgow and Ulan north of Mudgee. The activities undertaken at three large open-cut coal mines between the villages of Ulan and Wollar – Ulan, Moolarben and Wilpinjong – result in complaints to the EPA's Environment Line about noise, dust, odour (from spontaneous combustion of coal stockpiles at Wilpinjong) and vibrations from blasting.

The complaints from neighbouring rural residents are mostly about night-time noise. In response the Central West Region has been monitoring night-time mine noise to assess the compliance of each mine with their noise limits and identify possible operational changes that will reduce the noise impacts on neighbouring residents. To facilitate monitoring in real time (when a resident is complaining about noise), the EPA's Environment Line forwards complaints throughout the night to Central West Region officers in the field.

The EPA commenced night-time noise monitoring in 2012–13 and in 2013–14 conducted unannounced noise monitoring over more than 10 nights. Noise was found to be audible but compliant with licence limits. The EPA informed the mines and residents of the night-time monitoring after it had been completed.

Although the coal mines were not found to be in breach of their noise limits on these nights, this unannounced after-hours surveillance work is having the positive outcome of reducing noise complaints. For example, noise complaints about the Moolarben Coal Mine have dropped from 332 in 2011–12, to 223 in 2012–13 to 181 in 2013–14.

Similarly, for the same years, complaints for Ulan Coal Mine have reduced from 65 to 42 to 5. The complaints for Wilpinjong Coal Mine have remained in the range of 15 to 27 over these years.

### **Non-scheduled premises and neighbourhood noise**

Local councils are generally responsible for non-scheduled premises and, together with the police, manage most neighbourhood noise issues, especially under the Noise Control Regulation.

### **Noise from wind farms**

The EPA became the appropriate regulatory authority for large-scale wind farms (greater than 30 megawatts) under the POEO Act in June 2013. From April 2014, all proponents or operators of these wind farms have been required to hold environment protection licences for both their construction and operation. Currently seven wind farms, either in the construction or operational phase in NSW, require a licence. All are located in the Southern Tablelands of NSW between Cooma and Goulburn.

Discussions are underway with the owners of these wind farms on licence conditions for their facilities. Wind farm proposals in NSW are currently assessed against the noise requirements in the South Australian EPA's *Wind farms environmental noise guidelines* (2003).

### ***Negotiated agreements for noise treatment and land acquisition***

When making a decision on a proposal for industrial development, planning authorities weigh a range of factors, including environmental noise impacts.

Assessment of these proposals may result in a residual noise impact even after all reasonable and feasible noise mitigation options have been considered. Despite this, a planning authority may decide that the development can proceed. In these cases, the authority may require the project proponent to provide noise mitigation through architectural treatment on residences. Alternatively, where the noise impacts are significant, they may grant the landowner acquisition rights to adjoining affected properties to be exercised at the landowner's discretion.

Where existing industrial sites are causing an excessive impact, the EPA will negotiate and put in place a noise reduction program that sets out a program of work and a timeline for the implementation of reasonable and feasible noise mitigation measures. Occasionally, residual noise impacts remain excessive and the EPA may work with both the premises and the community to negotiate an agreement that could include architectural noise treatment at residences or other arrangements.

### **Policies and guidelines**

The EPA develops noise policies and guidelines to protect the community from becoming highly annoyed by noise. These aim to promote land use compatibility between sensitive receivers (especially residences) and noise-generating activities, such as roads, rail and industry. EPA noise policies and guidelines may specify noise trigger levels where, if exceeded, feasible and reasonable action must be taken to mitigate noise.

In determining appropriate criteria, NSW noise policies take into account:

- the range of reaction to noise across a community noting that, because this can vary significantly, it may not be possible or practical to adopt noise levels that will ensure there are no noise impacts in the community
- socio-acoustic studies that define dose-response relationships between the level of a particular type of noise and the percentage of the exposed population likely to be highly annoyed: These studies clearly demonstrate that annoyance reactions vary significantly between different types of noise, for example, people tend to be more annoyed by aircraft noise than by road traffic noise and even less annoyed by rail traffic noise at the same decibel levels.

The EPA has developed and published a range of noise management and minimisation brochures, guidelines and policies for use by industry, state and local government, and the community.

<b>EPA policies and guidelines</b>	
<a href="#"><u>NSW industrial noise policy</u></a> (2000) – currently under review	Provides the framework for assessing proposals and deriving noise limit conditions for scheduled activities under the POEO Act. The Minister for the Environment has asked the EPA to consider including the draft noise standards for wind energy projects in the policy, a process due to be finalised by December 2014.
<a href="#"><u>NSW road noise policy</u></a> (2011)	Defines noise criteria for acceptable levels of road traffic noise from new roads or road developments
<a href="#"><u>Rail infrastructure noise guideline</u></a> (2013)	Deals with noise and vibration from new or redeveloped rail infrastructure projects to ensure potential noise impacts are assessed in a consistent and transparent manner

<a href="#"><u>Assessing vibration: a technical guideline</u></a> (2006)	Presents the preferred and maximum vibration values for use in assessing human responses to vibration and recommends measurement and evaluation techniques
<a href="#"><u>Interim construction noise guideline</u></a> (2009)	Sets out ways to deal with the impacts of construction noise on residences and other sensitive land uses, such as schools and hospitals
<a href="#"><u>Noise guide for local government</u></a> (2013)	Provides information to support the role of local government in managing noise using powers under the POEO Act and more broadly

The EPA's noise policies and guidelines are considered by planning authorities when assessing planning submissions and environmental impact assessments required under the *Environment Planning and Assessment Act 1979*.

### *Noise standards and targets*

The EPA uses or requires the use of appropriate Australian and international standards within licences, policies and guidelines. This ensures that appropriate requirements for the measurement, assessment and management of noise are used so that information on noise levels and potential impacts is robust and verifiable. For example, the following standards are quoted within various EPA noise policies, guidelines and licensing conditions:

- *AS2377 Methods for the measurement of railbound vehicle noise* (2002)
- *IEC61400-11 Wind turbine generator systems: acoustic noise measurement techniques* (2002)
- *ISO9613-2 Attenuation of sound during propagation outdoors: general method of calculation* (1996)
- *BS6472 Evaluation of human exposure to vibration in buildings* (1992)
- *ANZECC (1990) Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration*
- *DIN4150.2 Human exposure to vibration in buildings* (1999).

Other standards are developed and integrated into sector-specific regulation, such as road noise standards sourced from Australian Design Rules for motor vehicles built into the Noise Control Regulation. In the rail sector, the EPA is represented on working groups chaired by the Rail Industry. The EPA's *NSW industrial noise policy* is regarded by other Australian states as a benchmark standard for environmental noise.

The EPA uses the noise criteria and trigger levels in its noise policies and guidelines for industrial, road traffic and railway noise as benchmarks for assessment of the likely impact of a proposed development when considering the mandatory requirements in making licensing decisions. They are also used by authorities when assessing and managing existing noise issues, generally when there is a change or potential change in the environment.

Targets are a feature of the noise pollution management framework. The Noise Control Regulation prescribes noise levels for certain articles, classes of motor vehicles and motor vehicle accessories designed to ensure long-term environmental improvement. It is an offence to sell or use classes of motor vehicles and motor vehicle accessories that emit levels above the prescribed levels or sell certain articles without appropriate noise labelling.



### *Three approaches to managing noise*

Noise criteria in EPA policy and guidelines for noise generally aim to ensure that the community is protected from being ‘highly annoyed’ by noise and use three approaches to manage annoyance:

- ‘noise-dose’ criteria approach
- ‘intrusive’ criteria approach
- ‘amenity’ criteria approach.

The ‘noise dose’ criteria approach is used for single types of noise with well understood community response. Criteria are generally set at a level that aims to protect 90% of the population from being highly annoyed by noise from that activity. Noise criteria are derived from dose-response data in socio-acoustic studies in peer-reviewed scientific literature. These studies clearly demonstrate that annoyance reactions vary significantly between different types of noise. People tend to be more annoyed by aircraft noise than by road traffic noise and even less annoyed by rail traffic noise at the same decibel levels. The [NSW road noise policy](#) and [Rail infrastructure noise guideline](#) primarily apply a noise dose approach.

The [NSW industrial noise policy](#) manages noise impacts with regard to intrusive and amenity noise criteria. Intrusive noise criteria aim to control the emergence of a certain type of noise above the background noise level. When a noise is more than a certain level (usually 5 decibels) above the background noise level, it is likely to be noticeable and potentially annoying so is considered to be ‘intrusive’ noise.

The amenity criteria approach aims to deal with cumulative impacts where there are multiple developments. In the *NSW industrial noise policy*, the amenity criteria provide a noise ‘cap’ relevant to a particular zone (rural, urban, suburban or industrial interface) which limits background noise increases (or ‘creep’) due to cumulative impacts from subsequent industrial developments. The cumulative amenity noise levels are informed by dose-response relationships and also aim to protect 90% of the population from being annoyed by noise from industrial activity.

## **6.3 The community and the EPA**

### *6.3.1 Community involvement in decision-making*

The EPA promotes community involvement in decisions about environmental noise through a number of means:

- consulting with the public when developing new policies and guidelines by making non-technical explanatory documents available including questions and answers that explain the proposed initiative and also meeting with the community and potentially affected groups
- taking account of public submissions on environmental impact statements for new developments when deciding on appropriate noise limits in licences
- preparing guidance for the community and local government on how to manage local and domestic noise issues that are under council control (see below)
- preparing information brochures for the general public on key noise issues of concern
- providing information on the EPA website and through Environment Line.

### ***Consulting on rail infrastructure noise***

The draft *Rail infrastructure noise guideline* was released for public consultation in February 2012. It specified noise and vibration trigger levels for heavy and light rail infrastructure projects and rail traffic-generating developments. Where these noise levels are likely to be exceeded when the project is operational, the proponent must consider feasible and reasonable noise mitigation to reduce the noise impacts towards the trigger levels.

Twenty-eight submissions were received during the consultation period resulting in a number of minor changes, agreed by an Interagency Committee on Rail Noise, chaired by the EPA, with representatives from Transport for NSW, the Department of Planning and Environment, RailCorp, the Australian Rail Track Corporation and John Holland Rail Pty Ltd.

Following the release of the final guideline in May 2013, the EPA has made presentations to acoustic practitioners and industry on its application.

## **6.2.2 Communicating with the public**

### **Noise guide for local government**

The [\*Noise guide for local government\*](#) is a key resource in communicating with the public about noise. It is designed primarily to assist council officers to deal efficiently and effectively with noise issues for which they are the appropriate regulatory authority. It is also used by officers from the EPA, RMS, port corporations, Marine Parks Authority, Olympic Park Authority and NSW Police.

The guide aims to provide practical guidance to council officers in the day-to-day management of local noise problems and the interpretation of existing policy and legislation. It focuses on how to assess and manage noise issues dealt with by council officers, such as neighbour-to-neighbour problems and those resulting from commercial or industrial premises.

Importantly, the guide is also aimed at planners. It outlines planning considerations that can have a significant bearing on preventing future noise problems. The guide is advisory in nature, and council officers are encouraged to use it to develop council procedures or policy to deal with noise issues relevant to local circumstances.

The *Noise guide for local government* was updated in 2013 with a hard copy provided to every council in NSW and made available on the EPA website for the community to access.

### **Neighbourhood noise information**

The EPA maintains five noise brochures dealing with neighbourhood noise issues:

- [\*Dealing with barking dogs\*](#)
- [\*Managing vehicle noise\*](#)
- [\*Dealing with neighbourhood noise\*](#)
- [\*Managing noise from intruder alarms\*](#)
- [\*Seeking noise abatement orders\*](#).

As well as providing details about the legislative requirements and which agencies are responsible for different issues, the brochures provide guidance on preventing noise problems from arising. The EPA distributes about 10,000 hard copies of the brochures each year.

On occasion, there is some confusion about who the public should contact about a neighbourhood noise problem. This is generally easily clarified through the EPA website or Environment Line.

More frequently, the EPA is contacted on neighbourhood noise problems when the local council has not responded to a complainant's satisfaction. However, the EPA does not have an 'appeal' function for neighbourhood issues.



## Chapter 7: Air and the EPA

### 2012–2014 selected highlights

- Pollution reduction programs placed on all NSW open-cut coal mine licences with performance reporting due in August 2014
- Growing air emissions monitoring network: Upper Hunter 2012, Lower Hunter 2014 and New England North-West network proposed
- Diesel emissions management workshop in June 2014 with around 115 stakeholders in attendance to discuss the development of a strategy by the end of 2014 to manage non-road diesel emissions from equipment used in mining, construction, shipping and locomotives
- Driving compliance with requirements for vapour recovery equipment to be installed at service stations in Sydney's greater metropolitan area to reduce ozone pollution
- Benefits for local air quality from a \$1.3-million wood smoke reduction program over 2013 and 2014 providing grants to local government for education initiatives, enforcement programs and rebates to remove older wood heaters
- National leadership on a review of particle standards in the National Environment Protection (Ambient Air Quality) Measure and release of an Impact Statement in July 2014
- Release of [Managing particles and improving air quality in NSW](#) to outline the EPA's approach to this issue and putting it into practice with the [Upper Hunter Air Particles Action Plan](#)
- Release of an updated [air emissions inventory](#) and development of the interactive web tool [Air Emissions in My Community](#) which went live in December 2013

### 7.1 The context

Clean air is fundamental to a healthy environment and healthy population. When air quality is poor, it has particular affects on the health of children, older people, and those with pre-existing health conditions, as well as impacts on the natural environment and liveability of communities. The [NSW Health website](#) has information on how air pollution affects people's health.

An air pollutant is any substance in the air that can harm humans or the environment and may take the form of gases or airborne solid particles and liquid droplets.

Air pollutants arise from human activities, such as transport and industry, and from natural processes, such as dust storms and bushfires, and even plant respiration.

They may be 'primary' pollutants – emitted directly from a process – or 'secondary' pollutants, those formed when primary pollutants react with other substances or each other. An example of a secondary pollutant is ground-level ozone, a major component of photochemical smog.

The EPA's principal focus is on reducing pollutants that are the most significant in terms of impact, especially fine particles and ozone, each of which are known to have serious health impacts. Except for volatile organic compounds (reflected in the ozone standard), these pollutants are all the subject of the [National Environment Protection \(Ambient Air Quality\) Measure](#) (AAQ NEPM) which sets health-based standards for ambient air quality in NSW and the rest of Australia.

The key pollutants and significant human sources are:

- **particles (PM<sub>2.5</sub>)** – primary sources are wood heaters, vehicles, off-road equipment, vehicles and power stations; precursors of secondary pollutants: vehicles, power stations, shipping and mining blasts
- **particles (PM<sub>10</sub>)** – primary sources: coal mining, quarries and construction
- **nitrogen oxides** – primary sources: vehicles and power stations
- **sulfur oxides** – primary sources: power stations, shipping and mining blasts
- **ozone** – a secondary pollutant; precursor pollutants include motor vehicles, fuels, power stations, paints and solvents
- **volatile organic compounds** – vehicles, fuels, paints and solvents

### *Particles, particulate matter, PM<sub>2.5</sub>, PM<sub>10</sub> and TSPs: a clarification*

Each of these terms refers to a mixture of solid and liquid particles suspended in the air. Air quality specialists tend to use the terms 'particles' and 'particulate matter' interchangeably – and they do mean the same thing. The other terms refer to categories of size: PM<sub>2.5</sub> is a subset of PM<sub>10</sub> which is a subset of TSP. In decreasing order:

**TSP** (total suspended particulates): These are all airborne particles of whatever size from the largest capable of being airborne to microscopic particles, invisible to the eye. TSPs larger than PM<sub>10</sub> can have a significant impact on amenity in high concentrations, affecting visibility and settling as visible dust but less of an impact on health. These particles are generally caused by mechanical processes such as excavation.

**PM<sub>10</sub>** means particles with an aerodynamic diameter of < 10 micrometres (µm). PM<sub>10</sub> which are larger than PM<sub>2.5</sub> can affect people's health but are not as closely associated with the more serious health impacts as PM<sub>2.5</sub>. This is because, being larger, they do not remain suspended in the air for as long. In addition, they may not be breathed as deeply into the lungs. As with the larger TSPs, these particles are generally caused by mechanical processes.

**PM<sub>2.5</sub>** means particles with an aerodynamic diameter of < 2.5 µm. PM<sub>2.5</sub> can travel many kilometres from their source and be breathed deep into the lungs and even pass into the bloodstream. Long- and short-term exposure to PM<sub>2.5</sub> is linked to an increased risk of respiratory and cardiovascular disease and death from those diseases. In 2013, the International Agency for Research on Cancer classified particulate matter, as carcinogenic. PM<sub>2.5</sub> is generally caused by combustion sources or formed in the atmosphere when pollutants interact with other atmospheric chemicals. Diesel exhaust is a common source of fine particles in ambient air. Note that the even smaller PM<sub>1.0</sub> is included within the PM<sub>2.5</sub> measurement

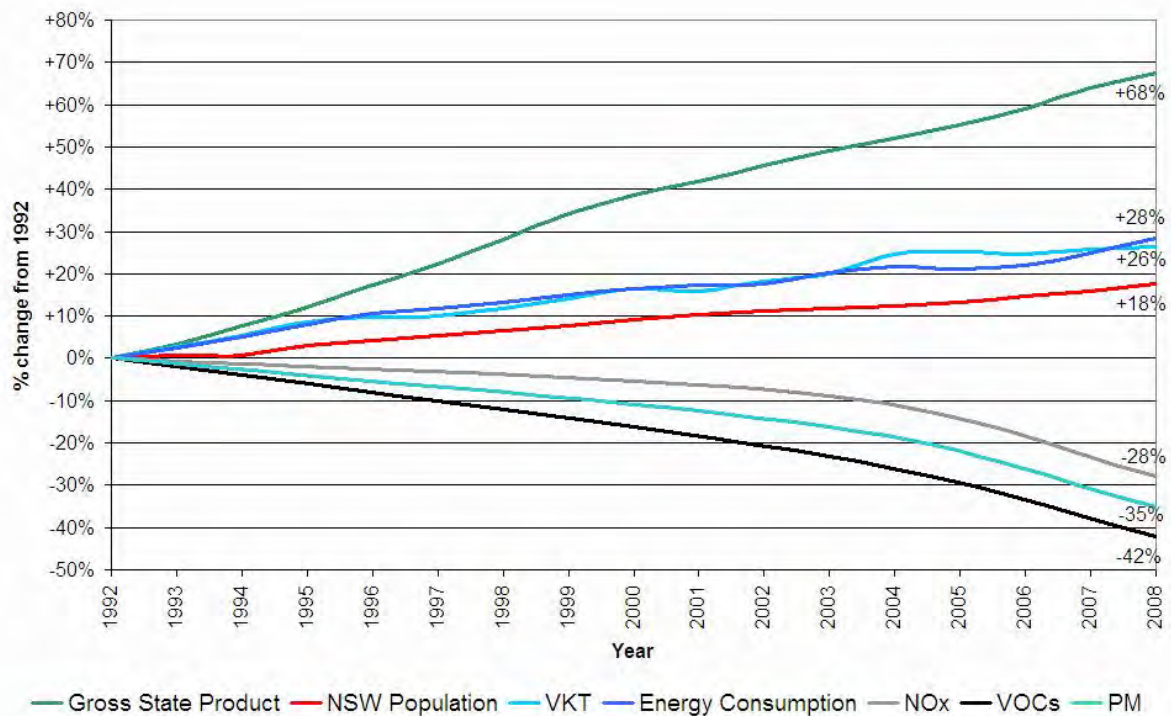


#### **7.1.1 Air quality in NSW**

Air quality in NSW is generally good by international standards and has been steadily improving over time. Levels of nitrogen dioxide, sulfur dioxide and carbon monoxide are consistently well within national standards. However, levels of ozone and particles (both PM<sub>10</sub> and PM<sub>2.5</sub>) exceed the standards from time to time. After several years of very good air quality, in 2013 air quality was poorer across NSW, due mainly to warmer and drier conditions and severe bushfires. Ozone and fine particle pollution levels are affected by the annual variability in the weather, natural events such as bushfires and dust storms, and the location and intensity of local emission sources, such as coal mines, wood heaters, transport and industry.

In Sydney and some regional centres, residential wood heaters continue to be the most significant source of particle emissions in winter. Ozone precursor emissions from motor

vehicles are declining through the adoption of progressively tighter national standards, although they remain the most significant source of such emissions from human activities in Sydney.



**Figure 7.1: Trends in emissions in the Sydney Region compared with key NSW statistics**

Figure 7.1 uses data from the EPA's Air Emissions Inventory (2008) to show air quality trends in Sydney between 1992 and 2008, compared with the population growth, energy use, how far vehicles travel and gross state product.

The air quality picture in the Hunter region reflects an expanding coal sector, resulting in increasing emissions of particles. The National Pollutant Inventory reports that PM<sub>10</sub> emissions from NSW coal mines increased by 7% in 2012–13 compared with 2011–12, which is largely due to an 11% increase in coal production over the same period.

## 7.2 How we regulate

In managing air quality, the EPA approaches issues from many dimensions to frame the most effective mix of actions:

- national strategic focus (e.g. national air quality standards and product standards)
- strategic planning focus through input into larger planning strategies and plans
- premises or activity focus (such as through licensing of industry)
- industrial precinct focus (e.g. odour issues at Rutherford in the Hunter Valley)
- industry sector focus (such as coal mines)
- regional or airshed focus (e.g. the Upper Hunter Valley)
- specific emission source focus (such as wood heaters, motor cars)
- specific pollutant focus (e.g. particles)
- supply chain or process focus (such as vapour recovery in the petrol supply chain).

Across each of these, the EPA aims to use an optimal mix of tools including prescriptive laws, regulatory frameworks, economic incentives, compliance support, education and stakeholder information. For more information on this range of tools, see Chapter 2.

## *Fundamentals of the evidence base*

### **NSW Air Emissions Inventory**

The EPA's [NSW Air Emissions Inventory](#) is the most comprehensive study of air emissions in Australia and an important tool for calculating emission levels, understanding air pollution issues and pinpointing major emission sources for action. Data is gathered from a wide range of government and industry sources and through domestic surveys. The EPA updates the inventory every four to five years. The current inventory presents data for 2008, detailing emissions and their sources for over 850 pollutants in NSW's Greater Metropolitan Region (GMR) of Sydney, Wollongong and Newcastle (including the Hunter Region). About 75% of the NSW population resides in the GMR.

The inventory categorises emissions as:

- natural (such as bushfires, marine aerosols and vegetation)
- commercial businesses (e.g. non-EPA licensed printers, quarries and service stations)
- domestic activities (such as residential lawn mowing, portable fuel containers and wood heaters)
- industrial premises (e.g. EPA-licensed coal mines, oil refineries and power stations)
- non-road vehicles and equipment (e.g. dump trucks, bulldozers and marine vessels)
- on-road transport (such as registered buses, cars and trucks).

The inventory also calculates detailed spatial and temporal data that feeds into airshed dispersion and chemistry models, such as CSIRO's TAPM model (The Air Pollution Model). These are used to assess the cumulative impact for new developments, model formation of secondary pollutants in the atmosphere (ozone and secondary particles) and calculate the public air pollution exposure for health impact assessments.

To help the community use this data in an accessible way, the EPA has developed the [Air Emissions in My Community](#) web tool (see below for more).

### **NSW air quality monitoring**

NSW's Air Quality Monitoring Program uses the most comprehensive monitoring network in Australia. In addition to the existing Sydney network, the NSW Government completed a 14-station industry-funded air quality monitoring network in the Upper Hunter Valley in 2012 and opened two new air quality monitoring stations at Camden (Sydney) and Wyong (Central Coast).

The NSW Government has also established an industry-funded monitoring network in the Newcastle local area. The network has been operating since 7 August 2014, for the industrial area around the Port of Newcastle to provide continuous, high-quality measurements of PM<sub>10</sub> and PM<sub>2.5</sub> particles, sulfur dioxide and nitrogen oxides with data publicly available in near real-time.

These additional facilities bring the number of air quality monitoring stations to 15 in Sydney and 43 across NSW. Information from the network of air quality monitoring stations is reported by the [Office of Environment and Heritage](#).

The monitoring program is being extended even further: the NSW Government's [New England North-West Strategic Regional Land Use Plan](#) also includes an action to progressively establish a regional air monitoring network in the area as coal mining activity increases, using the Upper Hunter industry-funded model. Its initial focus will be to obtain baseline data in population centres.

The EPA uses the following principles in prioritising where to focus and which tools to use when managing air quality:

### **Strengthen and act on evidence**

To ensure a rigorous evidence base for its programs, particularly in managing larger airsheds, NSW maintains and updates its air quality monitoring network and air emissions inventory and pursues a range of particles research programs. The EPA prioritises areas for action by analysing data to determine the sources that most impact on people.

The EPA uses the [ambient air monitoring network](#) to focus where attention is needed and the NSW EPA [Air Emissions Inventory](#) (see below) to identify principal sources of emissions in those regions. Modelling is then used to estimate future concentrations and work out by how much emissions need to be reduced to meet air quality standards.

### **Use innovative and effective tools**

The EPA researches and implements best practice measures to continuously improve management of air emissions through all reasonable and practicable measures. Impacts on the environment, community and businesses are considered when designing or selecting the appropriate tools.

### **Develop least-cost pathways to improve air quality and maximise net benefits**

The EPA applies economic analysis tools so that its management strategies and specific control measures deliver greatest benefit to the environment and the community while minimising costs to community and business.

### **Engage and inform the community**

The EPA, together with the Office of Environment and Heritage (OEH), uses a range of communication and consultation techniques and technologies to make air quality data and information fully available to the public. For more information on EPA and the Community, see Chapter 3: The EPA and its stakeholders.

### **Collaborate on cleaner air at all levels of government: NSW, local and national**

The EPA works cooperatively with OEH to develop the evidence base for air quality management and collaborates with other NSW agencies, including NSW Health, Roads and Maritime Services, Transport for NSW, the Department of Planning and Environment and Department of Trade and Investment.

The EPA supports local councils in their air quality management role with management frameworks and tools, information, and guidance and funding for local initiatives.

## **7.2.1 Working nationally**

National environment protection measures (NEPMs) are sets of national objectives designed to assist in protecting or managing particular aspects of the environment. NEPMs are made by Environment Ministers from Australian jurisdictions and decisions how the NEPMs are implemented are made by each jurisdiction individually.

### **National Environment Protection (Ambient Air Quality) Measure**

The AAQ NEPM standards for ambient air quality were set in 2008, reflecting a consensus at national level on the air quality that Australia should achieve. This consensus was then built into statutory targets that each jurisdiction adopts and works towards meeting.

The AAQ NEPM establishes national ambient air quality standards and a national framework for monitoring and reporting on six common air pollutants (including PM<sub>10</sub> but with advisory reporting standards only for PM<sub>2.5</sub>).

Since 2012, the NSW EPA has led national work on a review of the AAQ NEPM particle standards and the development of national emission reduction policies. A particular focus



has been moving from an advisory standard for PM<sub>2.5</sub> to become a compliance standard, given its effects on human health.

In April 2014, Environment Ministers signalled their intent to vary the AAQ NEPM based on the latest scientific understanding of the health risks arising from airborne particle pollution. The variation to the NEPM seeks to establish a more stringent reporting standard for particle pollution (both PM<sub>2.5</sub> and PM<sub>10</sub>).

An [Impact Statement and draft varied measure](#) is open for public comment on the NEPC website. Stakeholders have an opportunity to provide their views on the information and options presented, either via an online survey or in writing. Consultation concludes on 10 October 2014.

The NSW Government is considering options for responding to the proposed PM<sub>2.5</sub> standard within NSW and is exploring the use of a Protection of the Environment Policy under the [Protection of the Environment Operations Act 1997](#) (POEO Act). The EPA will be consulting with industry and the community about implementation.

Subject to agreement among jurisdictions, the EPA has committed funding to a second stage of the AAQ NEPM review to investigate new standards for other pollutants covered by it, such as sulfur dioxide, and further national measures relating to particle and particle precursor source sectors, such as shipping, locomotives and aerosols.

In April 2014, Australia's Environment Ministers initiated work to identify strategic priorities and approaches as a basis for a National Clean Air Agreement and agreed to consider working towards finalising this by 1 July 2016. The NSW Minister for the Environment wrote to the Commonwealth Minister for the Environment in June 2014, requesting consideration of actions to address shipping emissions in the development of the national agreement.

### **National product and equipment standards**

As demonstrated by the [2008 Air Emissions Inventory update](#), emissions from the product and equipment sectors have continued to climb as the population and the economy grow. Unregulated diesel and combustion sources, such as non-road diesel engines, two-stroke engines and wood heaters, have become more significant emitters of particles and precursors of secondary particles and are an important target for new measures.

While NSW has introduced programs targeting these sources, gains can be eroded because national laws still allow products with high emissions to be imported and sold in Australia. Mutual recognition requirements constrain states in their attempts to require an improved emissions performance from new products sold.

Studies and economic analyses for each sector have demonstrated that substantial benefits can be achieved cost-effectively in Australia by bringing emission standards for these sectors into line with international best practice. Europe, North America, China, Japan and India have introduced or tightened relevant emission standards for a range of products and equipment.

Harmonisation of Australian vehicle emission standards with progressively more stringent European Union standards has proved effective in reducing vehicle emissions in Australian cities, despite growth in travel and this provides a model for adopting international emission standards for products and equipment.

The EPA has been working with the other jurisdictions to develop specific actions and nationally consistent standards to drive emission reductions, primarily fine particles, from priority sectors. The target sectors are the non-road diesel engines, as used in mines, ports and construction projects, small spark ignition engines (particularly two-stroke engines), used in gardening equipment and recreational boats, and wood heaters. Collectively these are significant emitters in Australian cities, especially of particulate matter and VOCs which are precursors of both secondary particles and ozone.

## National Environment Protection (Air Toxics) Measure

At national level, work on air toxics is being undertaken through the [National Environment Protection \(Air Toxics\) Measure](#) which establishes 'monitoring investigation levels' for five air toxics: benzene; formaldehyde; benzo(a)pyrene as a marker for polycyclic aromatic hydrocarbons; toluene; and xylenes. This is with the objective of improving the information base on ambient air toxics in the Australian environment to facilitate the development of standards.

### 7.2.2 The EPA and planning

The EPA provides input to both the strategic land use planning processes and those that involve proposals that will require an environment protection licence (EPL). For more detail on the EPA's role in the planning process, see Chapter 2.

The EPA's air policies and guidelines are considered by planning authorities when assessing the planning submissions and environmental impact assessments required under the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The strategic planning and development assessment process under the EP&A Act plays a vital role in managing air pollution. Health risks to the population from air pollution is a function of both the levels of pollution and the extent to which people are exposed. Some populations are exposed to pollutants through living close to industrial or traffic sources, for example along busy roads. Recognising these interactions, NSW has introduced planning policies to reduce exposure of sensitive land uses (such as residential uses) to high emission sources (such as busy roads).

The EPA provides input to Department of Planning and Environment on the appropriate process and criteria for assessment of development proposals. The EPA reviews development applications, makes recommendations to consent authorities and negotiates with project proponents to minimise air pollution and its impacts.

Air emission limits developed through application of NSW policies and guidelines are formalised in EPA EPLs and within pollution reduction programs. Site-specific features that will impact on the setting of emission limits are accounted for in an air quality impact assessment. See below for more information on this role.

### 7.2.3 General regulatory framework

Air pollution comes from all sectors – industry, businesses, households, transport and government – and the EPA leads all sectors in improving their environmental performance. The EPA does this by using regulation and compliance in conjunction with other tools, such as education, partnerships and economic mechanisms, developed under an evidence-based strategic approach to the improvement of air quality.

In addressing air pollution, the EPA works with other state agencies, including NSW Health, WorkCover NSW, transport and planning agencies and local councils.

Air pollution is regulated through the POEO Act, [Protection of the Environment Operations \(Clean Air\) Regulation 2010](#) (Clean Air Regulation) and [Protection of the Environment Operations \(General\) Regulation 2009](#).

This section on the general regulatory framework provides information under the following headings:

- Regulating air pollution from licensed industry and government
- Regulating air pollution from commercial premises and activities
- Regulating air pollution from vehicles, engines and fuels
- Regulating air pollution from households
- Regulating odour.



While this captures much of the EPA's work on with air quality, it does not include those initiatives that cut across more than one of these areas. For example, a regional focus to improving air quality in the Hunter Valley is set out in the EPA's [Upper Hunter Air Particles Action Plan](#) which outlines a range of measures that are either in place or being developed to improve air quality in the Upper Hunter and better inform the public. A second example is that of a single pollutant focus such as set out in the EPA's [Managing particles and improving air quality in NSW](#).

### Regulating air pollution from licensed industry and government

The POEO Act establishes the NSW environmental regulatory framework and includes a licensing requirement for certain activities with the potential for higher levels of pollution. The POEO Act contains a core list of activities that require a licence. These are referred to as 'licensed industries' and they include government activities. See Chapter 2 for more information on the licensing system.

In NSW, air emissions from licensed industry are regulated through:

- requiring industrial emissions to comply with **point-source emission standards** set out in the Clean Air Regulation or, where no standards are applicable (such as for fugitive emissions), to use such practicable means as may be necessary to prevent or minimise air pollution
- **offences for air pollution** because of failures in maintenance or proper and efficient operation or handling
- **offences for odours**, except where in accordance with conditions of the licence
- requiring an **environment protection licence (EPL)** which may include conditions such as requirements for:
  - more stringent emission limits than are set out in the Clean Air Regulation
  - monitoring of air emissions
  - mandatory environmental audits
  - pollution studies
  - pollution reduction programs
  - financial assurances
  - remediation works
- specific emission standards related to industry and the **age of the emissions unit** and a process for reviewing emission standards that apply to older scheduled plant
- performance standards for newer afterburners, flares and vapour recovery units
- incentives for specified industries to reduce emissions through fees based on their emissions load under **load-based licensing (LBL)**
- a level of regulation based on the risk posed to people and the environment by the premises or the activity – Under the new **risk-based licensing framework** which will take effect from July 2016, licensees whose activities present a high environmental risk and those with poor environmental performance will receive an added level of regulatory scrutiny. Low-risk and well performing licensees will be rewarded with reduced red tape and lower licence fees.

#### *'Point source' emission vs a 'fugitive' emission*

Point source emissions are those that come out of a pipe, stack or similar type of opening.

By contrast, fugitive emissions are those that either do not pass through a point source such as a pipe or are unable to be funnelled. A good example of this is wind-blown dust from open-cut coal mines.

A range of statutory guidelines and non-statutory policies, guidelines and information is provided on the EPA website.

See Chapter 15 provides an analysis of the EPA's regulation of coal dust in the Hunter Valley with an in-depth example of how licences work in the context of coal mining operations and the regulation of coal trains.

### ***Live camera trial: dust from mining around Gunnedah and Narrabri***

With mining development on the increase around the Gunnedah and Narrabri areas, the community has become concerned about dust levels. In partnership with two mines, for a three-month trial, the EPA installed live cameras so it could monitor activity in real-time. It was found that the use of the camera provided an incentive for plant operators to take the initiative to manage dust and mine managers with a valuable tool to monitor daily activity and performance.

Since the trial finished, one of the mines has taken over the hire agreement for the equipment and continued the monitoring while also giving the EPA access to the real-time 'live' record. Senior executives located in capital cities have access to the camera as do local mine staff when they are away from the site. Data from the camera has been provided to the mine's community consultative committee. The mine provides 'time-stamped' images in response to requests made by the EPA when investigating complaints.

Having this tangible evidence has generated greater community confidence that the EPA is adequately regulating mine activity

### **Regulating air pollution from commercial premises and activities**

As with licensed premises, commercial premises and other premises or activities (but not homes) must comply with the general rules set out in the POEO Act in relation to air pollution (sections 124–135). For these premises and activities, there are emission standards but only in respect of smoke concentrations and solid particulates.

Emissions of particles and ozone precursor gases from products and equipment used in small-to-medium industries, commercial activities, and rural and agricultural activities have become increasingly important. As noted previously, the EPA is working at a national level to improve standards of products and equipment to reduce emissions.

The regulatory powers that are available to manage emissions from these sectors are generally vested in local councils. This protects both local air quality and improves outcomes for regional air quality.

Local government's role in managing air quality is defined through the POEO Act, the EP&A Act and *Local Government Act 1993*. Councils also have the authority to issue prevention notices and issue fines.

The EPA has developed a comprehensive local government air quality toolkit for councils to provide their officers with a resource for their role in protecting and improving air quality across NSW. Periodic training, in the form of highly interactive workshops, is held to support local councils apply the toolkit.

### **Regulating air pollution from vehicles, engines and fuels**

Air emissions in urban areas from vehicles and their fuels have been trending downwards since 1992 even though more cars are on the road with each driving more than before. This is mainly due to gradually improving vehicle and fuel standards. But there are still significant public health gains available from further reducing emissions in this sector, especially from older, more polluting diesel vehicles and non-road engines. Reducing exhaust emissions and the amount of fuel that evaporates helps lower ground-level ozone as well as air toxics and secondary particles.

As with air emissions reduction approaches from other sectors, the management of emissions from vehicles and fuels uses a mix of regulatory and non-regulatory tools, including education and incentives.

The POEO Act and Clean Air Regulation work to minimise motor vehicle emissions through measures that target smoky vehicles and vehicles where anti-pollution devices have been tampered with, and reducing evaporative fuel emissions, especially in summer.

The EPA has also run programs targeting specific sectors to assist in reducing emissions. A diesel retrofit program that finished in 2011 was conducted with Roads and Maritime Services working in partnership with local councils and private enterprise to retrofit mine fleet vehicles. At completion of the program in June 2011, over 520 vehicles from 71 fleets had been retrofitted. This delivered estimated particle emission reductions of 4.7 tonnes per annum which it is estimated avoid approximately \$1.05 million in health costs each year. Current programs include the Clean Machine Program (see below).

Strategies are also periodically developed to target a specific pollutant source and the EPA is currently developing a [strategy for managing diesel emissions from non-road sources](#).

### *Smoky vehicles*

The smoky vehicle enforcement program aims to reduce vehicle emissions to air by ensuring owners properly maintain their vehicles. More detailed information is available on the EPA [smoky vehicles](#) webpages. Prosecutions of smoky vehicle offences account for a significant proportion of the cases that the EPA takes to court.

Smoky diesel trucks in the M5 tunnel in Sydney are a particular focus and face heavier fines: \$2000 for the first two offences with a third offence attracting the fine plus an automatic three-month suspension of vehicle registration. At the same time, the NSW Government is encouraging truck owners with older vehicles and who regularly use the M5 tunnel to have their vehicles assessed, repaired and fitted with a particle trap on a 50:50 shared cost basis.

### *Petrol volatility*

During the hot summer months – 15 November to 15 March – the volatility of petrol supplied in Sydney is required to be reduced to limit evaporative emissions and cut the number of summertime ozone events in Sydney. Petrol refiners, importers and blenders must test and report to the EPA on batch volatility.

### *Vapour recovery*

Petrol easily evaporates, especially in the chain of transfers from storage tanks to road tankers to service station storage tanks to cars. The Clean Air Regulation targets these evaporative emissions.

The requirement to install Stage 1 vapour recovery (VR1) works on the first stage of that process: capturing VOC emissions from underground petrol storage tanks as they are filled by road tankers has been in place in most parts of Sydney for some time. This has recently been extended to all parts of Sydney, as well as the Wollongong, Newcastle and Central Coast metropolitan areas.

Stage 2 vapour recovery (VR2) works on the next stage: capturing VOC emissions from refuelling by vehicles at petrol bowsers. Vapour recovery equipment is required to be installed at the largest service stations in Sydney, Newcastle, Wollongong and the Central Coast by 2014 and at all but the smallest service stations in Sydney by 2017. Vapour recovery technology will reduce refuelling emissions by over 85% and its implementation will cut VOC emissions in the Greater Metropolitan Area (GMA) by 5000 tonnes per year by 2020 (about 1–2% of total VOC emissions in the GMA).

The EPA has been driving compliance by industry with these requirements throughout 2012–2014.

### *Clean machine program*

The EPA's Clean Machine Program has reduced diesel exhaust emissions from non-road diesel machinery through development of better worksite practices, encouraging the procurement of cleaner machines and subsidising the retrofit of diesel particle filters to machinery. Under the program, the EPA partners with local government and industry organisations and subsidises the retrofitting of particle filters to machines such as tractors, loaders, cranes and gantries.

At June 2014, more than 30 organisations, including private businesses and local councils, had participated in the program with 137 diesel machines retrofitted. These retrofits will reduce an estimated 36 tonnes of diesel particle emissions over 10 years, providing substantial health benefits in the NSW GMR. Emission reductions are also expected from improved procurement and worksite practices.

### *Diesel strategy: non-road engines*

The EPA is developing a [strategy for managing diesel emissions from non-road sources](#) in response to:

- mounting evidence of the adverse health impacts of diesel emissions and growing community concern about them
- growth of diesel emissions from non-road sources overall and their growth relative to on-road sources, which are regulated by national standards
- availability of feasible and cost-effective technologies and solutions to manage diesel emissions
- the absence of national standards for non-road sources, in contrast to the US, EU and many other countries.

On 13 June 2014, the EPA held a workshop on diesel emissions management attended by approximately 115 government, research, industry and community representatives. At the workshop, the EPA committed to developing a diesel emissions management strategy for non-road engines in high-emitting licensed industry sectors, shipping and locomotives by the end of 2014. The EPA is now consulting with community and industry on development of the strategy.

Development of new proposals, including regulatory measures, will be informed by analysis of the feasibility and costs and benefits associated with different options and time frames for implementation and consultation with stakeholders.

### **Regulating air pollution from households**

In Sydney and some other urban areas, emissions from households can cumulatively account for the majority of the air pollution. Household activities that generate emissions include the use of wood heaters; paints, aerosols and solvents; lawn mowers and gardening equipment and vehicles. As noted previously, work is continuing at a national level to address product standards to reduce emissions from these types of sources.

### *Wood smoke*

Smoke from domestic wood heaters is a major source of particle pollution with adverse impacts on public health, especially the elderly, very young and people with existing cardiovascular health problems.

In Sydney alone, wood heaters produce three to five times the amount of particle pollution in winter compared with motor vehicles. On a July winter weekend day in Sydney, the contribution of wood heaters to PM<sub>10</sub> and PM<sub>2.5</sub> particle pollution can be as high as 57% and 75%, respectively. Figures for colder climates, such as Armidale, are higher. An [economic analysis by AECOM](#) for the EPA in 2011 indicated wood smoke could add \$8 billion to NSW health costs by 2030.

The EPA and local councils address wood smoke through:

- national product standards that set maximum emissions (currently under review) and reflected in restrictions on sale in the Clean Air Regulation (managed by EPA audits)
- EPA training of local council staff on managing wood smoke
- smoky chimney laws and enforcement by councils through prevention notices and smoke abatement notices and fines
- community awareness campaigns and replacement schemes initiated by the EPA and local councils
- controls on installation of wood heaters by local councils via planning or local government instruments or legislation.

Councils are responsible for on-the-ground regulation of wood heaters and the EPA provides them with training and resources to support this role.

The Government is currently reviewing NSW's wood smoke management framework. The EPA has undertaken research and economic analysis, surveyed councils and consulted publicly on a [discussion paper](#). The framework proposed in the paper, if adopted, would allow councils to consider a range of options and choose the most suitable for local conditions, taking into account housing density, weather conditions and the number of wood heaters already in use. Alternatively, councils could choose to take no action. This is similar to the very successful structure currently in place to manage emissions from backyard burning.

### *When is wood smoke a problem?*

Whether wood smoke becomes an issue for the community depends on a mix of factors:

- how wood heaters are being operated
- local topography: the trapping of smoke in a valley or areas subject to an air temperature inversion layer
- weather conditions and the scope for wind dispersion
- housing density: even low levels of wood smoke can have health impacts, exposing large numbers of people to significant health implications
- the number of wood heaters in use.

Over the winters of 2013 and 2014, the EPA has been conducting a [wood smoke reduction program](#) with the allocation of over \$1 million in grants for NSW councils. Eligible programs include education initiatives, local enforcement programs and targeted rebates to remove old heaters. Up to \$60,000 per council was available per year for individual councils and up to \$100,000 for regional organisations of councils (ROCs). One ROC and 16 councils participated in the program in 2013 and four ROCs and 17 councils were allocated grants in 2014.

### *Wood smoke reduction program for local councils*

With support from the EPA, local councils (about 60 in 2014) assessed their communities' needs and created assertive and effective programs of education, enforcement and old wood heater replacement. Councils influence their communities with innovative campaigns that include TV and radio advertisements, bus body signs, school and service club talks, marketplace demonstrations, street banners and children's colouring competitions. Significantly, the local wood heater industry also works with councils to educate householders on how to reduce their wood smoke by operating their heaters better.





One remarkable example was during the 2013 Program when the Bathurst Regional Council took advantage of the visit to their town of thousands of spectators for the annual car races. They placed a large sign telling the wood smoke reduction story in the midst of the Mt Panorama camping area. It may well have been the most viewed and commented upon environmental sign ever raised in NSW. In another highlight of the program, the work of Armidale Dumaresq Council in the 2013 program won it a Local Government Environment Award.

Feedback from the councils shows that they value the information, training and support that they receive from the EPA. They have also noticed a difference in their community's attitudes to wood smoke, improved wood heater operation and better local air quality with its inferred health benefits.

### Regulating odour

Odour is often judged important because of its nuisance value, but in some cases it can also affect people's health. While many compounds regarded as dangerous are below odour detection level, odours detected from biological processes may indicate contamination of the air by pathogens.

For communities that experience noxious or offensive odour, the impacts can be significant. Odour can have a marked effect on people's quality of life. It is the most frequent significant source of air pollution complaints to the EPA Environment Line: 3024 in 2013.

The EPA is committed to protecting the state's communities from offensive odours. The challenge is to achieve this without unfairly disadvantaging the businesses and industries that communities rely on for their economic prosperity.

The EPA aims to achieve this by using a range of odour management strategies, tailored to the particular sources and impacts of the emissions. Such strategies need to be able to help minimise odour impacts from new activities, as well as resolve problems from existing industries, businesses and services.

To this end, the EPA's [\*Technical Framework: Assessment and management of odour from stationary sources in NSW\*](#) offers guidance for industry, consent authorities, environmental regulators and odour specialists on assessing and managing activities that emit odour.

### *Key principles of the EPA odour technical framework*

**Planning to prevent and minimise odour:** At the project planning stage, proponents, planners and environmental regulators should consider the compatibility of a proposal with current and future land uses. Careful location and design of new activities and sustainable land use planning around existing activities will ensure the best environmental outcomes.

**Use of a range of strategies to manage odour** that depend on the sources (point or diffuse), nature (frequency, intensity, duration and character) and impacts of the emissions.

**Ongoing environmental improvement:** Because land use is dynamic, existing activities must be prepared to undertake measures to minimise their odour impacts if conflicts arise.

The framework is not a regulatory tool but promotes ongoing environmental improvement and best management practices to prevent or minimise odours. It offers:

- a system to help protect the environment and the community from odour impacts while promoting fair and equitable outcomes for odour-emitting activities
- a fair and transparent process for assessing odour impacts from new developments
- risk-based approaches and strategies for dealing with ongoing odour impacts from existing activities
- a technical reference document for proponents and regulators.

### ***A regional odour problem: Rutherford Industrial Estate***

Rutherford Industrial Estate is situated on a low flood plain south of the Hunter River and is surrounded by slightly elevated residential areas. Its topography, combined with local weather conditions, is conducive to the pooling of odours and the prevailing winds increase the likelihood of odours dispersing into nearby residential areas.

These odours have been a longstanding concern for the Rutherford and Aberglasslyn communities and the subject of frequent complaints to the EPA's Environment Line. Clear conclusions about the cause or source of an odour could not be drawn, given that more than one activity in the area might contribute to a particular odour type.

Following a review of existing data and an initial investigation by independent experts, the EPA commissioned odour sampling and modelling of the Rutherford Industrial Estate. This action has been endorsed by the [Rutherford Air Quality Liaison Committee](#), which was established to consult on issues of local industrial odours and their management. The sampling information fed into an odour modelling program to identify any potential movement of odours and possible effects on nearby communities. In addition to sampling and modelling assessment, the EPA commissioned a [community olfactometry study](#) involving a panel of Rutherford community members.

Based on the outcomes of this project, the EPA is currently implementing a regulatory program, including issuing prevention notices to multiple facilities.

## **7.3 The EPA and the community**

Chapter 3 has more information on standard consultation processes by the EPA. With air quality, the EPA particularly seeks stakeholder input via public forums on specific issues and projects and local community advisory committees. See [community news](#) on the EPA website. Chapter 15 also describes community involvement initiatives in the Hunter Region.

Over the last couple of years, a wealth of new information has become available for the community on the EPA website or other NSW Government links on:

- air emissions locally, regionally and statewide
- real-time monitoring data on ambient air quality from monitoring stations
- monitoring data from licensed industrial premises.

An [overview of air quality management](#) in NSW and links to more detailed information are available on the EPA website. This includes a link to a short video about air quality in NSW and, in particular, the Hunter Valley. It has information on emissions and their sources, air quality monitoring, particulate matter and its effects on health and wellbeing.

The OEH website, accessible via the EPA, combines [air quality monitoring data](#) with weather forecasting and an air pollution alert system to provide the community with up-to-date air quality information. The website includes maps showing the location of monitoring stations and provides hourly updates to local air quality levels based on six key air pollutants, a colour chart that provides a visual indicator of air quality and a sign-up function for SMS or email alerts for high pollution days. It also provides links to NSW Health for information on air quality and health issues.

Data from the NSW Emissions Inventory can be accessed via either the detailed reports or in a visual interactive format through the [Air Emissions in My Community](#) web tool.



### *Air Emissions in My Community web tool*

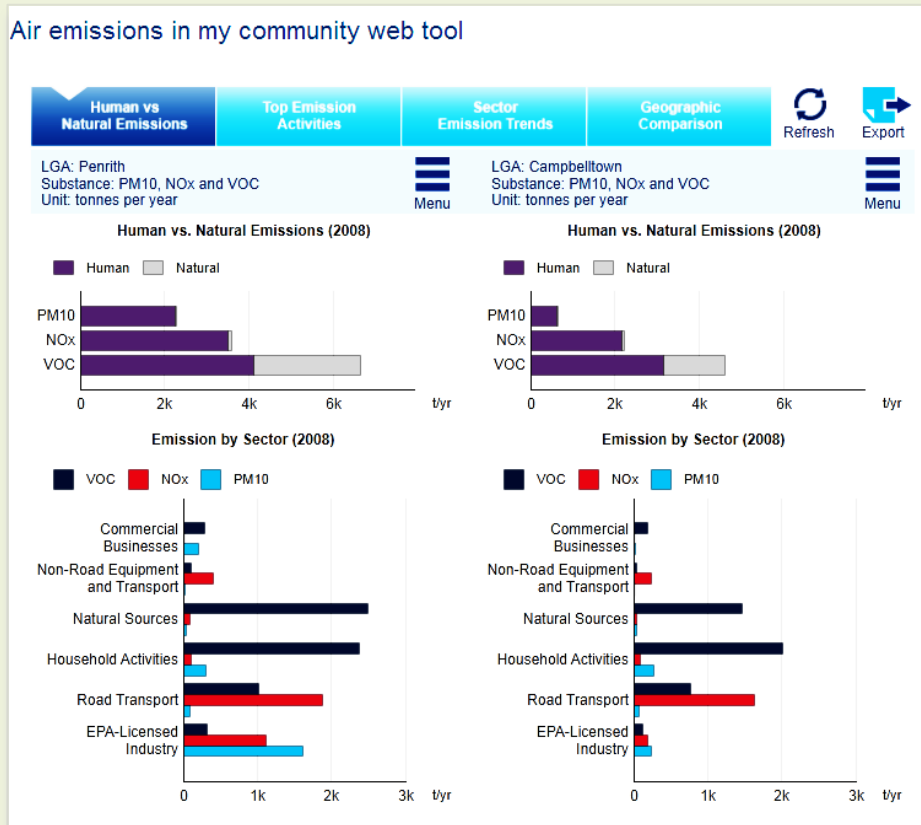
The [Air Emissions in My Community](#) web tool on the EPA website is an innovative way for the community to learn about local, regional and statewide air emissions. It presents data at a glance from the Air Emissions Inventory in a variety of interactive chart views for the community to use.

The data can be displayed for different geographic areas, ranging from the entire NSW Greater Metropolitan Region down to postcode level. Emissions of 17 substances from emission sources grouped into 63 activities are included.

