



A healthier and cleaner environment protecting both ecological and human health

Contributing to State Plan priorities

DECC is the lead agency for:

- E3: Cleaner air and progress on greenhouse gas emissions
- E4: Better environmental outcomes for native vegetation, biodiversity, land, rivers and coastal waterways

DECC is a partner agency for:

- E1: A secure and sustainable water supply for all users
- E8: More people using parks, sporting and recreational facilities and participating in the arts and cultural activity
- R3: Reduced levels of anti-social behaviour

Planned DECC corporate outcomes

- Pollution and other adverse environmental impacts prevented, reduced or mitigated
- Degraded environments remediated or restored
- Community wellbeing improved

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Photo: Bob Peters Imaging

3.1 Preventing or mitigating pollution and other adverse environmental impacts

3.1.1 Regulating environmental impacts

DECC is responsible for regulating activities relating to air quality, water quality, noise and odour, chemical and pesticide use, waste disposal, contaminated sites, radioactive

substances, Aboriginal cultural heritage and threatened species protection, and clearing of native vegetation.

In 2006–07, DECC strengthened its regulation of threatened species and Aboriginal cultural heritage legislation (see page 109), and on 27 April 2007 became responsible for native vegetation compliance and enforcement activities. These activities are described on pages 60–66.

DECC also engaged in the NSW Government's drive to reduce red tape. DECC is currently reviewing its regulatory procedures to ensure appropriate environmental management by industry.

Over the year, DECC continued its **risk management approach** to regulated activities through intensively managing higher risk sites and strategically using targeted audits and campaigns for lower risk premises. The application of a risk management approach has allowed DECC to concentrate on the more significant industrial premises and sectors using licence conditions, pollution reduction programs, compliance reviews and inspections, the follow-up of annual return information and specific compliance campaigns.

Under the *Protection of the Environment Operations Act 1997* (POEO Act), DECC issues licences that contain environmental conditions to industry. At 30 June 2007, there were 3235 licences granted under the POEO Act.

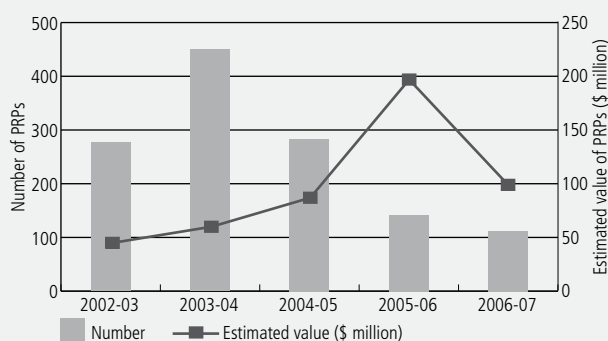
DECC also instigates **pollution reduction programs** (PRPs) with licensees to reduce environmental impacts from premises. Many PRPs build on each other over several

■ PERFORMANCE INDICATOR

Number and estimated value of new pollution reduction programs negotiated with licensees

Definition: This indicator measures the number and estimated value of new pollution reduction programs (PRPs) negotiated during the year. PRPs are legally enforceable programs DECC negotiates with licensees. PRPs require changes to works or management practices to bring about environmental improvements within a specified timeframe. The conditions of a PRP are attached to the environment protection licence. PRPs may be implemented in stages over a number of years, with specific conditions attached to each stage. The dollar values are approximate DECC estimates.

Number and estimated value of new pollution reduction programs negotiated with licensees



Interpretation: The estimated value of PRPs negotiated by DECC for 2006–07 was over \$97.5 million. The unusually high amount of \$196 million in 2005–06 was driven by the PRPs to upgrade Sydney Water's sewage treatment systems to reduce overflows over five years.

In 2006–07, the number of PRPs decreased to 112 compared with 142 in 2005–06. The peak in 2003–04 was due to the large number of PRPs negotiated for rural sewage treatment systems, which are now being implemented. Of the PRPs commenced in 2006–07, 51 (46%) addressed water quality issues, and 19 (16%) addressed air quality issues, noise and odour.



Photo: Courtesy of A. Wilson, Murray Catchment Management Authority

Pollution reduction programs negotiated between DECC and industry enable sewage treatment plants to be upgraded so water quality is improved in major waterways such as the Murrumbidgee River.

years. For example, since 1976 the NSW Government has negotiated PRPs with Port Kembla Steelworks. The scheduled end of the fifth five-year PRP cycle at the end of 2007 will have resulted in 173 PRPs implemented over a 30-year period, representing more than \$300 million spent on environmental improvements to the premises.

Significant PRPs which commenced in 2006–07 are:

- Wagga Wagga City Council upgrading the sewage treatment plant to significantly reduce emissions, especially nutrients, flowing into Murrumbidgee River
- Mid-Western Regional Council upgrading its Kandos and Rylestone sewage treatment plants, and constructing a new sewage treatment plant in Mudgee to improve the quality of treated effluent discharged to Coomber Creek and Cudgegong River
- Endeavour Coal Pty Ltd installing a desalination facility to treat mine water, to reduce the concentration of salt discharged into the Hawkesbury–Nepean River

- Empire Marina Bobbin Head Pty Ltd upgrading its facilities from a slipway to a hardstand, to enable more effective containment of wastes from antifouling vessel hulls.

DECC's **strategic environmental compliance and performance review program** integrates compliance audits and licence review programs for industry sectors. In addition to assessing compliance with existing requirements, the reviews improve industry's environmental performance by providing examples of best practice operations and the findings of DECC's reviews. The focus for the 2006–07 review was the **prevention of contaminated sites** and DECC reviewed activities that could contaminate land or groundwater, such as those taking place in metal industries. The review documented best environmental management practices that reduced the likelihood of site contamination. A report will be produced in 2007–08.

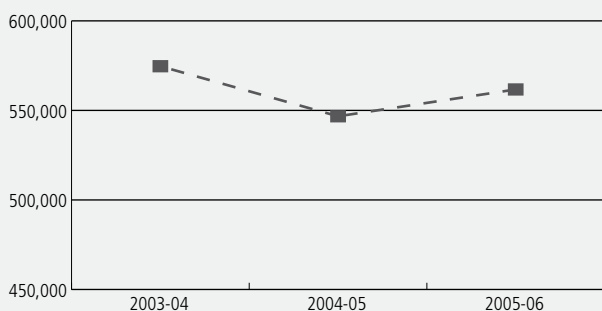
DECC also commenced a review aimed at **improving environmental performance** in both licensed and non-licensed premises located in the same region. The first

■ PERFORMANCE INDICATOR

Pollutant Load Indicator for total assessable air and water pollutants from premises licensed under load based licensing

Definition: The Pollutant Load Indicator (PLI) represents the total pollutant load emitted by all load based licensing (LBL) activities for the reporting year, adjusted to reflect the relative harm of the pollutants and the sensitivity of the environment into which they are emitted. A pollutant emitted in very large quantities can have a lower impact than another pollutant with relatively small emissions because of differing levels of toxicity and the sensitivity of the environment into which they are emitted. Fluorides, for example, have a higher pollutant impact than volatile organic compounds, even though their actual pollutant load is lower. The higher the PLI, the greater the potential environmental harm.

Total assessable air pollutants PLI