The web tool assembles charts that are able to:

- compare emissions of multiple substances from natural and human-made sources
- list the major sources of emissions of one substance
- investigate monthly and yearly trends in emissions of one substance
- compare emissions of multiple substances in different locations.

The sample result below compares emissions between Penrith and Campbelltown.





## Chapter 8: Waste and the EPA

### 2012–2014 selected highlights

- A total \$465.7 million allocated over five years under the [Waste Less, Recycle More](#) initiative to drive investment in new or upgraded recycling infrastructure and programs to combat illegal dumping and reduce litter
- Powers enhanced to crack down on rogue waste dumpers, including custodial sentences and forfeiture of vehicles for repeat waste dumpers
- Draft [NSW Waste Avoidance and Resource Recovery Strategy 2013–21](#) released to direct future actions to better manage waste
- Release of the [NSW Energy from Waste Policy Statement](#) for the recovery of energy from waste that would otherwise be disposed to landfill
- New community engagement campaign [Hey Tosser!](#) released to drive attitudinal and behavioural change to reduce litter
- Enhanced partnerships with local councils to combat illegal dumping, including the establishment of a new regional illegal dumping squad with another on the way
- Development of new [regional waste strategies](#) in partnership with local councils
- NSW recycling rate has increased from 45% to 63% from 2002–03 to 2010–11, with NSW residents and business recycling 10.7 million tonnes of waste in 2010–11
- Littering reduced with the number of litter items per 1000 square metres reduced by 29% since 2005–06 as recorded by the Keep Australia Beautiful National Litter Index
- Since 2003, 10 million kilograms of problem household chemical waste has been collected and safely disposed of at no cost to residents under the EPA's [Household Chemical CleanOut](#) program

### 8.1 The context

Current management of waste starts with the idea that avoiding the creation of waste in the first place is the best approach wherever possible. This relies on efficient production process and product design which minimises material intensity and toxicity and optimal packaging. Nationally, the waste generated has grown an average 9% per year since 1997–98.

The EPA recognises the importance of transforming the way we think about waste and is committed to developing strategies that encourage resource recovery and prevent the creation of unnecessary waste.

In 2010–11, NSW residents and businesses recycled more than 10.7 million tonnes of waste or about 63% of that generated. This is up from a recycling rate of 45% in 2002–03. Over the same eight-year period, waste disposal decreased by 0.6 million tonnes. This means that recycling has absorbed all of the increase in materials entering the waste system since 2002–03.

The NSW Waste Avoidance and Resource Recovery (WARR) Strategy policies are driven by our desire to improve the way we live and make sure that future generations enjoy the same or an improved quality of life: 'inter-generational equity', one of the EPA's statutory objectives. This stretches across all aspects of life and covers environmental, social and economic areas. Key issues driving development of a revised WARR Strategy have included the loss of valuable resources to landfill (including space), the rising costs of virgin material, and the impact of waste on human health and the environment.

The economic future of NSW is also a driver with the need to create employment and financial security for people living here. Developing and maintaining a thriving waste and resource recovery sector helps to grow and sustain our economy. Improving the amenity of

community spaces and addressing the anti-social behaviour that leads to littering and illegal dumping also drive strategy development.

When released, WARR Strategy 2014–21 will be informed and driven by the waste hierarchy, which also underpins the objectives of the [Waste Avoidance and Resource Recovery Act 2001](#). The waste hierarchy lists in order of preference the approaches needed to achieve efficient resource use.

### *The waste hierarchy*

**Reducing and avoiding the generation of waste** helps to preserve resources and avoid using additional resources to manage waste that would have been otherwise generated. The goal is to maximise the efficient use of resources and avoid unnecessary consumption – not to ‘do without’. Good examples of this approach include:

- selecting items with the least packaging or that require the least resources to produce
- avoiding disposable goods
- buying products that are recycled, recyclable, repairable, refillable, reusable or biodegradable
- using leftover food rather than throwing it away.

Where reducing waste is not possible, the next preferred option is to **reuse the materials** without further processing. Energy and other resources are required to recycle materials and reusing avoids this cost. For example, many household and industrial items can be repaired, reused, sold or donated to charity.

The next step, **recycling**, involves processing waste materials to make the same or different products. This includes composting, which recycles nutrients back to the soil. Recycling keeps materials in the productive economy and benefits the environment by decreasing the need for new materials and waste absorption. Recycling a product generally requires fewer resources than drawing virgin materials from the environment to create a new product.

Where further recycling is not feasible, it may be possible to **recover the energy** from the material and feed that back into the economy.

Some materials may be inappropriate to reuse, recycle or recover for energy and instead require **treatment** to stabilise them and minimise their environmental or health impacts.

Finally, the waste hierarchy recognises that some types of waste, such as hazardous chemicals or asbestos, cannot be safely recycled and direct treatment or **disposal** is the most appropriate management option.

There are costs associated with managing waste and community well-being is a balance between these and the benefits they provide. The waste hierarchy helps to focus attention and efforts where the greatest efficiencies in cost, time and resources can be achieved. Each of these approaches can be appropriate, depending on the circumstances.

The inappropriate handling and disposal of waste can present issues to the environment and human health. The EPA is the primary regulator for major waste activities, such as landfill, composting and hazardous waste treatment.

A small number of operators in waste industries choose to work outside the law for quick financial gain. These rogue operators actively structure their activities to avoid detection and prosecution. The EPA uses industry intelligence and conducts surveillance operations to identify and close down these illegal activities. For example, the EPA has taken strong regulatory action to stop illegal dumping, such as the case involving Mr Dib Hanna, and to close down operations that receive and store excessive amounts of waste, such as the waste recycling yard at Chester Hill in Sydney.

## 8.2 How we regulate

In managing waste, the EPA aims to provide a clear and consistent regulatory and policy framework that minimises harm to the environment and encourages waste avoidance and resource recovery. This framework uses a mix of legislative, policy, education, and economic and enforcement tools.

The waste regulatory framework is set out in the [Protection of the Environment Operations Act 1997](#) (POEO Act), [Waste Avoidance and Resource Recovery Act 2001](#) (WARR Act) and [Protection of the Environment Operations \(Waste\) Regulation 2005](#) (Waste Regulation). These key laws set out requirements for managing, storing, transporting, processing, recovering and disposing of waste.

A core driver of waste reform is the [Waste and Environment Levy](#). This is a market-based instrument that corrects a market failure by making recycling cost-competitive against disposal of waste landfill and has driven significant improvements in recycling. The major challenge facing Australia and other OECD countries continues to be the increasing rate of waste generation. In 2010–11, total waste generation reached 17.1 million tonnes, 45% higher than the 2003 level.

The [Waste Less, Recycle More](#) initiative in 2013 came as a direct result of a [review of the waste levy](#) and aims to transform waste and recycling in NSW through investment in infrastructure, education and compliance.

The EPA provides the Department of Planning and Environment and local councils with advice about waste strategies and planning approval for waste facilities.

The key limbs of EPA's strategic approach to regulation of waste are: the overarching WARR strategies made under the WARR Act; the multi-dimensional *Waste Less, Recycle More* funding program; and the general regulatory framework which supports and drives achievement of the above. Each of these is addressed in detail below.

### 8.2.1 An integrated and comprehensive waste strategy

Under the WARR Act, the EPA is required to produce a new WARR Strategy every five years that is based on continuous improvement benchmarked against international best practice and includes targets for waste reduction, resource recovery and the diversion of waste from landfill. The WARR Strategy builds on regulatory tools, such as the waste levy and offence provisions.

In 2013, the EPA developed the draft WARR Strategy 2013–21. As part of the process, the EPA commissioned Sinclair Knight Merz to undertake an independent benchmarking report that compared [NSW WARR Strategy 2007](#) against 20 other Australian and international waste strategies. It found the 2007 strategy was comparable to international and national strategies in both the scope of issues covered and types of targets set.

Following consultation by the EPA on the draft WARR Strategy in December 2013, the final version is expected to be available shortly and will set the blueprint for managing waste and resources in NSW over the next seven years.

The revised WARR Strategy will set ambitious targets to:

- reduce the rate of waste generation per capita
- increase recycling rates across all waste streams
- increase the amount of waste diverted from landfill
- establish drop-off facilities to manage problem household wastes
- reduce the number of litter items to ensure NSW has the lowest litter count
- reduce the incidence of large-scale illegal dumping statewide.



The EPA is already working to achieve these targets and has a number of programs and policies that support these targets, the most significant being the *Waste Less, Recycle More* initiative.

### 8.2.2 Waste Less, Recycle More

[Waste Less, Recycle More](#) provides \$465.7 million from waste levy revenue over a five-year period to 2017 for grants and programs that align with the key result areas in the WARR Strategy. It includes 15 contestable grants programs, three non-contestable local government grant programs and several partnership programs with business, industry and community organisations to reduce the amount of waste going to landfill in NSW and increase recycling. The structure and nature of the different initiatives are summarised below in Figure 8.1.

The following sub-sections set out the key achievements of this initiative since financial year 2012–13. Each sub-section focusses on a different priority waste area: waste and recycling infrastructure, supporting local communities through local government programs, combating illegal dumping, tackling littering, improving the operation of the waste levy, and energy recovery.



**Figure 8.1: Waste Less, Recycle More funding initiative**

#### Waste and recycling infrastructure package

Under Waste Less Recycle More, the first round of the \$50-million [Major Resource Recovery Infrastructure Program](#) opened in partnership with the Environmental Trust. Its aim is to accelerate and stimulate investment in waste and recycling infrastructure in the waste levy-paying areas of NSW in order to increase resource recovery.

The EPA has commissioned a major audit into commercial and industrial waste in NSW to provide current and robust data to inform investment and policy decisions. This is currently underway.

### *More recycling capacity*

The EPA, in partnership with the NSW Environmental Trust, has funded infrastructure projects in NSW to expand the capacity of existing recycling facilities. Under the [Resource Recovery Facility Expansion and Enhancement Program](#), \$5.2 million has been invested to expand nine recycling facilities and increase recycling by a total of 116,000 tonnes of waste per year.

Twenty-one local councils received \$6.5 million in grants to facilitate the collection of food and garden organics under the [Organics Infrastructure Program](#). A further \$3.2 million went to 10 projects for the construction of large- and small-scale infrastructure to compost and process organic waste across the state.

The [Business Recycling Program](#) aims to help small, medium and large businesses reduce the waste they send to landfill and boost recycling. It provided funding of \$4.7 million for free waste audits by 27 organisations for 8000 small-to-medium businesses.

The EPA [Industrial Ecology Business Support Network Grants Program](#) awarded \$1.8 million to establish six industrial ecology networks across NSW which will bring medium and larger businesses together to recycle more. The program works with businesses to increase recovery of commercial and industrial waste.

Work by the EPA in partnership with Planet Ark since 2010 has helped small and medium businesses find a recycler. The EPA is a foundation partner of an online recycling directory [BusinessRecycling.com.au](#). This site is the most used recycling directory for businesses in Australia with more than 225,000 visits over the past two years and 1.1 million since 2010. It lists over 2200 recycling service providers, where more than 80 different types of materials can be recycled.

A detailed timeline depicting the planned allocation of the above grants between 2013 and 2017 and eligibility for the different schemes is available on the [EPA](#) and [Environmental Trust](#) websites.

### *Waste prevention: Australian Packaging Covenant*

The EPA is a partner with the Commonwealth Government in jointly funding and supporting [Australian Packaging Covenant](#) (APC) projects to reduce, reuse and recycle the amount of waste going to landfill.

The EPA has worked with the APC to establish 18 centres across NSW to recycle polystyrene. A total of \$1.054 million in funding has gone to councils and businesses to increase the recovery of polystyrene from the waste stream. Approximately 600 tonnes or 72,000 cubic metres per year of polystyrene is now being diverted from landfill and recycled through this program.

Four new glass recycling facilities have been built in regional NSW to recycle glass and use it as a sand replacement in infrastructure projects. A total of \$1.09 million has been invested by the EPA and APC to increase the recovery of glass fines in regional NSW by 9,000 tonnes per year. These new recycling facilities have been established in Bomaderry, Moruya, Tamworth and Wagga Wagga.

### **Supporting local communities: local government program**

Under Waste Less Recycle More, \$597,500 was allocated to establish three pilot **Community Recycling Centres** in Lake Macquarie, Port Macquarie and Liverpool. These centres provided access for 162,251 households to drop off their household problem wastes free of charge. Since this initial pilot phase, \$4.5 million has been allocated to establish 36 new Community Recycling Centres and services. Once up and running these centres



combined will provide access to 779,264 households to manage their household problem wastes.

### *Household Chemical CleanOut*

In addition to permanent community recycling centres, the EPA also manages the mobile [Household Chemical CleanOut](#) program which is a free service for the safe disposal of a range of common household chemicals that could cause significant harm to human health and the environment if not disposed of properly.

In 2012–13 and 2013–14, CleanOut events numbered 110 with over 71,700 householders attending and dropping more than 2.8 million kilograms of problem wastes. The service was available to over 2 million households, 72% of the NSW total.

Seventy-two local councils in the Regulated Waste Area received \$38.7 million as a final payment under the former [Waste and Sustainability Improvement Payment](#) program. Local councils used the funding for projects, such as food waste collection trials, public place recycling, composting workshops, child care and school waste education programs, problem waste collection events and drop-off points, electronic waste and mattress recycling, and enhanced illegal dumping enforcement and education.

The first year of the [Better Waste and Recycling Fund](#) saw \$17.2 million distributed to councils that pay the waste levy. Developed in consultation with local government, the fund supports projects that improve recycling, increase community engagement, reduce waste generation, and tackle litter and illegal dumping.

Seven regional organisations of councils and council groups were awarded \$2.2 million to fund regional waste coordinators and the development of [regional waste strategies](#). These funds benefit 54 councils in the waste levy-paying region and over 5.1 million residents.

Development also began on:

- a statewide Waste Less, Recycle More Education Strategy
- a new landfill consolidation and closure grant program for regional councils for roll out in 2014-15.

### *Helping regional councils extend waste and recycling services*

The EPA recognises that regional and rural councils often face unique challenges. Ninety-six regional councils with a combined area of 655,000 square kilometres have formed eight voluntary regional waste management groups to grow their capacities in resource recovery and waste management.

The EPA is working closely with these regional grouping to deliver cost-effective and tailored resource recovery initiatives and assistance with contracts. In 2012–13 and 2013–14, the EPA distributed \$3.5 million to the eight council groups to support initiatives such as expansion of kerbside collection services, collection and diversion of organics, reuse of tyres, household hazardous waste collections, business and industry waste avoidance and reduction programs, electronic waste collections and recycling, and improved landfill management practices.

### **Combating illegal dumping**

Under Waste Less Recycle More, the EPA released the state's first [Illegal Dumping Strategy](#) to deliver an integrated, multi-faceted approach to combating this problem.

Fifteen local government projects were the first to receive funding under the [Clean-up and Prevention Program](#). A total of \$1.6 million will fund the clean-up of hot spots, invest in

barriers, surveillance cameras and lighting, and include an education component for the local community.

Eight projects were funded under the newly introduced [Reduce Illegal Dumping on Charitable Recyclers Program](#).

### *Regional illegal dumping squads*

To tackle the challenges of illegal dumping, the EPA has partnered with councils to form regional illegal dumping (RID) squads. These squads have proved to be an effective model for a more strategic approach to dumping incidents. In 2013–14, the Western Sydney RID Squad investigated 2791 illegal dumping incidents which led to the issue of 39 clean-up notices and 178 penalty notices worth \$280,135. In the previous year, the same squad made 2798 investigations and issued 470 statutory notices, including clean-up notices and on-the-spot fines.

The EPA established a new RID squad in Sydney's inner west in 2013–14 and made significant progress on establishing another in the Hunter–Central Coast region. The EPA continued to support regional illegal dumping programs in the Southern Councils' Group region and the ACT–NSW border area.

### **Tackling littering**

Under *Waste Less, Recycle More*, the EPA is finalising a new statewide Litter Strategy for public consultation in late 2014. This will provide information on why people litter, a broad analysis of the NSW litter profile, elements for successful litter programs and a table of priority actions for the EPA.

Local councils received \$2.7 million in grants to run litter prevention in their areas. Councils themselves determine the mix of litter prevention actions to use in identified litter hot spots, including a mix of the *Hey Tosser!* litter campaign materials, more effective enforcement approaches, new infrastructure and site clean-ups.

### *Hey Tosser!*

[Hey Tosser!](#) is the foundation of the EPA's Litter Prevention Program for the next four years, throughout the life of the litter component of the *Waste Less, Recycle More* initiative. The campaign message is based on detailed research into littering behaviours and attitudes carried in 2012. It aims to change the social norm from one of littering when no-one is watching to one where everyone recognises littering is wrong and does the right thing.



Phase 1 of the campaign ran from April–June 2014 and began to drive the litter prevention message into homes and public spaces across NSW. Social research in June indicates that there has been some shift in social attitudes to littering since *Hey Tosser!* launched, with significant increases in people saying that the issue of littering is 'very' or 'extremely' important (up from 77% to 88%). The increase in people strongly agreeing that littering is socially unacceptable also significantly increased: up from 58% to 67%.

Funding was provided to [Keep NSW Beautiful](#) to deliver \$5000 litter reduction to grants to 31 community organisations with 60 groups receiving preliminary funding of \$300 to carry out a 'Local Litter Check' to assess litter in its local area. In total, almost \$170,000 in funding was provided in Round 1 to a very diverse range of organisations – from scouts groups, to 'men's sheds', local community groups and ethnic community organisations.

The EPA released [resources](#) for government, business and the community on how to run an effective litter prevention project, document local litter and use *Hey Tosser!* campaign creative material.

### **Improving the operation of the waste levy**

Improving the operation of the waste levy is a part of the *Waste Less, Recycle More* program and key reforms in this area include:

- a structural adjustment program to assist NSW metal shredders
- the re-instatement of a 10% levy exemption to the disposal of virgin excavated natural material.

### **Energy recovery**

Under the *Waste Less, Recycle More* agenda, the EPA developed with input from the industry and the community the [NSW Energy from Waste Policy Statement](#). It provides a modern framework for the consideration of energy recovery facilities as part of an integrated waste management system in NSW. Its two key objectives are to ensure that:

- emissions pose minimal risk of harm to human health or the environment
- energy recovery facilities are complementary to, and not competing with, current and future material recovery opportunities.

#### *8.2.3 General regulatory framework*

The POEO Act, WARR Act and Waste Regulation set requirements for the management, storage, transport, processing, recovery and dispose of waste.

Regulatory mechanisms in the legislation, such as the [waste and environment levy](#), help drive waste avoidance and resource recovery by providing an economic incentive to reduce waste disposal and stimulate investment and innovation in resource recovery technologies.

To facilitate the beneficial reuse of waste materials, the EPA is able to exempt from certain regulatory requirements the use of waste as fuel or its application to land. These exemptions are known as [resource recovery exemptions](#) and are issued where the proposed use of the waste material is beneficial and will not harm human health or the environment.

Reducing the generation of waste and turning it into a recoverable resource are both firmly established as priorities for NSW under the WARR Act. Targets and other outcomes are set under the [Waste Avoidance and Resource Recovery Strategy](#), while [Waste Less, Recycle More](#) funding is allocated to meet the challenging goals in the strategy.

The waste framework is supported by robust deterrents for non-compliance and stronger enforcement programs.

Enforcing both litter and illegal dumping laws has seen a strong focus over the past two years. Illegal dumping of waste and the use of sites as waste facilities without lawful authority can undermine legitimate waste operators and cause significant environmental harm. These offences can lead to penalty infringement notices or court-imposed penalties.

In 2013, the powers of the EPA to address illegal dumping under the POEO Act were significantly upgraded and a Bill is currently before the NSW Parliament to amend and strengthen the law on the powers of the EPA to suspend or revoke a licence. An updated Waste Regulation is also due to take effect in October 2014.

### ***Focus on enforcement of littering offences***

In 2013–14, the EPA ran 10 training courses for council staff on how to enforce the broad range of litter offences in the POEO Act. The EPA has also updated all online training material to enable staff across the NSW public sector to report littering offences. In 2012–13, there were 2862 on-the-spot fines issued for littering from motor vehicles by the EPA, the police and local councils.

In 2012–14, the EPA ran enforcement campaigns targeting litter from vehicles, including a significant campaign around the October long weekend event of the Bathurst 1000. While 35 infringement notices were issued, a significant focus was engaging roadside vendors and shops, as well as using road signage, to spread the anti-littering message. This will be repeated and improved on in 2014–15 to reinforce the *Hey Tosser!* campaign message that ‘every bit of litter gets noticed’ and that fines can be issued as a result.

### **Improving the regulatory framework**

The EPA strives to detect and prosecute illegal waste operators and dumpers.

In 2013, the NSW Government passed new legislation to strengthen the powers of the EPA for repeat offenders. The amendments include up to two years jail for those convicted of a waste offence within five years of a previous waste conviction and up to 18 months jail for anyone knowingly providing false or misleading information on waste.

Repeat waste offenders may also have their vehicles and tools of trade seized by the EPA and forfeited by the Court upon conviction.

The Government is introducing new tougher on-the-spot fines for the most serious environmental offences, including waste dumping, with fines increasing to \$15,000 for key illegal dumping offenders. The EPA has strengthened the Waste Regulation by removing potential licensing loopholes and introducing new waste handling technologies for problem waste, such as asbestos and used tyres.

### ***Illegal waste disposal amendments***

In recent years, the EPA has seen examples of waste operators who have no regard for the well-being of the environment or the community, emptying truckloads of asbestos outside pre-schools and flouting court-imposed orders to stop illegally dumping waste on innocent private citizen’s property.

These issues are not limited to a couple of individual rogue operators, with EPA investigations uncovering the systemic nature of organised illegal waste disposal activities and waste levy fraud in parts of the industry.

To strengthen the financial disincentive to illegal waste activities, making the penalties outweigh the potential profits from waste offences, the Government passed the *Protection of the Environment Operations Amendment (Illegal Waste Disposal) Act 2013*.

The Amendment Act provided for:

- a new offence for knowingly providing false or misleading information, with maximum penalties of 18 months imprisonment and/or \$500,000 for a corporation or \$240,000 for an individual
- provisions to enable a court to impose custodial sentences of up to two years for repeat convictions of serious strict liability waste-related offences within five years as an alternative to, or in addition to, a fine
- a provision to enable the EPA to seize and impound vehicles used in repeat illegal waste disposal offences and the Court to order forfeiture of these vehicles on conviction, subject to appropriate safeguards

- extend the offence of using land as an unlawful waste facility to also cover illegal dumping of waste in waterways
- a provision to enable waste levies to be collected from all facilities that receive waste, rather than at the point of disposal, to limit opportunities to rot the waste levy.

### Regulating the waste industry through environment protection licences

Under the POEO Act, some higher risk waste activities are required to hold an environment protection licence, enabling the EPA to more closely regulate them and protect human health and the environment. For more information on how environment protection licences work, see Chapter 2. Waste activities that are required to hold licence are shown below.

Scheduled activity	Description	Licences issued
Composting	Includes windrow composting, vermiculture, mulching, anaerobic digestion of organic wastes	35
Energy recovery	Thermal treatment of waste in order to recover energy	0
Waste processing	Processing of waste by a range of technologies	66
Waste storage	Storage of wastes at a facility	186*
Waste disposal (land application)	Predominantly regulating landfills but also spreading, injecting or other forms of application of waste to land	77
Waste disposal (thermal treatment)	Thermal treatment of waste. including incineration	1
Waste transport	Transport of more high-risk wastes subject to the Controlled Waste NEPM	572

\* Consists of 39 facilities licensed solely for waste storage and 147 facilities licensed for waste storage in addition to other scheduled activity

These licences place conditions on the amount and type of waste that can be received at each facility and other limits, such as how a particular waste type is able to be used to protect human health and the environment from a facility's operations. Waste facility licences also often contain conditions requiring:

- on-site containment and management of odour, dust and litter
- regular monitoring of air emissions, ground or surface water.

Over the past two years the EPA has undertaken 1800 site visits to licensed waste facilities in NSW to ensure they are operating in accordance with their licence conditions.

The EPA's routine compliance campaigns also ensure licensees are meeting their obligations.

### *Sector focus: scrap metal industry*

In 2013, an EPA campaign to improve the scrap metal industry's compliance with the POEO Act investigated the industry's current environmental performance to determine if any industry-wide improvements were possible. Inspections during May and June 2013 targeted all EPA-licensed scrap metal facilities throughout the Sydney metropolitan area with 14 inspections of the seven licensed premises.

The non-compliances detected ranged from low-risk issues, such as inadequate signage, to more serious environmental concerns, such as the potential contamination of stormwater



with PCBs. Using pollution reduction programs and written correspondence, the EPA addressed these non-compliances and implemented changes to processes to prevent further breaches. The industry was generally cooperative and welcoming of the campaign and the EPA's commitment to develop industry-wide standards.

One of the recommendations from the investigation was to shift focus to the unlicensed scrap metal industry through a joint compliance campaign with local councils in the Sydney metropolitan area. This campaign commenced in early 2014 and, so far, 30 unlicensed scrap metal facilities have been inspected.

### **Tracking waste**

Under the Waste Regulation, the EPA requires the movement of high-risk waste to be tracked to minimise the potential risk of harm to human health and the environment. Tracking can be completed using the EPA's [online waste tracking system](#).

The types of waste that must be tracked (both within NSW and interstate) are listed in Schedule 1 of the Waste Regulation and are based on the list in the [National Environment Protection \(Movement of Controlled Waste between States and Territories\) Measure](#) (the Controlled Waste NEPM). These include a range of higher risk wastes in liquid or solid form, such as chemical, clinical and metallic waste. Between 2012–13 and 2013–14, the EPA's online waste tracking system recorded 127,695 waste movements.

The Waste Regulation also contains a number of general requirements for the transport of all waste. These are designed to ensure that waste is transported in a manner and with appropriate equipment that avoids spills or escape of the waste. The EPA runs campaigns targeting compliance in this area.

#### *Sector focus: waste tyres compliance campaign*

The EPA completed targeted compliance campaigns in November and December 2013 on the handling and disposal of waste tyres. This involved inspecting 285 tyre retailers in Sydney metropolitan areas, Coffs Harbour, Newcastle and Wollongong. The campaigns also covered a small number of tyre retailers in the Blue Mountains and Goulburn areas.

During inspections, EPA officers surveyed how many waste tyres were removed weekly, the transporters used and where they were taken for processing or export. The survey also asked if staff were aware of their responsibilities in disposing of waste tyres.

The surveys identified that approximately 33,000 waste tyres are picked up weekly for processing or export. Six tyre retailers were the subject of follow-up action and a small number of tyre processing or storage sites in Sydney were investigated. All of these sites have been inspected and either referred to councils for action or the EPA has taken action to bring about compliance with the law. It has also commenced a criminal investigation into the former Carbon Polymers site at Smithfield in Sydney.

### **Special waste requirements**

The Waste Regulation contains specific provisions for the management of certain special waste types that present particular risks to the community and the environment. These include requirements relating to the management, storage and disposal of asbestos and clinical waste.

*Household asbestos disposal pilot*

As part of the Waste Less, Recycle More initiative, the EPA has provided \$781,000 in funding plus waiver of the NSW waste and environment levy to 25 organisations to run the [Householders' Asbestos Disposal Scheme](#) for 12 months.

As part of the NSW Government's commitment to reduce illegal dumping and enhancing waste services across NSW, the trial minimises the burden on households who want to safely dispose of asbestos. The funding includes an incentive of up to \$50 per tonne (for up to five tonnes per residential address) for registered residents who dispose of wrapped bonded asbestos at the nominated landfill. The EPA also waives the waste levy on waste disposed of under the trial to assess if there is a change in asbestos dumping incidents.

The results will be independently analysed by an international consulting firm, Databuild, experts in research and evaluation. Databuild will report to the EPA on the impact of the trial and make recommendations for future effort.

The scheme has commenced and provides trial programs tailored to the needs of each region:

- Kempsey and Wagga Wagga Councils are offering free disposal to eligible registered householders.
- Shoalhaven City Council offered both their landfill and transfer station to provide more disposal options, and decrease transport distance for their householders.
- The regional waste group, North East Waste, incorporating Ballina, Byron, Clarence Valley, Kyogle, Lismore, Richmond Valley and Tweed Councils, will deliver their trial across the region, enabling local government areas without asbestos disposal facilities to participate.
- Southern Sydney councils, including Kogarah, Rockdale, Hurstville and Sutherland, are working with Willoughby City Council to use the trial to encourage householders to engage licensed asbestos removalists.
- Led by Blacktown City Council, the trial in western Sydney includes Hawkesbury, Holroyd, Hills Shire, Liverpool, Parramatta, Penrith and Fairfield Councils. This group will also hold seven clean-up days offering free disposal of legacy asbestos.
- Two private waste management companies, SITA Australia and Veolia, will accept asbestos from the Sydney councils and provide data on disposal.

The trials will run for 12 months, concluding in the middle of 2015.

**Waste levy**

The Waste and Environment Levy is the key market-based instrument used by the EPA to drive greater waste avoidance and resource recovery in NSW. The waste levy applies to every tonne of waste disposed of in the regulated waste area and ensures that waste generators pay the full environmental and social costs associated with disposal of their waste. In this way the levy works to change the behaviour of waste generators to consider how they can avoid or reduce the amount of waste they produce.

The waste levy also enables recycling operations to compete for 'resources' that would otherwise be lost to landfill and are instead recirculated in the productive economy.

Waste diverted from landfill increased from 45% in 2002–03 to 63% in 2010–11. The EPA administers the collection of the levy and associated data.

**Resource recovery exemption**

Under the Waste Regulation, the EPA has the power to grant [exemptions](#) from the requirements of the regulatory framework to certain wastes that are applied to land or used as fuel. This enables bona-fide and fit-for-purpose wastes to be reused as a resource



without attracting such requirements as licensing, levy payments and reporting. Thirty-six [general resource recovery exemptions](#) are available for wastes, such as recovered aggregate, compost, mulch and biosolids.

The EPA is also able to grant specific exemptions for particular waste types. The EPA assesses applications for this in accordance with its [guidelines on resource recovery exemptions](#) to determine whether there is benefit if the material is used as proposed and assesses any risk associated with it being applied to land or used as fuel. This includes considerations about maintaining stable, healthy soils by evaluating the impact of waste-derived materials on soil structures, disruption of soil biota and ecological functions.

Since mid-2012, the EPA has reviewed and granted 78 specific exemptions that have diverted an additional million tonnes from landfill and back into the productive economy.

### 8.3 The community and the EPA

The EPA works closely with a range of stakeholders, including industry, local government, the federal and other state and territory governments, environmental groups and the community to promote the protection of the environment.

#### 8.3.1 Community involvement in decision-making

Since mid-2012, the EPA has consulted the public on a wide range of strategies, policies and regulatory proposals in relation to waste, including:

- [independent review of the waste and environment levy](#)
- [Draft Waste Avoidance and Resource Recovery Strategy 2013–21](#)
- [NSW Energy from Waste Policy Statement](#)
- [NSW Illegal Dumping Strategy 2014–16](#)
- [Draft Protection of the Environment Operations \(Waste\) Regulation 2014](#)
- [Draft Protocol for managing asbestos during resource recovery of construction and demolition waste](#)
- [Extension of the Waste Levy Options Paper](#)

#### 8.3.2 Partnerships

Food waste costs business \$36 million in disposal costs each year and households an average of \$1000 from food that is bought but never eaten. The EPA's [Love Food, Hate Waste](#) program aims to avoid the generation of that waste to begin with. A key part of this program is partnering with councils, businesses and community organisations to educate the community on food waste. Since 2009, the EPA has entered into 214 such partnerships.

A partnership between the EPA and the Waste Contractors and Recyclers Association of NSW has run 16 workshops over the past two years with 387 waste management and recycling industry personnel. The program aims to improve environmental management and work health and safety, and increase the quality and quantity of materials recycled at recycling facilities. An independent evaluation of the program by Databuild Ltd showed that, following training in 2012 and 2013, the facilities of participants recycled an estimated 368,900 tonnes more waste.



## Chapter 9: Contaminated sites and the EPA

### 2012–2014 selected highlights

- Audit and remediation plan completed with BHP Billiton for the Hunter River riverbed adjoining the former steelworks in Newcastle of the Hunter River costing approximately \$400–\$500 million
- Completion of stage 2 of a four-stage mercury remediation project at the Orica premises of the Botany Industrial Park. Works compliant to date with no adverse impacts. Works scheduled for completion by 2015.
- Overhaul of the range and size of penalties under the [\*Contaminated Land Management Act 1997\*](#) currently under consideration by Parliament
- Increased number of contaminated sites being actively regulated or remediated reducing the potential implications for public health and the environment from unknown/unregulated sites
- Audits of over 280 underground petroleum storage systems in 10 local government areas in metropolitan and rural areas resulting in improved environmental management of this high-risk activity
- Working with regional organisation of councils to undertake capacity building workshop and presentations with about 10 rural councils on how to identify and manage contaminated site issues
- \$6 million funding secured to continue and expand the Contaminated Land Management Program and an extra \$2 million from the Environmental Trust for emergency Pollution Clean-Up Program and the Illegally Dumped Asbestos Clean-Up Program
- Proposal currently under consideration by Parliament to amend the *Protection of the Environment Administration Act 1991* to change funding available to manage contaminated sites via cost recovery
- [\*Managing asbestos in or on soil\*](#) guide prepared on behalf of NSW Heads of Asbestos Coordination Authorities
- Delivery of remediation of two disused service stations, three former gasworks sites and a former battery recycling facility in regional areas

### 9.1 The context

Contaminated land can have major economic, legal and planning implications for the community. Contamination may limit land-use potential or increase costs for developers and councils. The investigation and clean-up of contaminated land is important to protect human health and the environment.

Although contaminated sites can occur anywhere, they are typically clustered in areas which have been used for heavy industry or chemically intensive agriculture.

In NSW, the management of contaminated land is shared by the EPA, the NSW Department of Planning and Environment, and planning consent authorities (usually local councils).

### 9.2 How we regulate

The management of contaminated sites takes place at a number of levels.

- The prevention level is the most important and many of the EPA's activities directly or indirectly address this principle.
- The planning level, which includes contaminated sites being factored into zoning, development and remediation decisions.

- The assessment and remediation levels are important to protect human health and restore the environment. Many of the processes at this stage are agreed at a national level.

### 9.2.1 Working nationally

The [National Environment Protection \(Assessment of Site Contamination\) Measure](#) (as amended in 2013; ASC NEPM) is a national guideline for the assessment of contaminated land. Made under the *National Environment Protection Council Act 1994*, the ASC NEPM is implemented by individual legislation and guidelines in each state and territory.

The purpose of the ASC NEPM is to provide adequate protection of human health and the environment by ensuring a nationally consistent approach to investigate and determine the risks posed by contaminated land. This approach involves regulators, site assessors, environmental auditors, land owners, developers and industry.

The EPA was heavily involved in the recent review of the ASC NEPM. In particular, the EPA contributed to technical working groups and was instrumental in developing many of the changes made to the NEPM in the 2013 review.

Amendments to the ASC NEPM came into effect in May 2013 after extensive public consultation. The ASC NEPM is a guideline approved by the EPA for the purposes of section 105 of the CLM Act.

#### **Amendments to the ASC NEPM**

The revised ASC NEPM acknowledges the need:

- to ensure planning processes determine that a site is suitable for its intended use
- to ensure industry takes measures during decommissioning to, as far as practicable, minimise adverse long-term environmental (physical, social and economic) impacts
- for community engagement to start early in the site contamination assessment process
- to consider risks to water resources as well as other ecological risks
- to permit initial assessment of human health and ecological risks by comparing contamination levels to screening- or investigation-level criteria or, if necessary, a site-specific risk assessment
- for the sustainability of the management strategy to be assessed to achieve an appropriate balance between the benefits and effects
- for specialised forms of assessment for particular contamination types including unexploded ordnance, radioactive substances and contaminated sediments.

New content in the technical guidelines to the ASC NEPM covers:

- investigation levels for soil and groundwater
- site characterisation
- laboratory analysis of potentially contaminated soils
- site-specific health risk assessment methodology
- ecological risk assessment
- methodology to derive ecological investigation levels in contaminated soils
- ecological investigation levels for arsenic, chromium (III), copper, DDT, lead, naphthalene, nickel and zinc
- framework for the risk-based assessment of groundwater contamination
- derivation of health investigation levels
- community engagement and risk communication
- competencies and acceptance of environmental auditors and related professionals.

### 9.2.2 The EPA and planning

The planning and development control process under the [Environmental Planning and Assessment Act 1979](#) (EP&A Act) is important in the management of land contamination. It aims to ensure that land is not put to inappropriate use because of the presence of contamination and incorporates mechanisms to ensure that:

- planning authorities consider contamination issues when they are making rezoning and development decisions
- local councils provide information about land contamination on planning certificates that they issue under section 149 of the EP&A Act
- land remediation is facilitated and controlled through [State Environmental Planning Policy 55 – Remediation of Land](#) (SEPP 55).

Under SEPP 55, at the development approval and rezoning stage, planning authorities are required to consider the potential for contamination to adversely affect the suitability of a site for its proposed use.

Under the policy, remediation of contaminated land must take place before the land is developed for its proposed use. If contamination is suspected on land that is going through the development consent process (for instance, based on site history), an investigation is required. Remediation must comply with standards and councils are to be notified of all remediation proposals.

The site auditor scheme administered by the EPA has an important role in supporting decision-making by planning authorities. Site auditors are able to provide increased certainty about the nature and extent of contamination and the suitability of a site for a specified use.

### 9.2.3 General regulatory framework

The EPA works to remediate and prevent contaminated land.

#### Remediation

In broad terms, the management framework for land already contaminated consists of two tiers:

- The EPA deals with site contamination significant enough to warrant regulation under the [Contaminated Land Management Act 1997](#) (CLM Act), given a site's current or approved use.

The main focus of the CLM Act is to manage historical contamination. However, an increasing number of current operational sites are being identified as contaminated. A number of high-risk industries where operational practices may lead to premises becoming future contaminated sites have been identified by statistical analysis of notified and regulated contaminated sites. Thus, preventative measures are becoming more important.

- Local councils deal with other contamination on sites which, though contaminated, do not pose an unacceptable risk under their current or approved use. These cases are managed under the planning and development framework, including SEPP 55 and the Managing Land Contamination – Planning Guidelines. This planning and development process determines what remediation is needed to make the land suitable for a different use.

The principal regulatory tools for the remediation of contaminated land are:

- the CLM Act
- the [Protection of the Environment Operations Act 1997](#) (POEO Act).

### ***Improving the Contaminated Land Management Act 1997: amendment***

The [Protection of the Environment Legislation Amendment Bill 2014](#) currently before Parliament includes a number of provisions to improve the operation of the CLM Act with a particular emphasis on overhauling penalties for non-compliances.

The Bill:

- increases the number of maximum penalties to align with penalties for similar offences in other environmental legislation; for example, when a corporation responsible for contamination does not comply with an EPA management order the penalty will be increased by over \$800,000.
- provides for higher penalty amounts for repeat offenders
- ensures there is a consistent range of sentencing options across environmental legislation, including the CLM Act, to appropriately address harm caused to the community and the environment; for example, orders to publicise the offence, to provide financial assurance, to restore or enhance the environment, to recover monetary benefits accruing to the offender from the offence, to attend training, to establish a training course, and restorative justice orders.
- applies a relevant daily penalty for each day that the work has not been undertaken after the deadline
- clarifies that where a deadline to carry out a requirement or direction is missed, the relevant person is still obliged to carry out that work
- provides for liability for continuing offences
- provides for implementation of recommendation 9 of the NSW Auditor-General's report [Managing contaminated sites](#) in relation to cost recovery by the EPA through fees and charges associated with the costs of managing certain sites.

### ***Contaminated Land Management Act 1997***

The focus of the CLM Act is to address legacy contamination that presents a significant risk to human health or the environment. Risk-based assessment and the corresponding appointment of resources form the basis of the EPA's approach to contaminated land management.

The CLM Act specifies a hierarchy of responsible persons for addressing significant contamination. In keeping with the principles of ecologically sustainable development, the EPA first looks to the person responsible for contamination (i.e. polluter pays) to undertake management action. If the polluter cannot be identified or no longer exists, the EPA will then seek to have the land owner address significant contamination on their land.

The steps involved in managing contamination under the CLM Act are:

#### **1. Notification of contamination to the EPA**

Polluters and land owners must notify the EPA as soon as practicable after becoming aware of land contamination that meets certain criteria. This obligation also arises where it is reasonable that polluters and land owners ought to have been aware of the contamination. The EPA provides guidance and a site contamination notification form to assist parties in notifying the EPA of land contamination in *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997*.

#### **2. Declaration of significantly contaminated land**

If the EPA has reason to believe that contamination is significant enough to warrant regulation, the agency may declare the impacted land to be significantly contaminated.

The EPA must consider:

- whether the substances have already caused harm
- whether the substances are toxic, persistent or bioaccumulative or are present in large quantities or high concentrations or occur in combinations
- whether exposure pathways are available to the substances (that is, if there are routes open to the substances allowing them to move from the source of contamination to human beings or other aspects of the environment)
- whether the current uses for the land and adjoining land are likely to increase the risk of harm from the substances (such as child care centres, dwellings or domestic food production)
- whether the approved uses of the land and adjoining land are likely to increase the risk of harm from the substances
- whether the substances have migrated or are likely to migrate from the land.

### 3. Preliminary investigation orders

The EPA may require certain persons to carry out a preliminary investigation of land if it reasonably suspects the land is contaminated. If the findings of the preliminary investigation lead the EPA to believe that the land contamination is significant enough to warrant regulation, it may declare the land to be significantly contaminated land.

### 4. Voluntary management proposals

Anyone can submit a proposal to the EPA to voluntarily investigate or remediate significantly contaminated land. If the EPA considers the proposal appropriate, it may approve the proposal or issue an approval subject to conditions. The EPA must have regard to the principles of ecologically sustainable development and seek the implementation of those principles when considering a proposal.

Milestones and reporting requirements are established for approved voluntary management proposals. Continuation of the EPA's approval is contingent on the delivery of good environmental performance in accordance with those milestones. If milestones are not met, the EPA can revoke its approval of a proposal and/or issue a management order to the proponent.

### 5. Management order

Under a management order, the EPA may order a landowner, the notional owner, or the person responsible for the contamination to manage significantly contaminated land. This can include actions to investigate and/or remediate the land.

The EPA makes or approves [guidelines under CLM Act](#) for use in the management of contaminated land. These guidelines are taken into consideration by the EPA whenever relevant and by accredited site auditors when conducting a site audit. They are also used by contaminated land consultants in undertaking investigation, remediation, validation and reporting on contaminated sites.

The NSW site auditor scheme is a critical part of ensuring the integrity of identifying and managing contaminated land administered by the EPA under the CLM Act. EPA-accredited site auditors are also available for anyone needing reliable independent advice on contaminated land. EPA-accredited site auditors can be engaged to independently review reports on assessment, remediation and validation actions to ensure that the methodology used by consultants and their interpretation of data are consistent with current EPA regulations and guidelines.



### *Increasing number of contaminated sites actively regulated or remediated*

The EPA continues to implement a robust regulatory program under the CLM Act. Contaminated land management and clean-up is complex and it typically takes a number of years to successfully remediate a site.

Since the CLM Act commenced in 1997, approximately 1574 sites with potentially significant contamination have been notified to the EPA. This includes a significant increase in the number of sites notified due to changes in the notification requirements that came into effect in 2010.

Since mid-2011, the EPA's positive performance in this area is demonstrated by the continuing increase in EPA-regulated and remediated sites. The number of regulated sites has increased from 218 in 2011–12 to 234 in 2013–14. Similarly, the number of remediated sites has increased from 105 in 2011–2012 to 124 in 2013–14.

### *Licensing under the Protection of the Environment Operations Act 1997*

The [Protection of the Environment Operations Act 1997](#) (POEO Act) is an important part of regulating contaminated sites, particularly for remediation but also in preventing contamination in the first place. It includes tools such as prevention and clean-up notices that can be used to prevent or address contamination.

When a contaminated site is also regulated through an [environment protection licence](#) (EPL), the EPA may use these tools to address management of the site, particularly for activities such as remediation which often have implications for air and water pollution. In addition, some remediation activities themselves are licensed by the EPA under the POEO Act, including certain large-scale groundwater or soil remediation projects.

Licence conditions can relate to pollution prevention and monitoring, and cleaner production through recycling and reuse and the implementation of best practice.

### *Additional mechanisms*

The EPA may also be involved with the remediation of contaminated sites by:

- performing technology reviews under the [Environmentally Hazardous Chemicals Act 1985](#) (EHC Act) and assessing proposed technologies for treating certain chemical wastes (such as scheduled chemical wastes) to establish effectiveness of treatment
- assessing licence applications under the POEO Act for remediation proposals (where required) as part of the integrated development assessment process
- issuing and enforcing licences (where required) that regulate waste treatment, storage and/or disposal facilities, under the POEO Act or the EHC Act
- issuing clean-up and prevention notices under the POEO Act.

### *Contaminated Land Management Program*

The Contaminated Land Management Program has successfully facilitated remediation and encouraged additional expenditure by grant recipients. The CLM Program has received \$6 million every three years since 2007 from the Environmental Trust. This funding arrangement has recently been extended to 2017.

The CLM Program has six sub-programs:

- Innocent Owners Scheme to fund the remediation of land where the polluter no longer exists and the owner has limited resources and no knowledge of contamination activity
- Council Gasworks Program to fund investigation and remediation for former gasworks sites where local councils are the responsible person under the CLM Act
- Derelict Underground Petroleum Storage System (UPSS) to fund remediation of abandoned UPSS in council road reserves

- Regional Capacity Building Program to assist local councils employ specialist technical staff to provide assistance with regional contamination issues
- Regional Acceleration Program to provide technical assistance to regional land owners of CLM sites to collect environmental and geotechnical information
- Preventative and Education Program to provide technical training, awareness and prevent further contamination legacies

### *Continuous improvement*

The EPA has recently completed, or is currently undertaking, a range of activities to enhance the management of contaminated land in NSW. These include:

- development of an integrated database to cover the various *Contaminated Land Management Act 1997* (CLM Act) regulatory functions performed by the EPA, including improved tracking of existing regulated sites and greater transparency for the community on industry performance in meeting site remediation deadlines
- extending the mechanism for recovery of costs incurred by the EPA in performing certain tasks under the CLM Act
- updating of procedures around the duty to notify the EPA about contamination
- an enhanced website for better public access to information on contaminated land management and the status of listed contaminated sites, including mapping functionality.

In July 2014, the NSW Auditor General released the report [Managing contaminated sites](#). The report contains 13 recommendations for implementation by the EPA, with completion dates ranging between December 2014 and December 2015.

The recommendations outlined in the Auditor General's report mainly focus on improving the effectiveness and transparency of the management of contaminated land. The EPA supports the Auditor General's recommendations and is committed to implementing them. A number of the recommendations outlined in the report are already underway or are part of ongoing processes of improvement as indicated above. The EPA's response is available on page 5 of the report.

### **Significant remediation projects**

#### *Orica Botany*

The Botany Industrial Park has a long history as a contaminated site and contains a number of significant environmental legacy issues including groundwater pollution, mercury contamination and storage of toxic waste. The ongoing management of these issues is the EPA's most significant focus for contaminated sites.

There are currently three major remediation projects at the Orica Australia Pty Ltd site in Banksmeadow, one of which is now completed:

- treatment of groundwater to address chlorinated hydrocarbon groundwater plumes resulting from subsurface contamination sources at Botany Industrial Park
- the Orica Mercury Remediation Project, which involves remediation of mercury contamination from the company's former chlor-alkali plant
- the Carpark Waste Remediation Project which successfully cleaned up contaminated soil from historical storage of hexachlorobenzene.

For detailed information about these projects, see Chapter 13: Land contamination issues at Botany.

### *BHP remediation of the Hunter River*

Since 2002, BHP Billiton has been investigating and working to remediate the riverbed of the Hunter River adjoining its former steelworks site in Newcastle. The riverbed was contaminated with tarry residue and hydrocarbons during the facility's 84 years of operation.

The EPA signed off on the company's Hunter River remediation in late 2012, following an independent audit of the work it had done. The remediation (along with dredging for port activities) cost approximately \$400–\$500 million and took more than two years. During this time around 600,000 cubic metres of contaminated sediments were removed from the riverbed to storage in a specially constructed cell on Kooragang Island.

### *Barangaroo remediation*

The large-scale, 22-hectare redevelopment of the former container terminal at East Darling Harbour is being coordinated by the Barangaroo Delivery Authority.

Significant development of Barangaroo's southern commercial and residential precinct began in late 2011 while construction of the northern headland park commenced in late 2012.

The EPA is regulating the remediation of a relatively small two-hectare former gasworks site under the CLM Act and general development activities under the POEO Act. Current remediation activities include a trial of the use of in-situ oxidation technology to destroy concentrated tars on the site and finalisation of detailed remediation plans for the regulated gasworks area.

### **Prevention**

The EPA addresses the prevention of contaminated land through the POEO Act and its regulations, the pollution incidents and emergencies framework, and through management of environmentally hazardous substances (see Chapter 10).

Specifically, the POEO Act provides for:

- EPLs that can address preventative measures through its conditions
- the offence of pollution of land
- prevention notices.

The [Protection of the Environment Operations \(Underground Petroleum Storage Systems\) Regulation 2008](#) (UPSS Regulation) aims to prevent environmental harm from leaking underground petroleum storage systems (UPSSs), provide a mechanism to ensure early detection of leaks, and ensure operators adopt appropriate operational management systems to report, investigate and remediate leaks. A revised UPSS Regulation has been subject to public consultation and will take effect from 1 September 2014.

The [Protection of the Environment Operations \(Waste\) Regulation 2005](#) allows the EPA to approve the immobilisation of contaminants in waste; makes special requirements relating to asbestos and clinical waste; and makes it an offence to apply, cause or permit the application of residue waste to land that is used for the purpose of growing vegetation, subject to any exemptions.

The EPA also responds to pollution incidents and emergencies, and works in collaboration with other government agencies to respond to and manage pollution incidents that involve hazardous materials. For more information, see Chapter 11: Emergencies and the EPA.

The EPA may assess chemicals under the EHC Act and may declare substances to be chemical wastes for the purposes of the EHC Act. Chemical control orders made under EHC Act may prohibit activities in relation to environmentally hazardous chemicals or declared chemical wastes, except under the authority of a licence issued by the EPA. For more information see Chapter 10: Hazardous substances and the EPA.

The preventative approaches program seeks to reduce the number of contaminated sites in the long term by providing information to these industries about best environmental management practices. The EPA has liaised with council and industry associations to ensure guidance materials are appropriate for these industries.

Preventative measures implemented by the EPA include site audits, identification of best-practice measures, development and dissemination of educational materials, and liaison with industry associations.

Focused programs have been developed for high-risk sectors including marinas, dry cleaners, timber treatment and car wrecking yards. Future programs will target battery recyclers. More information on preventative programs is available on the [EPA website](#).

### ***Preventing land contamination – car wrecking yards***

The EPA has a successful program aimed at preventing contamination by identifying high-risk activities and working with operators and industry organisations to educate, regulate and upgrade their approaches to environmental management.

The car wrecking industry was identified as a high-risk activity that can cause soil and groundwater contamination. Cold-call inspections of 27 car wrecking premises in four local government areas in the Sydney metro area were undertaken in April 2014 in cooperation with Fairfield, Liverpool, Bankstown and Sutherland Councils and Police Local Area Commands. The main sources of contamination identified at the car wrecking premises inspected were:

- dismantling/storage of vehicles and vehicle parts containing oil and grease on unsealed surfaces and/or in outdoor areas
- inadequate drainage of fuel and oil from vehicles prior to vehicle processing/dismantling
- use of solvents/degreasers to clean car parts in areas with inadequate bunding/collection systems
- storage of batteries in unsealed and off-site areas.

A number of approaches are used to address these issues. Some target industry (e.g. brochure/auditing tool, presentations, input into industry environmental programs), councils (e.g. sharing information between local councils) and a targeted compliance program.

## **9.3 The EPA and the community**

The EPA continues to work with key stakeholders through the development of guidelines, FAQs, community consultation, phasing in of preventative measures and working with councils to better manage contaminated sites under the planning process.

### ***9.3.1 Communicating with the public***

The EPA consults with the community, industry, business and government on a broad range of activities including issues related to contaminated land. EPA officers also regularly attend community meetings such as the Orica Botany Community Liaison Committee and Orica Villawood community meetings. Chapter 13: Land contamination issues at Botany describes the intensive engagement undertaken by the EPA in relation to the Botany Industrial Estate.

The EPA also provides specialist training through lectures for postgraduate courses associated with contaminated sites.

In conformity with section 6 of the *Protection of the Environment Administration Act 1991*, the EPA ensures the community has access via its website to relevant information about hazardous substances arising from, or stored, used or sold by, any industry or public authority.

### 9.3.2 Public record

The EPA maintains a contaminated land public record of notices issued under the *Contaminated Land Management Act 1997* (CLM Act). It is available on the EPA's website and contains:

- EPA declarations and orders made under Part 3 of the CLM Act
- voluntary management proposals approved by the EPA under the CLM Act
- site audit statements provided to the EPA under section 53B of the CLM Act that relate to significantly contaminated land
- where practicable, copies of anything formally required to be part of the public record
- actions taken by the EPA under sections 35 or 36 (now repealed) of the *Environmentally Hazardous Chemicals Act 1985* (EHC Act)

The EPA also maintains a public list of sites notified to the EPA under the CLM Act. The list is available on the [EPA's website](#).

## Chapter 10: Hazardous substances and the EPA

### 2012–2014 selected highlights

- Measures to improve dangerous goods transport safety, including mandatory fitting of electronic stability on tanker trailers, improved compliance checking systems at Port Botany and programs targeting high-risk activities, such as unlawful transport through tunnels
- Amendments to the *Radiation Control Act 1990* and Regulation to reduce licensing red tape, implement national radiation security measures and strengthen regulatory powers
- NSW the first Australian state to announce a ban on commercial UV tanning services (solaria) from 31 December 2014 – most states have since announced similar bans
- Integrating hazardous substances regulation, including consolidating licence administration and integrating compliance programs, such as under the new Chemicals Life Cycle Regulatory Program and joint programs with WorkCover NSW and Roads and Maritime Services
- Negotiating approvals for safe treatment and disposal of hazardous wastes, including contaminated material from the former Orica chlor-alkali plant in Matraville, lead contamination at former Defence Department firing ranges, and coal tar-contaminated soil at the former *HMAS Platypus* site in Neutral Bay
- Compliance campaigns targeting safe use of pesticides throughout NSW including the turf growing industry, market gardeners, mushroom growers and grain silos.

### 10.1 The context

Hazardous substances, by their nature, pose particular risks to human health, the environment and trade. As such, they are subject to comprehensive regulatory frameworks in developed economies.

Hazardous substances are generally hazardous chemicals or substances containing hazardous chemicals. Hazardous chemicals may be toxic or carcinogenic to humans, dangerous to ecosystems or may, if discharged or dumped, render land (contaminated sites) or water unsuitable for certain purposes. Uncontrolled releases of hazardous substances (hazardous incidents) may require an emergency response and may cause fires or explosions. Separate chapters have been prepared on the EPA's programs on contaminated sites (Chapter 9) and hazardous incidents (Chapter 11: Emergencies).

The regulation of hazardous substances is complex due to the large number of substances (in the tens of thousands) and their use in many areas of the economy, including mining, manufacturing, transport, health care and consumer products. A number of international agreements establish frameworks for national and state-based regulation of hazardous substances.

In NSW and many other jurisdictions, the regulation of hazardous substances is categorised into dangerous goods, pesticides, industrial chemicals, hazardous waste<sup>1</sup> and radiation.<sup>2</sup> Some hazardous substances (scheduled chemicals) are subject to additional regulatory

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<sup>1</sup> In this chapter the term 'hazardous waste' refers to its common usage meaning (i.e. wastes that present a substantial risk to human health or the environment) rather than its technical meaning under specific legislation or guidelines.

<sup>2</sup> In NSW, radiation derived from electrical sources, such as X-ray machines and UV tanning units (solaria) is regulated under the same legislation as radioactive isotopes. The EPA's regulation of such devices is discussed in this chapter.



requirements because of their listing under the Stockholm Convention (see International framework below). By and large, the NSW categorisation reflects the structure of international agreements.

Hazardous substances often fall into more than one category. Many pesticides are also dangerous goods while most hazardous substances become hazardous waste when they are no longer required. An example is old drums of DDT, the use of which is prohibited, that may be stored in a farm shed. DDT is a pesticide, dangerous good, hazardous waste and a scheduled chemical. One of the challenges for hazardous substances regulators is to deliver effective integration across categories.

The high risk posed by the misuse of hazardous substances, means they are generally subject to cradle-to-grave regulation. Such regulation may cover import, export, manufacture, registration, storage, transport and use of the substance and rigorous controls on end-of-use treatment or disposal, including waste tracking. The level and focus of regulation varies depending on the hazards posed. Another challenge for regulators of hazardous substances is to target regulatory efforts at high-risk areas within the cradle-to-grave framework and avoid unnecessary costs to industry and the community through inefficient or poorly targeted regulatory measures.

In NSW, the EPA is a major regulator of hazardous substances and works with other state and Commonwealth agencies and local government to deliver regulation of hazardous substances. In particular, the EPA works with Commonwealth regulators responsible for the registration of chemicals and control of the import and export of hazardous waste, and with other NSW regulators and emergency response agencies such as WorkCover NSW, NSW Health, Roads and Maritime Services, NSW Police and Fire and Rescue NSW. A further challenge for hazardous substances regulators is to ensure co-ordinated and consistent regulation across and between their areas of responsibility.

## 10.2 How we regulate

### 10.2.1 International framework

International agreements establish much of the framework for hazardous substances regulation in Australia. These agreements are implemented via legislation at the state and territory levels.

The main international agreements relating to hazardous substances are:

- Stockholm Convention – The Stockholm Convention on Persistent Organic Pollutants is a global treaty that aims to protect human health and the environment from the effects of persistent organic pollutants. The convention is implemented in Australia under the National Implementation Plan and the National Strategy for the Management of Scheduled Wastes.
- UN Recommendations on the Transport of Dangerous Goods – These recommendations form the basis of Australia's model regulations and the Australian Dangerous Goods Code.
- Basel Convention – This convention controls the movement of hazardous waste between countries. Features include prior informed consent before movements take place, documentation requirements and an underlying principle that hazardous wastes can only be moved between countries where the country of origin is unable to treat the waste. The Commonwealth Department of the Environment implements the requirements of the Basel Convention under the *Hazardous Waste (Regulation of Imports and Exports) Act 1989*.
- International Atomic Energy Agency (IAEA) – A number of IAEA conventions and obligations relate to radiation, to which Australia is a signatory. These are implemented by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).



### 10.2.2 Working nationally

Various mechanisms are used to implement international agreements within Australia and, beyond these agreements, to establish to varying degrees national uniformity in hazardous substances regulation in Australia. Responsibility for various stages of cradle-to-grave regulation is shared between Commonwealth, state and territory agencies. The Commonwealth generally takes responsibility up to the point of sale, notably chemical registrations, while the states and territories generally regulate post-sale transport, storage, use, and waste treatment and disposal.

The EPA, sometimes jointly with other NSW agencies, represents NSW in negotiation and implementation of national agreements on hazardous substances regulation. Specific areas of national agreement are:

#### **Pesticides**

The Minister for Primary Industries represents NSW in national negotiations on agriculture and veterinary chemicals, including pesticides, and harmonisation reforms. The EPA, as the primary pesticides regulator in NSW, works with the Department of Primary Industries (DPI) to negotiate and implement nationally agreed reforms in NSW.

Registration and regulation up to the point of sale of pesticides is the responsibility of the Australian Pesticides and Veterinary Medicines Authority (APVMA). Post-sale regulation is a state and territory responsibility. As part of the registration process, APVMA assesses the potential impacts of the pesticide on human health, the environment, and trade, and the likely effectiveness of the pesticide for its proposed uses. The registration of the pesticide includes mandatory labelling conditions which reflect that assessment, including measures to minimise the risks associated with the use of the pesticide.

Where a pesticide is inherently hazardous, APVMA may declare it a 'restricted chemical product', which means it may only be used by an authorised person in accordance with a pesticide control order made by the EPA under the [Pesticides Act 1999](#).

In May 2013, the Commonwealth, states and territories agreed to a new intergovernmental agreement to implement nationally uniform control of use for pesticides. The EPA and DPI represent NSW on working groups formulating the details of the regulatory reforms. The EPA is preparing legislative amendments to implement the reforms through the NSW *Pesticides Act 1999* (due Spring 2014) and the Pesticides Regulation 2009 (due 2015). The impact of the reforms in NSW is expected to be modest because many of the reforms adopt current NSW practice.

APVMA also administers an Adverse Experience Reporting Program (AERP), which assesses reports of adverse experiences associated with pesticides used in accordance with the approved label directions. The EPA supports this program by investigating reports of alleged adverse experiences to determine whether the products were used in accordance with the provisions of the *Pesticides Act 1999*.

#### **Industrial chemicals**

As part of the Council of Australian Governments-initiated national chemicals reform program, a national framework for establishing environmental risk-management decisions for industrial chemicals is being developed under the [National Framework for Chemicals Environmental Management](#) (NChEM). The EPA represents NSW on the working group tasked with establishing the new framework. Public consultation on the framework is complete and a recommended framework is expected to be delivered by the end of 2014.

The Commonwealth, through the [National Industrial Chemicals Notification and Assessment Scheme](#) (NICNAS), is responsible for assessing new industrial chemicals and reviewing existing chemicals under a Memorandum of Understanding with the states and territories. The EPA and WorkCover are the primary regulators of industrial chemicals in NSW. WorkCover

regulates occupational health and safety and the EPA manages the environmental impacts of these chemicals. Amendments to the [Environmentally Hazardous Chemicals Act 1995](#) (EHC Act), administered by the EPA, are being prepared (due 2015) to enable environmental risk-management decisions under the national framework to be implemented in NSW.

### **Dangerous goods**

The Australian Dangerous Goods Code (ADG Code), together with national model legislation, forms the basis for a nationally uniform approach to regulating dangerous goods transport. In NSW, this approach is implemented by the [Dangerous Goods \(Road and Rail Transport\) Act 2008](#) and Dangerous Goods (Road and Rail Transport) Regulation 2014. The EPA provides input to the process of updating the ADG Code and model legislation through the Transport of Dangerous Goods Maintenance Group.

The EPA and WorkCover NSW have joint responsibility for dangerous goods regulation in NSW. The EPA regulates transport and WorkCover regulates packaging and labelling. The EPA and WorkCover jointly represent NSW on the Competent Authorities Panel, which comprises state and territory dangerous goods regulators. The panel has responsibility for certain statutory decisions, facilitating national harmonisation and monitoring the effectiveness of the dangerous goods regulatory framework.

The storage and use of dangerous goods on business premises is regulated by WorkCover under occupational health and safety legislation.

### **Hazardous waste**

Reducing hazard and risk from waste is one of six key areas under the National Waste Policy, which was agreed by the Commonwealth, state and territory governments in 2009. This area of the policy covers reducing hazardous materials entering the waste stream and the safe transboundary movement, treatment and disposal of hazardous waste, including meeting Australia's obligations under the Basel Convention.

Reducing hazardous materials from the waste stream is achieved by reducing hazardous components within products, which is primarily controlled by the Commonwealth, and by cleaner production methods such as using less toxic chemicals and better recovery technology.

Nationally consistent requirements for transporting hazardous waste between states and territories are established by the [National Environment Protection \(Movement of Controlled Wastes between States and Territories\) Measure](#) (Controlled Waste<sup>3</sup> NEPM) which is implemented in NSW under the Protection of the Environment Operations (Waste) Regulation 2005.

Safe treatment and disposal of hazardous waste is regulated at a state or territory level. In NSW, it is regulated through environment protection licences issued under the *Protection of the Environment Operations Act 1997* (POEO Act).

### **Radiation**

Responsibility for the regulation of radiation is split between Commonwealth, state and territory agencies. ARPANSA works with state and territory regulators to deliver nationally consistent radiation regulation via the National Directory for Radiation Protection covering licensing, codes, standards and guidance on best practice. This is maintained by the Radiation Health Committee on which the EPA represents NSW.

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<sup>3</sup> Controlled waste is waste that must be tracked when transported interstate and covers a specified list of wastes that are considered environmentally hazardous.

## 10.3 General regulatory framework

### 10.3.1 Legislation

The NSW regulatory framework reflects international and national agreements on hazardous substances regulation. Hazardous substances are regulated under five acts and related regulations:

- *Protection of the Environment Operations Act 1997* and Protection of the Environment Operations (Waste) Regulation 2005
- *Pesticides Act 1999* and Pesticides Regulation 2009
- *Environmentally Hazardous Chemicals Act 1985* and Environmentally Hazardous Chemicals Regulation 2008
- *Dangerous Goods (Road and Rail Transport) Act 2008* and Dangerous Goods (Road and Rail Transport) Regulation 2014
- *Radiation Control Act 1990* and Radiation Control Regulation 2013.

Given that these acts derive from different national and international agreements and, in some cases, were originally the responsibility of other agencies, a priority for the EPA is to improve consistency and integration between acts. Key features of the acts, as they relate to hazardous substances, are described below, followed by measures that have or are being implemented by the EPA to improve consistency and integration.

#### Protection of the Environment Operations Act

The [\*Protection of the Environment Operations Act 1997\*](#) (POEO Act) contains requirements that prohibit the pollution of the environment by hazardous substances. In relation to the management of wastes, the POEO Act requires facilities in NSW that store or treat significant volumes of wastes to be licensed. The volumes that trigger licensing vary according to the risks posed by the wastes. Appropriate conditions are included on each licence to ensure that these facilities are operated safely and do not pose a risk to public health or the environment. EPA officers regulate the facilities to ensure that they are operated in compliance with the POEO Act and licence conditions.

All wastes generated in NSW must be assessed and classified according to the risks they pose to public health and the environment. Some wastes that are deemed too hazardous for disposal must have their contaminants immobilised before they can be disposed of. The EPA assesses and, if appropriate, approves proposals for immobilisation.

Movement of hazardous waste within NSW must be tracked to ensure the waste is not dumped. The EPA has implemented an online waste-tracking system for use by industry to facilitate this process and it also assists the EPA to effectively monitor and regulate movements.

#### Pesticides Act

The [\*Pesticides Act 1999\*](#) controls the use of pesticides, including those used in agriculture, on public lands, and on domestic and commercial premises, to reduce the risks to human health, the environment, property, industry and trade associated with their use. The Pesticides Act provides for pesticide control orders to apply restrictions on a specific pesticide or pesticide product.

The Pesticides Act also requires the users of registered pesticides to strictly follow the approved label or permit directions. It is an offence to use a pesticide in a way that causes:

- injury or likely injury to another person
- damage or likely damage to another person's property
- harm to a non-target plant or animal.

The [\*Pesticides Regulation 2009\*](#) specifies requirements for pesticide users relating to record-keeping, training and notification. It also establishes a licensing framework for aerial

spraying of pesticides. Amendments to the Pesticides Act proposed for Spring 2014 will broaden licensing provisions to enable NSW to meet national uniformity agreements, notably the transfer of urban pest control and fumigator licensing from WorkCover to the EPA.

### **Environmentally Hazardous Chemicals Act**

The [Environmentally Hazardous Chemicals Act 1985](#) (EHC Act) provides a framework for regulating chemicals or groups of chemicals of environmental concern throughout their life cycle.

The EHC Act provides for chemical control orders to apply restrictions on specific chemicals and/or chemical wastes that have a significant potential or actual impact on the environment. Requirements set out in a chemical control order may prohibit or require a licence to conduct certain activities such as storing, transporting or treating specified chemicals and/or their wastes.

An order can be made in relation to single substances, groups of substances (e.g. scheduled chemicals) and particular waste streams (e.g. aluminium smelter wastes).

### **Dangerous Goods (Road & Rail Transport) Act**

The purpose of the [Dangerous Goods \(Road and Rail Transport\) Act 2008](#) is to regulate the transport of dangerous goods by road and rail in order to promote public safety and protect property and the environment.

The Dangerous Goods Act and Dangerous Goods (Road and Rail Transport) Regulation 2014 are based on national model legislation and include provisions relating to the training and licensing of drivers, licensing of vehicles, exemptions, prohibitions on goods too dangerous to be transported, packaging, labelling and placarding, safety requirements, stowage, and load segregation. The Australian Dangerous Goods Code, which is called up by the legislation, includes detailed technical information including matters relating to packaging, signage and classification.

### **Radiation Control Act**

The [Radiation Control Act 1990](#) secures the protection of persons and the environment in NSW from the harmful effects of exposure to ionising and non-ionising radiation, protects security enhanced sources from misuse, and promotes radiation protection principles. The legislation regulates users (through user licences) and responsible persons (through management licences) for the possession, sale, storage, or giving away and disposal of regulated material (radioactive substances, ionising radiation apparatus and sealed-source devices) in NSW. The legislation also regulates solaria, including a ban on commercial UV tanning services from 31 December 2014.

The legislation provides enforcement powers to the EPA, provisions to require financial assurances in certain circumstances and the establishment of a Radiation Advisory Council.

#### **10.3.2 Regulatory operations**

The EPA uses a range of mechanisms to target its regulatory operations, including awareness raising and capacity building in industry, compliance campaigns, investigation of alleged breaches and, where appropriate, enforcement action. The EPA's [Prosecution Guidelines](#) and [Compliance Policy](#) provide the basis for decisions on the form of regulatory action to be taken.

The EPA has embarked on a program of reforms to meet the challenges faced by hazardous substances regulators outlined above. In addition to the reform process, the EPA continues to undertake its core business of awareness raising, proactive compliance campaigns and investigation of incidents and alleged breaches relating to hazardous substances. Examples of the work undertaken in 2012–14 are also described below.

## Regulatory reforms

### *Integrated regulation of hazardous substances*

Legislative amendments to deliver:

- common authorised officer powers and equivalent notice, and other provisions for hazardous substances – in place for hazardous waste and dangerous goods before 2012, radiation in July 2013, pesticides due late 2014 and industrial chemicals in 2015
- harmonised licensing frameworks for hazardous substances – in place for dangerous goods in 2012, radiation in 2013, pesticides due late 2014, industrial chemicals and hazardous waste transport due in 2015
- consistent, fairer licensing for hazardous substances based on full recovery of regulatory costs and risk-based fees (where higher risk requires more regulatory oversight the fees are higher) – in place for radiation in 2013 and other licences due in 2015.

### *Leading the way on legislative reform*

#### **Solarium ban**

On 4 February 2012, NSW became the first jurisdiction in Australia to announce a ban on commercial UV tanning services (solaria). The ban commences on 31 December 2014. In the lead up to the ban, the EPA is offering a free disposal service for registered UV tanning units to ensure safe disposal and the recovery of any recyclable materials. Most other Australian states have followed NSW's lead.

#### **Electronic stability control**

The EPA became the first dangerous goods regulator in Australia to require all new dangerous goods tank trailers to be fitted with electronic stability control. This requirement came into effect on 1 July 2014. The EPA has followed this Australian first by requiring all existing tank trailers to retrofit electronic stability control by 1 January 2019. The National Bulk Tanker Association and the Australian Road Transport Suppliers Association support compulsory fitting of electronic stability which can save lives by reducing the risk of roll overs.

#### **Integrated compliance programs**

The EPA has trialled integrated hazardous substances compliance programs (e.g. pesticides and dangerous goods for grain silos) and will introduce the Chemicals Life Cycle Regulatory Program in 2014–15 where campaigns will cover all relevant aspects of hazardous substances regulation. Campaigns for 2014–15 include fumigants and sterilising chemicals, acids and bases, and scheduled chemicals. The integrated program will enable the EPA to identify high-risk areas more readily, especially areas lacking effective regulatory oversight.

#### **Streamlining and strengthening regulatory systems**

As of August 2014, hazardous substances licensing has been consolidated which:

- strengthens regulatory controls by giving a 'single' view of EPA licensees
- enables automated cradle-to-grave tracking of sealed-source devices containing radioactive substances
- will facilitate a single licensing process for holders of both dangerous goods vehicle and hazardous waste transport licences (due 2015)
- will progressively improve service delivery to licensees including improved access to information and online management of licences (due throughout 2015–16).

The EPA's online waste tracking system is being upgraded (due 2015):



- to integrate with the EPA's Permit and Licence Management System to strengthen compliance controls, including around hazardous waste acceptance at treatment facilities
- to create a hazardous waste public register that will include enabling hazardous waste producers to readily find lawful treatment facilities for their waste
- to streamline data analysis capabilities for targeting compliance campaigns (for example, see boxed text on 'Dry cleaning industry and perchloroethylene' below).

The EPA is also trialling mobile devices to strengthen its field based regulatory activities including:

- development of a dangerous goods app which enables compliance checklists to be completed electronically during the inspection with the outcomes sent directly to the company's office and providing information to the inspecting EPA, and
- trialling electronic checklists for pesticides inspections (August 2014 fumigation campaign).

### ***Dry cleaning industry and perchloroethylene***

Perchloroethylene, the most common dry cleaning fluid used in Australia, is a suspected carcinogen and a major source of site contamination in NSW. As a waste, perchloroethylene is expensive to treat. While less hazardous alternatives to perchloroethylene are now being used, uptake is relatively slow due to investment in existing plant and concerns about efficacy for some applications. Local councils regulate most dry cleaning premises in NSW and the EPA is the regulator of hazardous waste.

As a result of industry advice that between 50% and 80% of perchloroethylene waste was unaccounted for, the EPA commenced a dry cleaning waste compliance program in 2008. The program has been undertaken as a series of campaigns to identify and deal with the causes of the apparent shortfall.

As part of the program, the EPA has inspected or surveyed by phone virtually all dry cleaners in NSW. Local councils were invited to participate in inspections in their local area. The stockpiling of waste, often in unsafe conditions, and probable unlawful disposal were identified as the main causes for the shortfall in the waste data.

The EPA has addressed the problem through industry awareness raising, a series of clean-up notices and one prosecution (Gerald Parry for six counts of unlawful disposal, fined \$30,000). EPA officers with Chinese and Vietnamese language skills assisted with inspections of dry cleaners from non-English speaking backgrounds. The EPA also produced a fact sheet for dry cleaners in English, Chinese and Vietnamese.

The EPA requires perchloroethylene waste to be tracked using the online waste tracking system. The EPA periodically reviews online waste-tracking data to identify anomalous disposal patterns and uses this to target on-going compliance programs. Another program is planned for the second half of 2014.

The Dry Cleaning Institute of Australia and major suppliers of perchloroethylene assisted the EPA in its compliance program. EPA staff have given presentations at meetings of the Dry Cleaning Institute and to local councils in support of the program.

### **Coordinating the regulation of hazardous substances**

The EPA coordinates its hazardous substances regulatory activities with other Commonwealth and state counterparts. The EPA also liaises with emergency response agencies on matters relating to hazardous substances, including seeking their advice on priorities for compliance programs to reduce the risk of adverse impacts arising from incidents. The EPA's incident response activities are dealt with in Chapter 11.



The EPA liaises with other agencies, formally and informally, on hazardous substance-related matters including:

- WorkCover/EPA/Health Senior Liaison Group.
- Hazardous Incidents Review Group
- Pest Animal Council
- Roads and Maritime Services, WorkCover
- police (on various initiatives related to dangerous goods)
- Commonwealth–state committees and working groups (on the implementation of national uniformity measures).

### **Compliance programs and investigations**

The EPA takes a risk-based approach to its hazardous substances compliance programs using the results of previous compliance programs, analysis of data from information systems such as the online waste tracking system, interstate and overseas experience, and information from industry and the community to identify risks.

Where appropriate, the EPA involves other relevant state or Commonwealth agencies in its hazardous substances compliance programs. The EPA also uses staff with foreign language and cultural skills for industries such as market gardeners and dry cleaners, where operators come from predominantly non-English speaking backgrounds.

#### *Pesticides and industrial chemicals*

The EPA has had an on-going program of awareness raising and compliance inspections for market gardeners, which included funding bi-lingual extension officers. In 2012–13, the EPA inspected 23 properties that had not been previously inspected. Some poor practice was identified, but no environmental harm was observed. As a result, several official cautions and clean-up notices were issued. Chinese- and Arabic-speaking EPA officers participated in the inspections of non-English speaking growers.

In 2013–14, the EPA inspected 13 Livestock Health and Pest Authority depots for compliance. A satisfactory outcome was obtained for pesticides regulatory requirements, however, around one third of depots were discharging wastes to sewer without a current trade waste agreement with the local sewerage authority. The EPA required the depots to obtain trade waste agreements and issued one official caution.

In 2014, the EPA and WorkCover NSW investigated compliance with pesticide use, storage and disposal requirements by 11 pest management technicians. Compliance levels were generally high with some storage and record-keeping improvements needed. Two operators were issued with clean-up notices requiring them to dispose of old pesticides that are no longer permitted to be used in NSW. Responsibility for licensing of pest management technicians will be transferred from WorkCover to the EPA at the end of 2014, in line with national agreements to consolidate all pesticide licensing under the primary pesticide regulator.

In 2012–13, the EPA investigated pesticide use by turf growers, bowling greens and golf courses. Widespread use of pesticides not registered for use in turf growing situations was identified and 76 penalty notices were issued. Subsequently, the EPA participated at industry meetings in Sydney and Mudgee to raise awareness of the requirement to only use pesticides in accordance with conditions of registration.

The EPA has received a number of complaints alleging adverse impacts from the herbicide 2,4-D. Individual incidents involving 2,4-D are notoriously difficult to investigate due to the volatility of some 2,4-D products and the lack of residual evidence for the cause of crop damage. In 2012–13, the EPA undertook an awareness raising campaign, including articles in the local press and liaison with Cotton Australia, to ensure landowners were aware of their legal obligations and the risks associated with 2,4-D use. The campaign focused on the most

affected areas around Narrabri and Wee Waa, and southern NSW. The EPA is currently working with the APVMA to develop spray-drift guidelines for pesticides such as 2,4-D.

Inspection programs focused on the overall performance of marinas and slipways found a general lack of awareness of obligations under the Pesticides Act. In response, the EPA approached the Boating Industry Association of NSW to implement measures to raise industry awareness. See the 'Working with stakeholders' section below for more details.

In 2013–14, the EPA inspected mushroom growers for compliance with pesticide legislation. While compliance was generally satisfactory, the need for some improvement was identified, notably in pesticide storage, record keeping and training certification. One penalty notice and one official caution were issued. The EPA subsequently met with the Mushroom Growers Association to discuss issues relating to the industry's use of pesticides. Problems identified during the campaign have now been resolved.

With the exception of the hexachlorobenzene waste currently stored by Orica at Botany, most other persistent organic pollutants listed in the Stockholm Convention have now been removed from use and destroyed. These chemicals include polychlorinated biphenyls (PCBs) and organochlorine pesticides. The EPA is monitoring the final stages of the phase out these chemicals through the online waste tracking system and environmentally hazardous chemicals licences. The EPA is currently undertaking a project to assess residual stocks of PCBs.

The responsibility for dealing with the substantial stockpile of hexachlorobenzene waste stored by Orica at Botany rests with the company. To date, Orica has been unable to find a suitable destruction option in Australia or gain approval for export to suitable facilities overseas. More information about how the EPA is regulating the safe storage of this waste is dealt with in Chapter 13.

### *Grain silos campaign*

The grain storage industry is a significant user of pesticides. In 2012 the EPA and WorkCover inspected 13 grain-storage facilities for compliance with pesticides and dangerous goods regulatory requirements. The majority of premises inspected were operated by GrainCorp, but several private facilities were also inspected.

Compliance levels were generally high. It was encouraging to note that, following an initial pilot inspection conducted jointly with WorkCover, Graincorp introduced company-wide solutions for pesticides management, including improvements to pesticides application, record keeping, pesticide storage, and the storage and use of grain fumigants.

In 2014–15, the EPA will be undertaking an inspection program of other industries using fumigants, including importers.

### *Dangerous goods*

In May 2011, the Auditor General issued an audit report on the regulation of the transport of dangerous goods. While recognising the EPA had an active dangerous goods compliance program, the report made a number of recommendations on how the program could be improved. The EPA has implemented all the recommendations of the report.

The EPA responded by broadening its regulatory program while continuing to maintain a credible roadside presence, which has been strengthened with the increased involvement of police and Roads and Maritime Services, the main on-road regulators of heavy vehicles in NSW.

Examples of the dangerous goods regulatory activities of the EPA during 2012–14 follow. It should be noted that dangerous goods compliance is also a component of regulatory activities that primarily focus on other hazardous substances issues.

- Engagement with industry associations to improve awareness of dangerous goods regulatory obligations including presentations to the National Bulk Tanker Association, Biohazard Waste Industry Group, Fuel Industry Safety Group, Royal Australian Chemical Institute (Health Safety and Environment Division) and the Australian Sustainable Business Group.
- Engagement with businesses such as Toll, Elgas and Australian Container Freight Services, including promoting dangerous goods awareness at staff and customer meetings.
- The EPA is a major sponsor of the annual Fire Protection Association of Australia HazMat Conference, a major conference for the dangerous goods industry, and has given presentations and/or had a booth at conferences in 2012, 2013 and 2014.
- Compliance campaigns conducted at transport hubs such as Port Botany, several locations in Western Sydney and Kooragang Island. Compliance levels were generally high but some issues at Port Botany requiring further action were identified (see boxed text on 'Port Botany dangerous goods program' below).
- The EPA has undertaken an audit of dangerous goods driver trainers and found no evidence of malpractice. The EPA has also signed a Memorandum of Understanding with the Australian Skills Quality Authority to enable information sharing and joint investigations relating to dangerous goods driver training.
- Roadside campaigns have been conducted across the state including Marulan, Mount White, Barton Highway (ACT border) and the Newell Highway (Daroobalgie). These campaigns are undertaken jointly with Roads and Maritime Services and/or NSW Police. Compliance levels have generally been improving over the last three years.
- The EPA investigates dangerous goods incidents and allegations of non-compliance. In 2013, Kitco Transport Australia Ltd was fined \$24,000 (plus \$25,000 costs) for offences relating to the transport of a load of corrosive liquids. The consignor of the load, George Weston Foods Ltd, was also fined \$24,000 (plus \$25,000 costs).
- The EPA has been working closely with the Roads and Maritime Services following the fatal fuel tanker roll over at Mona Vale in 2013. Investigations have identified unsatisfactory maintenance standards by the company involved, Cootes Australia. Since then Cootes has handed in 32 compliance plates for tankers, which means that these tankers can no longer be used to transport dangerous goods in Australia.

### ***Port Botany dangerous goods program***

In 2012, the EPA undertook a compliance campaign with the Roads and Maritime Services (RMS) and the Independent Transport Safety Regulator to assess compliance with dangerous goods requirements around Port Botany. Port Botany is a major transport hub for dangerous goods in containers as well as for bulk fuels and chemicals. The initial campaign identified a number of issues requiring resolution, both at a system and company level. The following programs have been, or are being, implemented to address these issues:

A lack of systems at some Port Botany bulk-container terminals meant few checks were being undertaken for compliance of vehicles collecting dangerous goods. The EPA has worked with terminal operators and dangerous goods checking systems are now in place at the major terminals.

There are several road tunnels in the vicinity of Port Botany through which the transport of dangerous goods is prohibited. EPA and RMS officers have undertaken compliance campaigns for these tunnels. Compliance with prohibited route requirements was found to be high; nevertheless, three penalty notices were issued as a result of the campaigns.

The EPA is providing specialist training in dangerous goods requirements to police and RMS officers working in the Port Botany area to increase the on-road regulatory presence around Port Botany.

Inspection programs targeting bulk tankers leaving Port Botany fuel terminals have generally found high levels of compliance. However, a few problems have been identified and the EPA will work with the industry to run the Safe Load Pass Program to improve compliance checks for tankers loading fuel at Port Botany.

### *Radiation*

A range of compliance campaigns and investigations into radiation have been undertaken by the EPA over 2012–14 and a selection of these are detailed below.

Based on an analysis of licensing data, an audit was undertaken targeting radioactive sources that may have been disposed of without EPA consent. Eight major licensees were investigated and 25 devices that were no longer licensed were found to still be in use or in storage, and a further four devices were found to be partially deconstructed. No sources had been disposed of unlawfully and no adverse impacts on human health or the environment were found. As a result of the investigation, the EPA issued two penalty infringement notices and a number of advisory letters.

An audit of all consents to dispose of radioactive substances issued by the EPA over a 24-month period was undertaken to check compliance. Thirty-three applications were reviewed and eight were found to have incomplete or outstanding matters. These matters were resolved with the relevant organisations to ensure cradle-to-grave tracking of radioactive sources.

Inspection of cyclotron facilities to ensure compliance resulted in the EPA issuing one licensee with a warning letter for minor non-compliances relating to annual reporting.

Following investigation into a number of radiation accidents at a radiopharmaceutical preparation facility, the EPA required the organisation responsible to formally appoint a radiation safety officer as well as formulate and adopt a radiation management plan. This will occur at an on-going cost likely to exceed \$100,000 per year.

An investigation by the EPA into two contamination events during the transport of radiopharmaceuticals identified problems with the internal packaging. The company responsible for the consignment has been required to implement measures to prevent a recurrence. There were no adverse impacts on human health or the environment as the contamination was captured by a secondary containment system.

The EPA has also conducted several investigations into allegations of unlicensed practitioners or equipment at dental practices and chiropractors. All outstanding matters have been satisfactorily resolved.

### *Radioactive source in scrap metal exported to Thailand*

The EPA was notified that a shipping container of scrap metal exported to Thailand by an Australian scrap metal company was stopped at a Thai port because routine radiation screening of the container suggested it contained undeclared radioactive material.

The container was sent back to Australia for investigation. Upon arrival in Australia it was opened by Australian Nuclear Safety Technology Organisation (ANSTO) staff in the presence of EPA-authorised officers and found to contain parts of a disused radiation gauge including a caesium-137 source.

A comprehensive and detailed investigation lasting approximately 12 months was conducted by the EPA and ANSTO in an attempt to locate the previous owner of the source. The investigation identified the original owner, who is no longer in existence, but could not identify who was responsible for the unauthorised disposal of the source.

The source has since been sent to the USA for safe disposal. The cost to the scrap metal company for transport, handling and disposal of the source, along with components of the investigation, was greater than \$250,000. The company has since strengthened its radiation

detection procedures across all relevant sites in Australia, the USA, Canada and Asia.

The source in question predates the EPA's cradle-to-grave regulatory system, which commenced in 1997 and has since been strengthened by software upgrades in 2014. This incident demonstrates the importance of the current cradle-to-grave regulatory system in enabling unlawful disposal of radioactive sources to be identified.

### *Hazardous waste*

The EPA regularly assesses the performance of hazardous waste treatment facilities. Where the need for improvements is identified, licence conditions and notices are implemented through the POEO Act.

Since 2012, the EPA has been working with the operators of Solveco in St Marys to address problems dating from when the plant was operated by Australian Waste Recyclers Pty Ltd (AWR). AWR was fined \$225,000 in 2005 for unlawful waste disposal and left a legacy of around 18,000 drums of mostly hazardous waste. Through a series of pollution reduction programs the number of old drums has been reduced to below 2000, with the remaining drums containing perchloroethylene sludge from dry cleaners. The EPA is currently assessing innovative technology developed by Solveco for treating waste in the remaining drums as well as perchloroethylene waste arising from current dry cleaning operations. A pilot of the technology is expected to start shortly. The EPA has also addressed odour problems from the site by stopping operation of the biopile at the plant.

The EPA also worked with Australian Refined Alloys, which has completed a \$12.5 million upgrade to its Alexandria plant. The upgrade is designed to reduce point-source and fugitive air emissions of lead, particulates, nitrogen and sulfur oxides, and volatile organic compounds; provide better protection for surface waters; and minimise the risk of soil and ground-water contamination. The licensee is currently undertaking a 12-month dust deposition monitoring study as a condition of its licence to assess the effectiveness of dust control measures (final report due April 2015).

As part of its role in advising the Commonwealth on the export and import of hazardous waste, the EPA determined that a NSW facility proposing to import hazardous waste was unable to handle the quantities of waste involved and did not have valid treatment options arranged for one of the waste streams concerned. The EPA advised the Commonwealth to defer approval of the import until these matters had been resolved. The EPA then worked with the facility to implement changes to its waste handling and storage processes and identify a suitable waste treatment option in Victoria for the problematic waste stream. The Commonwealth then approved the import, enabling Australia to assist Papua New Guinea to deal with a difficult waste problem while continuing to protect the NSW environment.

### *Homebush Bay liquid waste treatment plant*

The Homebush Bay Liquid Waste Treatment Plant (LWTP) opened in 1988 and is the largest liquid waste treatment facility in NSW. At the time, it was located in a largely industrial area with no nearby residences. It is the main, and in some cases only, NSW facility processing difficult to treat liquid wastes. The plant also treats leachate from contaminated soil remediation mounds in Olympic Park.

A number of EPA-initiated pollution-reduction programs have resulted in substantial improvement in controlling odours from the plant since the Sydney 2000 Olympics (the plant was closed during the Olympics because of concern about odours). However, odour discharges persist. Given the nature and design of the plant, complete elimination of odours is impractical. In addition, odours can be discharged from vehicles transporting waste to the plant as well as from the sewerage system transporting wastes from the plant.



Homebush Bay and its surrounding suburbs are changing from being primarily used for industrial operations to mixed-use commercial, residential and entertainment areas. The continued operation of the LWTP is inconsistent with the future character of the district. For this reason, the EPA submission does not currently support the Carter Street Lidcombe Urban Activation Precinct proposal for a major mixed-use residential, commercial and recreational development adjacent to the plant. The EPA will not support the rezoning required to enable the proposal to proceed until a resolution of the land-use planning conflict with the plant is resolved.

The plant currently provides critical treatment capacity for liquid wastes. The EPA believes that a whole-of-government approach, working closely with industry, is needed to plan for closure of the plant. In particular, an alternative treatment capacity needs to be established in more appropriate locations to maintain liquid waste treatment capacity.

The EPA's Specific Immobilisation Approval (SIA) Program facilitates the treatment and disposal of a variety of hazardous waste streams containing high levels of contaminants such as heavy metals and/or toxic organic chemicals that usually render the waste unsuitable for landfill. However, with appropriate treatment, as specified in the SIA, the contaminants can be stabilised and the waste rendered suitable for landfill, subject to conditions (e.g. isolation from chemically active putrescible waste). In some cases, typically as a result of high temperature processes, the waste is chemically stable without requiring further treatment.

Generators of these waste streams include industry, property developers (contaminated site remediation) and state and Commonwealth agencies. Wastes safely treated and disposed of under the SIA Program since 2012 include:

- 4500 tonnes of mercury-impacted material from the former Orica chlor-alkali plant at Matraville, treated for disposal in a specially designed monocell in a restricted solid-waste landfill
- coal tar impacted soil from former gasworks sites (e.g. 5000 tonnes of contaminated soil was treated at the former HMAS Platypus site in Neutral Bay)
- lead-contaminated grit blast waste from the maintenance of iron bridges (e.g. the Sydney Harbour Bridge alone can generate 400 tonnes of lead-impacted grit blast waste per service contract)
- slag waste from metallurgical processes including lead acid battery recycling and aluminium smelters
- fine particles collected by pollution control equipment in the iron and steel industry
- solidified residues from solvent recovery processes
- treatment sludge from liquid-waste treatment plants
- lead impacted materials from former Department of Defence firing ranges.

The EPA's online waste tracking system is an important tool in regulating hazardous waste. The integrity of this system is important to the effective regulation of hazardous waste in NSW.

In late 2012, the EPA reviewed waste tracking records online and found compliance rates of around 99%. Measures contributing to the high compliance rate include controls within the tracking system that limit facilities to wastes that they are licensed to receive, various data integrity checks embedded in the system and industry awareness that the EPA is able to monitor hazardous waste movements online.

## 10.4 The EPA and its stakeholders

### 10.4.1 Working with stakeholders

As a regulator, the EPA takes strong enforcement action against people and businesses doing the wrong thing.



The EPA also engages constructively with its stakeholders to achieve its goals of protecting human health and the environment. This is particularly important in the regulation of hazardous substances where, in addition to its own in-house resources, the EPA draws on expertise in complex scientific issues from industry and elsewhere.

### ***Radiation Advisory Council***

The Radiation Advisory Council, constituted under section 29 of the *Radiation Control Act 1990* (RC Act), consists of 17 members appointed by the Minister. Members represent a broad cross-section of the regulated community and provide access to key stakeholders and expertise across a broad range of radiation applications.

The council advises the Minister on proposed amendments to the legislation, and advises the Minister and the EPA on the administration of the RC Act as well as measures to prevent or minimise the dangers arising from radiation and other matters relating to radiation safety.

During 2012–14 the council focused on overseeing the implementation of the 2010 amendments to the RC Act and the remake and implementation of the Radiation Control Regulation 2013. It also provided advice to the EPA on non-standard licensing applications and radiation safety courses for the purposes of licensing, and radiation accidents reported to the EPA under the reporting provisions of the Radiation Control Regulation 2013.

The council established the National Directory Committee to support the EPA in developing and implementing the National Directory for Radiation Protection and to ensure that the recommendations proposed by the National Radiation Health Committee are practical and effective in controlling radiation risks to human health and the environment.

The EPA may draw on expertise in relation to a specific issue. Legislative changes planned for 2014–15 will strengthen the EPA's ability to recover the cost of engaging expert consultants, where appropriate, from business(es) being regulated.

The EPA also obtains advice on radiation on a continuing basis from the Radiation Advisory Council, a body comprising experts from various disciplines involved in the use of radiation.

The EPA also engages with industry sectors as a whole where sector-wide issues need to be addressed and where opportunities exist to raise industry awareness at a sector-wide level. In particular, the EPA aims to identify and work with organisations whose commercial or reputational interests align with the EPA's objectives. Examples include waste tracking, where treatment facilities have a commercial interest in hazardous waste being sent to facilities for proper treatment rather than being unlawfully dumped, and industry associations which are aware of the importance of members of their industry being recognised as responsible corporate citizens.

Examples of the EPA working with industry to address environmental issues are described in the earlier sections.

The EPA has also worked with industry to develop guidelines which facilitates industry buy-in for the measures proposed and ensures that these measures are practical without placing unnecessary costs on industry.

### *Working with industry to develop guidelines*

The EPA is working with a committee of the Radiation Advisory Council to review and update Radiation Guideline 6: Registration requirements and industry best practice for ionising radiation apparatus used in diagnostic imaging. The guideline sets minimum standards for X-ray equipment used for medical and interventional radiology, dentistry, and veterinary radiology.

The committee includes experts from within the industry and professional associations such as the Royal Australian and New Zealand College of Radiologists and the Australasian College of Physical Scientists and Engineers in Medicine. The review should be completed by December 2014.

In 2012, pesticides training providers, pesticide users and EPA field officers identified the need for guidance on industry best-practice for dealing with pesticide rinsate. Inappropriate disposal of pesticide rinsate can be harmful to people and the environment.

The EPA established a working group with the NSW Department of Primary Industries, NSW Farmers, Cotton Australia and training providers Chemcert and SMARTtrain to develop a fact sheet. The fact sheet covered measures for minimising rinsate generation, rinsate reuse and safe disposal options. The fact sheet was placed on the EPA's website and copies have been provided to relevant training providers for distribution to course participants.

In 2013 the EPA worked with the NSW Boating Industry Association (BIA) to develop a fact sheet to improve awareness of record-keeping requirements that apply to occupational users of antifoulant paints (a unique class of pesticide). Industry feedback when developing the fact sheet resulted in it being broadened to cover other related issues including container disposal, pollution prevention and controls on banned tributyl-tin paint wastes. To help disseminate the key messages, the BIA has distributed the fact sheet to its members and the EPA has sponsored places in the BIA's member training program.

In June 2014, the EPA held a workshop with key operators in the liquid waste treatment industry to obtain industry input into guidelines being prepared by the EPA on performance standards for the liquid waste treatment industry. The workshop also provided industry with an opportunity to identify issues of concern, such as third-party agents, and the EPA is investigating measures to address these concerns.

The EPA also consults with stakeholders as part of any significant legislative or policy reform. Consultation can take the form of discussion papers, regulatory impact statements and/or draft legislation or guidelines. The EPA releases material for public consultation through its website and conducts targeted or public stakeholder meetings. As part of the recent radiation legislative reform process, for example, the EPA wrote to more than 14,000 radiation licence and registration holders inviting comment on the proposed reforms. The EPA has also assisted the Commonwealth with consultations on national chemicals reforms.

### *10.4.2 Communicating with stakeholders*

The EPA provides a wide range of material on hazardous substances on its website, covering general information on hazardous substances and also specific information on hazardous waste, pesticides, industrial chemicals, dangerous goods, and radioactive substances.

This website also includes information about EPA programs and links to other relevant sites.

The EPA (in some cases jointly with other agencies) produces fact sheets, DVDs and posters on matters relating to hazardous substances. Where appropriate, these are translated into languages other than English.

***Pesticides fact sheets, DVDs and posters***

Educational resources about using pesticides safely (fact sheets, DVDs and poster sets) have been developed in collaboration with other state agencies and are available to assist pesticide users working in market gardens.

The EPA recognises that a large proportion of the market gardening community uses English as a second language or does not speak and/or read English. Thus, the EPA has translated this material into a number of languages including Arabic, Mandarin, Cantonese, Vietnamese, Italian, Khmer and Maltese.



## Chapter 11: Emergencies and the EPA

### 2012–2014 selected highlights

- Development of an incident management system to bring a structured approach to incident management with roles and responsibilities clearly defined
- Upskilling EPA staff through the development and delivery of three levels of incident management training (awareness, response and coordination) to 227 EPA staff and 19 supporting OEH staff
- The EPA led the development of clear funding guidelines for emergency asbestos clean-up that were implemented in the October 2013 bushfires.
- The EPA has held 27 debriefs on significant incidents involving potential harm to the environment to learn and make improvements.

### 11.1 The context

The EPA works closely with other agencies to minimise the harm caused by pollution incidents. On a large scale, there are disasters such as bushfires, floods, storms and major oil spills. Smaller incidents occur more frequently and involve the release of hazardous materials to the environment, such as:

- an unauthorised release of chemicals to the air from a factory stack
- an accident involving a vehicle carrying dangerous goods
- a milk tanker rollover into a creek
- a sewerage system overflow
- a factory fire with smoke and runoff that involved chemicals
- illegal dumping of asbestos waste.

The severity of the incident depends on a number of factors including:

- the nature and amount of the materials released to the environment
- the sensitivity of the local environment
- such variables as the time of day, weather conditions and community activities.

A primary EPA objective is to protect, restore and enhance the quality of the environment in NSW. To help achieve this objective, the EPA acts to mitigate the impact of pollution incidents on the environment and surrounding community by working with other agencies and using its regulatory powers to require clean-up by those responsible.

### 11.2 How we regulate

#### 11.2.1 A streamlined integrated approach across the NSW Government

The emergency management framework in NSW is established under the [State Emergency and Rescue Management Act 1989](#) and includes the formation and operation of the [State Emergency Management Committee](#) (SEMC). The EPA is a member of this committee which is responsible for emergency management planning in NSW.

The SEMC has prepared the [NSW State Emergency Plan](#) (EMPLAN), which outlines the roles and responsibilities of the various agencies involved in emergency management in NSW. Through this plan, the EPA has a leading role in responding to emergencies where the environment is at risk.

The EPA is also a member of the State Disaster Recovery Advisory Group and the Chemical, Biological, Radiological, Nuclear (CBRN)/Hazardous Materials Steering Committee. It is

involved in preparing for potential terrorist activities involving chemical, biological, radiological or nuclear materials and regularly participates in multi-agency exercises to test arrangements and capabilities.

### *Building a comprehensive incident response capacity*

#### **Responses to the O'Reilly Report**

The [O'Reilly Report](#) reviewed the response to a serious pollution incident at the Orica Australia Pty Ltd facility at Kooragang Island, Newcastle in 2011. This led directly to the reconstitution of the EPA as a separate NSW government agency and a program to rebuild its capacities. Additional measures put in place in response to the review are listed below.

- New laws:
  - requiring pollution incidents to be reported immediately, instead of 'as soon as practicable'
  - for procedures requiring improved public notification, community engagement and emergency planning and response exercises around pollution incidents
  - doubling to \$2 million the maximum penalty for failing to report an incident immediately
  - requiring notification of pollution incidents to the EPA, NSW Health, Fire and Rescue NSW, WorkCover NSW and the local council
  - establishing an industry-funded network of environmental monitors for communities adjacent to the heavy industrial precinct of the Lower Hunter
  - expanding the community 'right to know' by requiring industry to make its monitoring results available to the public and expanding information on the EPA's public register
  - creating a community advisory committee for the people of Newcastle
  - clarifying the EPA's powers to conduct mandatory environmental audits
  - allowing the Ministry of Health and the EPA to require polluters to pay for independent expert advice into human health and/or environmental impacts relating to an incident
- Creation of a dedicated team within the EPA to build comprehensive, streamlined, trained and incident-ready emergency response capacity across the state
- Upgraded interagency communication systems, including response protocols between the EPA and Fire and Rescue NSW for managing hazardous materials incidents threatening public health or the environment
- Upgraded requirements for industry to prepare pollution incident response management plans

The EPA maintains effective working relations with emergency service organisations and other groups with roles in the NSW emergency management framework. This ensures that emergency management plans, protocols and Memorandums of Understanding with other agencies are developed and effectively maintained as well as tested and regularly reviewed.

#### **11.2.2 General regulatory framework**

Under EMPLAN, the EPA is responsible for coordinating the Environmental Services Functional Area. This is documented in the [Environmental Services Functional Area Supporting Plan \(Enviroplan\)](#). In accordance with Enviroplan and in collaboration with other agencies, the EPA:

- determines measures to [prepare for and help prevent incidents](#) that may impact on public health and the environment
- coordinates environmental protection during [emergency response and recovery](#)
- coordinates the clean-up of land and inland waters affected by serious incidents.



The EPA coordinates and supports the application of its own and other agency resources in the event of hazardous incidents and maintains an effective incident management capability across all regions of NSW. Networks between emergency response agencies at the state level are mirrored at regional levels.

When a hazardous materials incident occurs, Fire and Rescue NSW is responsible for rendering the site safe. The EPA's role is to coordinate scientific advice to the firefighters and ensure the site is properly cleaned up after it has been rendered safe.

The EPA participates in regular state emergency planning exercises. In 2013–14, it took part in 13 multi-agency exercises, including an incident at an oil terminal, fuel spills, an air crash, a train derailment, flooding, a cross-border incident and a marine oil/chemical spill.

While the EPA's regional staff are our frontline responders to pollution incidents, maintaining this capacity requires specialist support skills, familiarity with emergency management plans/protocols and effective working relationships with the emergency services. Given the range of functions and day-to-day priorities within regional locations, this support is most reliably maintained through a small specialist team who support the regions across the range of incidents within the EPA's sphere of responsibility.

The EPA's regulatory activities are structured within the framework of

Prevention ➡ Preparedness ➡ Response ➡ Recovery

## Prevention

### *Owner's responsibility*

Individuals and businesses are responsible for ensuring that their activities do not impact on the environment or the community.

To prevent incidents from occurring or reduce their impact, businesses have a general duty to:

- identify potential or known hazards
- assess the likelihood and impact of a hazard occurring and any potential threats to life, property and the environment
- eliminate or control the hazard and reduce potential threats by implementing control measures
- monitor the hazard to ensure that risk controls are working and, if there are changes in the process, that new hazards are also addressed.

Industries working with hazardous materials have controls to ensure their activities operate safely. If a risk cannot be eliminated, it can be minimised by:

- replacing the potentially hazardous activity with one that is less hazardous, such as substituting a water-based coating for a toxic surface coating
- isolating the risk by, for example, installing bunding and splash shields around chemical storage vessels
- removing or reducing the risk by using best-practice engineering techniques, such as converting an open solvent degreasing tank into an enclosed system to reduce fugitive air emissions
- changing management practices, such as implementing routine inspections of all storage vessels for leaks.

### *The EPA's role*

To assist in the prevention of pollution incidents and effectively manage them when they do occur, the [EPA regulates certain activities](#) that have an elevated environmental risk and may cause significant environmental impacts.

In addition to the licensing of polluting industries, the EPA regulates significantly contaminated land ([see chapter 9](#)) and hazardous materials ([see chapter 10](#)) including:

- transportation of dangerous goods
- pesticide use
- hazardous waste transport
- treatment and disposal
- control of radiation sources.

The EPA also:

- develops legislation, policy and programs that reduce threats to the environment from high-risk routine activities and incidents
- undertakes [compliance programs and audits](#)
- develops regulatory programs to improve areas that are high risk
- works with and supports other agencies (such as NSW Health, WorkCover NSW, Fire and Rescue NSW) in activities that minimise risks to human health and the environment.

### **Preparedness**

Activities that help the EPA to effectively respond to a hazardous materials incident include:

- active participation in the NSW emergency management framework at state and regional levels
- conducting and participating in single agency and multi-agency incident response and recovery exercises
- regular communications with other agencies on programs to improve a whole-of-government response to incidents.

Transporters of dangerous goods must prepare a [transport emergency response plan](#).

Major hazard facilities are required to undertake detailed risk management evaluations and implement appropriate control strategies and emergency plans under legislation administered by [WorkCover NSW](#).

#### *Pollution incident response management plans*

As well as meeting day-to-day operational conditions, the holder of an environment protection licence (and occupiers of other premises at the request of the EPA) are responsible for developing a pollution incident response management plan.

Part 5.7A of the [Protection of the Environment Operations Act 1997](#) requires all environment protection licence holders to prepare and implement pollution incident response management plans that:

- ensure comprehensive and timely communication about a pollution incident to facility staff, the EPA, other relevant authorities as specified in the Act and people outside the facility who may be affected by the impacts of the incident
- minimise and control the risk of a pollution incident at the facility by requiring identification of risks and the development of planned actions to minimise and manage those risks
- identify trained staff who are responsible for implementing them
- are regularly tested for accuracy, currency and suitability
- promote community involvement and education in, and awareness of, environmental matters.

The EPA has assisted industry to develop:

- incident management plans
- notification procedures and protocols
- understanding of when industry must report and how.

### *When an emergency happens ...*

#### **Emergency response**

The EPA has a 24-hour, 7 day a week system to ensure an effective response to spills and hazardous materials incidents. The community can call the EPA's Environment Line to report pollution at any time (phone 131 555) and a network of EPA officers is available throughout NSW to respond to and investigate reports of significant pollution.

The EPA also maintains a specialist support and advice role known as the Duty Incident Advice Coordinator (DIAC) who is always on call to receive information from the emergency services.

The DIAC liaises with EPA regional staff to ensure the response and clean-up goes as smoothly as possible. The DIAC can also be used as an additional resource in the field or provide advice and assistance over the phone and online, both internally and to other agencies.

#### **Hazardous materials incidents**

When a hazardous materials incident occurs that threatens public health or the environment, Fire and Rescue NSW and the EPA work closely together to manage the incident. Fire and Rescue is responsible for rendering the site safe while the EPA's role is to coordinate scientific advice to the firefighters and ensure the site is properly cleaned up after it has been rendered safe.

#### **Disasters**

The EPA has a major disaster response role in NSW. It is responsible for coordinating the Environmental Services Functional Area, a group made up of all agencies with a role in protecting the environment in any type of disasters. These disasters might include fires, storms, earthquakes, floods, major oil spills or tsunamis.

When a disaster occurs, the Environmental Services Functional Area:

- coordinates the protection of the environment
- coordinates scientific support for the combat agency and other agencies involved in the response
- coordinates the clean-up of hazardous materials
- advises on the management of wastes
- where appropriate, investigates the cause of incidents involving hazardous materials.

The EPA also has a role to play in counter-terrorism planning. The Environmental Services Functional Area is responsible for coordinating the clean-up of incidents involving chemical, biological, radiological materials.

Significant effort is dedicated to planning and training with other agencies for these types of emergencies to ensure NSW is prepared to respond to such attacks.

#### **Response**

When responding to a hazardous materials incident, the objective is to contain the hazardous materials to prevent actual or further harm to the public, property and the environment. The EPA supports and advises the agency responsible for controlling the response to an incident (the combat agency) which is typically an emergency service organisation such as Fire and Rescue NSW. The EPA is not a combat agency.

The EPA will support the combat agency by:

- providing technical and scientific advice and assistance, especially regarding protecting or minimising impacts on the environment

- prioritising appropriate actions to protect the environment
- participating in the development and execution of the incident action plan
- assisting the combat agency to identify unknown, potentially hazardous materials and determine the potential for these materials to cause environmental harm.

The EPA works with other agencies to obtain satisfactory environmental outcomes. These agencies include:

- [Ministry for Police and Emergency Services](#)
- [Fire and Rescue NSW – incident and emergency management](#)
- [NSW Police – emergency management](#)
- [NSW Health – health emergency preparedness and advice on health risks](#)
- [WorkCover NSW](#)
- local councils.

The combat agency for an emergency depends on the hazard.

Hazard	Combat agency
Animal, plant disease, rodent or insect plague	Department of Primary Industries
Fire (within rural fire district)	NSW Rural Fire Service
Fire (within a fire district)	Fire and Rescue NSW
Hazardous materials on land and inland waters	
Major structural collapse	
Oil and chemical spills into State waters	Relevant port authority
Flood	NSW State Emergency Service
Storm and tempest	
Tsunami	
Pandemic	NSW Health

## Recovery

The recovery phase of an incident is the process by which an affected community or environment is restored to its proper level of functioning. During the recovery phase and depending on the overall circumstances, the EPA or the local council may be the lead agency in managing strategies to protect and minimise harm to the environment. The main exception are oil and chemical spills into NSW state waters, which are managed by Transport for NSW or Port Authority New South Wales.

The EPA will coordinate the necessary clean-up of the incident site and restoration of the environment when it is the lead agency. When not the lead, it may provide technical and regulatory assistance in recovery.

Under certain circumstances, funding for clean-up may be accessed through the [emergency pollution clean-up program](#), which is managed by the NSW Environmental Trust.

## 11.3 The community and the EPA

The EPA uses social media (Twitter) to notify the community about serious incidents and our role in advising the combat agency on managing an incident. In addition, the EPA maintains a webpage that provides [more detailed information on incidents](#).

## Chapter 12: Native forestry and the EPA

### 2012–2014 selected highlights

- Consolidation of the [Integrated Forestry Operations Approvals for coastal forest areas](#) well advanced
- Release of [online and DVD training resources](#) to help landowners manage the native timber supplies on their land sustainably
- Publication of native forest compliance strategies and annual priorities for [private native forestry](#) and [Crown forestry](#) to be clear and transparent about EPA regulatory operations
- Increase in compliance activities and more regular stakeholder meetings since establishment of the new EPA

### 12.1 The context

Australia's forests are recognised and valued for their diverse ecosystems and unique biodiversity, their cultural heritage and the provision of goods and 'services' such as wood, carbon sequestration, soil and water protection, and aesthetic values and recreational opportunities.

The Australian Government has limited forest management responsibilities, but may influence management through legislative powers associated with foreign affairs (particularly treaties and international agreements), commodity export licensing, taxation and biodiversity conservation, and through targeted spending programs to meet environmental, social and economic objectives.

NSW has 22.7 million hectares of forest (18% of its land area) of which three-quarters (16.3 million hectares) are eucalypt forest types. In NSW, multiple-use public forests provide the major source of native timber and wood-based products. Forests on leasehold and private land also contribute to this supply.

Native forestry has attracted polarised public debate for many years. During the 1990s and early 2000s, state and federal governments agreed on significant forestry reforms to establish new reserves and national parks, provide clear rules to protect the environment, threatened species and their habitat during harvesting, and provide long-term resources security for industry.

Native forest logging continues to receive its share of issues and media attention, particularly around the ecological impacts of logging, sustainability of harvesting, timber supply, and the operational needs of the timber industry.

### 12.2 How we regulate

The EPA is responsible for regulating native forestry operations in relation to water quality, threatened species and their habitat, on public (Crown) land as well as native forestry operations on private land. Harvesting in plantations (a relatively small area compared with native forests) and the impact of forestry operations on threatened fish species is regulated by the Department of Primary Industries, not the EPA.

Forestry operations in state forests and on other Crown timber lands are primarily regulated through seven integrated forestry operations approvals (IFOAs), issued jointly by the Minister for the Environment and Minister for Primary Industries in line with the requirements of the [Forestry Act 2012](#).

The EPA regulates private native forestry (PNF) under the [Native Vegetation Act 2003](#) through the provisions of the [Native Vegetation Regulation 2013](#) and [PNF Code of Practice](#).

### 12.2.1 A national framework

The management of Australia's forests is guided by the [National Forest Policy Statement](#), signed jointly by the Australian and state and territory governments. The statement outlines agreed objectives and policies for the future of Australia's public and private forests.

#### *National goals of the National Forest Policy Statement*

Australian governments have agreed to pursue 11 broad national goals to ensure that the community obtains a balanced return from all forest uses:

- conservation
- wood production and industry development
- integrated and coordinated decision-making and management
- private native forests
- plantations
- water supply and catchment management
- tourism and other economic and social opportunities
- employment, workforce education and training
- public awareness, education and involvement
- research and development
- international responsibilities.

Regional forest agreements (RFAs) are a whole-of-Australian government initiative. As well as the three RFAs in NSW, there are five RFAs in Victoria, one in Western Australia and one in Tasmania. In NSW the three RFAs are complemented by four state managed NSW forest agreements.

The NSW Government drove negotiations on the agreements with forest stakeholders and the Commonwealth to deliver the agreements and worked to ensure the multiple-use values of the NSW Crown forest estate were recognised in the RFAs.

Since the mid-1990s, 1.7 million hectares of new formal reserves, including national parks, and hundreds of thousands of hectares of informal reserves have been established in NSW coastal and inland forests, helping to deliver a comprehensive and world-class reserve system.

### 12.2.2 Approval framework for logging native forests

#### **Logging of Crown forests**

Logging on public land is regulated under seven integrated forestry operations approvals (IFOAs) that are held by the Forestry Corporation of NSW. IFOAs are granted by the Minister for the Environment and Minister for Primary Industries under the [Forestry Act 2012](#) and bring together the requirements for environmental planning and assessment, protection of the environment and the protection of threatened species and their habitat.

The IFOAs operationalise the principles of ecologically sustainable forest management (ESFM) in line with the National Forest Policy Statement, to which the NSW Government is a signatory, and in accordance with the commitments made under the three NSW–Commonwealth RFAs and four NSW forest agreements.

The IFOAs incorporate an environment protection licence (EPL) issued under the [Protection of the Environment Operations Act 1997](#), a threatened species licence (TSL) issued under the [Threatened Species Conservation Act 1995](#) and a fisheries licence issued under the [Fisheries Management Act 1994](#).

The EPA regulates Forestry Corporation compliance with the EPL and TSL, and the Department of Primary Industries regulates its compliance with the fisheries licence. The



IFOAs also set 'non-licence' terms and agency commitments, such as annual timber harvesting volumes and land management requirements, for example around fire and pests and weed management.

### **Logging on private land**

Private native forestry (PNF) is the management of native vegetation on privately owned land to obtain such forest products as sawlogs, veneer logs, poles, girders, piles and pulp logs on a sustainable basis.

Of the estimated 8.8 million hectares of native forests on private land across NSW, around half a million hectares is currently allowed to be logged under approval. Logging on private lands is regulated under the [Native Vegetation Act 2003](#) and [Native Vegetation Regulation 2013](#).

Where appropriate, the EPA grants landholders who wish to undertake PNF a property vegetation plan (PVP). PNF PVPs are legally binding agreements. The EPA requires all forestry operations to be undertaken in line with the provisions set out in the [Private Native Forestry Code of Practice](#) (the PNF Code). This includes requirements that have been specifically set to protect water quality, threatened species and their habitat.

Landholders also prepare a forest operation plan covering all the forestry operations occurring or planned to occur on the land where a PNF PVP has been issued. Plans consist of a map, a written template and details about the forest (e.g. type and condition), the harvesting methods used, planned regeneration activities, environment protection measures and road planning.

The PNF Code requires landholders to report to the EPA if they have performed PNF operations in the previous year or plan to in the coming year.

A PNF PVP is valid for 15 years and defines a total harvestable area that can be logged over this period. Generally only a small percentage of the total approved area will have active forestry operations occurring in the reporting period.

Between 1 August 2007 and 30 June 2013, approved PNF PVPs totalled 2637, covering 512,564 hectares of private forest. In the financial year 2012–13, a total of 61,188 hectares were approved under 353 new PNF PVPs. Within this area all rainforest, old growth forest, wetlands, heathlands and many other environmentally important areas were protected.

### **Remaking the coastal IFOAs**

The current coastal IFOAs contain some 2000 conditions across 350 pages. Rather than being 'integrated' approvals, they consist of four separate licences, comprising general operating conditions, an EPL, TSL and a fisheries licence. In contrast, the IFOAs for western NSW that were developed later better integrate the conditions of the various licences.

The NSW Government is currently remaking the IFOAs for the Eden, Southern, Upper and Lower North East coastal regions of NSW and expects to finalise new IFOAs for these areas in July 2015.

The NSW Government is committed to delivering a single consolidated IFOA for coastal NSW. The aim of the coastal IFOAs remake is to reduce the costs of implementation and compliance and improve the clarity and enforceability of IFOA conditions. The NSW Government has committed to delivering these objectives with no net change to wood supply and all environmental values maintained.

#### **12.2.3 General regulatory framework**

As noted above, the EPA is responsible for regulating compliance with requirements set out in the IFOAs and PNF Code.

The EPA has prepared compliance strategies for all Crown forestry operations on public land and PNF which set out its current compliance priorities for the information of the timber

industry and the community. The EPA considered stakeholder views, the results of audits and investigations, and the views of its own specialist staff when developing these strategies.

Both compliance strategies align with the broader [EPA Compliance Policy](#) and adopt a risk-based approach to compliance which ensures the EPA focuses its attention and resources on those issues that pose the greatest risk to the environment or are of major concern to the community.

### **Environmental regulation of forestry activities on public land**

Forestry operations in state forests and on other Crown timber lands are regulated through the seven IFOAs. These agreements incorporate licence conditions that protect soil, water and threatened species and their habitats. They also play a key role in the day-to-day planning and activities of the Forestry Corporation.

The terms and conditions under which all forestry operations (including logging) may occur in each region are set out in the IFOAs and apply to anyone carrying out forestry operations on state forest and other Crown timberland.

The EPA regulates Forestry Corporation compliance with the non-licence terms and the environment protection and threatened species licence components of the IFOAs.

EPA staff have expertise in environment protection, threatened species, soil, water, policy and regulation. They work closely with specialists in Indigenous culture and heritage, science and ecology, and legal services to audit compliance with the IFOAs.

#### *Crown Forestry Compliance Strategy*

The [Crown Forestry Compliance Strategy](#) provides a comprehensive and transparent framework for the regulation of native forestry on public land, using the EPA's risk-based approach to ensure the EPA focuses on those issues that pose the greatest risk to the environment or are of major concern to the community.

The EPA Crown native forestry regulatory program includes:

- development of operational policy, compliance priorities and guidelines for native forestry on public land
- licensing of forestry operations on state forests
- compliance assessment and law enforcement through investigations
- auditing and monitoring of corrective actions in response to those audits (proactive or in response to an incident)
- responding to incidents reported by the community or self-reported
- education and training activities for forestry operators and community members
- reporting compliance outcomes.

The EPA's compliance program is reviewed annually to identify emerging trends and issues and [set priorities](#). [Compliance results](#) are reported each year. Some priorities have actions completed within the year while others are ongoing.

Proactive audits are a systematic and independent way for the EPA to assess Forestry Corporation compliance in key targeted areas. Responsive investigations enable the EPA to respond to public concerns about native forest operations, which can be reported online. The EPA records both operations that comply and those that do not.

### ***Crown forestry compliance priorities 2013–14***

- 1. Water pollution** – protection of water quality and in-stream habitat degradation resulting from inadequate road and snig track crossing location, design, construction, use and maintenance
- 2. Koalas** – protecting koalas and their habitat
- 3. Exclusion zones** – protecting key exclusion zones
- 4. Hollow-bearing and recruitment trees** – retention including quantity, quality/selection and longevity assessments in non-regrowth forests and regrowth forests
- 5. Threatened ecological communities** –
  - improved identification and protection
  - protection of water
- 6. Forest structure** – maintaining forest structure, including through basal area assessments
- 7. Forest health** – consideration of forest health issues in the regulatory framework, including bell miner associated dieback

### ***Recent compliance actions***

Compliance actions for the financial year 2012–13 have been [reported](#) on the EPA website. In financial year 2013–14, the EPA carried out 63 audits and investigations of Forestry Corporation operations conducted under IFOAs. As a result, it issued six formal warnings, six official cautions, nine advisory letters and two penalty notices.

The EPA prosecuted the Forestry Corporation in the Land and Environment Court for water pollution and damaging sensitive riparian habitat in Mogo State Forest near Batemans Bay on the NSW south coast. The corporation was fined a total of \$35,000 for the water and threatened species offences and ordered to pay the prosecutor's costs. This fine was put towards an Environment Service Order to map a threatened ecological community in state forests in the region.

### **Regulating private native forestry operations**

As noted, the EPA regulates PNF in NSW under the [Native Vegetation Act 2003](#) through the provisions of the [Native Vegetation Regulation 2013](#) and [PNF Code of Practice](#). Harvesting timber for the purposes of PNF requires approval through a PNF PVP that aims to ensure environmental outcomes are improved or maintained.

### ***Private Native Forestry Compliance Strategy***

The [Private Native Forestry Compliance Strategy](#) provides a comprehensive and transparent framework for regulating the environmental impacts of forestry operations on private land. Like the Crown strategy, the PNF Compliance Strategy adopts a risk-based approach to compliance so the EPA focuses on those issues that pose the greatest risk to the environment or are of major concern to the community.

To achieve the objectives of the strategy, the EPA develops an annual list of key environmental compliance priorities for PNF. Setting compliance priorities upfront provides a clear indication of the regulator's expectations and allows the EPA to focus compliance effort around these issues. Compliance action may include audits and inspections, policy and legislative reform, stakeholder engagement, awareness-raising, voluntary action and enforcement. Results are also [reported](#) every 12 months.

### *Private native forestry compliance priorities 2013–14*

- 1. Hollow-bearing and recruitment trees** – identification and retention of adequate and appropriate trees for replacement and maintenance of arboreal tree hollow habitat
- 2. Koalas** – protecting koalas and their habitat
- 3. Drainage feature crossings** – protection of water quality and in-stream habitat degradation resulting from inadequate road and snig track crossing location, design, construction, use and maintenance
- 4. Road and snig track drainage** – prevention of soil erosion and water quality degradation resulting from inadequate road and snig track drainage establishment and maintenance
- 5. Forest operations plans** – ensuring effective pre-logging operational planning and operational instruction and guidance to enhance and optimise best practice, regulatory compliance and environmental outcomes
- 6. Unapproved logging** – maximising regulatory engagement and promoting operational standards and consistency
- 7. Threatened ecological communities** – improved identification and protection

The EPA undertakes operational inspections, audits and investigations of PNF operations. This is supported by education, training and extension activities.

An audit is a planned activity involving staff from the EPA and the landholder or their representative. Audits are conducted by experienced EPA officers, who inspect the forest operations being conducted on the property. Items to be inspected may include the forest operation plan for a PNF PVP, the protection of environmental values, the retention of residual basal area, and regeneration. The results of audits are discussed with landholders.

The aim of an audit is to:

- ensure the landholder's compliance with the PNF Code
- gather information to support any audit findings
- provide the landholder with a report, including any follow-up actions required.

Being involved in the audit gives landholders an opportunity to understand the audit process and, where relevant, gain first-hand advice on how their forest management practices could be improved.

The EPA also investigates potential breaches of the PNF Code.

### *Recent compliance actions*

During 2012–13, the EPA undertook 130 operational inspections, 123 audits of PNF operations and five new compliance investigations. Eighteen reports about non-compliance or unauthorised PNF operations were received by the Office of Environment and Heritage and the EPA during the year and all reports were investigated. As a result, 11 warning letters, 36 advisory letters and 12 corrective action requests were issued.

### **Compliance support for landholders**

In 2007, the EPA received funding from the Environmental Trust to support the introduction of the then new PNF regulatory framework.

The program ran for six years and, as part of this work, the EPA coordinated a series of [training courses and awareness field days](#) to improve knowledge and understanding of the PNF Code. Over 1500 people attended these courses, with overwhelmingly supportive feedback.

Given the limited life of the Environmental Trust funding, the EPA also developed a series of [useful video clips](#) (available as a DVD and online) for landholders, contractors and other stakeholders. The clips provide information and guidance on specific aspects of the PNF Code's soil, water and threatened species requirements. DVDs of the clips were also sent to over 1200 landholders and forestry contractors.

### 12.3 The community and the EPA

The EPA promotes community involvement in decisions about native forestry by:

- encouraging the community to report breaches of forestry regulation to its Environment Line
- meeting regularly with peak conservation and industry bodies to discuss key elements of native forestry policy and operations
- holding regular field workshops and meetings with landholders, the Forestry Corporation of NSW and community members
- making regular site visits and inspections to review compliance with IFOAs and the PNF Code
- maintaining regular contact with the Forestry Corporation to raise native forestry issues, including any community concerns
- consulting the community on major policy and operational reforms
- seeking conservation and industry feedback on the EPA's annual compliance priorities
- participating in community forums to address specific issues such as the Bell Miner Associated Dieback Working Group, whose members include the North East Forest Alliance, local landholders and the timber industry
- publishing compliance strategies on the EPA website.

The EPA website has a wealth of information on how it regulates native forestry. This includes a [PNF information hub](#) developed for landholder use. The hub contains useful information for landholders to help them implement the PNF Code's operational conditions:

- fact sheets and guidelines
- PNF Code field guides
- training program
- PNF training clips
- advisory notes
- guidelines for field identification of ecologically endangered communities.

***EPA consultation on the proposed consolidated Coastal IFOA***

Community and stakeholder engagement has been a central element in the remake of the coastal IFOAs.

A discussion paper outlining the key elements of the new IFOA and associated legislative amendments was released for six weeks' public consultation between 24 February and 9 April 2014. The discussion paper was supported by six community workshops in Sydney and across coastal NSW.

A total of 877 submissions were received during the consultation and these have informed the development of the draft IFOA.

The EPA will invite public submissions on the draft IFOA when it is released in October 2014. Consultation workshops will also be held with peak stakeholders. The submission period will be for a minimum of six weeks to maximise the ability of the community to make submissions.

Once public submissions have been reviewed, the EPA will continue to consult with industry and conservation stakeholders in finalising the IFOA for release in July 2015.



## **Part B: Cases**





# Part B:

## Cases

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*Chapter 13: Land contamination issues at Botany*

*Chapter 14: Land contamination issues at Hillsdale*

*Chapter 15: Investigations and public statements on the effects of coal dust pollution in the Hunter*

*Chapter 16: Investigation into groundwater contamination in the Pilliga by the Santos coal seam gas exploration*

*Chapter 17: Prosecution of Du Pont (Australia) Pty Ltd for alleged land pollution in the Sydney suburb of Girraween*

*Chapter 18: Regulation of cruise passenger ships at the White Bay Cruise Terminal at Balmain*

*Chapter 19: Regulation of forestry practices in Royal Camp State Forest*



## Chapter 13: Land contamination issues at Botany

### Terms of Reference statement

*That the following case be considered:*

*(i) land contamination issues at Botany ...*

### Summary

The long industrial past of the City of Botany Bay (and parts of neighbouring Randwick City) and historically poor environmental practices have resulted in the regulation by the EPA of 13 contaminated sites in the City of Botany Bay local government area.

The most significant is the contamination resulting from the chemical manufacturing activities undertaken by ICI, the predecessor company of Orica Australia Pty Ltd,<sup>1</sup> at the site of Botany Industrial Park. These legacy issues are a product of a period of lower environmental standards and less knowledge than at present.

This chapter details the major clean-up projects underway in the Botany Local Government Area as well as successful remediation achieved through EPA's efforts, producing benefits for both the environment and community health:

- Orica Project 1: Groundwater clean-up
- Orica Project 2: Mercury remediation
- Orica Project 3: Management and destruction of hexachlorobenzene (HCB) waste
- Orica Project 4: Car park waste remediation
- Other EPA-regulated sites.

Botany Industrial Park contains a number of significant environmental legacy issues, including groundwater pollution, mercury contamination and the storage of toxic HCB waste.

The EPA's regulatory efforts have led to Orica committing over \$315 million to remediation projects at the site, with some now completed and others achieving interim goals. These outcomes have served the EPA's objectives of protecting human health and the environment and have given effect to the polluter pays principle with those responsible for causing pollution held accountable for the cost of remediating its effects.

Notwithstanding the above, concerns have been raised by the community about management of these projects and their associated health risk to off-site residents. These have included monitoring results from Mr Andrew Helps of HG Recoveries Pty Ltd, which suggested a risk to community health from mercury levels near Botany Industrial Park.

The EPA responded by expressing confidence in the testing and analysis that had been conducted throughout these projects and which formed the basis for its risk assessment that there was no evidence to suggest any off-site health or environmental impacts from past or current mercury emissions. However the EPA arranged for a comprehensive series of reviews and additional monitoring to thoroughly investigate the concerns raised including:

- [Independent Assessment of Performance of EPA with respect to Orica activity on Botany Industrial Park](#) by Professor Chris Fell AM (19 December 2013)
- [Orica Botany Mercury Independent Review: Stage 1 – Data and information collection and review](#) by CDM Smith Australia (6 February 2014)
- [Mercury Ambient Air Monitoring Results](#): independent monitoring at the Botany Industrial Park site by Access Macquarie Ltd, Macquarie University (March 2014).

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<sup>1</sup> Throughout this chapter, all activities by Orica and its predecessor will be referred to as undertaken by Orica.

Chapter 14: Land contamination issues at Hillsdale includes a further detailed account of a specific sequence of events where concerns about potential contamination exposure and EPA testing were raised by Mr Helps, among others. Again, these issues were resolved with a finding that the community was not at risk and confirming the risk assessment of the EPA.

## 13.1 Background

The City of Botany Bay incorporates the suburbs of Botany, Hillsdale, Banksmeadow and Pagewood. It has a long industrial past (along with parts of neighbouring Randwick City) with over a century of industrial operations conducted in the area, including chemical works, metal platers, tanneries, petro-chemical storage and, more recently, port-related activities. Subsequent development has seen the growth of residential areas located close to industrial areas or previous sites of industrial activity with legacy contamination issues.

The EPA has actively and effectively regulated these contamination issues and focused considerable efforts on addressing these problems, as well as the impacts of more recent industrial and commercial operations.

EPA work on contamination in the Botany Local Government Area (LGA) falls into two major categories: the most significant and concentrated issues at Botany Industrial Park and the regulation of 12 other contaminated sites spread across the area which are more typical in nature to similar sites regulated by the EPA across NSW.

Botany Industrial Park is located in Banksmeadow. Between 1942 and 1997, it was the site of ICI Australia's chemicals manufacturing operations. In 1997–1998, the site was subdivided and now continues to accommodate the industrial operations of Orica Australia Pty Ltd, along with two other companies, Qenos Pty Ltd and Huntsman Corporation Pty Ltd. Prior to July 1997, Orica (known as ICI Australia) was a subsidiary of ICI plc.

Remediation of contaminated sites is a complex and difficult process which often involves protracted periods of investigation, testing, research and risk assessment before the most effective, feasible and low-risk option can be identified, let alone implemented. Each contaminated site is unique in the type or mix of contaminants present, the manner in which the contamination occurred and how that contamination behaves in the local soil and groundwater structures. Given the range of unknowns in such projects, the timetables are protracted and often characterised by some uncertainty.

Furthermore, much of the planning and risk assessment needs to address how it is planned to treat the contamination and ensure those processes are managed and conducted in a manner that minimises the risk of causing further damage to the environment or harm to the local community. For example, the excavation of contaminated soil can cause odours and other air emissions with an impact on the local community's health and amenity. As a result, the material must be excavated and treated in a manner that manages those risks as well as resolving the original contamination.

### 13.1.1 Regulatory framework

The EPA has exercised its powers under the [Contaminated Land Management Act 1997](#) (CLM Act), [Protection of the Environment Operations Act 1997](#) (POEO Act) and [Environmentally Hazardous Chemicals Act 1985](#) (EHC Act) to instigate remediation projects that address the contamination legacy in the Botany LGA. Given the extent of the task it has been very important for the EPA to develop and maintain healthy ongoing relationships with relevant stakeholders and the community.

Under the CLM Act, the EPA regulates contaminated sites where the contamination is significant enough to warrant regulation. A licence is required under the EHC Act for the storage of hazardous waste.



All approved voluntary management proposals, declarations, orders, site audit statements and licences under the EHC Act, together with a range of other relevant material are available on the [EPA public record](#) for contaminated land.

The EPA also regulates contaminated land through the POEO Act and its licensing powers. Certain activities, such as contaminated soil treatment, require an environment protection licence (EPL) and in other cases the EPA imposes legally binding pollution reduction program (PRP) conditions on licensees in relation to contamination occurring on premises licensed for unrelated scheduled activities. All clean-up notices and EPLs can be accessed on the [EPA public register](#) for environmental licensing.

Further details on the regulatory framework are set out in:

- Chapter 2 for environment protection licences
- Chapter 9 for contaminated sites
- Chapter 10 for hazardous substances.

## 13.2 Issues

The terms of reference for this chapter are very broad and the history of contamination at Botany Industrial Park (BIP) is long with regulatory actions by the EPA commencing well before the current focus on recent performance.

Accordingly this chapter provides information on the key areas of regulation by the EPA:

- Four key remediation projects underway or completed by Orica at BIP:
  - a **groundwater clean-up project** is addressing chlorinated hydrocarbon groundwater plumes resulting from subsurface contamination sources at BIP. The initial commitment from Orica for installing a groundwater treatment plant and associated infrastructure and commencing its operation was reported at \$167 million<sup>2</sup> and the EPA estimates the project currently has ongoing annual costs of approximately \$10 million. On the basis of the current approach, the treatment plant will need to operate for the next 100 years but this is subject to ongoing assessment of new and emerging technology.
  - remediation of **mercury contamination from the company's former chlor-alkali plant** for which Orica has allocated \$33 million<sup>3</sup>
  - **storage and monitoring of toxic hexachlorobenzene (HCB) waste** with the objective of lawful destruction of the material with a \$60 million<sup>4</sup> commitment from Orica
  - a **car park waste remediation project** which successfully cleaned up contaminated soil from historical storage of HCB, hexachlorobutadiene and octachlorostyrene at a cost of \$55 million<sup>5</sup> and was completed in 2012 with 1.4 hectares of land restored to productive use.
- A snapshot of the management of the **non-Orica contaminated sites** elsewhere in Botany LGA.

### 13.2.1 Orica Project 1: Groundwater clean-up

Past manufacturing activities by Orica on the BIP site (which ceased some decades ago), has contaminated the Botany Sand Beds Aquifer with chlorinated hydrocarbons. The contamination resulted from the chemicals leaking into the ground and then slowly seeping

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<sup>2</sup> [Environment Protection Authority v Orica Australia Pty Ltd \(the Botany Mercury Incident\) \[2014\] NSWLEC 110 at \[129\].](#)

<sup>3</sup> As above

<sup>4</sup> As above

<sup>5</sup> As above

through the soil and dissolving in groundwater, creating large plumes of contaminated groundwater.

The contamination was first identified in 1990. Subsequent investigations by Orica in the 1990s and early 2000s, as required by the EPA, revealed the source of the contamination was a number of dense non-aqueous phase liquid (DNAPL) deposits across the site. This is a very difficult contamination issue, because these deposits are 'dense' and thus move through the upper groundwater layers before depositing far below the surface on low permeability material, such as bedrock. This is further complicated at BIP because a number of the buildings and constructions on the site make the material inaccessible. DNAPL is a notoriously difficult source of contamination to remove and effective remediation options are severely constrained by the limitations of currently available technology.

It is the process of groundwater travelling through the deposits of DNAPL that leads to contaminated groundwater. The particular concern with this contaminated site was containing the plume and preventing it from impacting on Botany Bay.

As a result on 26 September 2003, the EPA issued a clean-up notice under the POEO Act, requiring Orica to install containment works to prevent contaminated groundwater from entering Penrhyn Estuary and Botany Bay. These were extensive works, which involved the construction of a groundwater treatment plant and associated collection infrastructure, including wells, pumps and pipelines. The groundwater collection infrastructure is arranged in three collection lines and areas which are depicted in Figure 13.1. The EPA also required Orica to monitor water quality in Penrhyn Estuary to determine if there was a need for additional or different targets for the reduction in concentrations of the substances in the contaminant plumes as the clean-up progressed.



**Figure 13.1: Location of the containment lines and groundwater treatment plant (GTP)**

Construction of the groundwater treatment plant was completed in late 2005 and it commenced operation on 21 January 2006.

By 2010, Orica had fully complied with the terms of the 2003 clean-up notice. Since the project is ongoing, its management is now conducted under the CLM Act through a voluntary

management proposal (VMP 20101714), together with conditions imposed on Orica's environment protection licence (EPL 2148).

Orica is required to take a multi-faceted approach to this complex contamination scenario:

- current action to remove and treat dissolved contamination in groundwater – This 'pump and treat' process uses three containment lines that extract contaminated groundwater. The groundwater is transferred to the groundwater treatment plant where the chlorinated hydrocarbon contaminants (principally 1,2-dichloroethane or EDC) are removed and destroyed. Figure 13.1 shows the location of the containment lines and groundwater treatment plant.
- ongoing review of what technologies and techniques are available for removing the source of the contamination in the future, the DNAPL – To date, these investigations have not identified any technologies which could expedite the clean-up. Hence this requirement remains an ongoing obligation.
- three-yearly independent expert reviews of the groundwater clean-up strategy to assess whether current and emerging technologies can provide a practical solution for removal of the contamination – These reviews must invite a minimum of three global experts in the field and the EPA must be consulted on selection of these experts before they are engaged.

The most recent review in February 2014 included attendance by three international groundwater and DNAPL experts: Dr Paul Johnson (Dean, Ira A. Fulton Schools of Engineering, Arizona State University), Dr Michael Kavanaugh (Principal, Geosyntec Consultants Inc.) and Dr Charles Newell (Vice President, GS Environmental Inc.). The international experts concluded that Orica's groundwater remediation strategy is one of the most comprehensive in the world and employs world's best practice methods. This report will be available on the [Orica website](#) in the near future.

- ongoing monitoring and risk assessments
- implementation of community consultation strategies – This element of the approach includes the Community Liaison Committee which provided extensive input to the project and is addressed further in Section 13.3.2.

## Outcomes

The EPA has declared the 200 hectares of commercial, industrial, residential and public land affected by the contaminated groundwater plumes in the Botany area a remediation site under the CLM Act. This ensures that the contamination is flagged and on the public record.

It is estimated that the groundwater treatment will need to continue for at least the next 100 years using current technologies. This extended time frame results from the deep and difficult-to-remediate source of the contamination.

Orica committed \$167 million to the construction of the groundwater treatment plant and its associated infrastructure. Orica continues to operate the plant and the EPA estimates this is at a current annual cost of approximately \$10 million. Orica also maintains a Financial Assurance held by the EPA for an amount of \$35 million as a guarantee of funding for the future operation costs of the project.

In terms of the groundwater clean-up, the project is progressing well, with over 1100 tonnes of contaminants destroyed since groundwater pumping commenced in 2006. Each day, around 4 to 5 million litres of contaminated groundwater is extracted and successfully treated to a high standard and beneficially reused in a range of industrial applications at the BIP and adjoining sites.

The project has successfully contained the hydrocarbon plume and prevented it from reaching Botany Bay and Penrhyn Estuary.

### **Community concerns about contaminated groundwater**

In late 2012, residents of Pagewood reported that their drinking water had been contaminated. Sydney Water investigations revealed that the mains water had been contaminated due to water main repairs in the local area.

On 17 February 2013, *The Sydney Morning Herald* referred to a contaminated water leakage incident that occurred at the Orica site on 28 December 2012. In the article, the paper suggested a link between the residents' complaints about drinking water contamination and a leak from Orica's groundwater treatment plant that had been contained on site.

The EPA investigated and found there was no link between the leakage at the Orica site and the alleged drinking water contamination. This was based on a formal Sydney Water report of 8 January 2013, the distance from the Sydney Water mains to the Orica site and information provided by Orica in relation to a minor leak of groundwater that was fully contained on the site.

The results of this investigation were communicated by telephone to the complainants and the Community Liaison Committee.

#### **13.2.2 Orica Project 2: Mercury remediation**

Between 1945 and 2002, Orica commissioned and operated a chlor-alkali plant which used elemental mercury cell technology (electrolysis) to produce chlorine, hydrogen and caustic soda from brine (salt water). As a result of poor handling and environmental controls during its operation, mercury leaked from the plant, resulting in soil and groundwater contamination.

The mercury contamination is in three main areas of BIP. Sediments in Penrhyn Estuary, which is located in Botany Bay, were also found to have been contaminated historically by effluent and sludge that had been washed from the premises through a stormwater channel to the estuary.

As a result of a trend to cleaner technology and with EPA endorsement, in 2002 Orica constructed a new chlor-alkali plant which does not use mercury in its production processes.

Nonetheless, the mercury-contaminated areas at BIP needed to be remediated to protect human health and address the source of the mercury groundwater contamination. Under a range of CLM Act and POEO Act tools, the EPA required Orica to assess the scale and extent of the contamination; identify potential options for remediation; undertake a remedial options analysis; update both human health and environmental health risk assessments; and extensively consult with stakeholders, including the local community.

This remediation would involve managing contaminated soil in the source zone and preventing vapour emissions from the soil which can be harmful to human health.

Given this project was dealing with mercury and there was a risk of mercury vapours being emitted if the remediation works were poorly planned, the EPA ensured Orica completed a number of risk assessments prior to commencement of the clean-up.

#### **Human health and environmental risk assessment 2008**

The first human health and environmental risk assessment (HHERA) in 2008 assessed the potential risks to human health and the environment associated with mercury in soil and groundwater. This was reviewed and commented on by the EPA. It found that there was no risk to off-site residents from the mercury contamination but there was potential risk for on-site workers from mercury-contaminated soils.

#### **Initial mercury remediation approach**

Following this assessment, Orica implemented its first project to clean up the mercury contamination, using a soil washing technology, that had been successfully trialled in 2008.

These works were carried out under an EPA-approved Voluntary Management Proposal under the CLM Act. It involved construction of a large temporary enclosure over the contaminated area. The temporary enclosure's purpose was to prevent unacceptable emissions of mercury vapour while the soil within the area was treated. Treatment of the contaminated soil within the temporary enclosure commenced in April 2011.

However soil washing was not as successful as expected leading to suspension of the project in August 2011. An incident occurred following the halt to soil washing with the emission of vapour with elevated mercury levels from the temporary enclosure which the EPA had required so to control such releases. The emissions were at levels estimated to be below the World Health Organization's tolerable concentration of 0.2 micrograms per cubic metre for long-term inhalation of elemental mercury vapour, and also its measure for the tolerable intake of total mercury of 2 micrograms per kilogram of body weight per day. An estimate was used because data was only available for BIP onsite and therefore any impact on residences had to be modelled to determine what, if any, impact could have occurred off-site. This incident was the subject of a prosecution by the EPA as detailed below.

### **Human health and environmental risk assessment 2013**

As a result of the above developments, in 2012 the EPA requested a review of the 2008 risk assessment to consider more recent monitoring and toxicity data and the impact of a revision to the applicable National Environment Protection (Assessment of Contaminated Sites) Measure (NEPM) which had occurred since the earlier assessment. The 2013 assessment is available at on [Orica's website](#).

This was reviewed by the EPA and also independently by Professor Brian Priestly (a former member of the Independent Monitoring Committee, established and appointed by the Community Liaison Committee to provide independent expert advice to the community when required). This review satisfied the EPA that the assessment had been appropriately revised and used the updated NEPM guidance.

The 2013 assessment confirmed that there was no risk to off-site residents from the mercury contamination but there was potential risk to on-site workers from the mercury-contaminated soils.

In the context of the updated assessment, Orica proposed a new approach to remediating the contaminated site. As a result of the seriousness of mercury contamination treatment, the risks associated with the project and the difficulties already encountered with the first attempt at clean-up, the EPA applied the precautionary principle and imposed even stricter conditions on its regulation of the project.

### **EPA management orders**

The EPA regulated this second project through a Management Order (No. 20111406) issued to Orica in 2012 and the imposition of legally binding conditions on Orica's environment protection licence (EPL) for the BIP site.

This management order required Orica to undertake a detailed remediation options analysis, have it reviewed by an independent expert and submit a remediation action plan (RAP) to the EPA. Orica submitted two RAPs which can be accessed on the [Orica website](#). The EPA was generally satisfied with the remedial framework set out in the RAPs but required further information and detail to ensure appropriate measures were in place to protect human health and the environment from the potential impacts associated with the remediation works.

Once this was done, a second Management Order (No. 20131406) was issued to Orica in 2013 to detail the implementation of the RAPs. This second order forms the basis of the current mercury remediation project.

### **Revised mercury remediation approach**

The remediation approach for this project involves the removal of mercury-contaminated soil and free mercury to the extent practicable, followed by installation of a 'capping and containment system' to manage the remaining mercury contamination. The capping and containment system is essentially the construction of an impermeable barrier on either side of the contamination area, from the surface to the bedrock, which will prevent groundwater flowing through any remnant contamination and becoming contaminated.

Free-flowing mercury extracted from the contaminated area is stored on-site and contaminated soils were treated and then moved off-site to an appropriately licensed landfill facility at Kemps Creek in western Sydney.

The remediation work has four stages. Stages 1 and 2 (completed) involved the excavation of contaminated soil and preparation of the excavated areas for the next stages. Stages 3 and 4 involve the construction of the capping and containment system and decommissioning of the structures which were used to control mercury vapours.

The combination of regulation under the CLM Act and regulating through conditions on Orica's EPL established a comprehensive set of regulatory requirements, which ensures a high standard of environmental management during the project. Some of these specific controls include:

- mercury vapour air quality management conditions which are outlined in the EPL requiring primary mercury monitoring and management measures aimed at minimising mercury emissions
- practical excavation mercury limits and excavation depths in the management plans
- contaminated soil stabilisation and immobilisation requirements.

NSW Health has provided input to the management approach and endorsed the reporting levels for ambient mercury concentrations in air.

### **Outcomes**

The mercury remediation project has progressed with the completion of Stages 1 and 2 in 2013 and the Stage 3 currently underway. The project is expected to be completed in mid-2015. Orica allocated \$33 million to this remediation project.

At the completion of the project, the EPA intends to seek a further financial assurance from Orica to ensure that there are funds available for the future management of the capping and containment system.

Central to the success of the project has been the rigorous planning process the EPA required Orica to complete before any remediation works commenced. This process included requirements that Orica prepare a full range of management plans to minimise the impacts of the project and ensure extensive measures were in place to address any unexpected situations. Officers from the EPA, Office of Environment and Heritage and NSW Health were heavily involved in the development and assessment of these plans.

An indicator of the success of this upfront planning has been that the ambient levels of mercury in air have remained very low throughout the project. For example, the highest monitored 24-hour ambient mercury level was 111 nanograms per cubic metre (during the peak of remediation activity in September 2013) as compared with the safe level of 7000 nanograms/m<sup>3</sup> which was conservatively derived for the project.

### **Mercury vapour incident and EPA prosecution for a licence breach**

On 27 September 2011, an elevated level of mercury vapour above the licensed trigger levels that require Orica to take actions was detected by the monitoring systems installed outside the enclosure purpose-built to control mercury emissions.



The EPA investigated the course of events that led to the event, including two assessments of potential health impacts. Each assessment found that any health impacts were unlikely given the emissions were at levels estimated to be below the World Health Organization's tolerable concentration of 0.2 micrograms per cubic metre for long-term inhalation of elemental mercury vapour, and also its measure for the tolerable intake of total mercury of 2 micrograms per kilogram of body weight per day. An estimate was used because data was only available for BIP onsite and therefore any impact on residences had to be modelled to determine what, if any, impact could have occurred off-site.

The EPA issued two clean-up notices in response to the incident which required Orica to:

- take immediate action to prevent fugitive mercury emissions
- provide reports to the EPA in relation to the incident
- take immediate action to notify and inform the local community of the elevated ambient mercury levels and actions being taken by Orica in response to the incident.

Orica provided three reports to the EPA in response to the clean-up notices. These reports covered best available technology and best environmental practice for the system being adopted for the clean-up. The reports also set out the steps taken by Orica to prevent a recurrence of the incident. The reports were provided on 6 October, 4 November and 6 December 2011.

The EPA was concerned with a number of aspects that caused the incident. Upon completion of its investigation, it elected to charge Orica in the Land and Environment Court for breaching condition O2.1 of its EPL, which required the company to operate the temporary emissions control enclosure in a proper and efficient manner. The maximum penalty for a corporation for this offence is \$1 million.

Orica pleaded guilty to the charge in the Court. The sentence hearing was heard in December 2012. Judgement was handed down on 28 July 2014 with Orica convicted of a breach of a licence condition for failing to operate plant and equipment in a proper and efficient manner and the Court ordering the company to:

- pay \$35,000 to the City of Botany Bay Council to contribute to the bush regeneration of Sir Joseph Banks Reserve
- publish a notice of this conviction in the *Australian Financial Review*, *The Sydney Morning Herald*, *Newcastle Herald*, *Southern Courier* and *Journal of Chemical Engineering and Process Technology*
- pay the EPA's legal and investigation costs.

The Court determined this was an appropriate penalty based on its overall finding that the offence was of low objective gravity, given there was no actual harm to human health or the environment caused by the offence but there was potential for such harm to be caused; Orica was negligent in the commission of the offence; and there were preventative measures that Orica subsequently implemented to prevent against a re-occurrence but which could have been installed in the first place.

Note that these penalties are in addition to the costs of the mercury remediation project estimated at approximately \$33 million.

### **Ongoing independent review into off-site mercury at Orica Botany**

In response to concerns raised by residents and others, including the establishment of an online petition on Change.org, the Minister for the Environment directed the EPA to undertake an [independent review](#) of the environmental and health impacts from historic mercury emissions from Orica's former chlor-alkali plant, including on residential areas and public lands nearby.

As part of this process, in 2013 the [Botany Mercury Independent Review Steering Panel](#) was established to provide an opportunity for community involvement and a forum for expert

advice to inform and oversee the review. The panel includes representatives from the EPA, NSW Ministry of Health, Office of Environment and Heritage, Botany Bay and Randwick Councils, independent health and chemical experts and community members.

The steering panel informs and oversees the independent review and selects suitable independent experts to conduct the review, evaluate the results of the investigation and its recommendations and communicate the findings to the community.

The independent review has four stages.

#### *Stage 1: Data and information review*

This stage (completed in February 2014) required thorough review of all information and data related to the emission and distribution of mercury or mercury-contaminated materials at the former chlor-alkali plant in order to produce recommendations for Stage 2. The review included consideration of submissions from the community, former workers and Orica.

This work was completed by independent experts CDM Smith Australia and their results were announced in December 2013. The findings were that the risk of off-site soil contamination associated with the operation of the former plant around BIP was low and there was also no evidence of illegal off-site dumping of mercury waste from the plant. However to provide additional reassurance to the community, CDM Smith recommended a program of environmental testing.

[Details on the review](#) are available on the EPA's website. Independent experts CDM Smith sent an open letter to community members in December 2013 outlining their findings and recommendations.

The full report was made available and a community meeting was held in February 2014. CDM Smith also kept the community informed throughout the process, including sending out a questionnaire to 4500 residents and two newsletters to that same set of residents.

#### *Stage 2: Environmental testing regime*

Currently underway, this stage involves implementation of an environmental testing regime, informed by the findings of Stage 1.

The scope of works for the environmental sampling has been completed with the tender period for this work closing on 8 August 2014. A subcommittee of the steering panel will assess the responses and nominate a preferred tenderer to the full panel. The EPA will engage the successful consultant. As per Stage 1, Orica will fund this stage of the review.

#### *Stage 3: Health risk assessment for public health concerns*

A health risk assessment for public health concerns report will be prepared in accordance with the recommendations of Stages 1 and 2.

#### *Stage 4: Health risk assessment for individuals*

If recommended by the steering panel – following consideration of Stages 1, 2 and 3 – a health risk assessment for individuals report will be prepared, including evaluation of sampling regime and health risk assessment activities.

#### **Independent monitoring of mercury: February and July 2014**

In response to monitoring results provided on 20 January 2014 by Mr Andrew Helps of HG Recoveries Ltd regarding mercury levels near the BIP site, the EPA engaged Access Macquarie Ltd (Macquarie University), Department of Environment and Geography, to undertake ambient air monitoring for mercury at the BIP premises. The work aimed to independently verify the results from monitoring required under Orica's EPL that indicated low levels of mercury vapour.

Macquarie University undertook monitoring for 24-hour periods over 6–8 February 2014 at two sites in the vicinity of Orica's former chlor-alkali plant at BIP.

The testing used dual monitors run in parallel to verify data and with the wind generally blowing from the remediation site towards the monitors.

The results showed very small concentrations of mercury, which were significantly below the World Health Organization's recommendation for a tolerable daily level in air of 0.2 micrograms per cubic metre or 200 nanograms per cubic metre for elemental mercury vapour.

Further information on the [health impacts of mercury](#) is available on the NSW Health website.

The Macquarie University results were comparable to the levels recorded by Orica's equipment at the boundary of BIP and were significantly lower (more than a thousand times) than the results provided by Mr Helps. The EPA believes that the difference in results may be attributed to the equipment used by Mr Helps and his analytical technique.

A [full copy of the results](#) can be found on the EPA website.

Between 15 and 18 July 2014, the EPA further engaged Access Macquarie Ltd to conduct independent ambient monitoring immediately prior to and during the start of Stage 3 of the mercury remediation project which involves decommissioning of the emission control enclosure. This monitoring was undertaken on behalf of the EPA to verify the air monitoring results required by Orica under its EPL. The results of this monitoring confirm the positive outcomes of this project, with ambient air levels of mercury found to be below World Health Organization recommendations. Further details on this recent monitoring are on the [EPA website](#).

### ***13.2.3 Orica Project 3: Management and destruction of HCB waste***

Hexachlorobenzene (HCB) was produced as a waste by-product in the former solvent and plastic manufacturing plants operated by Orica at BIP between 1963 and 1991. Approximately 15,000 tonnes of HCB waste and related materials are safely stored in purpose-built storage facilities and shipping containers at BIP. This also includes low-level waste, such as contaminated used packaging materials and personal protective equipment.

HCB is a crystalline solid waste by-product that is insoluble in water and has a low solubility in oil and petrol. It is not flammable or volatile. HCB is bio-accumulative (it tends to accumulate in an organism especially with prolonged or frequent exposure), is very resistant to degradation in the environment, and has been classified as a possible human carcinogen. It is classified as a priority Persistent Organic Pollutant under the Stockholm Convention and is internationally targeted for elimination.

The Australian and New Zealand Environment and Conservation Council established the [HCB Waste Management Plan](#) in 1996. This plan required the establishment of a Community Participation and Review Committee (CPRC) after the community's request to become involved in the issues relevant to Orica's HCB wastes. The CPRC met four times and discussed issues related to the HCB stockpile, a recently completed car park waste remediation project and general HCB contamination around the site. In August 2014, the CPRC merged with the Orica Botany Community Liaison Committee, which meets quarterly to discuss the groundwater clean-up and mercury remediation projects. The merger was generally supported, including from the EPA, although some residents objected to it due to concerns that some issues may be reduced in importance in a combined committee.

At present Australia has no facility capable of treating HCB waste, nor is there the prospect of a suitable facility being available in the foreseeable future.

Orica continues to explore and investigate options for the safe disposal of the stored HCB waste and has made a number of attempts to ensure its stockpile of HCB waste is safely destroyed. It applied to ship the waste Germany in 2006 and this was rejected in 2007. In 2008, it turned to Denmark for environmentally sound, high-tech destruction facilities. Although the necessary permits were in place for this to occur, the Danish Environment Minister cancelled the import permit for local political reasons in 2010.

On 26 May 2014, Orica lodged an application with the Federal Government to export 132 tonnes of the HCB waste for safe and permanent destruction in France at a facility operated by Tredi SA. In July 2014, the French Minister for the Environment made comments against the proposal. In August 2014, the outcome of Orica's application is unknown.

The EPA has no statutory role in the approval process for any proposed export but the Commonwealth routinely consults with the EPA during its assessment of these applications.

The EPA has a role in licensing the appropriate storage and handling of the HCB material at the Botany site and transportation of such materials within NSW. Orica currently holds a licence under the *Environmentally Hazardous Chemical Act 1985* for the storage of the HCB waste on the site. This licence contains conditions that require the safe storage of the HCB material. Orica's environment protection licence also contains conditions that regulate the repackaging and handling of the HCB waste. The EPA conducts regular inspections to ensure that HCB continues to be safely stored while a permanent solution is found.

#### **13.2.4 Orica Project 4: Car park waste remediation**

The manufacture of chlorinated solvents at BIP during the 1960s and 70s gave rise to a number of waste by-products, such as HCB, hexachlorobutadiene (HCBd) and octachlorostyrene (OCS). This waste was stored on-site in drums and spills and leakages occurred, contaminating the surrounding soil.

In the late 1970s, Orica investigated options for the treatment and storage of the contaminated soil and the long-term storage of the waste by-products. The investigations revealed that, in 1980, approximately 45,000 cubic metres of soil was moderately contaminated. The best containment solution at that time was to excavate the contaminated soil and then create a sealed area in which the soil could be stored and capped. This was done and the contaminated soil placed and sealed in a synthetic liner in an area later covered with asphalt and used as a car park for employees. Consequently, the encapsulated waste became known as the 'car park waste'. The drums of waste by-products were moved to a safer storage area.

During the 1990s and early 2000s, the EPA required Orica to undertake a range of investigations with regard to the integrity of the containment cell.

In 2004, monitoring revealed that vapour was permeating the liner and groundwater was also being impacted. A human health and environmental risk assessment concluded that 'no unacceptable risks to human health have been identified' from the vapour emissions. Nonetheless, the need to proactively address the failing integrity of the lining was evident. Accordingly, the EPA required Orica to take appropriate action by mandating project milestones and reviews of available technology for remediation of the car park site, in addition to reporting and monitoring requirements. The EPA achieved this by imposing additional conditions on Orica's environment protection licence (EPL).

In 2004 and 2005, technologies with the potential to remediate the car park waste were considered, including in-situ and ex-situ bioremediation and direct thermal desorption. Bioremediation trials were only partially successful and, as a result, Orica identified 'direct thermal desorption' (DTD) as the preferred remediation approach. This process essentially involved building an enclosure over the car park, excavating the material, thermally treating it in a rotary kiln and treating the off gases with a thermal oxidiser.

The community was consulted extensively during the process for selecting this remediation technology.

An extensive planning and environmental assessment process ensured the remediation project could be completed safely and site-specific remediation criteria were derived using a best-practice human health risk assessment process. Rigorous performance standards were included by issuing a specific contaminated soil treatment EPL to permit operation of the DTD process.

Treatment of contaminated soils commenced in May 2011 and was safely and effectively completed by April 2012. All key licence conditions were complied with during the project, with the exception of one incident of elevated mercury levels in stack samples taken during a specific test from 14 to 16 December 2011. Orica was issued with a penalty notice for this incident even though the elevated mercury levels were well below levels that had been independently verified as being safe.

The community had extensive input into the project, primarily through the Community Participation and Review Committee which met quarterly while the project was being undertaken. This included specific community workshops held in late 2005 and early 2006. The committee appointed an independent expert panel to advise it during the project.

### **Outcomes**

Successful completion of the \$55-million car park waste remediation project has permanently removed a contamination legacy at BIP. As a result of the project, approximately 93,000 tonnes of contaminated soil was treated to the stringent remediation standards set for the project.

As the project is complete, the licence has been surrendered and site audit statements have recently been finalised by an EPA-accredited auditor. All statutory site audit statements for EPA-regulated sites can be accessed on the [EPA public record](#) for contaminated land. The auditor concluded that the remediation and validation works were carried out according to plan and that the site is suitable for new commercial and industrial purposes provided controls are in place to safely manage the low residual levels of contamination that could not be feasibly addressed during remediation. Such residual levels are not unusual in contaminated land clean-ups and the controls to be implemented include a new liner being installed, otherwise known as a vapour mitigation system.

The EPA has required Orica to continue groundwater monitoring to confirm there is no unexpected deterioration of the groundwater in the area. It is anticipated that the need for this monitoring can be relaxed in the near future.

The EPA through its rigorous oversight and strategic use of regulatory tools was instrumental in the success of this remediation project and the community has benefited significantly from removal of this contamination legacy. It also required a significant and sustained investment of EPA and Office of Environment and Heritage resources over many years due to the complex technical and social aspects of the project.

#### ***13.2.5 Other EPA-regulated sites***

This section provides a brief snapshot of some of the other 12 sites located in the Botany Local Government Area that are regulated by the EPA under the [Contaminated Land Management Act 1997](#) (CLM Act). These sites are more typical in nature and scale to other contaminated sites regulated by the EPA across NSW.

#### **Email, Pagewood**

Chlorinated hydrocarbon contamination is present in soil and groundwater as a result of past industrial activities at the former Email Pty Ltd site at the corner of Holloway and Page Streets, Pagewood.

The EPA declared the site under the CLM Act in 2005 and Email has subsequently completed millions of dollars' worth of investigations on and off the site.

In 2012, Email refused to submit a voluntary management proposal (VMP) to clean up the contamination so the EPA issued a Management Order to Email in January 2013. Email appealed the order in the Land and Environment Court as it believed it was not responsible for the contamination but subsequently made an offer to conduct the management actions that are now being implemented. These actions are being completed under a VMP approved by the EPA under the CLM Act in February 2014 (at which time the Management Order was repealed).

The purpose of the approved VMP is to remediate potential sources of groundwater contamination to improve groundwater quality.

The VMP requires excavation of heavily impacted areas of soil and treatment of the soils on-site or appropriately disposed of off-site. The VMP also requires implementation of a groundwater monitoring program on- and off-site to determine the extent to which the concentrations of the contaminants have reduced in groundwater.

Under the VMP, treatment of the contaminated soils is due to be completed in February 2015 and groundwater monitoring by March 2018.

Concerns have been raised by the local community about the potential health risks to staff and children at a school adjacent to the former Email site from dust and vapours during excavation and treatment of soils at the site. The VMP for the site requires monitoring of air quality at the site boundary to confirm the remedial works are being undertaken appropriately and unacceptable levels of contaminants in air do not occur. Results to date have been reviewed by the EPA and NSW Health with no exceedences of the appropriate assessment criteria.

### **Nuplex site, Botany**

The Nuplex site at 49–61 Stephen Road, Botany was declared under the CLM Act in 2007 due to petroleum hydrocarbon contamination found to be migrating off-site via groundwater. The contamination is being cleaned up by the polluter, Nuplex Industries.

Ongoing clean-up is occurring via a subsurface air sparge and soil vapour extraction barrier system.

These works have been regulated by the EPA under the CLM Act via two sequential approved VMPs.

### **Service station sites**

The EPA has regulated the management of petroleum hydrocarbon contamination at four service station sites in the City of Botany Bay under the CLM Act. While relatively small in extent, management of these sites has its complexities and can take a number of years to complete.

One example is the regulation of petroleum hydrocarbon contamination associated with the former Shell service station at 279 Gardeners Road, Eastlakes. EPA regulation of the site commenced in 2001 and Shell completed the site remediation in the mid-2000s. However additional regulation was required to ensure that off-site contamination was managed appropriately. This involved injecting oxidants into the groundwater to further reduce the concentrations of the contaminants and mitigate any vapour concerns, which is not an unusual component of petroleum hydrocarbon contamination clean-ups.

Regulation of this site under the CLM Act was finalised in 2013 following sign-off by an EPA-accredited site auditor.



## 13.3 EPA debrief

### 13.3.1 Environmental outcomes

Given the extent of the contamination that took place over many decades, significant gains have been achieved through an intensive regulatory program by the EPA working with Orica and other companies.

Across all projects, the best available outcomes at this time have been achieved and the EPA continues to work, in particular with Orica, on clean-up and remediation of contaminated sites which for some projects will continue decades into the future, based on currently available technology and processes.

### 13.3.2 Community concerns

The legacy contamination from Orica and other sites is complex in nature and over the years has resulted in significant volumes of reports, analytical data and community meeting minutes. This has resulted in a number of community members seeking summarised information and commentary. This places the EPA in a difficult position because summarising the relevant information as requested can lead other sections of the community to believe that the EPA is positioning the information to suit its own agenda.

A second complicating factor arises from the increasing use of internet-based research by the public into some of the technical aspects of remediation projects. This research can involve accessing information that may not be subject to peer review or from credible sources, resulting in much more engagement by the EPA to explain these issues. Some of this information may be contrary to information obtained by government agencies or suitably qualified specialists and can undermine community trust in the information provided by the EPA and Orica. It can also mean that there is a significant difference in opinion in the assessment of the risk posed by a particular issue.

Although, Orica has published large volumes of complex information and spent considerable amounts on addressing contamination issues at BIP, the community retains a level of distrust in the company.

A number of community members have also expressed disappointment that Orica cannot be penalised for its past offences and discontent with the current legislative framework and the statute of limitations for alleged past offences.

The EPA appreciates the discontent about contamination issues in the area though considers that the works the EPA has required and that have been undertaken by Orica to clean up contamination caused by its past actions should not be weighed too lightly. The EPA has been, and remains, an active regulator of Orica's past and present activities ensuring appropriate assessment, remediation and monitoring of contamination on the BIP site.

Orica has implemented a range of community consultation strategies for its Botany clean-up projects for many years, with a number of these being required by the EPA. Its communication tools include website information, regular newspaper columns and community newsletters, a telephone hotline and regular community meetings.

Until recently, there have been two key community forums:

- The Community Liaison Committee, which met on a quarterly basis to discuss the groundwater clean-up and mercury remediation projects
- The Community Participation and Review Committee, which also met quarterly to discuss HCB-related issues, such as the management and destruction of HCB waste the car park waste remediation project.

There is also a separate Botany Industrial Park Community Consultative Committee that meets three times a year to discuss matters relating to the whole BIP site and the Mercury Independent Review Steering Panel.

In 2014, the Community Liaison and Community Participation and Review committees merged into a single committee which had its inaugural meeting on 12 August. This committee will continue to consider the same issues as their predecessors and plans to meet six times a year.

The EPA has also focused considerable effort on engaging with the community about contamination issues at Botany, particularly since late 2012. The EPA's engagement activities to date have included face-to-face pop-up stalls in the community, public forums, meetings between EPA officers and community members, social media alerts, emails to subscribers of the Botany Information email group, media activities and newspaper advertising.

Some of the engagement activities by the EPA included those below.

- The EPA held community forums in November 2012 and March 2013 and four pop-up stalls at shopping centres and community events in 2014 to provide opportunities to discuss contamination issues in Botany with the EPA.
- To articulate the findings of Stage 1 of the mercury review, the EPA held a public forum in February 2014 and met with council and local government representatives. The EPA also regularly engaged, and continues to do so, with the two community representatives who sit on the Mercury Independent Review Steering Panel about broader issues at Botany.
- The EPA organised a site tour of BIP with a journalist from the local paper, *The Southern Courier*, in March 2014 to provide a better understanding of the EPA's regulatory role at the site and Orica's current remediation works and foster informed and accurate reporting of the issues.

Chapter 14: Land contamination issues at Hillsdale provides more information about specific communication and community engagement by the EPA on the related issue of contamination in the neighbouring suburb.

### ***13.3.3 Independent review of EPA activities around Botany contamination***

Mr Andrew Helps of HG Recoveries Pty Ltd has raised many issues with the EPA about industrial activities and environmental concerns relating to BIP. While the EPA believes that it adopted a thorough and appropriate approach to investigating and addressing each of his concerns, Mr Helps has made public statements that it is his belief that this course of action by the EPA has been unsatisfactory.

To impartially address these criticisms, such as the appropriate standards to use and the interpretation of results against the appropriate standards, the EPA Board asked the NSW Chief Scientist and Engineer, Professor Mary O'Kane, to recommend an independent reviewer to assess the EPA's processes, application of the Assessment of Site Contamination NEPM arrangements and due diligence in managing the range of contamination issues in Botany.

On the Chief Scientist's recommendation, the EPA Board commissioned senior chemical engineer, Emeritus Professor Chris Fell AM, to undertake the review in October 2013.

Professor Fell examined the actions of the EPA with respect to mercury pollution from and, in particular, how the EPA responded to commentary by Mr Helps on the mercury and HCB contamination. (Note that this report also applies to contamination issues at Hillsdale: see Chapter 14.)

In December 2013, Professor Fell presented his review findings to the EPA Board which are summarised as follows:

*'The report has examined the actions of EPA with respect to mercury pollution emanating from the Orica Port Botany site and, in particular, how the EPA has responded to commentary by Mr Helps of Hg Recoveries Pty Ltd on this and other subjects.*

*'Having carefully reviewed all information provided, interviewed ten relevant persons and searched available literature, I have formed the view that the EPA has correctly considered and applied the NEPM [National Environment Protection Measure for assessment of contaminated sites] framework, noting the 2013 revisions to the NEPM and has met its obligations under the Contaminated Land Management (CLM) Act.*

*'Mr Helps' input has been appropriately taken into account by Authority officers and the Department of Health and given considered technical evaluation where appropriate. Mr Helps' accusation of misinterpreting or misrepresenting of data on contamination and monitoring is not upheld.*

*'There remains a measure of community unease about how the remediation on the Orica site will proceed. Some suggestions on how the EPA might consider improving its image in this regard are made.*

*'Finally I would like to thank all of those interviewed during the review process for their willingness to be engaged in frank and far-reaching discussion.'*

The [complete version of this report](#) is available on the NSW Parliament website.

In addition, Professor Fell has responded to criticisms of his report by Mr Helps and his [annotated response](#) can also be found on the NSW Parliament website.



## Chapter 14: Land contamination issues at Hillsdale

### Terms of Reference statement

*That the following cases be considered:*

*(i) land contamination issues at ... Hillsdale*

### Summary

Hillsdale is a Sydney suburb with a long history of industrial uses and associated legacy contamination issues and a mix of residential, commercial and industrial zones. Orica Australia Pty Ltd is one of three industrial operations located at Botany Industrial Park. At its site, Orica stores 15,000 tonnes of hexachlorobenzene (HCB) waste material (predominantly solid material in drums) derived from former manufacturing processes at its Botany Industrial Park site.

On 11 April 2013, Mr Andrew Helps, Director of HG Recoveries Pty Ltd, reported to the EPA that he had detected HCB in soils near Denison Street, alleging that the chemical had leaked from Orica. Mr Helps proposed that the EPA sign a contract with HG Recoveries to conduct further testing.

In response to these claims, on 15 April 2013, the EPA tested at 15 locations for HCB, mercury and a range of other metals and chemicals (94 in total). Analysis of the samples by the Office of Environment and Heritage (OEH) laboratory showed that all results were below the Health Investigation Levels set by the national standards for soil contamination, except for three sample sites in the Sydney Water easement which showed slightly elevated levels of polychlorinated biphenyls (PCBs).

The EPA required Sydney Water to undertake tests on its easement. Sydney Water's tests were across a larger area than that sampled by the EPA. Its testing confirmed the EPA's results of elevated PCBs in the same area and also detected an additional site which showed an elevated benzo(a)pyrene. Further testing was done and remediation was completed in December 2013.

In response to media allegations of contamination in the nearby Grace Campbell Reserve Playground in July 2013, the City of Botany Bay Council tested the playground as well and this found there were no health concerns.

NSW Health assessment of all the results was that they did not pose a health concern.

The EPA released a summary of the laboratory analysis by OEH on its website and provided a full version on request to two members of the community. The title 'Version 4' and reference to previous versions on the inside cover concerned some members of the community, who subsequently acquired Versions 1, 2 and 3 under a Government Information Public Access Act application. There were differences between some results in these versions due to quality control processes and additional testing. However, the changes gave rise to a number of misunderstandings when members of the public attempted to understand the highly technical report, resulting in allegations that the EPA had 'covered up' vital results.

To impartially address criticisms of the reports and EPA actions, the EPA Board commissioned senior chemical engineer, Emeritus Professor Chris Fell AM, to review the EPA's actions. Professor Fell's review found that the EPA had:

- correctly considered and applied the relevant standards
- appropriately addressed the concerns raised and technically evaluated the results

- not misrepresented or misinterpreted the contamination and monitoring data obtained.

The EPA recognises that its communication and engagement with the community on highly technical issues needs to be more effective. The EPA will:

- make available full technical reports on its website to assure the public of transparency
- work to improve the effectiveness of its communications on highly technical material, especially where technical knowledge is required to correctly interpret laboratory analysis
- work to better address community perceptions about the effectiveness of its regulatory response to pollution from the Botany Industrial Park site and, in this regard, it is being guided by the suggestions of Professor Fell on how the EPA might improve its image in responding to community concerns, particularly in relation to community engagement.

## 14.1 Background

The Sydney suburb of Hillsdale has a long history of industrial uses and associated legacy contamination issues, with a mix of residential, commercial and industrial zones. Relevant to this case study is the residential part of Denison Street that directly borders Botany Industrial Park. Orica Australia Pty Ltd is one of three industrial operations located at the park, while others are Qenos Pty Ltd and Huntsman Corporation Pty Ltd.

On 11 April 2013, Mr Andrew Helps, Director of HG Recoveries Pty Ltd, advised the EPA that he had undertaken soil sampling on Denison Street adjacent to Botany Industrial Park, using an XRF analyser. He reported that he had detected a chlorine spike which he alleged was from hexachlorobenzene (HCB), a by-product of solvents manufacturing, that had leaked from the Orica site.

Mr Helps proposed that the EPA sign a contract with HG Recoveries to conduct further testing.

The information provided by Mr Helps gave no clear indication of the sampling locations and methodology followed and initially he would not release full details about his sampling techniques to the EPA or the precise locations. After a number of interactions with Mr Helps seeking these details and four days after the initial information, he provided sufficient information for the EPA to commence an investigation.

### 14.1.1 Testing and analysis of soil samples from Hillsdale

On 15 April 2013, EPA officers undertook soil sampling to analyse for HCB, mercury and a range of other contaminants (94 in total) at and around the location believed to have been sampled by Mr Helps. The EPA took 17 soil samples, including two duplicate samples for quality control. The samples were taken in a grid pattern on both sides of Denison Street and in a portion of the Sydney Water Easement that connects to Denison Street near Botany Industrial Park. The Grace Campbell Reserve Playground is located directly adjacent to the Sydney Water Easement. No samples were taken in this playground or on residential land.

The samples were taken from the top few centimetres of the soil profile to address the most likely exposure scenario, being potential incidental ingestion or dermal uptake (absorption through skin) through direct contact with the soil. The samples were collected in accordance with Australian Standard 4482.1: Guide to the investigation and sampling of sites with potentially contaminated soil – non-volatile and semi-volatile compounds.

On the same day (15 April 2013), the samples were submitted on an urgent basis to the NATA-accredited Office of Environment and Heritage (OEH) laboratory to analyse for 94 metals and chemicals including mercury, PCBs, HCB and pesticides. In response, the OEH laboratory issued the following reports:



Version 1	18 April 2013	Issued on an urgent basis, containing the first results of sample testing without the complete set of quality assurance and quality control processes taking place: testing for HCB, pesticides, total metals, mercury and PCBs
Version 2	23 April 2013	One sample was re-tested because of suspected cross-contamination in the original analysis: results of six samples corrected.
Version 3	1 May 2013	Seven samples re-tested for PCBs at the request of the EPA using a different method to allow comparison with NEPM Health Investigation Limits. This was not a correction of an error.
Version 4	17 May 2013	Metal results excluding mercury re-calculated due to an identified dilution error.

The analytical results in Versions 3 and 4 were compared with the Health Investigation Levels (HILs) for the relevant analyses in the [National Environment Protection \(Assessment of Site Contamination\) Measure 2013](#), which is the nationally agreed Australian Standard for contaminated soil assessment used by the Australian Government and all states and territories.

The HILs in the Assessment of Site Contamination NEPM are a range of contaminant concentration levels above which further investigation is required. These levels are differentiated according to the use of the land.

The EPA posted a [summary of its findings](#) on its website with regard to HCBs, the issue raised by Mr Helps, on 16 May. Note that version 4 of the report issued on 17 May did not change the conclusions in the summary.

In short, the full results for the EPA sampling showed:

- In relation to HCB and mercury, the levels detected in the samples were below the HILs that require further investigation and therefore no further action was required.
- In relation to PCB, the levels detected in the samples were slightly above the HIL on the Sydney Water Easement adjacent to Denison Street for three of the sample locations (SS01, SS04, SS05).

In response to these slightly elevated PCB levels, the EPA referred the results to:

- NSW Health who, after assessing all of the results and site information for the easement, concluded that these PCB levels were not a health concern
- Sydney Water on 8 May 2013 (as the landholder of the easement where sampling took place) and advised it of the finding and requiring Sydney Water to engage a contractor to undertake additional sampling of the easement.

#### **14.1 2 Testing by Sydney Water**

On behalf of Sydney Water, on 12 June 2013, URS Australia Pty Ltd undertook environmental testing for PCBs and other contaminants. The results were consistent with the original EPA findings with some PCB levels marginally above the HILs, except for one site which revealed benzo(a)pyrene (BaP) levels above the HIL (Recreation C) for the individual site HA17. BaP is a by-product of incomplete combustion or burning of organic (carbon-containing) items. URS undertook further sampling of that site on 10 July and 19 September 2013.

URS produced a final report that contained the following recommendations to manage the BaP contamination:

- undertake appropriate management of the BaP and lead-impacted surface soils across the eastern extent of the site, including locations and immediate surrounds of the sample location HA17 (BaP) to prevent exposure to anyone using the park and maintenance workers – this included the installation of a physical barrier capping layer over the remedial zone identified which consisted of a geotextile layer, validated capping material and turf.
- prepare a remedial action plan (RAP) to document the objectives and works necessary to manage the remedial zone
- prepare an environmental management plan (EMP) for the entire site containing standard operating procedures for maintenance works.

Sydney Water accepted the recommendations and completed the remediation of the site in December 2013.

These results were referred to NSW Health who reported on 7 July that the contamination levels would not pose a health concern.

#### ***14.1.3 Testing by Botany Council***

Further allegations of contamination were made by Mr Helps in connection with the Grace Campbell Reserve Playground adjacent to the easement where EPA testing took place. Depicted as an EPA 'cover-up' in the media on 7 July, these alleged contamination of mercury, lead and chromium and also criticised the EPA for not testing for organochlorine.

In response, the owner of the playground, the City of Botany Bay Council, independently commissioned soil contamination consultants JBS&G (NSW & WA) Pty Ltd to undertake an investigation. The EPA assisted with the costs of this analysis to the extent of \$10,000 as a council community information event was planned for the easement and the EPA wanted the results prior to this being held. The JBS&G report for the playground concluded that 'surface soils as present on the Grace Campbell Reserve do not contain levels of environmental contaminants that would be considered to pose a potential health risk to park users'.

These results were referred to NSW Health who reported on 7 July that the contamination levels would not pose a health concern.

#### ***14.1.4 Follow-up testing by an external laboratory for the EPA***

The EPA requested OEH to undertake further analysis of the EPA soil samples collected on 15 April 2013. This was in response to ongoing concerns by a community member in direct discussions with the EPA that the analysis of these samples did not account for the total quantity of chlorine found and concerns raised by Mr Helps that the EPA had not considered the breakdown products of HCB.

The original analysis did not include chlorine alone as the chemical is generally found in other compounds due to its reactive nature. However, the analysis did include a range of compounds that contain chlorine and could have been possibly found at Hillsdale, such as HCB and PCBs.

The analysis for chlorine is a specialist test not generally undertaken as part of these types of investigations. Due to the specialist nature of the test, OEH outsourced the analysis to an external laboratory.

On 14 August 2013, the EPA received the further analysis results from OEH which included for total chlorine, inorganic chlorine (naturally occurring chlorine such as sea salt), and HCB and its breakdown products.

This further analysis revealed that:

- In relation to chlorine analyses and polyvinyl chloride (PVC), total chlorine was present in a number of the samples. This indicated a chemical that contains chlorine was present in those soil samples. Further investigations found that this was due to the presence of particles of PVC, a plastic that is used in a range of household products, such as water pipes and furniture. PVC has been manufactured at Botany Industrial Park in the past.
- In relation to HCB and breakdown products, HCB levels were low and below HILS for recreational open space use based on the Assessment of Site Contamination NEPM. There were also no significant concentrations of HCB breakdown products.

The EPA provided the interested community members the outcomes of the further investigations on 9 September 2013 and they accepted the additional analysis.

The EPA requested NSW Health to advise on the potential impact of the PVC particles on public health and, on 1 November 2013, was advised by NSW Health that given the location and size of the PVC particles in the affected areas, the impact on public health was negligible. NSW Health also recommended maintaining good ground cover, such as grass, in the affected area to reduce dust generation and the risk of inhaling dust particles.

In December 2013, the [results of this testing](#) were released in full on the EPA website.

## 14.2 Issues

The community became concerned about whether there was a real health issue arising out of Mr Help's allegations of contamination. A number of factors gave rise to these concerns of a nature that impugned the integrity of the processes of the EPA and OEH. Specifically, these factors were:

- confusion over multiple versions of the analysis of samples by OEH
- the posting of a summary of the analysis by the EPA instead of the full report (though this was provided to key stakeholders who requested it)
- concerns that the testing did not specifically cover chlorine as a substance separately from chloride compounds
- a perceived change in the standard of 'Health Investigation Level' from residential to recreational
- the calculation of levels in accordance with the Assessment of Site Contamination NEPM which provides for an averaging function
- allegations by Mr Helps about contamination of the Grace Campbell Reserve Playground.

Each of these factors is examined below.

However, the succession of concerns arising in relation to the reports and the continuing allegations about the EPA's actions, not only in relation to Hillsdale but also Orica's activities at Botany Industrial Park, led the EPA Board to appoint an appropriate expert to undertake an impartial review.

At the request of the EPA Board, the Minister for the Environment asked the NSW Chief Scientist and Engineer, Professor Mary O'Kane, to recommend an independent reviewer to assess the EPA's processes and due diligence. On the Chief Scientist's recommendation, in October 2013, the EPA Board commissioned senior chemical engineer Emeritus Professor Chris Fell AM, Chairman of the Australian National Fabrication Facility Board, to undertake the review.

The findings of that review are also set out in this chapter.

### 14.2.1 What was the EPA's role?

The EPA's role in investigating the allegations by Mr Helps arises from its administration of the [\*Protection of the Environment Operations Act 1997\*](#) (POEO Act), [\*Environmentally Hazardous Chemical Act 1985\*](#) (EHC Act) and [\*Contaminated Land Management Act 1997\*](#) (CLM Act).

The allegation by Mr Helps was that the source of alleged contamination was the premises of Orica Australia Pty Ltd which the EPA regulates through conditions of:

- Environment Protection Licence No. 2148 issued under the POEO Act for a number of scheduled activities including chemical production, contaminated groundwater treatment, chemical storage, waste processing and waste storage, including the HCB waste
- a licence under the EHC Act for the storage of HCB waste.
- management orders issued by the EPA under the CLM Act for regulating the remediation of the company's former chlor alkali plant site and contaminated groundwater.

For more information about how the EPA regulates contaminated sites, see Chapter 9: Contaminated sites and more about remediation projects in the Botany Bay Local Government Area, particularly on the Botany Industrial Park site, see Chapter 13: Land contamination issues at Botany.

### 14.2.2 What action did the EPA take on the factors giving rise to concern?

#### Multiple versions of the analysis of samples

As described earlier, in response to the EPA's request for an urgent analysis of the samples taken on 15 April 2013, the NATA-accredited OEH laboratory undertook an analysis for 94 metals and chemicals, including mercury, PCBs, HCB and pesticides. OEH issued four report versions of the analysis.

The OEH laboratory carried out all quality assurance and quality control processes for this series of testing in accordance with its accreditation under NATA. These processes took place after the first report to the EPA and the required adjustments were reflected in subsequent versions of the report. The final report provided to the EPA included all quality assurance and quality control processes.

Part of the quality control process includes re-issuing reports even when only additional testing is undertaken. In accordance with international standards,<sup>1</sup> the title of re-issued reports says 'replacement' and includes a version number. On the inside of the cover a record of any previous versions is listed.

The EPA posted a summary of the findings from the report in relation to HCB on its website on 16 May 2013 and provided a full copy of the same report upon request to two members of the Botany community.

The reference on the cover to the fourth version and the list of versions on the inside cover led to an application under the *Government Information (Public Access) Act 2009* for a copy of the three earlier versions, which the EPA released among other relevant documents.

At no time did the EPA attempt to conceal that OEH had compiled three earlier versions of the report.

The differences between the reports raised concerns in the community and the media about the integrity of the EPA's processes. This included a media report on 17 November 2013 in *The Sydney Morning Herald* criticising the OEH laboratory.

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<sup>1</sup> Transparency in reporting test results under the International and Australian Standard AS ISO/IEC 17025-2005 General requirements for the competence of testing and calibration laboratories.

It was clear that, although the reports had been titled as per international scientific guidelines, the media and the public were confused and unfamiliar with established scientific quality control processes. Suspicion was generated because some results changed between versions, even though this did not change the overall assessment and findings.

In response to this course of events, OEH provided a detailed explanation to the EPA in relation to the re-issuing of analytical results which included the following text:

*The OEH laboratory has a strict quality management system to ensure the quality of the results produced and reported. The system includes review processes to identify and correct any problems or errors found at any stage of the analytical and reporting process. If an error is identified after a final report has been issued, the correction must be made and the report re-issued. Reports are also re-issued if new information is added to the original report, such as the results of tests requested in addition to the tests originally requested. This is a requirement of the NATA accreditation of the laboratory.*

*The OEH laboratory issued a final report of analyses for samples from Hillsdale four times. Twice the report was re-issued because the laboratory's quality control processes had identified errors and once because the EPA requested testing for additional compounds from those originally specified.*

### **EPA summary of the OEH report**

It is a technical and complex process to interpret analytical results with reference to the Assessment of Site Contamination NEPM's Health Investigation Levels (HILs). Given the specialised knowledge required, there is a general lack of public understanding around the meaning of 'Health Investigation Levels' under the NEPM and the risk assessment process used to determine potential impacts on human health, including chemical exposure pathways and background to the development of HILs.

As a result, the EPA considered the results would be more meaningfully communicated and digestible for the public if it provided a summary of the analysis reports, rather than the full reports, and this it did on its EPA website.

A number of community members believed that the EPA was misleading the public as it had not released the full analysis reports on the EPA website and allegedly downplayed the results. (Copies of the full report were released to two people on request.)

To further assist the community to understand the results and ask questions, the EPA undertook the following engagement activities at Hillsdale:

- On 9 July 2013, the EPA wrote a letter to 500 residents surrounding the Sydney Water Easement and Playground, delivered by letter-boxing. The letter provided details on the EPA sample results, links to other supporting information and a contact for further information.
- On 9 July 2013, the EPA published a letter from the EPA Chair and Chief Executive Officer on its website which outlined the EPA sample results and provided links to supporting information.
- On Saturday 13 July 2013, the EPA attended a community day held at the Grace Campbell Reserve Playground to respond to any inquiries from the community.
- On the Saturday mornings of 13 July and 20 July 2013, the EPA held 'pop-up' events at Southpoint shopping centre at Hillsdale to provide information to the community and answer questions.

Community members raised a low level of interest and concern through these outreach activities.

### **Testing not specifically covering chlorine separately from chloride compounds**

The original analysis did not include chlorine alone as the chemical is generally found in other compounds due to its reactive nature. However, the analysis did include a range of compounds that contain chlorine and could have been possibly found at Hillsdale, such as HCB and PCBs.

The EPA requested OEH to undertake further analysis of the EPA soil samples collected on 15 April 2013. This was in response to ongoing concerns raised by some community members in direct discussions with the EPA that the analysis of the EPA samples obtained on that date did not account for the total quantity of chlorine found and concerns raised by Mr Helps that the EPA had not considered the breakdown products of HCB.

The analysis for chlorine is a specialist test not generally undertaken as part of these types of investigations. Due to the specialist nature of the test, OEH outsourced the analysis to an external laboratory.

On 14 August 2013, the EPA received the further analysis results from OEH which included for total chlorine, inorganic chlorine (naturally occurring chlorine such as sea salt), and HCB and its breakdown products.

This further analysis revealed that:

- In relation to chlorine analyses and polyvinyl chloride (PVC), total chlorine was present in a number of the samples. This indicated a chemical that contains chlorine was present in those soil samples. Further investigations found that this was due to the presence of particles of PVC, a plastic that is used in a range of household products, such as water pipes and furniture. PVC has been manufactured at Botany Industrial Park in the past.
- In relation to HCB and breakdown products, HCB levels were low and below HILs for recreational open space use based on the Assessment of Site Contamination NEPM. There were also no significant concentrations of HCB breakdown products.

On 1 November 2013, NSW Health advised that given the location and size of the PVC particles in the affected areas, the impact on public health was negligible. NSW Health also recommended maintaining good ground cover, such as grass, in the affected area to reduce dust generation and the risk of inhaling dust particles.

### **Change in the standard of 'Health Investigation Level' from residential to recreational**

HILs are different for residential use and recreational use, with residential use being more stringent. When the EPA was preparing a summary for the public release of the report, it was aware that not only had the site met recreational level requirements, it had also met the more stringent residential levels and reported this in a media release on 16 May 2013.

As a result of subsequent adjustments reflected in Version 4 of the report (where the result for some metals was re-calculated due to an identified dilution error), 100% of the results no longer met residential levels, but all still met recreational levels. Accordingly, and to be accurate, the EPA adjusted future references to the site as meeting HILs for recreational land.

However this change gave rise to an inference that the EPA has been adjusting the level to reduce the appearance of contamination.

Note that for the principal pollutant of concern, HCB, there was no change reported from Version 1 through to Version 4.



### **Calculation of levels in accord with the NEPM providing for an averaging function**

The assessment of human health or ecological risks is undertaken by comparing levels of contaminants on the site with the appropriate investigation levels for those contaminants or, where necessary, by undertaking a site-specific risk assessment. The initial assessment may require more detailed assessment of the site or specific sample points.

The Assessment of Site Contamination NEPM establishes HILs for a broad range of chemicals, including metals and other inorganics, hydrocarbons, phenols, pesticides, herbicides and other organics. HILs reflect and relate to generic land uses and the potential for exposure associated with those uses: A – residential with accessible gardens; B – residential with minimal opportunity for soil access; C – public open space; and D – commercial/industrial.

The following process is used to determine whether soil sample results comply with the NEPM.

Soil sample results for the site are determined using the arithmetic mean concentration as it provides a better estimate of exposure to soil contamination than the maximum concentration of individual sample results. The mean results are then compared to the HILs for the contaminants and the results are used to determine whether or not further investigation is required and which, if any, management strategies are needed.

While maximum concentrations can be compared with HILs, maximum concentrations are not representative and may result in an over-estimation or under-estimation of risk. The NEPM accepts that the mean value may be more representative as a whole than the maximum value and may provide a better estimation of the actual concentration that a person would be exposed to over a period of time.

Where mean concentrations are used, the results should also meet the following criteria:

- the standard deviation of the results should be less than 50% of the relevant HILs
- no single value should exceed 250% of the relevant HILs.

Contaminated land assessment is complex and the NEPM recognises that there is no single summary statistic that will fully characterise a site. In the end it comes down to evaluating the type of exposure and determining the concentration that best represents that exposure. The NEPM does not provide clear guidance on this but a standard has evolved in Australian contaminated land assessment over the years whereby the 95% upper confidence limit of the arithmetic mean concentration is used to calculate a representative exposure concentration. This follows guidance, for instance from the [US EPA](#), which states that 'the EPA recommends using the average concentration to represent a reasonable estimate of the concentration likely to be contacted over time' and that because of the uncertainty associated with estimating the true average concentration at a site, the 95% upper confidence limit of the arithmetic means should be used.

### **Allegations by Mr Helps about contamination of the Grace Campbell Reserve Playground**

The allegations by Mr Helps, together with the misconceptions detailed above that created a climate of suspicion, led to a media story that asserted that the EPA had 'covered up' harmful contamination levels in the Grace Campbell Reserve Playground. The playground is adjacent to the easement where EPA testing took place but no testing occurred in the playground.

The EPA strongly refuted this claim and stated that no toxic chemicals were found in the playground and that the results for the sampling undertaken outside it were not above the NEPM HILs.

Nonetheless, to address community concerns, the EPA assisted the City of Botany Bay Council in commissioning independent testing in the playground and also commissioned

additional testing relating to organochlorines, as detailed above. The report by their consultant, JBS&G, concluded that 'surface soils as present on the Grace Campbell reserve do not contain levels of environmental contaminants that would be considered to pose a potential health risk to park users'.

The EPA's engagement with the community on this issue is set out above under 'EPA summary of the OEH report'.

#### **14.2.3 Independent review of EPA activities around Botany contamination**

Mr Helps and other community members continued to question the EPA's results and its interpretation of the results under the Assessment of Site Contamination NEPM. More generally, Mr Helps has also raised many issues with the EPA about other industrial activities and environmental concerns relating to Botany Industrial Park. While the EPA believes that it adopted a thorough and appropriate approach to investigating and addressing each of his concerns, Mr Helps has publicly stated that it is his belief that this course of action has been unsatisfactory.

To impartially address these criticisms, the EPA Board commissioned senior chemical engineer, Emeritus Professor Chris Fell AM, to undertake a review.

Professor Fell examined the actions of the EPA with respect to mercury pollution from the Botany Industrial Park site and, relevantly for this case, how the EPA responded to commentary by Mr Helps on mercury and the Hillsdale sampling and analysis.

In December 2013, Professor Fell presented his findings. Specifically relevant to the Hillsdale issue he concluded that:

- The EPA had correctly considered and applied the Assessment of Site Contamination NEPM framework and met its obligations under the *Contaminated Land Management Act 1997*.
- The input from Mr Helps had been appropriately taken into account by EPA officers and the NSW Health and given considered technical evaluation where appropriate.
- The accusation of misinterpreting or misrepresenting of data on contamination and monitoring by Mr Helps was not upheld.

Professor Fell provided suggestions on how the EPA might consider improving its image in regard to responding to community concerns, particularly in relation to community engagement.

More detailed presentation of the details of independent review by Professor Fell can be found in Chapter 13: Land contamination at Botany and the [complete version of the report](#) is available on the NSW Parliament website.

#### **14.2.4 Environmental outcomes**

The key environmental outcomes arising from this series of events are:

- Sydney Water identified one small area with elevated benzo(a)pyrene levels and developed and implemented remediation measures to address these at the sample site.
- The EPA included additional sampling recommended by the Fell Review into the Stage 2 environmental sampling of the [Orica Mercury Independent Review](#).

This chapter must be considered in the broader history of legacy environmental issues in the Botany area. The EPA is actively engaged in the management and regulation of historical contamination in the Botany area and this is more fully detailed in Chapter 13: Land contamination issues at Botany.

### 14.3 EPA debrief

The EPA and OEH have each considered the issues arising from this case.

OEH has concluded that its laboratory complied with NATA processes but that its management of requests for urgent analysis needed reviewing and streamlining.

The EPA has concluded that its actions in relation to sampling were conducted with full integrity and that the allegations made in relation to each of the factors noted above are not supported.

However, the EPA also recognises that its communications with the community in relation to technical issues is very challenging and that it needs to engage more closely with the community on its actions in cases where a level of community concern is aroused as in this case.

#### *14.3.1 Clarifying OEH laboratory processes for urgent sample analysis requests*

The OEH laboratory reviewed this case to learn from the experience and put in place processes to avoid similar situations in the future. It found that the key considerations fell into two categories: the OEH laboratory's compliance with NATA processes which was satisfactory and more generally its approach to releasing results which could be improved.

The OEH laboratory was re-accredited for chemical testing by NATA in March 2014, a process it needs to follow regularly. In this case, the quality control process was followed in its ordinary timing and sequencing and there was no need, therefore, to change the laboratory's practice in this regard.

In relation to its approach to releasing the results in this case, the OEH laboratory recognised that its performance in this regard needed to be improved.

The EPA asked for analyses to be performed as soon as practicable with a report of results as soon as possible. Because of the sense of urgency in this case, laboratory staff sought to provide analytical results to the EPA as quickly as they could. This included issuing a report before the full quality assurance processes had been completed, even though it was known that these would be done in the following days.

To address the balance, between responding to urgent cases and preserving the integrity of reporting, the OEH laboratory has reinforced with all staff that the documented laboratory procedures must be adhered to at all times.

In urgent cases, the laboratory will undertake its initial phase of testing and provide preliminary results verbally to the client to enable tentative decisions to be made, including what additional testing is necessary. This will also enable an initial assessment to be made of the seriousness of the matter being investigated. However the laboratory will only issue written analytical reports after the necessary quality control processes have been complete. This approach has been communicated to, and accepted by, staff.

#### *14.3.2 EPA approach to presentation of technical information*

After considering the issues that arose in this case, the EPA considered how it could improve its delivery of information to the community on technical issues.

In future, the EPA will continue to prepare and provide summaries of analytical results for contentious issues but will also ensure it provides either a link to the full analytical report or information on how a copy can be accessed. By adopting this approach, the EPA will increase the level of transparency of its actions and investigations for the public and stakeholders.

The EPA also invites stakeholders in the Botany area who require further clarification on technical information that is causing them concern to get in touch through the designated EPA mailbox: [info.botany@epa.nsw.gov.au](mailto:info.botany@epa.nsw.gov.au)

### ***14.3.3 A better approach to community engagement***

The EPA needs to work to better address community perceptions about the effectiveness of its role in regulating pollution from the Botany Industrial Park site.

To this end the EPA has proactively engaged with the community in relation to this case, including holding pop-ups at the Botany Council Mayor's Community Day and at the Eastgardens Central Library in August 2013.

The EPA is also being guided by the suggestions of Professor Fell on how the EPA might consider improving its image in regard to responding to community concerns, particularly in relation to community engagement.

### ***14.3.4 Media interactions***

The EPA expended significant resources responding to media inquiries and providing briefings to interested journalists. The biggest difficulty was conveying the difference in the EPA's risk assessment with the assessments by others. It was this factor which ultimately led to the appointment of Emeritus Professor Chris Fell.

A summary of the key relevant media events during this period is as follows:

**16 May 2013:** [EPA public response](#) to concerns about HCB outside the boundary of Botany Industrial Park

**7 July 2013:** Media conference at the site and [media release](#)

**9 July 2013:** An [open letter](#) from Barry Buffier, EPA Chair and CEO, delivered to 500 homes in Hillside and given to residents at multiple EPA pop-up stands held in the community over the following two weeks

**12 July 2013:** EPA [media release](#)

**29 July 2013:** [Media Watch report](#) on *The Sun-Herald* articles about the contaminant testing at Hillside

After this, the EPA published the [Executive Summary](#) of the independent review by senior chemical engineer, Emeritus Professor Chris Fell AM, on the EPA's activities around the Botany contamination. The [complete version of Professor Fell's report](#) is available on the NSW Parliament website. It is interesting to note that this report, which vindicates the action of the EPA, has received little media attention.

## Chapter 15: Investigations and public statements on the effects of coal dust pollution in the Hunter

### Terms of Reference statement

*That the following cases be considered:*

*(ii) EPA investigations and public statements about the effects of coal dust pollution in the Hunter*

### Summary

The issue of coal dust in the Hunter Valley has assumed greater significance in recent years, in line with the growth of the coal mining industry in NSW and a proposal for a new coal loader for the Port of Newcastle.

The EPA's priority in the Hunter is to ensure that air quality levels are equal to, or better than, the Australian national standard and last year an additional \$4 million was allocated to EPA air programs. This year the EPA will receive a further \$2 million. This reflects the EPA's commitment to enhancing air quality to protect the community and the environment.

The EPA has been investigating particulate emissions in the Hunter rail corridor from loaded coal trains since 2008.

Between 2009 and 2013, the EPA imposed three separate pollution reduction programs (PRPs) on the environment protection licence of the Australian Rail Track Corporation (ARTC) which operates the rail network in the Hunter Valley, requiring it to undertake investigative studies into particulate emissions associated with trains. In total, the ARTC produced three reports relating to the studies.

The EPA and Office of Environment and Heritage (OEH) reviewed the reports of the studies to ensure that they met the regulatory requirements of the PRPs. During these reviews, some deficiencies were identified that required the reports to be revised before they could be published. However, an independent peer review of the third ARTC report recommended that the statistical analysis of the data needed to be reviewed.

On the recommendation of the Office of the NSW Chief Scientist and Engineer, this review and subsequent independent statistical analysis was undertaken by Professor Louise Ryan, Distinguished Professor of Statistics at the University of Technology Sydney. Professor Ryan's re-analysis of the data found:

- a statistically significant increase (approximately 10%) in particulates from loaded and empty coal trains and freight trains compared with background levels
- no statistical difference between particles associated with loaded and empty coal trains and freight trains.

The increase in particles from a passing train compared with background levels affirms the program of work by the EPA into particulate emissions associated with coal trains.

The finding of no statistical difference between loaded and unloaded coal trains and freight trains had been consistent across all three of the ARTC's draft and final reports and associated independent reviews, *irrespective of other deficiencies identified*.

The EPA's position has also been consistent:

- the evidence from these ARTC reports does not support the proposition that covering of coal wagons would lead to an appreciable improvement in air quality

- statistical re-analysis by Professor Ryan suggests that increases in PM<sub>2.5</sub> levels above background may be associated with the use of diesel fuel by locomotives, whether empty or loaded coal trains and freight trains
- the EPA believes that Professor Ryan's final statistical analysis meets accepted standards of scientific rigour with the findings robust and credible and supporting the EPA position in relation to covering coal wagons.

The EPA considers that the science it undertakes, commissions or requires to be undertaken, should meet widely accepted standards of scientific rigour. To ensure this occurs, the EPA has adopted the [scientific rigour position](#) statement developed by OEH in July 2013.

However, the problems with the ARTC reports and associated public statements by the Hunter Community Environment Centre created a perception within parts of the community of a lack of transparency by the EPA and a mistrust of the research findings.

The EPA acknowledges that there have been difficulties in community engagement, particularly in communication:

- The lack of communication of the extensive work being done by the EPA led to perceptions that action was not being taken, especially in the early stages.
- The EPA's initial efforts were primarily concerned with the smaller invisible particles of PM<sub>2.5</sub> and PM<sub>10</sub> because of their significant health impact, whereas the community focus was on larger particles and the associated amenity issues which could be seen as visible dust.
- The complex technical approach did not address the community's concerns and may have led to a sense of disconnect and mistrust of the independence of the EPA.
- Barriers existed for the community to raise specific issues and possible solutions with the EPA.

The EPA has made changes to its stakeholder engagement approach by:

- proactively sharing with the community the EPA's approach on this issue, proposed actions and updates on progress
- directly involving the community in the problem-solving process through consultative working groups, such as the Newcastle Community Consultative Committee on the Environment
- communicating with technical precision (important where technical issues and specific analysis are involved) and identifying where research findings fit in with the EPA's work program in addressing coal dust in the Hunter.

The EPA is continuing to work with the community and industry to evaluate further particle reduction options to protect the health of the community and the environment, including a compliance audit of coal loading and unloading facilities; engagement with the Newcastle Community Consultative Committee on the Environment; commissioning and overseeing the [Lower Hunter Particle Characterisation Study](#) and [Lower Hunter Dust Deposition Study](#); and establishing the [Newcastle Local Air Quality Monitoring Network](#).

## 15.1 Background

The EPA is committed to protecting community health and the environment and has undertaken substantial work on air quality in the Hunter Region with a focus on emissions from coal mining and coal transportation, while also addressing other significant sources, such as wood smoke and, more recently, emissions from non-road diesel engines.

See Chapter 7 for a review of how the EPA manages air quality.

Given their health impacts, the EPA generally gives priority to managing PM<sub>2.5</sub> and PM<sub>10</sub> (noting that the large majority of health effects from PM<sub>10</sub> come from the PM<sub>2.5</sub> component).



This prioritisation reflects the evidence of:

- elevated particle levels and population exposure to them in urban and regional NSW
- the demonstrated health benefits from reducing particle emissions
- the availability of practicable, cost-effective initiatives to manage particles.

At the same time, the EPA is also addressing larger particles, such as coal dust, the larger visible particles (known as total suspended particulates or TSP) that can cause a significant amenity issue for the community.

It has not been widely understood that PM<sub>2.5</sub> and PM<sub>10</sub> particles are not visible to the eye, unlike larger particles.

After several years of very good air quality, in 2013 quality was reduced across NSW, mainly due to warmer and drier conditions and severe bushfires. This was also the case in the Hunter Valley.

The Lower Hunter Region, including Newcastle, fully complied with the annual national standards for PM<sub>10</sub> which allow for up to five days each year when PM<sub>10</sub> can exceed the 24-hour standard and still meet with the standard which allows for a number of natural events to occur, such as bushfires or dust storms.

Monitoring for PM<sub>2.5</sub> in the Lower Hunter in 2013 occurred at Beresfield and Wallsend. The [National Environment Protection \(Ambient Air Quality\) Measure](#) (NEPM) standards were met throughout the year except for one and six days, respectively, at the monitoring points. Each of these exceedences took place during the bushfires in October and November 2013.

In the Upper Hunter, Singleton exceeded the national daily standard for PM<sub>10</sub> of 50 micrograms per cubic metre on 12 days and was the only Hunter Valley station that did not meet the AAQ NEPM annual goal of fewer than six days above the daily standard. Muswellbrook exceeded the PM<sub>10</sub> standard on three days and the PM<sub>2.5</sub> standard on one day, all during the bushfire period.

While coal dust from mining operations is of particular concern to communities in the Upper Hunter, coal dust from trains in the Hunter rail freight corridor is an issue for communities right through to the Port of Newcastle.

Particulate matter from mining operations in the Upper Hunter has rapidly grown in recent years with new and extended coal mines commencing production. Work on managing these emissions has been a particular focus for the EPA and it chairs an [Interagency Taskforce](#) on this issue. Details are provided both in the [Upper Hunter Air Particles Action Plan](#) and updated later in this chapter.

Professor Louise Ryan, engaged by the EPA on the recommendation of the Office of the NSW Chief Scientist and Engineer to undertake an independent statistical analysis, found that confirmed early studies of a statistically significant increase (approximately 10%) in particles from loaded and empty coal trains and freight trains compared with background levels but no difference between loaded and empty coal trains and freight trains themselves.

## 15.2 The issue

The terms of reference for this chapter are broad. As discussed above, concerns around coal dust in the Hunter generally relate either to coal dust from mining operations or coal dust from rail transportation.

This chapter principally reviews issues in relation to coal rail transportation and, in particular, the reports prepared by or for the Australian Rail Track Corporation (ARTC). The EPA's actions in relation to coal mining are presented at the end of the chapter.

The central issue is that of perception, with parts of the community claiming that the EPA both lacked transparency in reporting and had adjusted research findings to fit with a pre-

determined position that favours ARTC in relation to the covering of coal trains that use the Hunter Valley rail corridor.

Since 2008, the EPA has been working to address community concerns about coal dust emissions from uncovered loaded coal trains operated on the NSW rail network, particularly in the Hunter rail freight corridor which is operated by the ARTC.

Between 2009 and 2013, the EPA imposed three separate pollution reduction programs (PRPs) on the ARTC environment protection licence (EPL), requiring it to undertake investigative studies into particulate emissions. ARTC complied with these conditions and commissioned various consultants to undertake the studies and report the findings of those studies. The EPA and Office of Environment and Heritage (OEH) reviewed those reports to ensure they met with the technical and regulatory requirements of the PRPs and found some deficiencies in the reports that required revision before their publication by ARTC.

The EPA requested OEH to commission a peer review by Dr Luke Knibbs of the third ARTC report. This review identified problems with the statistical analysis. On the advice of the NSW Chief Scientist, an independent review of the statistical analysis was undertaken by Professor Louise Ryan, Distinguished Professor of Statistics at the School of Mathematical Sciences at the University of Technology Sydney.

The findings of Professor Ryan's review and re-analysis largely aligned with the ARTC report. It found that loaded and empty coal trains and freight trains were associated with a statistically significant increase (approximately 10%) in particles compared with background levels. However, there was no statistical difference between loaded and empty coal trains and freight trains.

An important additional finding from Professor Ryan's analysis was that, while the effects on particulate pollution (all available sizes) were apparent for all kinds of trains, the effects for passenger trains were not significant for  $PM_{10}$  and only marginally significant for  $PM_{2.5}$ .

Since coal dust is more likely to be reflected in the larger particle counts (visible particles and  $PM_{10}$ ), Professor Ryan's findings suggest that, for  $PM_{2.5}$ , other contaminants such as diesel may also be a significant contributor. This is further supported by the fact that effect sizes were similar for freight, loaded and unloaded coal trains, all of which are pulled by diesel locomotives.

In summary, the findings were that there is no difference in levels between loaded coal trains, empty coal trains and freight trains and that the  $PM_{2.5}$  effects are likely to be associated with the fuel used in diesel locomotives. This suggests that covering loaded coal trains will not lead to the reduction in air emissions the community is seeking and that other measures need to be explored.

The EPA notes that the Queensland Government has researched a range of alternatives for reducing coal dust emissions. Preliminary monitoring in Queensland on the effectiveness of veneering coal loads (lightly spraying them with a binding agent) found it makes no significant difference for fine particles ( $PM_{2.5}$  or  $PM_{10}$ ), but it has reduced overall levels of coarse particles that appear as dust.

The EPA is continuing to work with the community and industry to evaluate the effectiveness of particle reduction options and assessing feasible and cost-effective measures that will deliver the greatest health benefits to communities.

To determine whether the levels of particles emitted from the movement of trains can be reduced, the EPA's current investigations are focusing on:

- the environmental performance of the coal supply chain in NSW with a specific focus on the management of coal loss during the loading, transportation by rail and unloading of coal
- diesel emissions from locomotives

- emissions from coal mines in the Hunter
- current regulation of diesel emissions and the operational rail sector.

### **15.2.1 What was the EPA's role?**

The ARTC holds an environment protection licence (EPL) issued by the EPA for railway systems activities under the [Protection of the Environment Operations Act 1997](#) (POEO Act). ARTC operates the interstate rail network, metropolitan freight network and the Hunter Valley network.

The environment protection licensing regime is a well-established, effective mechanism by which the EPA regulates industrial activities to avoid, minimise and manage the potential localised, widespread, cumulative and acute impacts of pollution in NSW.

An EPL may include emission and noise limits, pollution reduction programs (PRPs) and monitoring requirements which can drive improvements in the environmental performance of industry over time in a way which may not be achieved as effectively through the general provisions of the POEO Act.

The key environmental issues associated with the operation of the rail network are noise and air emissions. The ARTC EPL requires that all plant and equipment used on the licensed premises (in this case rolling stock operated on a licensed railway network) must be operated in a proper and efficient manner. However the licence conditions do not specifically address issues associated with air emissions from locomotives and fugitive dust emissions from wagons.

The EPA has the option to require holders of an EPL to develop and implement PRPs to improve their environmental performance. PRPs are legally binding and generally require licensees to undertake studies before implementing steps to address environmental problems.

The EPA has used PRPs to investigate air quality issues associated with the operation of the rail network and these are detailed below.

### **15.2.2 What action did the EPA take?**

In response to increasing community concern about particulate emissions from coal trains operating on the NSW network, a PRP was imposed on ARTC's EPL in September 2008. The PRP required ARTC to provide a proposal to the EPA outlining its implementation of appropriate technology to reduce coal particle emissions on its network.

ARTC's submitted proposal was for a data gap analysis of a study that had recently been done for Queensland Rail. The EPA considered this would be a useful first step in investigating options for reducing fugitive emissions of coal particles from rail operations in NSW.

#### **ARTC PAE Holmes report: impacts of fugitive dust from coal trains in NSW – stage 1 gap analysis**

In February 2010, ARTC submitted a report prepared by independent consultants PAE Holmes entitled which:

- outlined the main findings of the Queensland study
- considered the implications of the findings of the study for NSW
- listed potential mitigation options for particle emissions from coal trains
- recommended areas requiring further investigation to determine the applicability of these mitigation options to NSW, given the specific conditions relating to this state's coal supply chain.

The EPA focused first on the area of greatest community concern at the time, which was the potential for dust emissions from the tops of loaded coal trains. In the next phase of

investigation the EPA required particle monitoring along the coal rail freight corridor to inform consideration of measures to control dust emissions from the tops of trains transporting coal or determine appropriate avenues for further investigation.

### **ARTC Environ report: pilot monitoring program of dust generated by train movement in Metford and Mayfield**

In September 2011, following extensive engagement with ARTC and other industry stakeholders, the EPA imposed another legally binding PRP on the ARTC EPL. This required ARTC to undertake a one-month pilot program to monitor dust generated by train movements at two locations along the Hunter Valley rail corridor. The purpose of this monitoring program was to determine whether the movement of uncovered loaded coal trains contributes appreciably more dust to ambient air quality than other train movements.

The pilot monitoring program was implemented at Metford and Mayfield by ARTC's independent consultants Environ Pty Ltd, during a 35-day period in February and March 2012. Metford and Mayfield were chosen as the monitoring sites as both locations had the required power supply and capability for recording train pass-by times, as well as experiencing considerable coal and other rail traffic. Trains of all types pass these locations – coal, unloaded coal, freight and passenger – and there is a reasonable concentration of residential areas in the vicinity of those sites.

### ***Media interest: the Newcastle Herald mid-2012***

In July 2012, *The Newcastle Herald* launched a series of articles entitled 'Great cover-up' and calling for the NSW Government to address the dust generated by the increasing number of coal train movements to and from the Port of Newcastle. The campaign included a petition for coal wagons travelling through the Hunter to be covered. The issue also appeared in *The Illawarra Mercury* in October 2012. Coverage of the issue has continued in the local papers, on local and state radio and television.

### **EPA response to the Newcastle Herald**

On 17 July 2012, the EPA responded to the articles:

*Currently there is no reliable data to indicate whether coal trains with uncovered coal loads increase ambient dust levels in urban areas in NSW. To investigate levels of particulates generated by coal train movements in the Hunter, the EPA issued ARTC with a legally binding PRP in September 2011 that requires ARTC to install two dust monitoring stations along the Hunter Valley line to monitor dust generated by train movements. The outcomes of this investigation will allow the NSW Government to determine if any measures are required to control and reduce coal dust emissions from trains transporting coal or if further studies are required.*

*Also coal trains move relatively slowly through urban areas and in the Hunter Valley, unlike in Queensland, coal is washed prior to being loaded onto wagons trains and this may help to reduce dust.*

On 3 August 2012, the EPA received a draft report from ARTC. On 20 August 2012, following a review of the report, including by OEH's air quality and statistics experts, the EPA wrote to ARTC indicating that it considered the overall methodology used in the monitoring program to be sound and recommended that the report be amended to include statistical analysis of the data and additional information.

On 30 August 2012, the EPA amended ARTC's EPL to require it to submit and make publicly available the final report of this monitoring by 28 September 2012.

During this period, the EPA commenced drafting a third PRP that would require ARTC to undertake further monitoring to verify the results of the pilot monitoring program. In part, this

was due to the above-average rainfall that occurred during the pilot monitoring program. Rainfall decreases the amount of airborne particles and this may have led to a suppression of particulate matter.

In accordance with the PRP, ARTC published the [report of the pilot investigation](#) on its website. The findings of the pilot indicated that there was no appreciable difference between the dust levels measured from the movement of loaded coal trains and other types of freight trains. This indicated that significant dust was not being generated from uncovered coal trains compared with other types of freight trains during the study.

### ***EPA response to an inquiry from the Newcastle Herald 28 September 2012***

*EPA Chair and CEO Barry Buffier said the results provided by ARTC suggest that there is no appreciable difference between the dust levels measured from the movement of loaded coal trains and other types of freight trains. However, further monitoring is required to expand on and verify these results.*

NSW Health publicly stated that 'The levels of dust emissions recorded during train movements studied in the pilot monitoring program would generally not result in adverse health impacts'. However, both the EPA and NSW Health confirmed that further monitoring was required to verify the results of the pilot monitoring program.

### **ARTC Katestone report: further monitoring to verify results of pilot monitoring program**

On 9 October 2012, the EPA imposed a third PRP on ARTC, requiring it to undertake additional monitoring to verify the results of the pilot program. This PRP was targeted towards warm, dry conditions more likely to generate dust and it required ARTC to revise some aspects of the methodology in response to lessons learnt during the pilot program.

The second monitoring program was undertaken by independent consultants, Katestone Environmental Pty Ltd, over a 61-day period from November 2012 to January 2013. There were a number of commissioning issues with the monitoring equipment and, to ensure a statistically significant data set was attained, the monitoring was undertaken for a longer period than the 30 days initially specified.

The monitoring was restricted to the Metford location as the pilot program identified a number of limitations with the Mayfield site, specifically that accurate train pass-by times were unable to be attained and had resulted in very approximate particulate emission levels in the pilot. No other Lower Hunter sites, with appropriate power, train identification equipment and a mix of train types, were available to be included in the study.

The second monitoring program was undertaken by independent consultants, Katestone Environmental Pty Ltd, during a 61 day period from November 2012 to January 2013. There were a number of commissioning issues with the monitoring equipment and to ensure a statistically significant data set was attained, the monitoring was undertaken for a longer period of time than the 30 days initially specified.

### ***Community representations late 2012***

In November 2012, the Hunter Community Environment Centre (HCEC), a Newcastle–Hunter based community group, wrote to the EPA Board and Minister for Health, Minister for Transport and Minister for Primary Industries outlining its concerns about the impacts of coal dust from coal trains operating on the Hunter rail network and the future impacts from increased train movements due to the proposed expansion of the Newcastle port. The community group also raised a number of specific concerns with the monitoring programs undertaken by ARTC.



On 4 December 2012, the EPA provided a comprehensive response in writing, addressing each of the specific concerns raised by the group. The EPA confirmed the specific objectives of the study and acknowledged that there are limitations with these types of field studies, some of which are known at the outset and others which become apparent during the course of the study. The additional monitoring required by the EPA accounted for the lessons from the pilot study.

The EPA also provided this response to the Minister for the Environment after *The Australian* called for an inquiry (7 November 2012):

*The results [from the pilot monitoring program] suggested that there was no appreciable difference between the dust levels measured from the movement of loaded coal trains and other types of freight trains. However, further monitoring is required to expand on and verify these results, including undertaking monitoring during drier weather conditions.*

*The EPA has issued ARTC with another Pollution Reduction Program [and]... the outcomes of this investigation will allow the EPA to accurately determine to what degree coal trains do contribute to dust emissions and the measures that may be required to control and reduce such emissions.*

*Coal trains operate under different conditions to road shipments that carry coal. Road shipments share the roads with pedestrians and other road users and are required to cover their loads for additional reasons, including the safety of other road users.*

On 15 March 2013, in accordance with the PRP, ARTC provided a draft report of the monitoring to the EPA.

On 3 May 2013, following a review of the report, including by OEH's air quality technical advisers and statistics experts at the EPA's request, the EPA wrote to ARTC requiring that the report be amended to include further analysis, discussion, verification and clarification to confirm that the data presented in it was sound and provide more robust answers to the questions posed by the PRP. In particular, the EPA considered the report did not adequately explain why the methodology used was chosen, how meteorological conditions, monitoring location and operation affected the results, and that the EPA would like the report to compare the new findings with the pilot monitoring program.

On 24 May 2013, the EPA met with NSW Health to discuss how to best communicate the findings of the report to the community. The EPA had commenced drafting responses to media inquiries in advance of the final report so it could make considered and prompt statements on the day of release of the ARTC report if warranted. The proposed responses were based on the draft report with the clear intention of review on receipt of the final report. It is standard practice to prepare a draft media response in advance to enable timely release to coincide with the release of a report.

The EPA took further steps to ensure it could be comfortable with the veracity of the process and material provided. As a result, on 24 May 2013, the EPA requested OEH to assist in facilitating an independent peer review of the second ARTC study to increase scientific rigour around the issue and provide confidence in the findings of the report.

On 28 May 2013, OEH sent an initial request for an independent peer review to Professor Lidia Morawska, Director of the International Laboratory for Air Quality and Health at the Queensland University of Technology. Professor Morawska was unavailable and recommended Dr Luke Knibbs, an environmental health lecturer and National Health and Medical Research Council research fellow from the University of Queensland's School of Population Health. Dr Knibbs is an expert in environmental health, specialising in air quality and exposure to particle pollution from transport.



On 28 May 2013, the EPA received the final draft report from ARTC. Following review, the EPA considered that the revised Katestone report addressed the issues it raised in its comments provided on 3 May 2013. However the findings needed to be revised to address apparent contradictions between reported conclusions and the tabulated and graphed monitoring data.

This revision, and a further error identified by the report author, resulted in 12 of the report's 15 conclusions being modified, one deleted and three added. Nonetheless, both the final draft and final report had the same conclusion: there was no appreciable difference between the dust levels measured from the movement of loaded coal trains and other types of freight trains.

On 30 May 2013, the [final monitoring program report](#) was published on ARTC's website. It indicated that there was no appreciable difference between the dust levels measured from the movement of loaded coal trains and other types of freight trains. This was consistent with the pilot monitoring program and is the key finding of the studies. This indicated that particulate matter generated from uncovered coal trains was not significantly higher than dust generated from other types of freight trains during the studies.

### ***EPA response to inquiries from the Newcastle Herald and Supply Train Review Magazine***

On 31 May 2012, the EPA issued the following response to the two publications:

*EPA Chair and CEO Barry Buffier said the results provided by ARTC in the second air monitoring report suggest that there is no appreciable difference between the dust levels measured from the movement of loaded coal trains and other types of freight trains.*

*'The EPA required ARTC to undertake further monitoring and even though this was in drier conditions the outcome is generally consistent with the first monitoring report provided by ARTC in September 2012.*

*'This indicates that significant dust was not being generated from uncovered coal trains compared to other types of freight trains during the study.*

*'The EPA will not consider imposing additional requirements on industry, such as covering of coal loads, unless clear evidence becomes available which demonstrates the need for further studies or measures to control coal dust emissions from loaded coal trains.'*

At the time the above media statement was made, the EPA had not determined that it would engage the independent review of Dr Knibbs. As a result, this was not intimated in the public statement.

On 8 June 2013, the EPA, with assistance from OEH, formally engaged Dr Knibbs to undertake an independent review of the Katestone report.

### ***Community response to publication of ARTC report***

On 11 June 2013, via a post on their website the Hunter Community Environment Centre alleged an EPA cover-up regarding the ARTC reports on dust from coal trains, specifically raising concerns about the differences in conclusions between the final draft and publicly released Katestone report.

The following day the EPA released this media release in response:

*The NSW Environment Protection Authority (EPA) asked the Office of Environment and Heritage (OEH) two weeks ago to explore the commissioning of an appropriately*

*qualified expert in air quality to review the conclusions outlined in the ARTC report and to ensure that the study met the requirements specified in the Pollution Reduction Program (PRP) by the EPA. OEH commissioned Dr Luke Knibbs, a Lecturer and NHMRC Research Fellow from the University of Queensland last week and he has agreed to look at the study and provide feedback by the end of June.*

*It is not unusual for changes to be made during the review process. In fact changes resulting from the review process demonstrate the value of independent review and supports scientific rigour. Any changes to the figures between the draft ARTC report and final report did not change the overall conclusion reached.*

*EPA Chair and CEO Barry Buffier said the results provided by ARTC suggest that there is no appreciable difference between the dust levels measured from the movement of loaded coal trains and other types of freight trains; this is consistent in the draft and final report. The outcomes of this report are also generally consistent with the first monitoring report provided by ARTC in September 2012. This indicates that significant dust was not being generated from uncovered coal trains compared to other types of freight trains during the study.*

On 1 July 2013, the [Knibbs review](#) was submitted to the EPA. Dr Knibbs did not raise any significant issues with the overarching monitoring methodology. However he did conclude that there was a major error with the statistical analysis undertaken by ARTC's consultants and that this error affects 'the scientific rigour of the study and the robustness of its conclusions'.

As a result of Dr Knibbs' independent review, on 2 July 2013, the NSW Chief Scientist and Engineer was asked by the EPA to recommend a suitably qualified person to review the statistical analysis of ARTC's Katestone report and, if required, undertake a re-analysis of ARTC's data.

### ***EPA media release on the need to re-analyse ARTC data***

On 3 July 2013, an EPA media release said:

*The results of the independent review into ARTC report found there was a major error with the statistical analysis undertaken by ARTC's consultants... [that] affects the 'scientific rigour of the study and the robustness of its conclusions'.*

*The Government has asked the NSW Chief Scientist and Engineer, Professor Mary O'Kane, to recommend an appropriate statistical expert to undertake a thorough analysis of the ARTC monitoring data.*

*'This is about ensuring that we have the best scientific analysis available to us in order to make the best possible decisions,' Mr Buffier said.*

### ***EPA response to HCEC***

On 9 July 2013, the EPA responded in writing to the HCEC. HCEC had alleged an EPA cover-up regarding the ARTC reports in June 2013. The EPA's written response explained that the changes arose from comments provided by the EPA's air quality experts, which required further analysis and verification of some of the data and discussion in the report and that the EPA was satisfied that the published report addressed those comments. The EPA further advised that Dr Luke Knibbs had been engaged to undertake an independent peer review of the ARTC report and had suggested that there was a major error with the statistical analysis of the data. As a result, the EPA has requested that the NSW Chief Scientist and Engineer recommend an appropriate statistical expert to undertake further review and analyses of the data.

The NSW Chief Scientist and Engineer, Professor Mary O’Kane recommended that Professor Louise Ryan undertake the review. Professor Ryan is a highly regarded Distinguished Professor of Statistics at the School of Mathematical Sciences, University of Technology Sydney with considerable expertise in issues of environmental contaminants and human health.

In September 2013, the EPA engaged Professor Ryan to undertake a thorough independent review of the statistical analysis of the Katestone report and, if required, re-analyse ARTC’s data.

The EPA received [Professor Ryan’s review](#) on 18 September 2013 which found that there were significant limitations with the statistical analyses used in the ARTC report. Professor Ryan therefore recommended a re-analysis of the data.

### ***EPA media release: Professor Ryan’s findings***

On 23 September 2013, an EPA media release said:

*The findings of the independent statistical review [by Professor Ryan] into the second ARTC report on coal train dust emissions has found there are some serious limitations with the statistical techniques used in the report and therefore recommended a re-analysis of the data.*

*‘The EPA intends to engage Professor Ryan to undertake that further analysis’ Mr Buffier said. ‘Having the best information and scientific analysis available to us will enable the EPA to make the most informed decisions regarding particulate emissions from the rail network.’*

In late January 2014, Professor Ryan was engaged by the EPA to undertake a full statistical re-analysis of ARTC’s data.

In October 2013, the Hunter Community Environment Centre (HCEC) received over 3000 pages of documents from the EPA under a *Government Information (Public Access) Act 2009* request.

In February 2014, HCEC made public statements that the EPA had covered up evidence received from the ARTC studies and misled the public. These statements were published by the Sydney and Hunter media.

The EPA took the allegations made by the HCEC very seriously and responded publicly that they rejected them. The EPA considers that documents received by HCEC showed that there had been much expert and rigorous discussion within the EPA and OEH around the ARTC studies. It is also testament to how much thought and effort the EPA had put into trying to define the questions and understand the answers that the community was seeking.

The EPA responded publicly at the time that if there was any evidence of wrongdoing within the EPA, HCEC should go directly to the Independent Commission Against Corruption (ICAC) with that information. Following this, in February 2014, HCEC announced that it had referred its complaint to ICAC.

The EPA responded that it stood by its previous public statements on the ARTC studies relating to coal train movements in the Hunter Region and rejected allegations of a cover-up. The EPA welcomed the referral of the complaint to ICAC.

Separately, the EPA received a formal complaint from a Mayfield-based community group in early 2014 relating to the operation of, and emissions from, coal wagons in Newcastle and the Hunter. The EPA reviewed the complaint and supporting information provided by the group and gave a formal response. The EPA acknowledged their concerns and appreciated their effort in providing it with detailed information on the issue. The information provided

would help inform consideration of any additional measures required to control or manage the loss of coal from trains.

### ***Extracts from EPA media releases: February 2014***

#### **9 February**

*'The EPA has been working closely with communities in the Hunter to investigate particulate matter for many years and aims to provide the community with the best possible available advice and science on the subject.'*

*'If the HCEC has evidence of any wrongdoing then they should take that evidence to ICAC,' Mr Buffier said.*

*'The purpose of these studies to monitor coal trains, which the EPA required the Australian Rail and Track Corporation (ARTC) to undertake, was to investigate whether coal dust from coal trains produced more particulate matter than other types of trains and determine whether covering coal wagons would have an impact on reducing particles.'*

*'It is important to understand that trains produce particulates. That is not what the studies were addressing.'*

*'The first ARTC report found that coal trains do not produce more particulates than other types of trains, however this study was undertaken during an extensive wet period and the EPA required a second study be undertaken. The second ARTC study found that coal trains do not produce more particle matter than other types of freight trains.'*

*In order to ensure scientific rigour, the EPA commissioned an independent peer review of the second ARTC report. This review found that additional statistical analysis of its data was required before any conclusion could be made.'*

*The EPA has engaged Prof Ryan to undertake this further analysis of the data and... is confident that her findings will let us move to the next phase of evaluating the impact that covering coal wagons could have on air quality and health for the Hunter.'*

#### **10 February**

*The EPA retains an open mind on the question of the benefits of covering coal wagons and welcomes an informed discussion on the issue. We understand how critical this issue is to the Hunter community and the EPA continues to spend a lot of time and resources investigating and responding to air quality issues.'*

#### **12 February**

*'The EPA must base all of its decisions on the best possible evidence available. We are extremely concerned when we are accused of lying to the community and misrepresenting reports. These are serious allegations and ones that the EPA absolutely rejects.'*

*'In my view the 3000 pages of documents that the Hunter Community Environment Centre has received under Freedom of Information legislation is a testament to how much thought and effort the EPA has put into trying to define the questions and understand the answers that the community is seeking.'*

*Mr Buffier said that if Professor Ryan's findings from [her] further analysis are indicative of coal trains being significant contributors to particulates then the EPA will use this information to investigate the benefits to human health of introducing new initiatives to reduce particulate emissions, including covering coal wagons.'*

*'Our aim is to address community concerns by evaluating particle emissions along the rail corridors and where appropriate implement control strategies,' said Mr Buffier.'*

On 25 February 2014, the EPA received the [final report from Professor Ryan](#), which aligned with the findings of the Katestone study that:

- Loaded coal trains, empty coal trains and freight trains are associated with a statistically significant increase (approximately 10%) in particulate matter compared with background levels.
- There is no evidence supporting differences between loaded coal trains, empty coal trains or freight trains with respect to associated levels of particulates.

Professor Ryan also noted that:

- ‘despite the limitation of having data at only a single monitoring site, this two-month time series of data provides useful information that can be used to address the two questions of interest’
- ‘diesel emissions from locomotives may be a contributing factor to particulate levels’.

Professor Ryan’s findings do not support the view that covering of loaded coal wagons in NSW would significantly improve air quality. She goes on to suggest that other contaminants such as diesel may be of concern.

#### ***Extract from EPA media release following release of Professor Ryan’s report***

On 26 February 2014, the EPA made the following statement, in part, which was approved by Professor Ryan:

*The NSW EPA today released Professor Louise Ryan’s findings on the [third] ARTC report.*

*‘While this particular report does not support the view that air quality would be significantly improved by covering coal wagons, it does provide the EPA with another useful piece of information that will add to our knowledge base of air quality in the Hunter Region.’*

*Mr Buffier said that he recognised that dust from the rail corridor would remain an issue of concern for the community regardless of the findings of this study.*

*‘The EPA will continue to focus its efforts on strategies to reduce all types of particle pollution and improve air quality in the Hunter and across the state.’*

### **15.2.3 Outcomes**

The three investigative studies by ARTC between 2008 and 2013 and the independent reviews of the results of those studies have provided the EPA, the community and the industry with an understanding of the significance of particle emissions from the Hunter rail corridor.

The studies inform the focus of future EPA investigation and regulation by identifying the sources of particles with potential impact on the health and environment of the community: basically, those associated with diesel emissions and residual coal on rail wagons.

To ensure it has robust scientific evidence on which to base its decisions, the EPA adopted the [scientific rigour position](#) statement developed by OEH in July 2013. The statement outlines a process involving appropriate design of studies, meticulous implementation, and objective analysis and reporting of results. Peer review of studies involves impartial and independent assessment of research and may be undertaken by EPA or OEH staff or external reviewers.



## **Current EPA action to improving air quality in the Hunter rail freight corridor**

### *Audit and review of coal transport from the coal mine to port*

The EPA has reviewed the coal freight supply chain from loading facilities at mines to delivery at port to ensure it understands the key practices contributing to particle emissions and the most effective management options for reducing them.

The EPA is working with industry and community stakeholders to identify and evaluate dust mitigation options and their associated costs and benefits.

### *Identifying and evaluating the cost of rail system dust mitigation options*

In 2008, Queensland Rail Ltd investigated dust mitigation options for coal rail systems in central Queensland. This study, [\*Environmental Evaluation of Fugitive Coal Dust Emissions from Coal Trains\*](#) (Connell Hatch 2008), was subject to a gap analysis by PAE Holmes, the first study the EPA required of ARTC under the PRP imposed on their EPL. This was considered a useful step in investigating options for reducing fugitive particle emissions from NSW rail operations.

During a recent fact-finding mission to Queensland, the EPA learnt that, from 1 June 2014, the majority of mines in Queensland have adopted improved loading practices, load profiling of coal surfaces at load points and surface veneering at load points. At present, 32 coal mines in Queensland use surface veneering at load points.

### *Assessment of rail system operator records*

On 10 March 2014, the EPA issued notices to the operators of the NSW rail network – ARTC, John Holland Rail and Sydney Trains – requiring them to provide records on the extent and management of coal loss from trains operating on their premises.

This information was assessed by EPA officers who manage regulation of the rail EPLs between April and June 2014 and demonstrated that:

- coal loss from trains is not specifically monitored
- large spills of coal are managed as environmental incidents
- track managers regularly undertake ballast cleaning that may help remove small amounts of spilt coal present in the ballast
- small losses of coal are unlikely to be detected.

### *Compliance audit: coal train loading and unloading facilities*

On 25 March 2014, the EPA initiated a compliance audit program to examine the level of compliance with EPLs issued to coal train loading and unloading facilities. This audit is expected to be completed by 30 September 2014.

Its focus is on assessing the management procedures and practices currently in place at EPA-licensed coal loading and unloading facilities to prevent or minimise the loss of coal during rail transport between the mines and coal unloading port facilities at Newcastle and Port Kembla.

There are 35 licensed coal loading and four licensed coal unloading facilities in NSW. The EPA is auditing 15 sites – 11 loading and four unloading facilities – as part of this program. Ten of the coal loading facilities transport coal to the Port of Newcastle and three unloading facilities are located in the Newcastle area. The audits are being conducted unannounced.

All 15 sites had been visited as of 18 July 2014. Reports from each audit will be made publicly available on the EPA Public Register and all are expected to be completed by end September 2014.



### *Diesel emissions analysis and control measures*

The EPA is engaging Professor Louise Ryan to further analyse the data in the Katestone report for ARTC to investigate the component of diesel emissions from locomotives in the particle levels in the Hunter rail corridor. This will contribute to the evidence already held by the EPA on diesel emissions and assist with a greater understanding of the role of diesel locomotives in particle pollution from the rail corridor.

#### **Review of the current regulatory framework for the operational rail sector**

In 2011–12, in consultation with Transport for NSW and NSW rail network operators, the EPA reviewed the current regulatory framework for the state's operational rail sector. This identified opportunities to improve the effectiveness of the current regulatory framework in addressing the sector's impacts on the environment and the community.

Following consideration of 10 potential alternative regulatory frameworks, the review recommended a proposal that regulation of the operational rail sector should involve licensing of both railway system operators and rolling stock operators under the POEO Act.

If implemented, the proposed framework is expected to result in significantly improved environmental outcomes as it recognises that both sets of operators contribute to pollution impacts and this new regulatory regime will hold them directly accountable, through licensing, for their impacts.

Feedback will be sought from all interested stakeholders on a discussion paper outlining the proposed framework and this be released later in 2014. The EPA intends to refine the proposed alternative regulatory model in response to issues raised during stakeholder consultation prior to drafting an amendment regulation that implements the proposed change.

The planned changes will ensure the EPA is better able to deal with diesel and dust emission issues by directly regulating both network and rolling stock operators. The changes will put the EPA in a strong position to effectively impose regulatory requirements on all operators to minimise air emissions from the network (as a result of the ongoing monitoring and evidence gathering occurring in this area) and recommendations arising from broader projects with consequences for these activities (such as the non-road diesel emissions strategy below).

#### **Non-road diesel emissions strategy**

On 13 June 2014, the EPA hosted a workshop as part of the development of a non-road diesel emissions strategy. This workshop included presentations of the sources and trends of non-road diesel emissions in NSW, including from locomotives. Workshop attendees included government agencies, industry and industry bodies, and community members. The Minister for the Environment signalled to those in attendance that the EPA would be regulating emissions for non-road diesel in the future and would publish a non-road diesel emissions strategy by the end of 2014.

Development of new proposals, including any new regulatory measures, will be informed by analysis of their feasibility and their costs and benefits, and consultation with relevant stakeholders, including community, industry and other government agencies.

There are no national emission standards for non-road diesel emissions (such as diesel emissions from ships, locomotives, etc), while national road vehicle emission standards for new vehicles are available.

#### **Stakeholder engagement**

The EPA has recognised the importance of engaging with its stakeholders to ensure open communication on issues like rail dust.

The EPA coordinates a number of community advisory committees, particularly in the Hunter Region, to enable local communities to engage with the EPA, industry and key stakeholders on local air quality issues.

#### *Newcastle Community Consultative Committee on the Environment*

Established by the Minister for the Environment in 2011, the Newcastle Community Consultative Committee on the Environment (NCCCE) enables residents of the Newcastle Local Government Area to identify important environmental and amenity issues associated with nearby industrial activities and helps the EPA and local industry understand community concerns.

The committee has provided advice on establishing the [Newcastle Local Air Quality Monitoring Network](#). It also advises on other existing, new or emerging environmental issues and how the community wishes to be notified and kept informed in the event of an environmental incident. The EPA supported the NCCCE in holding a community forum on air quality issues in November 2012.

At the committee's request, the EPA has arranged for preparation of monthly reports on air quality in the Lower Hunter by an external air quality technician, Todoroski Air Sciences Pty Ltd. These, together with details of the membership, objects and minutes of NCCCE meetings, are available on the [committee's webpage](#) on the EPA website.

#### *Upper Hunter Air Quality Monitoring Network Advisory Committee*

The Upper Hunter Air Quality Monitoring Network Advisory Committee was established in 2010 to advise on the design and operation of an air quality monitoring network in the region. Installation of the 14-station network was completed in early 2012 and is fully operational. The committee was formalised under the [Protection of the Environment Administration Act 1991](#) in November 2013. [Details on the committee and minutes of its meetings](#) are available on the EPA website.

#### *Other community groups*

Representatives of the EPA meet with individuals representing three other local environmental groups – Coal Terminal Action Group, Hunter Community Environment Centre, and Correct Planning and Consultation for Mayfield Group – as well as other concerned individuals to discuss their concerns.

The EPA is currently working with industry and the community to evaluate particle mitigation options to protect the health of the community and environment. For example, a member of the NCCCE is on the project management group for the [Lower Hunter Particle Characterisation Study](#). The EPA has also commissioned the [Lower Hunter Dust Deposition Study](#), a community-led study that will examine deposited dust in key areas in Newcastle where complaints have been received, including along the rail corridor.

### **15.3 EPA debrief**

The EPA responded proactively and decisively to initial community concern regarding particle emissions from loaded coal trains operating through the Hunter rail corridor. However problems with the ARTC studies created a perception within parts of the community of a lack of transparency by the EPA and claims that the EPA has adjusted research findings to fit with a pre-determined position on the issue of covering coal trains that use the Hunter Valley rail corridor.

The EPA has reviewed its response and found that the management of this matter has two distinct elements: a technical component and a communication/engagement component.

The EPA firmly believes it has managed the technical component in a scientifically robust and credible manner.

With regard to the technical aspect of this matter, the EPA's decisions in relation to the investigation and regulation of particle emissions from the operational rail network have been consistently based on the available scientific evidence. The above information demonstrates the rigour with which reports have been reviewed, commented on, and where necessary re-analysed, to ensure that the decisions are based on the most accurate and robust analysis of the data obtained. Review of technical reports by peers with equivalent technical expertise is a standard process in scientific work and the process undertaken in this case is consistent with EPA practice across all its technical work.

The extent of work the EPA has done on this issue demonstrates its commitment to identifying the sources of emissions which are the most effective target for reduction strategies. However the work that was required also indicates that there was no obvious solution to the issue.

The EPA acknowledges that there have been difficulties in relation to community engagement, particularly in communication in particular:

- The lack of communication of the extensive work being done by the EPA led to perceptions that action was not being taken, especially in the early stages.
- The EPA's initial efforts were primarily concerned with the smaller invisible particles of PM<sub>2.5</sub> and PM<sub>10</sub> because of their significant health impact, whereas the community focus was on larger particles and the associated amenity issues which could be seen as visible dust.
- The complex technical approach did not address the community's concerns and may have led to a sense of disconnect and mistrust of the independence of the EPA.
- Barriers existed for the community to raise specific issues and possible solutions with the EPA.

The EPA has made changes to its stakeholder engagement approach by:

- proactively sharing with the community the EPA's approach on this issue, proposed actions and updates on progress
- directly involving the community in the problem-solving process through consultative working groups, such as the Newcastle Community Consultative Committee on the Environment
- communicating with technical precision (important where technical issues and specific analysis are involved) and identifying where research findings fit in with the EPA's work program in addressing coal dust in the Hunter.

The EPA is continuing to work with the community and industry to evaluate further particle reduction options to protect the health of the community and the environment including a compliance audit of coal loading and unloading facilities; engagement with the Newcastle Community Consultative Committee on the Environment; commissioning and overseeing the [Lower Hunter Particle Characterisation Study](#) and [Lower Hunter Dust Deposition Study](#); and establishing the [Newcastle Local Air Quality Monitoring Network](#).

## 15.4 Management of air quality in the Hunter Valley

The EPA's approach to managing particles in NSW is documented in [Managing particles and improving air quality in NSW](#). This presents the principles the EPA has adopted for managing particles, the evidence base for EPA management of particles and funded actions to reduce particle emissions in urban and regional NSW.

For the full picture on how the EPA manages air quality, see Chapter 7.

Air quality in the Newcastle and Hunter areas, especially particle emissions from coal mining, non-road diesel vehicles and equipment, and wood smoke, is a priority for the Government, the EPA and the Hunter community.

The NSW Government has established the [Interagency Taskforce on Air Quality in the Hunter](#) with a primary focus on coal mining. The EPA chairs the taskforce, with representatives from the Office of Environment and Heritage (OEH), NSW Health, the Department of Planning and Environment and NSW Trade and Investment's Division of Resources and Energy.

The EPA directs significant funding and resources to managing air quality in the Hunter Region with \$6 million worth of air quality projects funded from the EPA's current and previous year's budget to deliver air quality and health improvements and research. Hunter communities will benefit from these programs.

#### **15.4.1 Upper Hunter air quality**

The EPA's approach to managing particles in the Upper Hunter is set out in the [Upper Hunter Air Particles Action Plan](#) which outlines measures in place or being developed to engage communities, improve planning decisions, reduce particle emissions from coal mines and other sources, and improve the evidence base for action through monitoring and research.

The [Interagency Taskforce on Air Quality in the Hunter](#) has adopted the Ambient Air Quality NEPM annual average standard for PM<sub>2.5</sub> as a formal goal.

The key monitoring programs and programs implemented by the EPA as a result of these processes are summarised below.

#### **Upper Hunter Air Quality Monitoring Network**

In 2012, the NSW Government finalised installation of this 14-station industry-funded [air quality monitoring network in the Upper Hunter Valley](#). The monitoring stations are located to provide coverage of air quality levels in population centres, dust levels close to mining activities, and air quality at background sites at the northern and southern ends of the Upper Hunter Region.

All stations monitor particles as PM<sub>10</sub> and the Singleton, Muswellbrook and Camberwell stations also monitor for PM<sub>2.5</sub> particles. In addition, Singleton and Muswellbrook check sulfur dioxide and nitrogen dioxide levels. [Monitoring data](#) is available online.

Data from the network shows major population centres can experience days exceeding the NEPM standards for particles. Most of these exceedences occur as a result of extreme events (such as bushfires and dust storms) and prevailing weather conditions (generally strong north-westerly winds). After several years of very good air quality over much of the state, air quality in 2013 was poorer in NSW due mainly to warmer and drier conditions and severe bushfires.

For the major population centres of the Upper Hunter during 2013:

- Muswellbrook experienced three days where PM<sub>10</sub> levels were above the national standard with two of these during bushfire periods.
- Singleton had 12 days where PM<sub>10</sub> levels were above the national standard with four of these during extreme weather (a heatwave in January 2013 and bushfires in October and November 2013). (Note that the national goal allows for up to five days each year when PM<sub>10</sub> can be above the standard and still comply.)
- In Singleton no days were recorded where PM<sub>2.5</sub> levels rose above the daily national advisory reporting standard and annual average PM<sub>2.5</sub> levels were below the national advisory reporting standard.
- Muswellbrook had one day when PM<sub>2.5</sub> levels were recorded above the daily national advisory reporting standard and this was during the bushfire period. Muswellbrook recorded annual average PM<sub>2.5</sub> levels above the national advisory reporting standard.

## **Dust Stop Program**

To ensure that dust emissions from coal mines are being minimised, the EPA has implemented the [Dust Stop Program](#) which built on the findings of a [review of international best practice dust controls](#) by Katestone Environmental Pty Ltd on behalf of the EPA in 2010.

Dust Stop has required all coal mines, through pollution reduction programs (PRPs) attached to their environment protection licences (EPLs) to assess their operations against international best practice dust management, identify feasible improvements and report back to the EPA.

By the end of 2012, the EPA had received reports from all the mines and these confirmed that the most significant sources of particulate matter from coal mines are wheel-generated dust, overburden handling and wind erosion from exposed surfaces. Together, these sources accounted for around 80% of PM<sub>10</sub> emissions from NSW open-cut coal mines.

As a further stage in the Dust Stop Program, the EPA issued all NSW open-cut coal mines with three new binding PRPs in March 2013 which required:

- best practice controls of wheel-generated dust and monitoring over a year to ensure controls are effective
- modifying or stopping the handling of overburden during adverse weather conditions and monitoring of outcomes
- building on these initiatives and finding additional, better ways to control dust while handling overburden.

Each mine has now developed and submitted details of a monitoring program to the EPA to assess the effectiveness of their dust reduction programs. Mines are required to implement their monitoring programs and report on their assessment to the EPA by August 2014. Following review of this phase, the EPA will continue to improve regulation of dust emissions from coal mining.

## **Dust Buster Program**

The initial Dust Buster campaign commenced in 2009 and involved EPA surveillance of mines across the Hunter. As well as triggering immediate enforcement action, it identified inconsistencies in the application of dust control standards. As a first step, the EPA developed a dust assessment handbook to help mining machinery operators assess and reduce dust emissions from haul roads and drilling rigs. As well as providing an educational tool for mining operators, the handbook supports consistency in regulation.

Under the Dust Buster Program, the EPA is rolling out regulatory inspections of mining operations to monitor and enforce compliance with EPL requirements. The program is ongoing and incorporates unannounced surveillance of open-cut coal mine operations that result in penalty notices or legal action where warranted.

In May 2014, the EPA undertook an unannounced aerial inspection of coal mine operations in the Hunter Valley to observe dust emissions from mining. The EPA inspected 16 licensed coal mines and three licensed power stations across the Hunter Valley during the flight. The surveillance confirmed that dust from haul roads is being well managed, but overburden digging and dumping remained significant sources. The EPA has written to all licensees encouraging improved management of dust from these sources.

## **Best practice diesel emissions management strategy at mine sites**

Non-road diesel vehicles and equipment from coal mines account for a significant proportion of human-generated particulate matter in both the Upper Hunter and the NSW Greater Metropolitan Region (Sydney, Illawarra and Lower Hunter). Approximately 14% of PM<sub>2.5</sub> emissions in the Upper Hunter and over 5% of PM<sub>2.5</sub> in the total GMR comes originates from equipment used in coal mines in the Upper Hunter.



Similar to the Dust Stop Program, the EPA is initiating a study to identify international best practice to reduce emissions from non-road vehicles and equipment at coal mines and assess the extent to which the equipment in NSW mines meets best practice standards. If warranted, it is proposed that coal mines will be required, via PRPs attached to their EPLs, to take feasible measures to reduce diesel emissions.

### **Upper Hunter Valley Particle Characterisation Study**

To further improve understanding of PM<sub>2.5</sub> in the Upper Hunter, a collaborative study was undertaken with the Australian Nuclear Science and Technology Organisation (ANSTO) and Commonwealth Scientific and Industrial Research Organisation (CSIRO) to research the source contributions of particles (as PM<sub>2.5</sub>) in Muswellbrook and Singleton. The study focused on PM<sub>2.5</sub> because it has the greatest impact on public health.

Air samples were collected throughout 2012 and the [results](#) released in September 2013.

The study found that wood smoke contributes 14% and 30% of annual PM<sub>2.5</sub> concentrations in Singleton and Muswellbrook, respectively. PM<sub>2.5</sub> levels were higher in winter with wood smoke from local residential heating the dominant source during the cooler months in both towns, contributing 38% of PM<sub>2.5</sub> concentrations in Singleton and 62% of concentrations in Muswellbrook in winter.

The study also found that black carbon, which may include a proportion of coal dust, accounts for only 1% of total PM<sub>2.5</sub> at Singleton, and 4% of total PM<sub>2.5</sub> at Muswellbrook.

Following the study's confirmation of the significance of wood smoke as a source of PM<sub>2.5</sub> in the Upper Hunter, the EPA continued its Wood Smoke Reduction Program.

### **Wood smoke reduction program**

The EPA is conducting a \$1.3-million [wood smoke reduction program](#) in NSW over the winters of 2013 and 2014. Councils are invited to apply for grants for community education initiatives, local enforcement programs and targeted rebates to remove older wood heaters. Grants were awarded to the Hunter Valley councils of Muswellbrook, Singleton and Maitland in 2013 and Muswellbrook and Singleton councils for winter 2014.

### **Lower Hunter air quality**

The EPA uses data from three government-funded air quality monitoring sites in the Lower Hunter at Beresfield, Wallsend and Newcastle. These have generally produced results indicating that air quality in the area complies with Ambient Air Quality NEPM standards. These monitoring stations are now supplemented by three industry-funded monitoring stations (see below).

Some sections of the Newcastle community have expressed concern over air quality, particularly along transport corridors and near industries associated with the port. In response, the EPA has undertaken a number of studies and programs to gain better and additional information on local air quality in the Newcastle industrial interface. These studies and programs are summarised below. The EPA continues to work with industry and the community to evaluate particle mitigation options to protect health and environment of the community. The results of these studies will assist the EPA in taking an evidence-based approach to reducing impacts from particle emissions.

### **Newcastle Local Air Quality Monitoring Network**

The EPA has established [Newcastle Local Air Quality Monitoring Network](#) of three air quality monitoring stations to monitor air quality in residential areas most likely to be affected by emissions from the industrial area around the Port of Newcastle.

The network became operational on 7 August 2014. The three air monitoring stations are located at Mayfield, Stockton and Carrington and are operated by OEH. The stations provide continuous, high-quality measurements of particles as PM<sub>10</sub> and PM<sub>2.5</sub>, sulfur dioxide and



nitrogen oxides. Data will be publicly available in near real-time on the OEH website. These sites were selected in consultation with the Newcastle community, via the [Newcastle Community Consultative Committee on the Environment](#) (NCCCE). Expert advice was also sought from NSW Health's Air Pollution Expert Advisory Committee, which was established by the Chief Health Officer in 2010 to advise on the current scientific evidence relating to air pollution and public health.

Following the Upper Hunter network model, the new stations will be funded by relevant industries with environment protection licences in the Newcastle Local Government Area.

### **Lower Hunter Particle Characterisation Study**

Monitoring by ANSTO between 1998 and 2009 at Mayfield found that 14% of long-term average PM<sub>2.5</sub> concentrations could be attributed to industry and soil sources and 16% to sea salt. These results were incorporated into the EPA's policy document [Managing particles and improving air quality in NSW](#) and largely correlate with those outlined for the Upper Hunter Particle Characterisation Study above.

Building on this research, in collaboration with the EPA, CSIRO and ANSTO and with funding of \$800,000, OEH is conducting a further [particle characterisation study in the Lower Hunter](#). The EPA consulted with the Lower Hunter community and the NCCCE in developing the study design. In August 2013, the EPA held a community forum in Newcastle, specifically to provide an opportunity for community input on the aims and approaches of the *Lower Hunter Particle Characterisation Study*.

Based on the community's input, the scope of the study was expanded to include analysis of PM<sub>10</sub> as well as PM<sub>2.5</sub>. An NCCCE representative is also on the project management team overseeing delivery of the study. The design of the study has been scientifically peer-reviewed.

Four air sampling sites have been selected for the study at Newcastle, Beresfield, Mayfield and Stockton. Sampling commenced on 2 March 2014 and will run for 12 months. This will be followed by detailed analysis of the samples to determine the likely sources of the particles, such as wood heaters, motor vehicles, power stations, shipping, etc. and their relative contributions to overall particle levels in the Lower Hunter Region.

The findings from the study will inform EPA strategies to provide the best long-term reductions in particle pollution for the greatest public health benefit.

### **Lower Hunter Dust Deposition Study**

To address community concerns about the levels of visible black dust, in association with the NCCCE, the EPA has commissioned a study to examine the quantity, composition and likely sources of this dust. It is anticipated the study will run for 12 months from August 2014 with an additional three months for data analysis.

The study will examine deposited dust in key areas based on dust complaints received from June 2011 to June 2014, including the rail corridor. It aims to provide additional information on visible dust in the community, will measure rates of dust deposition and identify the likely sources of visible dust.

The EPA has established a project reference group for the study, including community and industry representatives and independent experts. Details about the [reference group, terms of reference and draft study proposal](#) are available on the EPA website.

### **Lower Hunter Air Quality Community Research Project**

Local community groups in the Lower Hunter Region – including the five local government areas of Newcastle, Lake Macquarie, Port Stephens, Maitland and Cessnock – have been seeking greater information about air quality in the region, such as pollution sources, composition of pollutants and levels of community exposure to pollutants.

The EPA has been working with these groups through the NCCCE and has commissioned a community research project by Access Macquarie Ltd with a special emphasis on how to present information on air quality to different sectors of the community and thus improve community access to this.

The specific objectives of the project are to:

- empower local communities to engage in informed discussions on air quality
- increase community engagement and understanding about air quality issues in the Lower Hunter
- contribute to community, industry and government initiatives to address air quality issues
- foster trust and improved working relationships between community and government
- identify solutions and actions to address community concerns.

The consultant has met with key stakeholder representatives and developed survey questions that were used to interview a range of stakeholders. The project is expected to be finalised later in 2014.

## 15.5 EPA public statements on particle pollution in the Hunter

### EPA policies on Hunter air quality and coal dust emissions

As referred to above, the EPA's principal policy statements relating to Hunter air quality and particles and coal dust management and available on the EPA website are:

- *Managing particles and improving air quality in NSW* at <http://www.epa.nsw.gov.au/air/20130784ManPartStr.htm>
- *Upper Hunter Air Particles Action Plan* at <http://www.epa.nsw.gov.au/aqms/130158uphuntap.htm>.

### EPA statements to the Senate inquiry into impacts on health of air quality in Australia

In November 2012, the Australian Senate referred the issue of the impacts on health of air quality in Australia to its Community Affairs Committee for inquiry. The EPA made a submission to the inquiry and also provided supplementary information relating to the following aspects of management of particle emissions:

- changes needed to air quality management at national level
- protection of air quality for small communities
- regulatory responses in relation to coal mines.

EPA and OEH officers led by the Chair and CEO of the EPA, Mr Barry Buffier, also provided evidence to the inquiry at its Newcastle hearing in April 2013.

The EPA submission and additional information provided to the Inquiry are available on the EPA website at: <http://www.epa.nsw.gov.au/air/senateinquiry.htm>

### EPA website information on Hunter air quality and coal dust emissions

The EPA makes information on Hunter air quality and links to relevant information from other agencies available on its website. Major relevant topics are:

- EPA initiatives (air quality) at <http://www.epa.nsw.gov.au/esdsmoky/govimpro.htm>
- Lower Hunter air quality studies at <http://www.epa.nsw.gov.au/air/LHairqualstuds.htm>
- Interagency Taskforce on Air Quality in the Hunter at <http://www.epa.nsw.gov.au/air/huntertaskforce.htm>
- Upper Hunter Air Particles Action Plan at <http://www.epa.nsw.gov.au/aqms/130158uphuntap.htm>

- Amendment to the Protection of the Environment Operations (General) Regulation 2009 for environmental monitoring levy at <http://www.epa.nsw.gov.au/aqms/amendpoeoenvmonitorlevy.htm>
- Managing particles and improving air quality in NSW at <http://www.epa.nsw.gov.au/air/20130784ManPartStr.htm>
- Minimising particle pollution from coal mines at <http://www.epa.nsw.gov.au/air/coalminingNSW.htm>
- Australian Rail Track Corporation Report at <http://www.epa.nsw.gov.au/air/austrailtrackcorprpt.htm>

#### **EPA media statements (additional to public statements on rail above)**

Since establishment in its current form in February 2012, the EPA has released a number of public statements relating to its activities and management of air quality issues in the Hunter Region, including dust from coal mining and transport. The following statements are publicly available on the EPA website:

- [Setting the standard for cleaner air: 31 July 2014](#)
- [EPA investigation of Maules Creek mine blast complete: 3 July 2014](#)
- [Keeping an eye on dust from the sky: 12 July 2014](#)
- [EPA investigating reports of blasting fumes from Wambo Coal: 14 May 2014](#)
- [NSW EPA statement regarding call for parliamentary inquiry: 31 March 2014](#)
- [EPA releases findings on ARTC report: 26 February 2014](#)
- [EPA investigating blast fume from BHP Billiton's Mt Arthur Mine: 20 February 2014](#)
- [EPA focused on the Hunter: 12 February 2014](#)
- [EPA committed to improving air quality in the Hunter: 10 February 2014](#)
- [EPA Statement on the ARTC report: 9 February 2014](#)
- [NSW EPA launches new air emissions web-tool: 16 December 2013](#)
- [Stakeholder survey finds EPA has many positive attributes but needs to communicate better: 11 December 2013](#)
- [BHP Billiton's Mt Arthur Coal Mine fined after complaints about blast: 11 December 2013](#)
- [EPA opens draft risk-based licensing framework for public consultation: 10 September 2013](#)
- [NSW Coal Mines to report on dust controls: 9 September 2013](#)
- [Call for nominations for Upper Hunter Air Quality Advisory Committee: 29 August 2013](#)
- [EPA Compliance Policy now available on EPA website: 16 July 2013](#)
- [EPA Statement: Emissions from coal trains report: 12 June 2013](#)
- [A Plan to Reduce Particle Pollution: 4 April 2013](#)
- [New regulation to maintain the UHAQMN commences: 21 February 2013](#)
- [2012 State of the Environment report highlights benefits of rain: 24 January 2013](#)
- [Upper Hunter air quality data results for 2012: 18 January 2013](#)
- [New report finds mining emissions are growing in the Hunter: 19 October 2012](#)
- [Polluters to publish monitoring data from 1 July: 4 July 2012](#)

#### **Opinion editorial articles submitted by EPA to Newcastle Herald**

- <http://www.theherald.com.au/story/2117207/opinion-diesel-emissions-impact-subject-of-study/>
- <http://www.theherald.com.au/story/1999176/opinion-concerted-joint-effort-works-to-clear-the-air/>



## Chapter 16: Investigation into groundwater contamination in the Pilliga by the Santos coal seam gas exploration

### Terms of Reference statement

*That the following cases be considered:*

*(iii) EPA investigation into ground water contamination in the Pilliga by Santos' coal seam gas exploration*

### Summary

Santos Pty Ltd operates a coal seam gas (CSG) facility in the Pilliga Region, approximately 20 kilometres south-west of Narrabri in central NSW. This site was formerly owned by Eastern Star Gas which Santos acquired in November 2011 and became responsible for the CSG facilities.

In December 2011, Santos ceased all operations at the site to undertake remediation and clean-up. In January 2014, Santos recommenced gas piloting activities at the site.

Eastern Star's CSG operation at the site contained a central water management facility known as the Bibblewindi water management facility that included three holding ponds. These ponds were used to hold water and brine produced during Eastern Star's exploration and assessment work.

In March 2013, Santos detected elevated levels of some heavy metals and salts in groundwater readings after routine testing of bores surrounding Pond 3 at the Bibblewindi facility. On 26 March 2013, Santos notified the EPA of the elevated levels it had detected.

The EPA immediately informed NSW Health and the NSW Office of Water and commenced an investigation. In July 2013, Santos began a trial to pump the contaminated groundwater back into the pond to contain the spread of the leaked water.

The EPA's initial investigation showed that there was no known risk to human health, livestock or the environment because:

- the leak was small, localised and contained
- the groundwater was barely moving and therefore not a likely exposure pathway
- the nearest private stock and domestic water source was more than four kilometres away
- the nearest drinking water source was more than five kilometres away.

As a result of this initial investigation, the EPA conducted a thorough investigation, resulting in:

- a pollution reduction program (PRP) to implement a groundwater remediation and a monitoring plan that addresses the contaminated water in the groundwater requiring Santos to –
  - do additional monitoring around the site
  - continue to pump the material from the plume back to the affected pond to prevent its further movement (effectively creating a closed loop)
  - decommission the affected pond
  - continue to monitor and pump the contamination from other deeper groundwater (creating a closed loop for the contamination),

all of which it is estimated will cost Santos over \$10 million to remediate its Bibblewindi site.

- a penalty notice issued to Santos for breach of section 120 pollution of waters.

Concerns from a number of community groups claimed that the EPA's response had been slow and they disagreed with the decision to issue a penalty notice instead of taking court action against Santos. There was also concern that the EPA had not adequately communicated the pollution incident or potential risks.

The EPA has considered these concerns and concluded that:

- complaints about delay are unfounded, particularly given that it did not have the power to licence the facility until months after the incident took place
- issuing a penalty notice was the correct regulatory action - the EPA welcomes recent initiatives to increase the statutory penalty notice amount for polluting waters from \$1500 to \$15,000
- the EPA needs to communicate more effectively throughout the various phases of managing an incident and in relation to regulatory outcomes to keep the community informed about associated risks.

The EPA took over regulation of all CSG activities with an impact on health or the environment in June 2013 and has established a rigorous, transparent and timely regulatory regime around CSG operations in NSW.

## 16.1 Background

Santos Pty Ltd operates a coal seam gas (CSG) facility in the Pilliga Region, approximately 20 kilometres south-west of Narrabri in central NSW. Eastern Star Gas formerly owned the site which was acquired by Santos in November 2011 who became responsible for the CSG facilities.

In December 2011, Santos ceased all operations at the site to undertake remediation and clean-up. In January 2014, Santos recommenced gas piloting activities at the gas field. Eastern Star's CSG operation at the site contained a central water management facility, known as the Bibblewindi water management facility that included three holding ponds. The ponds contain water and brine from previous exploration work undertaken by Eastern Star Gas.

In March 2013, Santos detected elevated levels of some heavy metals and salts in groundwater after routine testing of bores. On 26 March 2013, Santos notified the EPA that it had detected elevated readings of naturally occurring elements in groundwater near Pond 3 of the Bibblewindi facility.

The bore samples showed elevated levels of salts and other naturally occurring elements, such as lead, aluminium, arsenic, barium, boron, strontium and uranium. Some of these elements occurred naturally in the soils around the site and it is understood that they were mobilised and concentrated within the groundwater as a result of the leak.

## 16.2 Issue

### 16.2.1 What is the issue?

When the EPA completed its investigation and decided on appropriate regulatory action in February 2014, a number of community groups claimed that its response had been slow and that the NSW Government and Santos had not adequately communicated the pollution incident or potential risks. Conservation stakeholders and the media noted that the contamination level exceeded the maximum recommended for uranium in drinking water of 17 micrograms per litre in the [Australian Drinking Water Guidelines](#). It was suggested that the EPA should have alerted neighbouring landholders sooner, especially those who drew water from the deeper aquifer.



The community was generally unhappy with the penalty notice amount issued to Santos. The EPA notes that the NSW Government has recently moved to increase the statutory penalty notice amount from \$1500 to \$15,000.

Some stakeholders believed the EPA had not been transparent in notifying the community of the investigation or its outcomes. It was claimed that important facts had surfaced only as a result of an access application for government information.

Some landholders in the Pilliga united with conservation groups in calling for Santos to cease operations while the facts and site risks were being investigated.

It was noted in the media that this was the first known time that CSG exploration had affected groundwater in NSW. Some believed that Santos was being given special treatment by the NSW Government and that coal seam exploration was being fast-tracked in the area without proper regard to environmental safeguards.

### ***16.2.2 What was the EPA's role?***

Prior to 28 June 2013, the only CSG-related activities that required an environment protection licence were those that produced more than 5 petajoules of gas per annum. There was, and is, only one production activity of that size in NSW and that is operated by AGL Rosalind Park at Camden. Environment protection licences were not required for CSG exploration, assessment or production below this limit.

In February 2013, the NSW Government announced new measures to strengthen CSG regulation. This included appointing the EPA the lead environmental regulator for CSG activities in NSW with a focus on compliance and enforcement and requiring all CSG activities to have an environment protection licence.

On 28 June 2013, the [Protection of the Environment Operations Act 1997](#) (POEO Act) and [Protection of the Environment Operations \(General\) Regulation 2009](#) were amended to create two new scheduled activities: CSG exploration and CSG assessment and production. As a result, anyone conducting coal seam gas exploration, assessment or production in NSW now needs to hold an environment protection licence. Currently there are 10 CSG licences in NSW, held by Metgasco, Apex, Dart, Santos and AGL. Since the changes, the EPA has not received any further applications for a licence for CSG operations.

In 2014, the EPA used the licence issued to Santos to require remediation actions for the Bibblewindi incident. Licences are the central means by which the EPA regulates industrial activities to avoid, minimise and manage the potential localised, cumulative and acute impacts of pollution in NSW.

The EPA's existing licensing framework and regulatory tools:

- are well-established and familiar to the community and industry
- are stronger and more flexible than the alternative notice powers available to other regulatory authorities under the POEO Act
- allow for site-specific performance requirements to be included in licence conditions
- enable the EPA to regulate all CSG activities efficiently and consistently as required.

The EPA regularly inspects licensed activities to assess their environmental performance, checks compliance with licence conditions and legislative obligations, responds to environmental incidents and undertakes detailed compliance audits if needed.

Details of environment protection licences are published on the [EPA public register](#) which also contains a range of other licensing information, including applications, notices, audits and pollution studies and reduction programs. Additionally, all licence holders must make their pollution monitoring data available to the public through their website or on request, where this data is required to be collected under a licence condition. This will improve transparency for the community on CSG operations in future.

For more information on the EPA's Tool Box, see Chapter 2.

### ***16.2.3 What action did the EPA take?***

Immediately it was notified by Santos of the leak on 26 March 2013, the EPA commenced its formal investigation.

Within 24 hours of receiving the advice from Santos, the EPA had contacted NSW Health and the NSW Office of Water (NOW).

The EPA's initial investigation showed that there was no threat to human health or livestock posed by these materials because:

- the leak was small, localised and contained
- the groundwater was barely moving and therefore not a likely exposure pathway
- the nearest private stock and domestic water source was more than four kilometres away
- the nearest drinking water source was more than five kilometres away

The EPA also commenced its formal investigation and within 48 hours of receiving the notification from Santos, had issued legal notices to the company requiring further technical details.

In July 2013, Santos began a trial of pumping the contaminated groundwater back into the pond to contain the spread of the leaked water.

The EPA referred issues of aquifer connectivity to the NOW which advised there was no threat to water supplied for irrigation or stock and domestic use.

The EPA completed its investigation in November 2013 after seeking expert advice from other government agencies, notably NOW, and concluded that the leak had polluted the groundwater, which is an offence under the EPA's legislation.

The EPA took a precautionary approach when considering all aspects of the contamination detected at the Santos Pilliga project. It conducted a thorough investigation into the incident details, engaged appropriate experts to help determine the reliability of the data and its conclusions and the level of impact so that it could determine an appropriate response.

### ***16.2.4 Outcomes of the EPA investigation***

The EPA investigation showed that Santos was responsible for polluting waters as a result of a poorly maintained holding pond constructed by Eastern Star Gas which leaked with an impact on groundwater below.

In response, the EPA required through a pollution reduction program (PRP) that Santos develop and implement a groundwater remediation and monitoring plan to address the contaminated water in the aquifer.

As a part of its new powers to require CSG activities to be the subject of an environment protection licence, the EPA also required that Santos, under a legally binding PRP:

- conduct additional monitoring around the site
- continue to pump the material from the plume back to the affected pond to its further movement (effectively creating a closed loop)
- decommission the affected pond with wastewater now sent to a different holding dam (Leewood) in order to allow for the decommissioning of Bibblewindi Pond 3
- continue monitoring and pumping the contamination from other deeper groundwater (creating a closed loop for the contamination).

Santos estimates that it will need to spend over \$10 million to remediate its Bibblewindi site, including implementing the requirements of the PRP and the development of associated infrastructure.

Engineering for surface works is likely to be completed by the end of 2014, while drawing off contamination from the groundwater will continue until normal background levels are reached.

Santos is constructing a \$30-million water storage and treatment facility for its Narrabri operations. Once that facility is completed, water from the Bibblewindi ponds will be transferred to the new facility and treated. The leaking pond will either then be repaired or decommissioned.

In addition to the costs of remediation, the EPA determined that some measure of public sanction should be applied for this offence. In determining the appropriate measure, the EPA was guided by the [EPA Compliance Policy](#) and [EPA Prosecution Guidelines](#).

In determining whether to prosecute or issue a penalty notice, factors of particular relevance in this case from the Prosecution Guidelines are:

- The harm or potential harm to the environment caused by the offence was low.
- The evidence showed that most of the leak had been contained to the shallow perched groundwaters which are reported to be isolated with no known access by nearby landholders.
- The samples collected from the deeper groundwater showed some bores contained elevated levels of uranium and electrical conductivity. The EPA is informed that the deeper aquifer flows slowly at about 0.003 metres per year. The closest bore to the site is a stock and domestic listed bore that is located over four kilometres away.
- The ponds were installed in 2006. Santos took over operations at the site in November 2011 and ceased operations the following month. Use of Pond 3 has been limited since this time. Santos voluntarily approached the NSW Government with concerns about the integrity of the pond liner and commenced monitoring to ascertain possible impacts, taking measures to address the leak.
- Other alternatives to prosecution were available and continue to be implemented. In addition to the remediation activities, the use of a penalty notice was available as an appropriate and effective public sanction in this situation.
- The EPA included a PRP on the company's licence for the site that requires Santos to remediate the groundwater and undertake comprehensive monitoring at the site. It is estimated Santos will spend in excess of \$10 million remediating the site and undertaking the PRP.
- Santos has been proactive in addressing the impacts and cooperated with the EPA throughout the investigation.

On this basis, the EPA determined that a penalty notice instead of prosecution was appropriate and Santos was fined the statutory amount of \$1500 for polluting waters as the result of a poorly maintained holding pond leaking and impacting on groundwater.

### 16.3 EPA debrief

The EPA reflects on investigatory outcomes and looks for opportunities to continuously improve the organisation's approach to environmental outcomes, compliance processes, and stakeholder engagement. In terms of environmental outcomes in this case, the EPA assessment is that they were satisfactory.

Parts of the media and some community groups believed that there were delays by the EPA in responding to the incident and communicating with the public. Some stakeholders claimed that the public only learned of the incident as a result of an environment group requesting information under the *Government Information (Public Access) Act 2009*. As demonstrated

above, the response of the EPA was timely. However, its communications with the public and media were not effective to allay anxieties about the incident.

The EPA believes that the issue of a penalty notice was appropriate in the package of measures put together to manage the incident but the size of penalty notice amount met with controversy. At the time, the EPA applied the statutory penalty notice amount available under the legislation. The EPA welcomes the initiative to increase the statutory penalty amount from \$1500 to \$15,000.

It is particularly important for the EPA to aim for a comprehensive and contextual approach to public communications, given the level of community interest and anxiety about coal seam (and other unconventional) gas, especially with media reports about the experience of some overseas jurisdictions.

### **16.3.1 Environmental outcomes**

The EPA conducted its investigations and made appropriate regulatory responses in a timely manner (with one exception detailed below) given the complicated nature of the case regarding groundwater.

The investigation was appropriate and considered possible health and environmental risks. The EPA consulted relevant agencies such as NSW Health, the Department of Primary Industries, NSW Office of Water and Office of Coal Seam Gas. Communications with NSW Health occurred within 24 hours of the EPA being notified of the incident. The EPA has required Santos to do extensive and costly (\$10 million) remediation works to meet the required environmental outcomes.

The EPA acknowledges a delay in processing the penalty notice due to the introduction of a new records management system. As a result, the investigation, report PRP and recommendations were approved in December 2013 but were not processed until February 2014.

### **16.3.2 Stakeholder engagement**

The EPA remained accessible and engaged proactively with media outlets and community groups but acknowledges that it did not anticipate or take action to pre-empt the level of community concern regarding this matter, particularly since this was the first known case of coal seam gas operations impacting groundwater in NSW.

The EPA issued a media release on 18 February 2014 to one local media outlet and placed the media release on its public website. The EPA agrees that it could have broadcast the incident more widely, noting that this was inadvertent due to an oversight rather than a specific policy decision. A procedure is now in place to ensure a consistent approach to the release of information.

## **16.4 New coal seam gas regulatory framework**

In February 2013, the Government announced that the EPA would be the lead regulator for all CSG activities in NSW with impacts on human health and the environment. Since then, the EPA has been working to establish a more rigorous, transparent and timely regulatory regime around CSG operations in the state.

The EPA co-regulates CSG with the Office of Coal Seam Gas (OCSG). The latter is responsible for administering CSG titles and activity approvals granted under the *Petroleum (Onshore) Act 1991* and assessments under the *Environmental Planning and Assessment Act 1979*, together with associated workplace safety requirements. The EPA regulates environmental issues under the POEO Act (that is, primarily air, water, noise and waste) through the established environment protection licensing regime and the other regulatory powers and provisions in the Act.

The EPA participates in the whole-of-government Coal Seam Gas Working Group, which includes the NSW Office of Water, Division of Resources and Energy, OCSG, Department of Trade and Investment, Department of Planning and Environment, NSW Health, Treasury and Department of Premier and Cabinet.

#### ***16.4.1 EPA review of coal seam gas activities***

As part of preparations to regulate the industry, the EPA inspected all major NSW sites undertaking CSG activities, including exploration, assessment and production. These reviews were completed in September 2013.

The aim was to assess the environmental performance of the industry in relation to the management of environmental risks associated with CSG activities. The inspections were carried out by EPA officers who are accredited environmental auditors and involved on-site inspections and a review of relevant records and documentation. The reviews covered facilities operated by AGL, Metgasco, Dart Energy and Santos.

This work assisted the EPA to develop environment protection licence conditions for CSG facilities and inform ongoing regulatory programs for the industry.

#### ***16.4.2 EPA input at the planning stage***

All new CSG proposals in NSW are assessed by a determining or consent authority, either OCSG, the Department of Planning and Environment or a Planning and Assessment Commission, depending on the scale of the proposed project. The EPA does not have an approval role but provides expert technical advice to the determining or consent authority.

Where a CSG proposal is approved, the determining or consent authority imposes a range of conditions on the proponent. These conditions are designed to minimise risks from the CSG operation, including to the environment. Both OCSG and the Department of Planning and Environment consult with the EPA to ensure that its requirements are included in the environmental assessment conducted by the proponent.

These measures complement a range of others, including new [code of practice for well integrity](#) (NSW Trade and Investment 2012), a ban on the use of evaporation ponds as part of CSG production and the banning of BTEX chemicals (benzene, toluene, ethylene and xylene) in hydraulic fracturing fluids.

#### ***16.4.3 Boosted EPA coal seam gas staff capacity and training***

At the time it was appointed lead CSG regulator for NSW, the EPA had one full-time operational and one part-time operational staff member working on CSG matters. Since then, the EPA has dedicated 12 staff focused on CSG regulation responsibilities. This has been funded by supplementation to the EPA budget for two and a half years. In subsequent years the cost of regulating will be recovered from the industry. The EPA can also call on other regulatory staff to assist with the regulation of CSG where an incident warrants a large response.

The new CSG team and some regional officers have been involved in reviewing development proposals for CSG projects, reviewing environmental factors for OCSG and undertaking site inspections.

#### ***16.4.4 EPA appraisal of fugitive emissions from coal seam gas fields***

One EPA project, valued at \$500,000, is specifically targeted at studying fugitive methane emissions from various industries, including coal seam gas. The CSIRO was the successful tenderer for this project and the EPA is working with them to progress monitoring.

#### ***16.4.5 Increasing penalty notice amounts***

The NSW Government is acting to increase penalties for environmental offences. Ten of the most serious, including many applicable to CSG activities, are proposed to be included:

- pollution of waters – increase from \$1500 to \$15,000
- standards of air impurities exceeded or failure to take all practicable measures to manage fugitive air emissions – increase from \$1500 to \$15,000
- failure to comply with a condition of an environment protection licence (excluding late/non-submission of an annual return) – increase from \$1500 to \$15,000
- failure to hold a licence for scheduled activities – increase from \$1500 to \$15,000.

#### ***16.4.4 Memorandum of Understanding***

On 15 August 2014, the EPA signed a Memorandum of Understanding (MoU) with the Department of Trade and Investment, Regional Infrastructure and Services (including the NSW Office of Water and OCSG) and the Department of Planning and Environment. The MOU allows for a collaborative working agreement between the key regulators of the petroleum industry within NSW, which includes CSG.

The MOU aims to achieve a coordinated and consistent approach to the regulation of the industry by:

- formalising a framework for the exchange of information between the regulators
- setting out a process for the provision of expert advice from one regulator to another as part of the assessment of petroleum activities
- establishing a coordinated approach to the investigation of incidents and alleged breaches
- including a commitment from the parties to harmonise regulatory requirements in order to reduce duplication and increase the effectiveness of the NSW regulatory regime
- setting out a process for coordinating responses to community and media inquiries which relate to more than one agency.



## Chapter 17: Prosecution of Du Pont (Australia) Pty Ltd for alleged land pollution in the Sydney suburb of Girraween

### Terms of Reference statement

*That the following case be considered:*

*(iv) the prosecution of Du Pont (Australia) Ltd for the alleged offence of land pollution in the western Sydney suburb of Girraween*

### Summary

The Du Pont (Australia) Pty Ltd factory in Magowar Road, Girraween, uses the chemical metsulfuron methyl (MSM) to manufacture herbicides. In April and May 2011, a number of batches of herbicides containing high levels of MSM were produced at the factory.

In July 2011, the EPA\* began receiving reports that hundreds of trees and other plants within one kilometre of an area near Magowar Road had suffered symptoms of dieback. A total of 112 complaints were received from members of the public.

Following up on these reports, the EPA undertook a thorough and exhaustive investigation, including collection of a large number of samples from local vegetation and elsewhere in the area. Many samples showed the presence of MSM, with those from closest to Du Pont's factory generally showing the highest levels of the chemical.

This investigation was one of the largest ever undertaken by the EPA, involving the collection of hundreds of samples and over 180 affidavits and witness statements from residents, business owners and others.

In April 2012, the EPA commenced prosecution proceedings against Du Pont in the Land and Environment Court for an alleged offence of land pollution. The EPA alleged that dust containing MSM had drifted into the air in the surrounding neighbourhood from Du Pont's factory during April and May 2011, leading to the death and damage of hundreds of suburban trees and garden plants.

The EPA was not able to obtain direct evidence (the 'smoking gun') linking Du Pont to the incident. However it did form a view, based on all the circumstantial evidence, that an offence had been committed and the MSM could not have come from a source other than Du Pont. On that basis, the EPA commenced prosecution and determined the charge period (the period during which the offence allegedly occurred) based on the evidence gathered and, in particular, production records discovered through its investigations.

Du Pont pleaded not guilty to the charge and the trial commenced on 25 June 2013.

From the outset of the investigation, Du Pont's position was that the pollution could not have originated from its facility. However very late in the process, Du Pont changed its position to argue that the EPA could not prove that the pollution had occurred during the charge period alleged by the EPA. In other words, that the substance could have been emitted at another time.

As a result, the EPA applied to the Court to amend the charge period to both before and after the April–May 2011 period. However the Court refused the application and indicated that it would accept a proposition that the MSM had escaped from the Du Pont factory but outside the charge period.

Senior Counsel advised the EPA it would be unlikely to succeed in the case based on Du Pont's new position and, to avoid incurring further costs, the EPA withdrew the charge. Du Pont agreed that if the EPA withdrew the charge, it would not seek a costs order against the EPA. At that point in the proceedings, Du Pont's costs were likely to have been over half a

million dollars. If the case had continued and the EPA was unsuccessful, Du Pont's costs would have been substantially higher and the EPA would likely have been liable to pay for them.

\* Prior to February 2012, a reference to the EPA is a reference to the Office of Environment and Heritage exercising the powers of the Environment Protection Authority.

## 17.1 Background

Since 1969, Du Pont (Australia) Pty Ltd has operated a factory at Girraween in western Sydney where it manufactures herbicides. It has held an environment protection licence (EPL. 6696) under the [Protection of the Environment Operations Act 1997](#) (POEO Act) for the activity of 'Chemical production' at the factory since 2001. Du Pont manufactures a number of products containing the active ingredient metsulfuron methyl (MSM) used for such purposes as control of broadleaf and bulbous weeds.

From July 2011, the EPA began receiving reports of hundreds of trees, shrubs and plants, and garden beds dying or showing signs of damage near Gilba Road and other streets in Girraween near the Du Pont factory. In response to those reports, the EPA undertook a thorough and exhaustive investigation that included taking a large number of samples (295 in total) from the vegetation and other places in the area. Many of those samples showed the presence of MSM, with those samples taken closest to Du Pont's factory generally showing the highest levels of the chemical.

During the investigation, it also came to light that residents first noticed a white powder on a parked car and elsewhere from 21 April 2011. A resident took a sample of the powder on his car and it was later found to contain the substance MSM. Further evidence was acquired that vegetation in the area began browning off and appeared to die from about late April 2011.

It was ascertained that Du Pont makes products containing MSM and a thorough examination of its relevant records and premises was undertaken. At all times during the investigation, Du Pont denied that it was responsible for the incident.

Evidence was obtained about Du Pont's production runs or 'campaigns' of herbicide production in 2011. In April and May 2011, Du Pont had production runs of two products called Ally 60 and Ally 75. Both products contained a high proportion of MSM. [Du Pont describes](#) these as dry flowable formulations intended to be mixed with water and applied as a crop herbicide spray. Ally 60 was 60% MSM and Ally 75 was 75% MSM. Du Pont also made a product, known as Ally 77 WP, between 3 and 23 February 2011 and 18 May and 4 November 2011. It contains only 0.6% MSM.

In view of the evidence from the residents about when vegetation started browning off in late April 2011 and the high MSM content of Ally 60 and Ally 75, which was produced in April and May that year, there appeared to be a strong connection between the two events.

The investigating officers also obtained about 180 affidavits and witness statements from residents, business owners and others to attempt to determine if there could have been any other source of the MSM other than Du Pont. Investigators also acquired expert evidence on wind direction to assist in determining the source of the MSM and took samples from foliage and surrounding areas.

Following the investigation, in April 2012 the EPA commenced prosecution proceedings against Du Pont in the Land and Environment Court for an alleged offence of land pollution. In summary, the EPA alleged that dust containing MSM had escaped from Du Pont's factory sometime during April and May 2011. This charge period was determined based on the evidence that the EPA had gathered, in particular, production records discovered through its investigations.

Du Pont pleaded not guilty to the charge and the trial commenced on 25 June 2013. As there was no direct evidence of a discharge, the EPA's case had to rely on circumstantial evidence linking Du Pont to the incident. Du Pont consistently maintained there was no emission from its Girraween premises that caused the impacts on the trees and other plants in the vicinity of its factory. The Court set aside two weeks to hear the matter.

At a very late stage in the process, Du Pont put forward an argument to the Court that the EPA could not exclude the possibility that the samples it had collected showing the presence of MSM could have been emitted by Du Pont either prior to, or after, the charge period that the EPA had put before the Court.

In light of this argument, the EPA sought advice from its Senior Counsel who advised that the EPA should apply to the Court to amend the charge period by extending it both before and after the April–May 2011 period. The EPA made that application to the Court but it was refused.

In light of that refusal, the advice of Senior Counsel was that it was unlikely the EPA would succeed in the case. In these circumstances and to avoid incurring further costs, the EPA withdrew the charge. Du Pont had agreed that if the EPA withdrew the charge, it would not seek a costs order against the EPA. At that point in the proceedings, Du Pont's costs were likely to have been over half a million dollars. If the case had continued and the EPA was unsuccessful, Du Pont's costs would have been substantially higher.

## 17.2 The issue

### 17.2.1 What is the issue?

On 3 July 2013, the EPA discontinued its prosecution of Du Pont for an alleged offence of land pollution, relating to the death and damage of trees in the area near Gilba Road, Girraween in mid-2011.

The EPA was not ordered to pay Du Pont's costs.

The EPA spent approximately \$577,000 on the Du Pont matter. This figure includes legal, investigator, laboratory and internal experts' costs.

### 17.2.2 What was the EPA's role?

The EPA was the prosecutor in the proceedings. More complete details of the regulatory framework relevant to this matter are provided at the end of this case study.

### 17.2.3 What did the EPA do about the issue?

The decision to discontinue the prosecution was taken only after obtaining the advice of Senior Counsel and considering all of the circumstances. Had the EPA not discontinued at that point, there was a real likelihood that Du Pont would have been acquitted and the EPA ordered to pay Du Pont's legal costs, which would have been very substantial.

This was a complex prosecution that involved a large amount of evidence, including expert chemical and ecological evidence. The main difficulty was that there was no direct evidence or 'smoking gun' linking Du Pont to the incident and the company consistently maintained no emission from its plant had caused the impacts on the trees and other plants in the vicinity of the Girraween factory.

Despite an exhaustive and thorough investigation, the EPA was unable to obtain direct evidence of the cause of the dust emission. Direct evidence of this sort of offence could have included observations of a visible plume from a vent stack at the factory or proven failure in part of the production process. Therefore, in order to establish its case, the EPA had to rely on circumstantial evidence to prove that Du Pont was the source of the emission.

The challenge with a case based solely on circumstantial evidence is that the defendant will be acquitted if the court considers that there is any other reasonable explanation for an incident, consistent with innocence, which the prosecutor has not eliminated. This means that a prosecutor must identify all such alternative explanations and then obtain evidence that excludes those explanations beyond reasonable doubt. Du Pont's factory is located in an industrial area, meaning that the EPA had to attempt to obtain evidence from around 150 other businesses in the area to exclude the possibility that dust containing MSM had escaped or been emitted from their premises. The EPA also had to exclude the possibility that the dust had escaped during the transport of the finished products from the Du Pont factory, as well as the possibility that the dust escaped when waste material was being transported away.

In a circumstantial case, the defendant does not have to put forward evidence of a particular scenario consistent with its innocence: the onus is on the prosecution to exclude the possibility of that scenario beyond reasonable doubt.

The main evidence on which the EPA relied is summarised below.

- Interviews with Du Pont employees and records from the company's plant operations indicated that between 4 April and 18 May 2011, Du Pont ran a 'campaign' to produce certain herbicides containing MSM at its Girraween factory. The products produced during that campaign, Ally 60 and Ally 75 contained 60% and 75% MSM, respectively.
- An extensive number of samples (295) taken during the EPA investigation showed MSM was found in the vicinity of the Du Pont factory on leaves of the trees, in the surrounding soil and on various surfaces in businesses and residences. The general pattern of the samples was that the closer they were to Du Pont's factory, the higher the level of MSM.
- There were no other sources of MSM in the vicinity of the Du Pont factory. The EPA obtained over 150 affidavits from surrounding businesses. Affidavits were obtained for the only three Girraween businesses that use pesticides, along with the companies which transport the herbicide product and waste from Du Pont's factory, indicating they were unlikely to be the sources.
- Chemicals profiling evidence indicated that the mixture of chemicals, including high levels of MSM, found in a stack in Du Pont's factory which vents to the atmosphere is very similar to the mixture of chemicals found in the environment outside Du Pont's factory.
- Almost all the samples containing MSM were found in places to the north-east of Du Pont's factory. Expert analysis of the wind direction in the relevant period indicated that dust from Du Pont's factory would have blown to the north-east, the direction where most of the damage to trees and plants occurred.
- Expert ecological evidence indicated that MSM can damage or kill vegetation and the levels of that substance found in the samples were very likely to be able to cause damage or death to vegetation. Other possible causes of damage, such as fungi or tree diseases, were unlikely to have caused the damage.

In late April 2011, a resident did take a sample of white powder found on his car which was later found to contain MSM. However, as the chain of custody of this sample was not sound, this evidence was not admissible in the proceedings.

While considerable evidence was acquired that vegetation in the area began browning off and appeared to die from about late April 2011, there was no direct scientific evidence linking the death of the vegetation to being poisoned with MSM.

During the hearing, Du Pont indicated that it would be arguing, among other things, that the EPA could not prove that the MSM detected in the samples had been emitted before or after the charge period (4 April to 18 May 2011). In particular, Du Pont noted (without making any admissions on this point) that in addition to the campaign to produce Ally 60 and Ally 75 in April and May 2011, Du Pont also produced a product, known as Ally 77 WP, between 3 and

23 February 2011 and 18 May and 4 November 2011. Compared with the other two products, Ally 77 WP contained only a very low percentage of MSM: 0.6%. Du Pont also pointed to the fact that the factory's filter system removed 99.99% of particles, meaning that 0.01% of particles are likely to have been emitted from the factory at any one time over the 40 years preceding the charge period. Du Pont also maintained the position that its records and investigations showed there was no evidence of a failure in the emissions controls or its monitoring controls at the relevant time.

Early in the hearing, the EPA applied to the Court to widen the charge period from 'between 4 April 2011 and 18 May 2011' to 'between 1 February 2011 and 30 October 2011'. It is not unusual for prosecutors to seek to amend the particulars of their charges (including charge periods) when new information comes to light before a trial commences or during the trial, when the prosecutor's case is being heard. (For example particulars were amended after the prosecutor's case was closed in [EPA v Van Hessen Australia Pty Limited \[1998\] NSWLEC 57](#)).

In the Du Pont case, however, the Court refused this application for a number of reasons but mainly because, in the Court's view, it would amount to a substantially different charge than the one originally laid. In those circumstances, Senior Counsel's advice was that the EPA was unlikely to succeed and the decision was made to discontinue the case, with Du Pont's agreement that it would not seek costs.

### **Prospects of success**

Legal advice to the EPA considered that there were reasonable prospects of success in the prosecution. It is always preferable to have admissions or direct (eyewitness) evidence and, although difficult, a case may still be proved by circumstantial evidence. The EPA was not able to identify any other potential cause of the damage to the vegetation or any other source of the MSM in the area surrounding the Du Pont factory other than emissions from the factory.

Circumstantial cases are difficult to establish and require a prosecutor to try to identify all arguments that a defendant may raise. The EPA framed the charge and, in particular, the charge period, according to what it considered to be the most likely scenario. The charge period was supported by the weight of the evidence, including the dates at which vegetation damage first began to occur, the air modelling evidence and the period when products containing high levels of MSM were being made.

Given the advice received by Senior Counsel that the refusal by the Court to permit the amendment of the charge period meant that the prospects of success were now unlikely, the EPA had to consider the issue of the best use of public resources and money if it decided to continue with the prosecution.

It would have involved the commitment of a very significant level of EPA resources and also have put the EPA at a considerable risk of being liable for the costs incurred by Du Pont. At the date of withdrawal, these costs amounted to approximately \$500,000 with every prospect of costs by the end of the case multiplying this amount. The EPA would have also incurred substantial increased costs, noting that it had already spent a total of approximately \$577,000 on the matter.

The EPA has a duty to spend public resources responsibly and, in the circumstances, withdrawal was the appropriate decision.

### **Du Pont's positioning**

It is the EPA's experience that licensees generally make frank admissions when incidents occur on their premises and provide information to the EPA so that swift remedial action can be taken.

By contrast, Du Pont adopted a strong and unwavering defence of the charge which combined:

- complete denial of any connection to wrongdoing for the duration of the investigation until very late in the process, a period of almost two years
- an aggressive challenge to the EPA's use of expert evidence to prove key elements of the case in the absence of direct evidence
- a change in strategy for the trial where its position shifted from complete denial of responsibility for the offence to an argument that the EPA could not prove that Du Pont had not caused the pollution outside the charge period
- a large and well-resourced legal team which included two senior counsel, at least four solicitors, one in-house counsel and expert witnesses.

From the outset of the investigation in July 2011 until very late in the process, Du Pont adopted a defence strategy that categorically denied the allegation that the pollution could have originated from its facility.

During the investigation, Du Pont produced 10 boxes of documents required under notices issued by the EPA. Within this material, there was one document that showed products other than Ally 60 and Ally 75 had been produced close to the relevant time but outside the charge period determined by the EPA. The EPA considered this document in determining the charge period (see above). However it is notable that neither the Preliminary Report nor Final Report, prepared by Du Pont in response to prevention notices issued to it by the EPA, referred to the production of these other products close to the relevant time but both did refer to the campaigns that occurred in April and May 2011.

As a result of the absence of admissions or direct evidence, the EPA's case was based on circumstantial evidence and therefore relied heavily on expert evidence attesting to:

- the link between the chemical composition of the samples obtained and the chemical composition of Du Pont's products produced within the charge period
- the feasibility of a link between the timing of sampling, the timing of Du Pont's production campaigns and the timing of damage that occurred to the vegetation
- the impact of MSM on vegetation and its correlation with what was observed to have occurred to the damaged vegetation.

Du Pont engaged experts in preparation for the case. This included Du Pont obtaining a six-month adjournment to the listing of a hearing date so their experts could undertake testing and analysis of pesticide impacts in preparation for the trial.

Du Pont mounted a strong challenge to the EPA's evidence. Three weeks prior to the hearing, Du Pont served 30 pages of objections to the EPA's evidence, with their central arguments encompassing a multi-pronged attack on the expert evidence the EPA was relying on to prove the offence. This can be contrasted with only eight pages of facts being agreed between the parties prior to the hearing and which covered basic facts that were essentially public knowledge: Du Pont operates the facility at Girraween; it produces a range of products at the facility; and some of these products contain varying amounts of MSM.

Du Pont's changed strategy involved the argument that the company could be responsible for the pollution but the EPA could not definitively prove that Du Pont caused the pollution within the alleged charge period rather than at some other time outside the charge period. This argument rested heavily on the fact that the other products, particularly Ally 77 WP which only contains 0.6% active ingredient MSM, was produced close to the relevant time but after the charge period laid by the EPA.

Du Pont opposed the EPA's application to amend the charge period to accommodate this argument but did not argue that such an amendment would prejudice their case. Nonetheless, the trial judge, in her discretion, dismissed the EPA's application and thus the course of events outlined above prevailed.



## Public concern and EPA engagement

The EPA received 112 complaints from members of the public, including from a local orchid grower who lost his large collection of orchids, the local high school whose agricultural crops had been affected and other local gardeners.

The death and damage to hundreds of trees and gardens at Girraween had considerable media exposure, in the local newspaper, *The Sydney Morning Herald* and *Sun-Herald* and on Channel Seven's *Today Tonight* and on radio. It was also raised in Parliament.

Local media and *The Sydney Morning Herald* reported former Holroyd Mayor, Peter Herlinger, as being pleased the EPA was finally taking action against Du Pont and that one local resident lost his entire vegetable garden and that the value of orchids lost was \$25,000.

The EPA undertook a range of activities to engage with the community and keep it informed during the investigation, including:

- issuing four letters to the community advising on progress at various times in the investigation
- responding to numerous inquiries from the local media
- meeting with individual affected residents.

Following the EPA's withdrawal from the prosecution, the EPA's Chief Environmental Regulator gave a number of radio and newspaper interviews noting that:

- following an extensive investigation, the EPA concluded that the herbicide could not have come from a source other than Du Pont
- even though the EPA only had circumstantial evidence, given the public interest in the matter and the damage sustained to local vegetation, it had decided to take the matter to Court
- unfortunately the Court indicated it would accept a proposition from Du Pont that the herbicide may have escaped from the factory outside the charge period and therefore the EPA could not prove the alleged emission of the herbicide during the charge period
- the EPA had withdrawn the prosecution on the advice of Senior Counsel.

### 17.2.4 What were the outcomes?

#### Environmental outcomes: tree management program

During the investigation the issue of compensation was raised by a number of residents and industry owners who believed their vegetation had been damaged or killed by the herbicide.

In response to these concerns and to not delay action, the EPA sought approval from the Environmental Trust for the release of up to \$200,000 to pay for the assessment of trees in the area and removal and disposal of any tree that might pose a threat to residents or the community. The EPA considered this was the best option for achieving a quick and effective clean-up of the damage that was concerning the community. Given the consistent denial of responsibility by Du Pont, any alternative option imposing clean-up responsibilities directly on the company was likely to be contested and unlikely to achieve a quick and effective remediation.

The Girraween Dangerous Tree Management Program was developed with Holroyd City Council to address trees on residential properties that posed a serious safety risk.

Under the program, residents applied to have their trees assessed. Holroyd Council engaged an arborist to undertake the tree assessments and commissioned reports for trees that had been assessed, by the council or the EPA, as posing a risk.

The arborist assessed 51 properties as part of the dangerous tree management program with 25 properties having trees removed or trimmed.

Holroyd Council did not approve the removal of trees from 24 of the assessed properties as it considered that they had not been impacted by the herbicide, had died from other identified causes, or had recovered. The council approved the removal of trees on two properties but the landholders either did not remove or trim the trees or did not seek reimbursement under the program.

A total of \$79,109 was paid for arborist assessments and tree removal and trimming under the program.

### **Environmental outcomes: improvements at Du Pont's facilities**

In April 2012, the EPA issued a variation for Du Pont's environment protection licence which added a pollution reduction program (PRP) that required a Herbicide Air Impact Assessment. The objective of the PRP was to account for the accumulation of any active herbicide ingredients from the site on soil, trees, plants and other human-made structures and also account for the persistence of each herbicide ingredient. The aim was to determine if an appropriate licence limit for the herbicides could be established.

Since the EPA investigation, Du Pont has voluntarily installed additional controls to its facilities which are in addition to its existing protection measures. These additional measures include filters and monitoring equipment on the site which further reduce the risk of any pesticide material being emitted from their activities. The EPA conducted a site assessment and confirmed that the additional filters were in place, noting that the controls in place at the time of the incident were adequate to control pesticide emissions but the additional filters provided extra protection.

### **17.2.5 EPA debrief**

#### **Managing circumstantial evidence and the criminal standard of proof**

The Du Pont matter raises the challenges and issues when building a case based on circumstantial evidence only. Where there is no direct evidence of an offence, the prosecutor must build a case to prove beyond reasonable doubt that the alleged offender committed the offence and that there is no other plausible reason for the environmental impact. The Du Pont case illustrates the difficulties associated with this. The investigation was both thorough and exhaustive but Du Pont only needed to persuade the Judge that, based on the evidence that Du Pont had manufactured relevant herbicides before and after the charge period, it could have polluted at a time different from when the EPA alleged.

The EPA will explore legislative change so that it has the option of taking civil legal action in the Courts for damages, which has a lower burden of proof (that is, on the balance of probabilities). In this case, it would have meant that for the relevant charge period, the EPA would only have had to demonstrate, on the balance of probabilities, that the discharge took place in that period. In addition, in a civil matter, the Court may have taken a different approach to adjusting the equivalent of a charge period in civil matters.

#### **Du Pont in the context of EPA prosecutions**

It is useful to consider the Du Pont result in the broader context of EPA prosecutions.

In the financial year 2013–14, the EPA completed 59 matters and commenced 90 new matters. Of these, the EPA completed 14 matters and commenced 33 new proceedings in the Land and Environment Court, which is the forum where more significant proceedings are dealt with. In the same period, the EPA maintained its commendable prosecution record with a 95% success rate.

### **Summary of relevant EPA policies and legislation**

Section 142A of the POEO Act sets out the offence of land pollution. That section provides:

*(1) A person who pollutes land is guilty of an offence.*

*Maximum penalty:*

*(a) in the case of a corporation—\$1,000,000, and in the case of a continuing offence, a further penalty of \$120,000 for each day the offence continues, or*

*(b) in the case of an individual—\$250,000, and in the case of a continuing offence, a further penalty of \$60,000 for each day the offence continues.*

*Note. An offence against subsection (1) committed by a corporation is an offence attracting special executive liability for a director or other person involved in the management of the corporation—see section 169.*

*(2) In this section:*

*pollute land includes cause or permit any land to be polluted.*

By virtue of section 169 of the POEO Act, ‘special executive liability’ means if a corporation is found guilty of an offence of land pollution then each director of that corporation is taken to have contravened the same provision unless they can satisfy the court they were not in a position to influence the conduct of the corporation in relation to the offence or they used all due diligence to prevent the offence.

The Dictionary within the POEO Act defines land pollution as follows:

*placing in or on, or otherwise introducing into or onto, the land (whether through an act or omission) any matter, whether solid, liquid or gaseous:*

*(a) that causes or is likely to cause degradation of the land, resulting in actual or potential harm to the health or safety of human beings, animals or other terrestrial life or ecosystems, or actual or potential loss or property damage, that is not trivial, or*

*(b) that is of a prescribed nature, description or class or that does not comply with any standard prescribed in respect of that matter,*

*but does not include placing in or on, or otherwise introducing into or onto, land any substance excluded from this definition by the regulations.*

The POEO Act requires an environment protection licence to be held for any activity listed in Schedule 1 of that Act (section 48). Licences may be subject to conditions and it is an offence to fail to comply with those conditions (sections 63 and 64, respectively).

In deciding whether or not to prosecute, the EPA takes into account the [EPA Prosecution Guidelines](#), which set out factors to consider when deciding whether or not prosecution is appropriate, noting that the dominant factor is whether it would be in the public interest to prosecute.



## Chapter 18: Regulation of cruise passenger ships at the White Bay Cruise Terminal at Balmain

### Terms of Reference statement

*That the following case be considered:*

*(v) the regulation of cruise passenger ships at the White Bay Cruise Terminal at Balmain*

### Summary

The berths at White Bay on the Balmain Peninsula in Sydney have been used for shipping for over 100 years in close proximity to residential areas.

In April 2013, the White Bay Cruise Terminal began operation as a passenger terminal for cruise ships, replacing the previous terminal at Barangaroo.

While port activities at White Bay have always had some impact on the surrounding communities, this has grown steadily since the new terminal opened and, with the cruise ship industry projected to grow, these impacts have the potential to increase further.

Impacts relate to air emissions from the cruise ships, noise, odour, and their associated effects on human health, the environment and residential amenity.

The shipping industry operates in a complex regulatory environment where international and national dimensions interact with a mosaic of regulatory responsibilities of various NSW Government agencies. Within this context, there is scope for EPA intervention on environmental issues although in comparison to its jurisdiction over the environmental performance of other industries, the international shipping industry presents a far more complicated and constrained regulatory scenario.

The EPA is leading a whole-of-government response to the environmental issues arising from the operation of the terminal. Given the interrelated roles of various government agencies, it is imperative the EPA continues to adopt this collaborative approach with its counterparts, including the Department of Planning and Environment, Port Authority of NSW, NSW Health, and the Australian Commonwealth Minister for the Environment, to ensure any proposed solution is compatible with the broader regulatory functions of other agencies.

Formal discussions with other responsible agencies began in December 2013.

The EPA:

- has considered the complex regulatory framework of the international shipping industry and best practice in other nations
- has sought advice which clarified the regulatory and enforcement powers of relevant NSW Government agencies
- is using its influence to promote larger structural change in the overall framework of shipping regulation within Australia that would work to reduce air emission impacts
- together with other government agencies, the shipping industry and the community, is investigating the practical feasibility of a number of options that could address the key issue of air emissions from berthed cruise ships.

## 18.1 Background

The White Bay port berths on the Balmain Peninsula in Sydney have been part of a working port for over 100 years with residential areas nearby. It is only since April 2013, with the construction of the cruise terminal, that part of the port began use as a passenger terminal for cruise ships. The terminal replaced the previous cruise passenger terminal at Barangaroo.

While port activities at White Bay have always had some impact on the surrounding communities, since cruise ships began using the port recently, impacts have steadily grown, especially since the peak cruise season in October 2013. With the projected growth in the cruise ship industry, these impacts have the potential to increase further. Impacts relate to air emissions from the cruise ships, noise, odour, and their associated effects on human health, the environment and their cumulative effect on residential amenity.

### *18.1.1 EPA participation in the planning process for the terminal*

As part of the development of the Barangaroo Concept Plan, the NSW Government began exploring options for relocation of the existing cruise passenger terminal at the development site. In September 2008, the then Department of Planning advised the EPA of the need to relocate the terminal. The EPA attended a joint agency Planning Focus Meeting on 23 September 2008 and was briefed on the issue.

The EPA attended regular meetings and provided comments at each stage of the planning process for the terminal, principally in the context of the environmental assessment. The EPA assessed and commented on air and noise emissions, odour, water pollution, contamination, waste management, public transport and future operations at the port.

The EPA's comments through the planning process reflected its commitment to ensuring the Department of Planning and Environment (DPE) considered sustainable development options for the terminal in the approval process. In its comments the EPA:

- noted a risk that the design of the terminal precluded opportunities for future rail connections and the associated greenhouse gas emission reductions
- advised the need to consider the terminal's connection to current and future public transport networks, including light rail, cycling and walking
- commented that construction and operation of the terminal should give consideration to the currently proposed and future emissions to air in relation to achieving air quality and greenhouse gas emissions reduction objectives
- recommended that the environmental assessment include a feasibility assessment of shore-side power for cruise operations as this provides the opportunity to reduce greenhouse gas emissions, improve air quality and reduce noise emissions
- provided specific advice on managing contaminated materials, acid sulfate soils and air quality, and also on noise criteria and noise monitoring
- commented that there were opportunities to improve the removal of gross pollutants with cooperation between agencies on the installation of gross pollutant traps prior to stormwater discharge to Sydney Harbour.

During the planning process for the terminal, the EPA became aware of the potential for exceedences of noise criteria (based on the [NSW industrial noise policy](#)) arising from operation of the terminal and minor exceedences of the maximum 24-hour-average sulfur dioxide and PM<sub>10</sub> (particle) cumulative concentrations. The EPA addressed these potential issues, impacts and exceedences in discussions with the Port Authority of NSW (the Port Authority) about managing and mitigating them and recommended conditions of approval in written responses to DPE. The EPA provided the following suggested conditions of approval and comments:



- the project should only operate in accordance with the proposal as assessed and proposed in the environmental assessment
- noted that the overnight berthing of two ships is atypical but does occur and the environmental assessment had not assessed this situation
- recognised that low-sulfur fuel would significantly reduce air quality impacts but the EPA had concerns about enforcing this requirement
- required a detailed assessment of potential odour impacts and implementation measures to prevent odour emissions from the premises
- stated that the EPA still considered the adoption of shore-to-ship power would be the most effective and innovative way to satisfy [Action for Air](#) objectives of reducing air pollutants and noted that it continued to encourage the consideration this option because of the associated significant environmental gains
- noted that the 200-space long-term car park does not address greenhouse gas emission reductions or replace public transport initiatives and is not in line with the NSW Government's sustainability principles.

Elements of some of these recommendations were adopted in the conditions of approval while others were not: the DPE, for example, considered it was not appropriate to require the use of shore power.

On 2 February 2011, the Minister for Planning issued conditions of approval for the project, having taken into account the EPA's comments throughout the planning process.

The planning process did not identify all of the air quality issues that subsequently came to light once the terminal began operation. The emissions to air impacts experienced by the community are occurring within the air quality modelling outcomes and this is confirmed by monitoring data (discussed below). In relation to air emissions, the environmental assessment broadly expected there to be very little impact using the criteria in the [National Environment Protection \(Ambient Air Quality\) Measure](#) (AAQ NEPM). The environmental assessment indicated that cruise operations at the terminal would – and in practice do – meet the AAQ NEPM criteria and as a result the EPA did not anticipate the magnitude of impacts to community.

The EPA was aware of community involvement in the planning submissions process, community engagement with shipping and traffic issues, and a petition that was lodged in Parliament (after the project approval was issued) objecting to elements of the building.

During the demolition and construction works for the cruise passenger terminal, the EPA was involved in responding to a small number of complaints about dust and noise from construction.

### **Terminal operations**

The terminal started operations in April 2013. The Port Authority operates the berths and terminals for cruise ships to dock in Sydney Harbour. Cruise ships dock at Berth 5 and, on occasion, an additional cruise ship is at Berth 4 at the same time. This berth is primarily used for bulk shipping activities and, as a result, Newcastle Port Corporation, as part of the Port Authority, holds an environment protection licence for that activity at that site (EPL 12095).

In the 2014 calendar year, it is estimated that 101 or 36% of the total 275 cruise ships in Sydney Harbour will berth at the White Bay Terminal. The Overseas Passenger Terminal at Circular Quay takes the remainder of cruise ships that visit Sydney Harbour, with occasional overflow to Garden Island. The Port Authority has advised the EPA that it expects annual increases to cruise ship visits in the coming years of approximately 20%. Cruise berths are booked about two years in advance. The cruise schedule is confirmed and vessel times and dates for movement are clarified on the Port Authority's Daily Vessel Movement Schedule.

Peak cruise ship season in Sydney is October to March (based on the Port Authority's Cruise Ship Schedule 2013–14). An average stay at the terminal for cruise ships is estimated to be 13 hours.<sup>1</sup> During peak season cruise ships arrive and depart almost every other day at the terminal. Approximately four times a year, two cruise ships berth at the terminal simultaneously. Bulk shipping activities at Berth 4 operate intermittently and at times in between cruise ship operations.

Ships operate in 'hotelling' mode while at berth. This includes the use of auxiliary engines to power the ship's operation while in berth, including air-conditioning, refrigeration, lights and ventilation.

It is estimated that approximately 95% of the cruise ships berthed at the terminal are operated by Carnival PLC (UK), which operates under a number of trading names: Carnival Cruise Lines, Holland America Line, Princess Cruises, Cunard Line, Costa, P&O Cruises, Seabourn and Global Cruises. Four additional and independent operators also use the terminal.

### **18.1.2 Regulatory framework**

The shipping industry is generally regulated through international conventions and related national laws. However there are varying degrees of scope for Australian states to regulate aspects of the industry at their level. The interaction of these various layers of regulation can be complex and sometimes overlap.

The international shipping industry is accustomed to operating in domestic waters in a regulatory environment characterised by a tendency for 'non-exercise of jurisdiction' by the domestic nation. This practice is a matter of custom rather than any formal international agreement, but it is followed relatively consistently. Hence any foray by the EPA into environmental regulation of impacts from the international shipping industry at the terminal would be an uncommon, though not unprecedented, course of action.

The scope for EPA intervention on environmental issues is set out below. However in comparison with the EPA's jurisdiction over the environmental performance of other industries, the international shipping industry presents a far more complicated and constrained regulatory scenario.

The overview of this regulatory framework below addresses the international and national frameworks for international shipping; the NSW-based regulatory frameworks; and concludes with an example of state-based regulation of the environmental impacts of international shipping in California.

#### **International and national frameworks**

Australia has been a party to the [\*International Convention for the Prevention of Pollution from Ships\*](#) (MARPOL) since 1988. As an international treaty, MARPOL does not of itself have the force of law within Australia but is implemented by national or state legislation.

Under MARPOL, limits are set on the nitrogen oxide emissions from engines and the sulfur content of shipping fuels. Currently the global requirement under MARPOL for sulfur content of liquid fuel is 3.5% sulfur by weight unless an emissions control area applies.

However MARPOL requires the sulfur content of fuel oil to be reduced to 0.5% after 31 December 2019 (subject to an International Maritime Organization feasibility review the results of which could affect the implementation or timing of commencement of this requirement). The Commonwealth has given effect to this MARPOL limit by enacting [\*Marine Order 97 \(Marine pollution prevention – air pollution\)\*](#) (Marine Order 97) in August 2013. While Marine Order 97 only applies in the 'sea near a state' (and therefore does not cover Sydney Harbour), the operational movements of ships between Australian and NSW waters

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<sup>1</sup> Based on Sydney Ports Cruise Ship Schedule 11 February – 11 April 2014

would in practice mean the same emission benefits would be gained in NSW ports as a result of this requirement.

Under MARPOL, emission control areas can be designated where stricter emission standards apply. Areas, such as the Baltic Sea and the east and west coast of the United States and Canada, are emission control areas. The Australian Maritime Safety Authority is the responsible Australian body and it advises that there are currently no proposals to introduce any emission control areas in Australian waters. More on these areas is available on the [International Maritime Organisation](#) website.

Given the complex relationship with national legislation, the NSW Minister for the Environment has written to the Australian Commonwealth Minister for the Environment requesting the impact of shipping emissions to be considered at the national level as part of the National Clean Air Agreement.

### **NSW-based regulatory frameworks**

#### *Role of conditions in Part 3A project approvals*

Under the former Part 3A of the *Environment Planning and Assessment Act 1979* (EP&A Act), DPE approved the project plan for the terminal. The Project Approval (MP10\_0069) is the primary tool for managing the cruise passenger terminal and cruise operations at White Bay for the issues it addresses.

The Project Approval includes noise limits and noise and air quality monitoring requirements among other conditions. In law, to the extent that a licensee operates within these conditions, the licensee does not commit a pollution offence. The DPE is responsible for enforcing compliance with, and responding to breaches of, the Project Approval conditions.

The EPA has had two roles in relation to the project approval:

- an advisory role in the planning process (further details below)
- assistance to the DPE with technical aspects relating to DPE responsibilities for compliance.

#### *Role of environment protection licences*

The [Protection of the Environment Operation Act 1997](#) (POEO Act) contains a list of 'scheduled' activities that require an environment protection licence. Cruise ship and terminal operations are not activities that require a licence but bulk shipping operations do.

As a result, White Bay Berth 4, which is mainly used for bulk shipping, is licensed by the EPA but Berth 5 which is used solely for the cruise passenger ships is not.

#### *Enforcement of offences against air and noise pollution and odour: who has the power?*

The POEO Act, [Protection of the Environment Operations \(Clean Air\) Regulation 2010](#) (Clean Air Regulation) and [Protection of the Environment Operations \(Noise Control\) Regulation 2008](#) all contain offences and regulatory tools relevant to the operation of a cruise ship terminal.

The powers of enforcement for these different offences and regulatory tools are shared across a range of NSW government agencies, including the EPA, Roads and Maritime Services, NSW Police and local government. The allocation of these responsibilities is determined by the context of the offending activity (e.g. whether it is committed by a public authority, a vessel in navigable waters, or a POEO Act licensee). The EPA works closely with its relevant counterparts to ensure issues arising in this context are managed lawfully and by the appropriate regulatory authority.

It is within this myriad context that the EPA has responsibility for regulating the environmental impacts of cruise ship and terminal activities that fall outside the Project Approval.

### *Clean Air Regulation*

The EPA has a role in regulating ship emissions at the terminal, given their expression at berth and within NSW waters. However the EPA's capacity to act needs to be informed by the broader regulatory context detailed above.

Ships are generally powered by large diesel engines operating on lower quality fuel oil. The regulation of the sulfur content of fuel under the POEO Act has been in place since the Clean Air (Plant and Equipment) Regulation 1997 and is currently reflected in section 58 of the Clean Air Regulation. The regulation of sulfur fuel was originally put in place to regulate land based, stationary source industrial emissions and at the time of its development regulation of the shipping industry was not considered.

The regulation of the sulfur content in fuel under the Clean Air Regulation limits the maximum sulfur content of liquid fuel burnt in NSW to 0.5% by weight in the Sydney, Wollongong, Newcastle or Central Coast metropolitan areas and 2.5% elsewhere. This is designed to reduce odours and potential environmental and health risks. The definition of these Metropolitan Areas in the Regulation does *not* extend to the waters of Sydney Harbour. The Regulation also allows the use of fuel with a higher sulfur content where control equipment, such as exhaust scrubbers, is used to reduce air emissions to a level comparable with that achieved when low-sulfur fuel is used.

The amendment of the Clean Air Regulation to require stricter sulfur content in the fuel used by the shipping industry operating within Sydney Harbour is one possible option to be assessed as against other options under consideration.

### **California's state-based scheme that supplements national and international frameworks**

In recent years some countries and jurisdictions have adopted measures independent of and additional to MARPOL requirements to reduce shipping emissions at ports and in waters close to urban areas. California is a good example of the types of measures that a state (such as NSW) might put in place.

California's first measure is the Goods Movement Emission Reduction Program, a partnership between the State Air Resources Board and local air districts and seaport agencies to quickly address air pollution from freight movement along the state's trade corridors.

Under the program, local agencies apply for funding from the Air Resources Board. Those agencies then offer financial incentives to equipment owners to upgrade to cleaner technologies to operate trucks, locomotives and harbour craft and also install electrical infrastructure at ports, truck stops and distribution centres. The Air Resources Board has awarded US\$718 million to nine agencies over a number of years.

The second measure is implementation of the [\*Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels at Berth in a California Port Regulation\*](#) (2007). This state regulation aims to reduce particulate and nitrogen oxide emissions from vessels in port. Under this regulation, vessel fleet operators visiting Californian ports have two options to reduce at-berth emissions from auxiliary engines: turn off auxiliary engines and connect the vessel to some other source of power – most likely grid-based shore power – or use alternative control techniques that achieve equivalent emission reductions.

Finally, California has implemented the [\*California Ocean-Going Vessel Fuel Regulation\*](#). This sets sulfur content requirements for marine gas oil and marine diesel oil burnt in the state's fuel regulation zone (24 nautical miles from the Californian coast).

All of these measures are in addition to the North American Emission Control Area negotiated under the MARPOL Convention. From January 2014, vessels in the Californian fuel regulation zone have been required to use marine gas oil and marine diesel oil with a

sulfur content of 0.1%. Reduction to this level was achieved in stages, with required sulfur content in July 2009 of 1.5% for marine gas oil and 0.5% for marine diesel oil, and then 1% and 0.5% for each respectively in August 2012.

## 18.2 Issues

The EPA and other agencies (Port Authority, Leichhardt Council and NSW Health) have received a large number of complaints about air, odour, noise and vibration emissions from cruise ships at the White Bay Terminal. The EPA received over 300 complaints between November 2013 and June 2014.

The most affected community is in Balmain, but impacts are also being felt by residents in Rozelle, Birchgrove and Pyrmont.

When cruise ships are in port, community complaints relate to impacts on amenity and daily activities caused by noise (mechanical noise, ship broadcasts and entertainment), odour and emissions. Some residents report that they are unable to open windows when cruise ships are in berth and cannot freely use outdoor areas for such activities as gardening and walking. Residents also regularly complain of sleep disturbance, mucous membrane irritations, weepy eyes, coughing, asthma-like symptoms, headaches, dizziness, exacerbation of respiratory illnesses and heart palpitations. It has also been reported that vibration from the ships' operations is rattling windows, shaking houses and causing concerns about damage to heritage houses in Balmain.

The key environmental issues associated with the terminal are noise and air emissions, including odour, with the local community focusing on the health impacts of air emissions from cruise ships berthed there. Impacts arising from the operation of the terminal itself, while important, are considered to be a lower immediate priority by both the community and the EPA.

### 18.2.1 Actions to date

Actions to date to deal with community concerns have been taken across many fronts at overlapping time periods. As soon as the complaints commenced, the EPA began to examine the complex question of who is responsible for what and the powers available to the EPA and other NSW and Commonwealth agencies to take action.

The EPA has been working with the community, Leichhardt Council, Port Authority, DPE, NSW Health, industry and technical specialists through a number of forums to progress various aspects of its investigation and develop practicable solutions.

The key actions taken on air and noise emissions and community engagement are detailed below.

#### **Action on air emissions: monitoring**

The Port Authority has undertaken monitoring to assess the impacts of air emissions from the terminal against the criteria set in the Project Approval air quality assessment. This monitoring included monitoring of sulfur dioxide and PM<sub>10</sub> particles.

Two air quality monitoring rounds were completed between 12 September–7 October 2013 and 4 December–23 December 2013.

The community expressed concerns about the adequacy of this monitoring. This included lack of trust in the monitoring because it was carried out by consultants appointed by the Port Authority, the fact there was only one monitoring site and its location, and the monitoring period was not continuous.

In response, the EPA's technical air experts reviewed the monitoring reports from round one and two and concluded that it had been undertaken in accordance with the relevant



Australian standards: (AS/NSZ3580.1.1:2007, AS/NZS3580.9.8:2008 and AS/NZS3580.4.1:2011).

[Results from these two rounds of monitoring](#) are available on the Sydney Ports website and they indicate that there were no exceedances of the AAQ NEPM ambient air quality standards, which is the air quality criteria provided by the EPA in the planning process.

Despite this compliance with the air quality criteria, the EPA accepts that the community is experiencing impacts as a result of the air emissions from the cruise ship operations and that action to further reduce emissions is warranted.

Air quality monitoring rounds one and two were undertaken at street-side locations. In response to community concerns, the Port Authority conducted additional air quality monitoring in February and March 2014 at different locations further into the peninsula of Balmain and including at residents' homes. This renewed monitoring continued to include sulfur dioxide and PM<sub>10</sub> particles.

On 4 August, the final monitoring results of the additional rounds of monitoring were posted on the [Port Authority website](#). The EPA's technical air experts are reviewing these results and the EPA will use the results to inform future regulatory decisions and management of shipping emissions to air.

### **Action on noise emissions: monitoring and enforcing planning conditions**

The Port Authority has conducted multiple rounds of noise monitoring in and around Balmain. These have included one round in June 2013, four in October 2013, two in November 2013, one in December 2013 and one in February 2014.

In the eight rounds of noise monitoring to December 2013, 25 exceedances of the noise limits in the Planning Approval were identified in 89 individual noise measurements. The subsequent monitoring in February 2014 indicated three minor exceedances of 1-2 decibels over the noise limits set in the Project Approval conditions.

In public letters to the DPE, the Port Authority has advised that it will undertake additional noise monitoring to confirm if mitigation measures have reduced noise levels and define the source of continued exceedances if there are any.

The DPE is currently working directly with the Port Authority to address non-compliances with the terminal Project Approval's noise limits and respond to community complaints and advise on actions taken to address impacts.

The EPA is assisting the DPE to address issues around noise management and has provided input to the development of a noise management strategy for the terminal prepared by the Port Authority. The DPE has reviewed the noise strategy and asked the Port Authority to complete proposed investigations and develop a final noise impact mitigation strategy by the end of October 2014 at latest, in recognition of the approaching peak of the cruise season.

In late 2013, the Port Authority put in place a 'Good Neighbour Agreement' with cruise ships to help reduce unnecessary noise from the vessels. However, the EPA understands that there has been limited success in implementing this agreement with some cruise ship operators. The agreement included:

- restricting non-essential all-deck announcements (excluding mandatory safety drills)
- no external music during berth
- minimising the use of engines and generators at berth
- minimising light spill by reducing deck lighting while in berth
- positioning baggage cages the night before a ship's arrival when cruise ships are berthing for two consecutive days.



The Port Authority is addressing noise issues and has completed a number of mitigation measures, including ongoing liaison with cruise lines and ships for greater compliance with the restrictions on music and announcements in berth and reduction of the noise from ship engines and ventilation fans.

Investigations into noise and vibrations have determined that not all cruise ships are in breach of noise requirements. Some ships appear to operate well while others have a number of noise exceedences. The EPA and Port Authority are undertaking a detailed investigation of individual ships to determine the particular sources of noise generation. Once particular noise and vibration sources are identified, recommendations will be made to the DPE on specific actions or requirements that can be enforced on cruise ships to ensure noise impacts are minimised.

The use of shore-to-ship power also has the potential to reduce noise and the EPA is working with the Port Authority to complete further investigations into the viability of this option.

### **Engaging with the community**

At the same time as assessing the situation and developing a response, the EPA has been engaging with community and government agencies since late 2013.

In November 2013, the EPA attended a public meeting at Clontarf Cottage in Balmain hosted by Jamie Parker, MP for Balmain, with approximately 50 people in attendance to listen to community concerns. At this meeting, the EPA advised the community to report pollution and its impacts to the EPA Environment Line.

The EPA, along with NSW Health, has established regular interagency meetings regarding the terminal's operations. These meetings with Roads and Maritime Services (RMS), the DPE, Port Authority and Leichhardt Council commenced in December 2013.

The EPA has also kept complainants updated in two letters. The first in January 2014 acknowledged complaints and the seriousness of the matter and (based on initial discussions and interagency communication) advised erroneously that RMS was the ARA for impacts from the terminal. The letter also said the EPA was working with agencies to respond and minimise impacts on local communities from activities at White Bay.

The second response letter in June 2014 advised that the EPA was leading the multi-agency response to the issues and investigating the regulatory options available to reduce noise and air impacts from cruise ships. The communication also outlined responses to date to address concerns about non-compliant vessels, emissions to air and noise impacts.

In April 2014, the regular interagency group was expanded to include community representatives. These representatives have communicated their concerns and tabled a number of solutions proposed by the community. These ranged from the use of better quality fuel and air filtration to reduce breaches of current approvals and consideration of the use of pollution alerts about health impacts.

Through these meetings, community representatives have indicated an understanding that any solutions will take time but have expressed concerns about the approaching peak cruise season (October 2014 – March 2015) and are seeking interim actions to be taken before implementation of any permanent solutions.

In May 2014, the Minister for the Environment and the EPA met with community representatives to better understand the community concerns and advise on actions being investigated.

On 13 June 2014, the EPA hosted a diesel emissions workshop as part of the development of a non-road diesel emissions strategy. This workshop included presentations on the sources and trends of non-road diesel emissions in NSW, including shipping emissions. Workshop attendees included government agencies, industry and community members. The

Minister for the Environment signalled to those in attendance, including the cruise industry, that the EPA would be regulating emissions for non-road diesel, including shipping. A community representative addressed the workshop about the impact cruise ships were having on the community near White Bay.

The EPA has been working with NSW Health to respond to community concerns about health impacts from emissions to air. NSW Health has attended the representative meetings to hear and deal directly with community concerns as well as providing written responses to questions on health impacts. On the proposal for health alerts, NSW Health has advised that these are not appropriate for this localised issue, as alerts used are for health risks on a regional basis.

### *Non-road Diesel Emissions workshop and proposed strategy*

The Non-Road Diesel Emissions workshop held in June 2014 included shipping activities. The Minister for the Environment signalled to those in attendance, including the cruise industry, that the EPA would be regulating emissions for non-road diesel, including shipping.

In conjunction with this workshop, the EPA published a [background paper](#) for diesel emissions workshop which explored the sources, impacts and control strategies currently in place to manage non-road diesel emissions in NSW.

The EPA is developing a Non-road Diesel Emission Management strategy for addressing non-road diesel emissions, including shipping.

### **18.2.2 Next steps**

The EPA's decisions in relation to investigation and regulation of the emissions from the operations of the White Bay Terminal are based on expert advice, evidence obtained through monitoring, ongoing assessment of the regulatory tools at its disposal and ongoing communications with affected residents. The EPA recognises the significance of the problem and is committed to helping address community concerns and progressing identification of a solution to the issues.

The remaining sections present the most up-to-date information on the EPA's planned course of action to deal with air and noise emissions from the terminal. The current proposed responses by the EPA to these issues reflect the ongoing collection of information on the feasibility of policy options. As a result, the options being considered and outlined below may change as more effective or feasible solutions are identified.

#### **Investigating options: air emissions**

As outlined above, the EPA has been working with the community, the local council, relevant NSW Government agencies, industry and technical specialists through a number of forums to progress various lines of investigation and develop practicable solutions.

The EPA has considered the complex regulatory framework and best practice overseas and is committed to an air emissions scheme that improves on the MARPOL timetable. In doing so, the EPA seeks to improve the management of air emissions from the operation of the terminal and particularly their impact on the local community. The EPA notes California's actions in this regard.

The EPA has undertaken preliminary consideration of potential solutions with input from the Port Authority, industry and technical specialists. A technical working party including members from the EPA and the Port Authority was established in May 2014 to investigate the technical aspects of potential measures to mitigate emissions from cruise ships. The working party is investigating options for management of the impacts from the cruise ship and terminal operations and assessing their feasibility, impacts and benefits.

To this end, the EPA is currently engaged in an intensive process of consultation with industry to:

- ascertain accurate and up-to-date information on the constraints on available policy options, such as the availability of fuel, appropriate technology
- engage with the industry to scope preliminary feedback on the feasibility of various policy options.

This consultation process has included the Chair of the EPA meeting with the heads of key industry stakeholders on 7 August 2014; the EPA working with Port Authority to organise site inspections whilst vessels are in port to review performance; and the EPA arranging meetings with shipping engineering experts to gain insight into what options are feasible.

Further details are available in the [EPA's media release](#) of 11 August 2014.

Some of the options under investigation include:

- a stricter fuel sulfur content limit for shipping in NSW waters
- the use of improved on-board air filter systems (scrubbers)
- the introduction of shore-based power

#### *Low-sulfur fuel and/or improved emissions control technology*

The use of cleaner fuel would be an effective measure for mitigating air emissions. This would involve the introduction of stricter limits on the sulfur content of marine fuels.

As noted above, MARPOL has established the goal of prescribing a global limit for shipping fuels of 0.5% sulfur by weight by 31 December 2019 and this is enacted in Australia through the Commonwealth Marine Order 97. However, as this goal is still subject to a feasibility study, it is uncertain whether this MARPOL regulation will commence and, even if it does, there will be a significant delay before it takes effect. Consequently, the EPA is considering alternative options that could be implemented at a state level which would commence much sooner than 2020.

Issues being considered include the availability of fuel, supply chain and storage impacts, achievable time frames, and cost, implementation and enforcement impacts. In conjunction with this process is consideration of the role equivalent technologies (such as scrubbers in ship smoke stacks) could play in reducing the emission impact of fuels, without necessarily having to reduce their sulfur content.

As outlined above, this option would also need to be considered against a complex backdrop of multi-layered legislation, with international conventions, national legislation and the scope for environmental regulation at state level.

Accordingly, the EPA's consideration of this aspect of the matter is informed by international practice, existing international shipping industry requirements, engagement with industry stakeholders and specialist advice.

In order to proceed with a proposal of this nature, the EPA needs to complete further stakeholder engagement and feasibility and cost benefit assessments, and gather evidence that any proposed changes are reasonable and would assist in addressing the identified pollution impacts.

This type of joint option is attractive because:

- it is a targeted tool that allows for industry innovation
- the ultimate outcome through fuel regulation or equivalent technologies would have positive impacts on both air and odour emission impacts
- introduction of such limitations could be achieved through legislation currently administered solely by the EPA, such as the Clean Air Regulation.

### ***Fuel used by cruise ships***

Cruise ships burn a fuel commonly referred to as 'bunker' fuel. Bunker fuel is dense: only carbon black feedstock and bitumen (asphalt) are denser crude oil products. Running diesel engines in port can produce a variety of emissions, including fine particles, sulfur oxides, nitrogen oxides and volatile organic compounds. Reducing the sulfur content of fuel significantly reduces particle emissions ([\*Potential measures to reduce air pollution from NSW ports\*](#): Preliminary study for the NSW Office of Environment and Heritage by PAE Holmes, June 2011).

Ships in port often run their engines for power generation unless alternative power is available from the shore (PAE Holmes, June 2011).

The Terminal Project Approval does not contain requirements relating to fuel use or requiring the use of shore power.

As the lead agency on environmental issues, the EPA is leading the response to addressing the impacts of air emissions from cruise ships at the terminal, particularly in relation to fuel use.

### **Shore power**

As noted above, the EPA raised the option of shore power in the planning phase of the terminal project. Shore power involves a ship with a connection to 'plug in' to electrical power provided at berth. The benefit of shore power is that it allows a berthed ship to turn off its engines and stop the burning of fuel and therefore ship emissions to air, while the vessel uses shore-based energy to power its operation (such as air-conditioning, lights and ventilation). These operations will produce noise, but engine noise will cease during the majority of berthing.

The EPA is aware that further feasibility assessment is required in order to determine the viability of this option. The White Bay Terminal currently has no existing connection points for shore-to-ship power and a large portion of the cruise ships docking there are not configured to accept shore power.

Shore power involves significant costs, impacts to the electricity grid, the potential requirement for additional infrastructure (substations) and reconciliation of the various connection requirements for the diverse population of vessels visiting the terminal. Matters to be considered in any investigation of this option include:

- options for providing shore power at the terminal
- identification of cruise ships using the terminal in 2014–15 that currently have the capability to use shore power and their power requirements
- provisional identification of cruise ship capabilities and power requirements to 2020
- provision of an overview of available shore-side infrastructure options and costs from a supplier
- potential impacts of connecting to shore power for cruise ship noise.

The introduction of a requirement for shore power is likely to be a complex regulatory arrangement that involves a range of agencies, such as DPE, Port Authority and Ausgrid.

### **Investigating options: noise emissions**

Investigations on noise and vibrations are led by the DPE and the Port Authority. The EPA is playing a central role in this process, working on the investigations and reviewing monitoring in order to provide recommendations to DPE on any subsequent action to address noise emissions where necessary. So far, investigations have determined that not all cruise ships breach noise requirements.

Detailed investigation of individual ships is planned to determine the particular sources of noise generation.

Once particular noise and vibration sources are identified, the EPA will make recommendations to the DPE on specific actions or requirements that can be enforced on cruise ships to ensure noise impacts are minimised. Once the investigation is completed and provided to the DPE in October 2014, the EPA expects that the noise mitigation actions and time frames will be clear.

The EPA is also supportive of the use of shore-to-ship power as a means of reducing noise emissions, as well as air emissions, and further investigations into this option are underway and detailed above.





## Chapter 19: Regulation of forestry practices in Royal Camp State Forest

### Terms of Reference statement

*That the following cases be considered:*

*(vi) the regulation of forestry practices in Royal Camp State Forest*

### Summary

The Forestry Corporation of NSW operations in Royal Camp State Forest near Casino in northern NSW are carried out under the Integrated Forestry Operations Approval (IFOA) for the Upper North East Region of the state. The IFOA incorporates an environment protection licence and threatened species licence for which the EPA is the regulator.

A conservation group, the North East Forest Alliance (NEFA), alleged in 2012 that the Forestry Corporation was breaching IFOA threatened species conditions while undertaking forestry activities in Compartments 14, 15 and 16 of Royal Camp State Forest. There was an additional and later report of plans by the corporation to log Compartment 13.

In response, the EPA investigated the allegations, conducted proactive audits, commissioned a report on the regional significance of the area's koala population in order to inform decision-making and kept NEFA informed throughout.

The EPA's investigations over 2012 and 2013 resulted in:

- cessation of logging by the Forestry Corporation in Royal Camp State Forest
- undertakings by the Corporation to improve compliance and performance
- three penalty notices and an official caution being issued to the Corporation, and
- the Forestry Corporation retraining field staff in pre-harvest koala searching, protection and marking requirements.

Broader monitoring and compliance outcomes achieved by the EPA include:

- a 12-month program of unannounced compliance audits across the Upper North East Region between May 2013 and May 2014 that demonstrated compliance had improved
- review by the EPA of threatened species penalties leading to the recommendation by the EPA Board to increase the penalty notice amount from \$300 to \$15,000
- allocation of \$373,000 to core koala habitat mapping by the EPA, and
- regulatory improvements to ensure koala protection through the proposed consolidated Coastal Integrated Forestry Operations Approval.

Conservation stakeholder concerns centred on perceptions of inadequacies in the EPA's compliance processes (including investigation), inadequacies in stakeholder engagement, and disagreement with the decision to issue penalty notices instead of taking court action against the Forestry Corporation.

The EPA has considered these concerns and concluded that:

- process improvements could be made for engaging with stakeholders in relation to stakeholder allegations, especially in complex cases and this is now in place
- the EPA's compliance strategy and annual compliance priorities should be documented and made publicly available, also now in place
- Issuing of penalty notices was the correct regulatory action and the EPA applied the statutory penalty notice amount available under the legislation. The EPA is working with Government to significantly increase the statutory penalty notice amount.

The EPA believes that other concerns about the adequacy of its management of Royal State Camp Forest are unsupported.

The EPA values information provided by stakeholders and this case study illustrates the positive outcomes of such reports. The EPA prioritises the investigation of all reports to ensure that regulatory effort is applied to the most significant cases.

The EPA will continue to actively monitor Forestry Corporation operations in Royal Camp State Forest and state forests across NSW to ensure that all relevant koala and, more broadly, environment protection requirements are met.

## 19.1 Background

Royal Camp State Forest is located about 25 minutes' drive south-west of Casino in northern NSW in the Upper North East Region. In late September 2011, the Forestry Corporation of NSW commenced timber harvesting operations in Royal Camp State Forest.

The terms and conditions under which all forestry operations (including logging) must be conducted in Royal Camp State Forest are set out in the [Integrated Forestry Operations Approval for the Upper North East Region](#) (IFOA).

Between 31 July and 24 September 2012, the EPA received a series of complex and overlapping allegations from multiple sources. Some were raised verbally with EPA officers at different times and others were contained in six separate reports.

The allegations were primarily from the North East Forest Alliance (NEFA), a conservation group based in northern NSW, about potential breaches by the Forestry Corporation of the IFOA in Compartments 14, 15 and 16 of Royal Camp State Forest.

NEFA's main allegations were that the Forestry Corporation was not complying with the threatened species licence of the IFOA. Most of the concerns related to the corporation's alleged failure to conduct searches for koalas, locate koala high-use areas and protect koala habitat from the impacts of logging.

The substantive concerns raised by NEFA related to the Forestry Corporation's failure to meet key threatened species requirements in the IFOA including:

- the selection and retention of hollow-bearing and recruitment trees
- the identification and protection of koala habitat
- implementation of yellow-bellied glider protections
- the exacerbation of bell miner associated dieback
- other claims relating to the environment protection and threatened species licences, such as non-complying operations around streams and crossings.

In July 2013, the EPA received separate allegations from NEFA in relation to the significance of koala habitat in Compartment 13 of Royal Camp State Forest. The Forestry Corporation had not started logging in this compartment at that time but was scheduled to commence in the short term.

For information of the regulatory framework for native forestry, see Chapter 12: Forestry.

### ***Requirements under the threatened species licence***

#### **Koalas**

The threatened species licence states that an adequately trained person must conduct searches for koalas or evidence of them at least 300 metres ahead of active harvesting operations. A thorough search must be undertaken at the base of trees at 10-metre intervals, including primary, secondary and incidental browse trees.

Upon identifying a 'trigger' under the licence, such as 20 or more koala faecal pellets, the Forestry Corporation must undertake a more comprehensive and in-depth survey of the forested area, known as a 'koala star search'. Koala star searches are designed to identify important koala habitat areas, known as 'koala high-use areas' and also trigger koala feed tree retention requirements. Additional conditions are listed in sections 5.2.2 and 6.14 of the threatened species licence.

NEFA alleged that no basic searching was being conducted at all in many areas.

#### **Yellow-bellied gliders**

The licence states that an adequately trained person must conduct a thorough search for, record and appropriately mark dens of the yellow-bellied glider (*Petaurus australis*) and sap feed trees used by the gliders.

All yellow-bellied and squirrel glider sap feed trees must be retained and a 50-metre radius exclusion zone implemented around yellow-bellied glider dens. Logging debris must not be allowed to accumulate within five metres of a feed tree. Additional conditions are listed in section 6.17 of the threatened species licence.

It was alleged by NEFA that the Forestry Corporation had failed to identify and mark more than one feed tree that had been felled during logging.

## **19.2 The issue**

### ***19.2.1 What was the issue?***

The central issue was conservation stakeholder concerns about the perceived inadequacy of EPA responses to the allegations and reports concerning koala habitat and the protection of yellow-bellied gliders. While concerns were raised by other members of the community, these were covered in the six reports provided by NEFA.

The EPA's regulatory response to the Forestry Corporation was also perceived as inadequate, in particular, the issuing of three \$300 penalty notices to the corporation for logging in a koala high-use area.

Statements were made by NEFA, claiming that the EPA made 'a deliberate attempt to hide the nature and extent of breaches' or did 'an extremely shoddy, unprofessional and incompetent job'.

### ***19.2.2 What was the EPA's role?***

The primary role of the EPA in this case was to investigate the allegations received and ensure any harm to the environment, threatened species or their habitat was avoided. EPA staff have expertise in environment protection, threatened species, soil, water, compliance and enforcement. They work closely with relevant specialists where needed, including legal services to audit compliance with integrated forestry operations approvals (IFOAs).

The EPA proactively regulates the Forestry Corporation compliance with environmental conditions to assess whether native forestry harvesting operations are carried out according to the rules set by IFOAs and take any appropriate action to address any issues.

The EPA also regularly responds to a range of questions and concerns raised by the community, some of which result in detailed investigations. In relation to the allegations about Royal Camp State Forest, the EPA thoroughly considered the alleged breaches of the IFOA as reported by NEFA and independently investigated the allegations by conducting inspections, collecting evidence and reviewing information provided by the Forestry Corporation in response to statutory notices. Based on all this information, the EPA then considered an appropriate regulatory response in line with the [EPA Prosecution Guidelines](#), [EPA Compliance Policy](#) and standard operating procedures.

### **19.2.3 What action did the EPA take?**

The EPA's immediate actions focused on minimising the risk of impacts from the Forestry Corporation operations to koalas and their habitat. Subsequent allegations led to a broader suite of matters being investigated.

#### **Investigation**

Mr Dailan Pugh of NEFA raised concerns in late July 2012 about habitat tree retention in Royal Camp State Forest. The EPA immediately commenced an investigation into the allegations and met with Mr Pugh on 31 July 2012.

NEFA provided a supplementary report through formal written advice to the Minister for the Environment on Monday 6 August 2012 following its own field assessment the weekend before. This second advice explicitly alleged that timber harvesting was occurring in koala habitat.

The initial concerns and the EPA's investigation focused on alleged koala-related breaches. This included requesting that the Forestry Corporation cease logging in the area of concern, Compartment 15 of Royal Camp State Forest, which it did the next day. There has been no further logging in Compartment 15 since.

The EPA also sent investigators to the site to independently identify and assess the protection of koalas and their habitat. The focus of the investigators was to prevent further actual or potential harm to koala habitat and collect in-situ evidence of any breaches. EPA forestry staff met with NEFA representatives in the field on two occasions in August 2012. In the initial meeting the EPA wished to confirm the information provided in NEFA's complaints face-to-face, but the NEFA representatives wanted to accompany EPA officers on their field inspection. The EPA's priority on that occasion was independent field assessment and investigation and the EPA and Mr Pugh did not jointly inspect the area on this occasion. The EPA acknowledges that in hindsight, it would have been better to have conducted a joint inspection as part of this meeting. The EPA appreciates the time donated by community members and has subsequently apologised to Mr Pugh and his colleague for not jointly inspecting the area at the first opportunity. The EPA subsequently met with, and was accompanied by, NEFA representatives during a site visit later the same month.

Over the course of the investigation, the EPA undertook 11 days of field inspections. Some of these occurred on separate occasions given that new information was being provided throughout the process with six reports received over an eight-week period. As part of its investigations and gathering of evidence, the EPA also issued the Forestry Corporation with three statutory notices under the [Protection of the Environment Operations Act 1997](#) (POEO Act) to obtain information and records about how it planned and executed operations in Royal Camp State Forest.

The EPA interviewed Forestry Corporation officers as part of this investigation. Assistance with various matters was also provided by the Office of Environment and Heritage Legal Branch.

On 8 July 2013, NEFA contacted the EPA with concerns about the Forestry Corporation adding Compartment 13 of Royal Camp State Forest to the monthly register of planned operations. NEFA raised concerns that the area proposed to be logged was significant

habitat for koalas and provided a report based on a field inspection that identified koala high-use trees there.

Following receipt of these concerns, the EPA contacted the Forestry Corporation and was advised logging was not due to start for two to three months.

The EPA carried out a joint site inspection with NEFA, so it could be clear about locations where the breaches were being alleged. The EPA also conducted further searches beyond these with NEFA.

The EPA raised the allegations that the area might contain regionally significant koala habitat with the Forestry Corporation and requested relevant information to assist with its investigation. It also undertook a pre-harvest survey of the area and ensured that all the koala identifications from this work were provided to the corporation. In addition, based on concerns raised through allegations received in 2012, the EPA engaged an independent expert to assess the claims that the koalas in Royal Camp State Forest were regionally significant (see details below). This assessment included consideration of Compartment 13.

Based on information obtained from a number of sources, including that through the EPA's on-site investigations, the report concluded that the occupancy of koalas in Royal Camp State Forest was in decline and, because of this, were eligible for listing as endangered.

The EPA has informed the Forestry Corporation of these findings and requested that it not log in Royal Camp State Forest. The EPA also provided a copy of the report to NEFA.

To date, there has been no logging in Compartment 13 of Royal Camp State Forest since the allegations were made in July 2012.

### **Proactive audits**

Concurrent with the investigation in Royal Camp State Forest, the EPA commenced a series of proactive audits in the Upper North East Region to determine if there were regional systemic issues with the Forestry Corporation implementation of koala protection provisions.

The audits identified opportunities for improved practices by the Forestry Corporation specifically related to it searching for koala evidence in pre-harvest surveys. The audits determined that the corporation relies heavily on koala sightings as the main source of information for koala habitat protection, whereas the threatened species licence requires broader searching for evidence of koalas at the base of trees. A positive shift has already been demonstrated via the audit results in the way the corporation is applying koala protection measures in the Upper North East Region.

### **Further investigations into the significance of the koala population**

The EPA noted that one of the concerns raised was that the koala population was of regional significance, that the current threatened species licence conditions were not adequate and that the koala population required greater protection than is currently afforded under the licence. NEFA was also recommending that Compartment 13 be reserved.

EPA investigations and survey work in Royal Camp State Forest identified that there was a high level of koala use in Compartment 13 where logging was scheduled to commence. The level of koala activity indicated that this compartment supported a resident koala population.

During this time, the Minister for the Environment asked the EPA to determine the regional significance of the koala population. To assist with this task, the EPA contracted Dr Stephen Phillips of Biolink Pty Ltd and received his report on Royal Camp State Forest on 28 June 2014. A copy of the report is available.

Dr Phillips' report identified that Compartment 13 of Royal Camp contained a resident koala population. The majority of koala activity was located in the harvestable area in the east of the compartment and areas adjoining the drainage line on the northern boundary of the compartment.

Dr Phillips also provided advice on the significance of koala populations in the Richmond River Local Government Area. His advice suggested that, with the occupancy of the koala population in significant decline, it would be eligible for listing as endangered. Dr Phillips also raised concerns about potential negative impacts of forestry operations on the resident koala population in Compartment 13 of Royal Camp State Forest.

The report supports the EPA's view that koala conditions in the IFOA [currently being remade](#) need to move away from record-based triggers and focus on broader landscape management. This includes incorporating improved protection measures and clear exclusion zones around habitat of regional significance. This approach is being considered as part of the proposed Coastal IFOA, a draft of which is due for release for public comment later in 2014.

### ***Towards a consolidated Coastal IFOA***

The NSW Government proposes to remake the four coastal integrated forestry operation approvals (IFOAs) into a single regulatory instrument which is efficient, effective and enforceable; reflects modern best-practice regulation; and maintains access to existing levels of wood supply without eroding environmental values. The proposed consolidated Coastal IFOA will include Royal Camp State Forest.

The objectives of the proposed IFOA are to:

- improve the clarity and enforceability of the IFOAs, including the conditions of environment protection, threatened species and fisheries licences held by the Forestry Corporation of NSW
- reduce the costs associated with implementation and compliance
- recognise innovations in best regulatory practice, incorporate advances in technology, and deliver a contemporary regulatory framework that is fit for purpose.

In February 2014, a [discussion paper](#) outlining the key elements of the proposed IFOA and legislative amendments was released for public comment until 9 April. During this time six independently facilitated community information sessions were held.

The NSW Government received 877 submissions on the discussion paper. These have been reviewed and are informing the draft of the new IFOA. This will be released for public comment later this year giving the community a further opportunity to consider and provide input into the proposed regulatory practices.

### **Stakeholder engagement**

The EPA was in regular phone contact with Mr Pugh of NEFA throughout its investigations, providing regular updates on progress. The EPA met with NEFA about Royal Camp State Forest specifically on three occasions. The first two meetings related to Compartments 14, 15 and 16 of Royal Camp State Forest, while the third was a joint search at Compartment 13 to ensure that the EPA understood the locations of concern held by NEFA and explain the EPA's search technique.

Engagement with NEFA has presented the EPA with opportunities to review and reflect on stakeholder engagement during tight time frame investigations where complete and overlapping allegations are received over several weeks. The review of this investigation is covered in the 'EPA debrief' section below.

#### ***19.2.4 Outcomes of the EPA investigation: Forestry Corporation of NSW***

The EPA's investigation determined that the Forestry Corporation had not adequately implemented koala protection prescriptions in parts of the operations, particularly around log dump 20 in Compartment 15. The EPA identified that compartment mark-up and searching in this area was not conducted in adherence with the threatened species licence. It also found that timber harvesting had been conducted within areas considered to be koala high use.



The EPA considered that these breaches were reasonably significant and could have been prevented through a more diligent approach by the Forestry Corporation. The EPA's investigation also determined that the corporation had not marked or retained trees as required by the licence. While it notes that habitat and recruitment trees are not necessarily evenly distributed across the landscape, the EPA would have expected to find more such trees marked and retained in the area inspected.

In response to these non-compliances, the EPA put in place the measures discussed below.

### **Cessation of logging**

In August 2012, the EPA requested the Forestry Corporation to cease all forestry operations in Royal Camp State Forest. It should be noted that under the integrated forestry operations approval (IFOA), the EPA does not have an enforcement power equivalent to a 'stop work' order.

The cessation of logging was to be for an initial period of three months, but the Forestry Corporation has not restarted logging operations in Royal Camp State Forest August 2012. This has prevented further actual or potential environmental harm.

### **Improvements in Forestry Corporation compliance capacity and performance**

As a result of the EPA's investigation, senior EPA and Forestry Corporation officers met to discuss how to improve the corporation's identification and protection of koalas and their habitat more broadly. These meetings included discussion on the level of effort needed to undertake the 'thorough search' required in the IFOA.

Following this, the Forestry Corporation commenced retraining of all field staff responsible for pre-harvest searching and marking in adherence with the threatened species licence requirements. Retraining includes ensuring relevant staff understand EPA expectations about completing a thorough search. The EPA was also advised the Forestry Corporation held 'toolbox talks' with harvesting contractors to reiterate their legal obligations under the threatened species licence component of the IFOA. The EPA has continued to audit the corporation's koala identification and protection performance in this region and has observed improvements in operator performance in the field.

### **Penalty notices and official caution**

The EPA issued the Forestry Corporation with three penalty notices for breaching conditions of the Upper North East Threatened Species Licence and section 133(4) of the *National Parks and Wildlife Act 1974* for offences associated with Royal Camp State Forest Compartments 14, 15 and 16. These penalty notices were for:

- timber harvesting in koala high-use areas
- timber harvesting in koala high-use exclusion zones
- failing to conduct a thorough search for, record and appropriately mark koala high and intermediate use areas.

In addition, the EPA also issued an official caution in relation to other matters investigated, including failure to mark and retain hollow-bearing and recruitment trees and hazard reduction burning within exclusion zones contrary to the threatened species licence conditions.

The EPA identified the root cause of the breaches of the licence as the Forestry Corporation's failure to undertake searches for evidence of koala in compliance with the licence. The EPA considered that if searches are inadequate or not undertaken at all, the default protection provisions in the licence become ineffective. That is, if you don't look, you don't find and if you don't find, you don't protect.

## Consideration of appropriate sanction

The EPA determined that, in addition to all other actions (both those outlined above and the structural improvements to drive performance improvement by the Forestry Corporation below), there should be a measure of public sanction applied to these offences. In determining the appropriate measure, the EPA was guided by the [EPA Compliance Policy](#) and [EPA Prosecution Guidelines](#).

In determining whether to prosecute or issue a penalty notice, the EPA took the following factors from the prosecution guidelines of particular relevance in this case:

### *Availability and efficacy of any alternatives to prosecution*

As demonstrated, other alternatives to prosecution were available and continue to be implemented.

### *Whether the alleged offender acted in accordance with EPA advice*

The Forestry Corporation of NSW has acted in response to EPA advice in requesting a cessation of logging.

### *Likely outcome in a finding of guilt with regard to sentencing options available to the Court*

The EPA's experience in bringing prosecutions for threatened species offences against the Forestry Corporation is that sentencing can result in modest fines. The two most recent cases resulted in penalties of \$5600 and \$35,000. The first fine was for threatening a smoky mouse habitat, then listed as endangered under the *Threatened Species Conservation Act 1995* (and now critically endangered). The second case involved hazard reduction burning in an area designated as riparian habitat protection under the mechanism of protection zones.

By prosecuting the case, the EPA may have used considerable public resources, which at best would likely have only achieved a modest outcome.

### *Harm or potential harm to the environment caused by the offence*

Potential harm was addressed by the cessation of logging activities at the EPA's request. The area logged did not impact on the viability of the koala habitat and the majority of the trees removed were a secondary browse species, rather than primary preferred browse species for koalas.

### *Summary of EPA thinking on penalties*

Based on the above considerations and the importance to the EPA and the community of a public sanction, the EPA considered that including three penalty notices and an official caution in the package of actions was appropriate.

However, the EPA agrees with concerns about the low level of fines for penalty notices for threatened species. Water pollution penalties under the IFOA are \$1500 and are being increased to \$15,000. The Board of the EPA has recently considered this matter and recommended that penalty notices for threatened species should also be increased, from the current \$300 set in the legislation, to \$15,000.

For further information on the EPA compliance toolbox, see Chapter 2.

### ***What did the EPA decide on other alleged breaches?***

While the EPA decided to give priority to the koala aspects of the Royal Camp investigation, it also investigated other matters raised by NEFA. Key issues raised and EPA investigation outcomes are discussed below. The EPA wrote to NEFA in August and September 2013 to explain these outcomes.

#### **Forestry Corporation selection and retention of hollow-bearing and recruitment trees**

The EPA acknowledged that, if not for the priority given to koala protection, the selection of recruitment trees in Royal Camp would have been given greater focus in the investigation. As an identified Crown forestry compliance priority for 2013–14, the EPA is closely monitoring Forestry Corporation identification of recruitment trees, as well as the spatial distribution of retained hollow-bearing and recruitment trees in state forests.

#### **Implementation of yellow-bellied glider protections**

The EPA considered evidence in the field and acknowledged the expert advice provided by NEFA (and ecologist David Milledge) that the Forestry Corporation had failed to identify and mark more than one feed tree that had been felled during logging. The EPA did give a lower priority to collecting evidence in relation to these alleged breaches because a significant number of yellow-bellied glider feed trees had been retained throughout the Forestry Corporation's operations and there was likely to be low environmental harm. As such the EPA decided not to issue a penalty notice in this case but continues to closely monitor retention of yellow-bellied glider feed trees and implementation of exclusion zones in forest operations in key areas.

#### **Potential exacerbation of bell miner associated dieback**

The EPA considered the information tendered by NEFA about the presence of bell miners and susceptibility to the associated dieback in one area of forest. EPA officers determined that this area was susceptible to dieback, noting that bell miners were present along with active dieback in surrounding areas and lantana understorey. The EPA notes ongoing concerns that have been raised in relation to bell miner associated dieback in native forests. In response to these matters, the EPA has included forest health issues, including this dieback as a [compliance priority](#) for EPA Crown forestry in 2013–14. The EPA will provide records of these observations to the Bell Miner Associated Dieback Working Group and the Forestry Corporation.

#### **Other claims relating to the environment protection and threatened species licences**

Two of NEFA's allegations relating to illegal operations around streams and stream crossings were referred to the Forestry Corporation for follow-up action.

### ***19.2.5 Broader monitoring and compliance outcomes***

In addition to responding directly to the Forestry Corporation offences, the EPA has taken a number of broader actions, including research, audits and a review of penalties with a view to improving the structural deficiencies identified in these offences.

#### **Compliance audits**

As noted above, to test whether the enforcement actions taken at Royal Camp State Forest have been effective at improving environmental performance, the EPA recently completed a series of proactive compliance audits.

From May 2013 to May 2014, the EPA made a series of unannounced audits of Forestry Corporation operations across the Upper North East Region. Nine separate and active operations were inspected to assess the implementation of koala protection measures.

These audits highlighted that the Forestry Corporation is undertaking compartment mark-up and searching in a more diligent and thorough manner after the EPA's action in relation to Royal Camp State Forest. The EPA noted that eight of the nine operations were considered compliant with threatened species licence requirements. The EPA requested corrective actions to be implemented for the one non-compliant operation.

The EPA has also investigated a number of alleged non-compliances across the Upper North East Region in relation to koala protection for three separate operations. These investigations found that the corporation also met the koala-related IFOA requirements in these operations.

### **Review of threatened species penalties**

The EPA Board has considered and approved a proposal to request the NSW Government increase threatened species penalty notices to \$15,000 in line with recent reforms to penalty notices under the POEO Act.

### **Core koala habitat mapping**

The EPA is mapping core koala habitat so that it can be protected at the landscape level. This is intended to replace the existing presence/absence triggers and is a far more effective way of ensuring koalas and their habitat are protected.

### **Regulatory improvements to ensure koala protection**

As part of the proposed consolidated Coastal IFOA, the EPA and Forestry Corporation have committed to moving to regional koala habitat mapping. As noted above, the EPA has commenced broad-scale mapping of koala habitat. The outcome of this mapping project will be used to inform appropriate conditions, including exclusion zones, the protection of feed trees and other alternative provisions in the consolidated Coastal IFOA.

Based on the findings of the Phillips report (above), the EPA recommended in June 2014 that no further forestry activities occur in Royal Camp State Forest until:

- appropriate mitigation measures are developed for the consolidated Coastal IFOA
- regional refinement of the EPA's koala habitat mapping project is undertaken in the Royal Camp State Forest.

The EPA will consider any other information that the Forestry Corporation can supply which clearly demonstrates how this important and declining koala population would be adequately protected from any potential future forestry operations in Royal Camp State Forest.

### **19.2.6 Environmental outcomes**

In terms of environmental outcomes, the actions detailed in Section 19.2: 'The issue' address both short-term environmental outcomes (for example, the cessation of logging and improved practices by the Forestry Corporation) and longer-term outcomes through related structural reforms to improve compliance with the threatened species licence, especially in relation to koalas. A positive shift has already been demonstrated via the audit results in the way the corporation is conducting its operations in relation to koala protection measures in the Upper North East Region.

The draft Coastal IFOA is scheduled for release for public consultation later in 2014 and this will be an opportunity for the public to have further input into the best ways of improving environmental outcomes, including koala protection.

### *What else is being done to protect koala habitat on public land?*

The EPA released the [Crown Forestry Compliance Strategy](#) on 1 July 2013. The strategy provides a comprehensive and transparent framework for the regulation of native forestry on public land, including the setting of annual Crown forestry compliance priorities by the EPA. These priorities are based on available data and intelligence, recent compliance findings and a recognition of issues important to the community. The identification and protection of koala habitat is a key compliance priority.

In 2012, OEH allocated \$710,000 to koala recovery actions, including mapping koala habitat and assisting private land owners to manage and enhance habitat. This funding also supported local councils to develop comprehensive koala plans of management, particularly in the Coffs Harbour and Bellingen areas of the mid north coast. This was on top of more than \$400,000 in funding provided through the NSW Environmental Trust for projects, including the restoration of koala habitat.

While these plans of management do not cover state forest tenure, the information they contain can be extremely useful in highlighting areas where further koala work may be needed. This is the case in the Bellingen area where the local council's koala work correlates with the presence of koalas in Pine Creek State Forest.

More broadly, the NSW Government [Saving our Species](#) initiative uses community participation, targeted investment and tailored approaches, based on the best available science to better protect and conserve our native plants and animals, including the koala.

## **19.3 EPA debrief**

The EPA reviews investigatory outcomes and looks for opportunities to continuously improve the organisation's approach to environmental outcomes, compliance processes and stakeholder engagement.

The concerns of the North East Forest Alliance (NEFA) in relation to compliance processes and stakeholder engagement were detailed in a letter to the Minister after the EPA had informed NEFA on 15 August 2013 of its findings and regulatory action. NEFA suggested that the EPA had:

- misrepresented some of NEFA's evidence about koalas and other matters
- not investigated key complaints
- not adequately reported findings on key complaints
- not located all of the alleged breaches that NEFA had communicated in documents or on site and not considered all available evidence
- not carried out its work with adequate expertise or professionalism
- not formally responded to allegations within a satisfactory time
- ignored NEFA's assertion that the Forestry Corporation logged another two koala high-use areas while the EPA was conducting its audit
- not adequately determined whether the corporation had felled feed trees used by yellow-bellied gliders (which are protected under the IFOA).

### **19.3.1 Compliance processes and stakeholder engagement debrief**

The EPA's analysis of the investigation into the series of allegations received from conservation stakeholders concludes that it was detailed and robust. The EPA made a genuine attempt to respond to all allegations received across all correspondence and verbal communications made throughout the eight-week period and directly responded to all but four of the matters raised.

Of the four that were not investigated:

- one (regarding the selection of recruitment trees) was not specifically investigated but actions taken to protect koalas also protected recruitment trees for other wildlife habitat
- one (relating to two operations around streams and a stream crossing) was referred by the EPA to the Forestry Corporation for follow up
- one was the responsibility of the Department of Primary Industries (NSW Fisheries) and was referred to the department for consideration
- one (that the Forestry Corporation had misled the public) was not within the scope of the EPA's investigation.

Statements made by NEFA that the EPA made 'a deliberate attempt to hide the nature and extent of breaches' or did 'an extremely shoddy, unprofessional and incompetent job' are refuted.

While the EPA has identified and begun implementing a number of improvements for compliance processes and stakeholder engagement (detailed below), overall the EPA believes that:

- the investigation was timely with investigators on the ground within 24 hours of significant allegation of harm to koala habitat, preventing further harm
- adequate systems are in place to track allegations
- staff were well-trained, experienced and suitably qualified for the investigation
- the EPA's risk prioritisation process is appropriately targeted to –
  - minimise ongoing actual or potential harm
  - collect evidence and investigate breaches
  - liaise with stakeholders
- final advisory responses to third party notifications were appropriately targeted and reported and limited only to those claims made by the relevant party.

### **Process improvements**

The EPA identified process improvements based on the outcomes from this investigation. While these changes would not have altered the EPA's main focus or investigatory approach, they have improved the way it deals with complex, multiple source and overlapping allegations received over an extended period of time. To this end, the EPA has improved its engagement with stakeholders to better clarify and confirm non-compliances, including providing a tracking table so that each allegation is clearly documented, investigated and reported against.

1. In situations of complex or multiple allegations of breaches of IFOAs, the EPA now confirms allegations in writing prior to commencing an investigation, using a tabular format for clarity. Liaises with third party stakeholders to ensure that allegations made by them in initial notifications have been captured accurately and the issues are clearly understood. This may or may not include a field visit with the relevant stakeholder.
2. Where further allegations are received after an investigation has commenced, the EPA adds them to the table and confirms with the complainant that they will be included in the current process or dealt with in a separate process.
3. The EPA is in the process of updating its web-based complaint form to a tabular format to more easily allow for instances of multiple allegations.
4. The EPA now provides detailed responses in a tabular format to clearly allow stakeholders to track individual allegations, the relevant licence conditions and the EPA findings and actions.
5. Internal processes have been improved for tracking correspondence, claims and allegations to ensure complaints are identified and investigated and correctly reported on.
6. Clear boundaries have been set for any infield engagement prior to meeting with stakeholders to avoid misunderstandings.



### Clarity on priorities

Underlying some of the concerns expressed by NEFA is a view on the level of prioritisation accorded to their complaints. As always, EPA resources – and within a specialised section of the agency, such as forestry – must be spread across its regulatory responsibilities, managing alleged non-compliances and other functions.

During the relevant period and as well as the Royal Camp State Forest matter, the EPA was conducting and finalising 10 proactive audits under its [Crown Forestry Compliance Strategy](#) and actively investigating 13 operations across the state in response to alleged offences under the IFOAs.

To ensure compliance resources are deployed to the most significant issues, in July 2013 the EPA began to publish [annual compliance priorities](#) under the strategy, beginning with 2013-14. The priorities were provided to peak stakeholders for consideration and comment before being finalised.

The strategy and annual priorities use a risk-based approach and seek a better balance between responsive and proactive work. They form the basis of the proactive work program in Crown forestry regulation and prioritise the EPA's response to individual allegations based in part on their alignment with the published compliance priorities. This approach clearly sets expectations across the regulated community and provides a better focus for conservation stakeholders in targeting the matters they raise with the EPA.

The EPA reserves the right to prioritise its response to allegations based on its compliance priorities and the workload at the time.



## Part C: Other related matters



**The EPA has provided a detailed submission in relation to the terms of reference. The EPA has no other related matters to report under Part C.**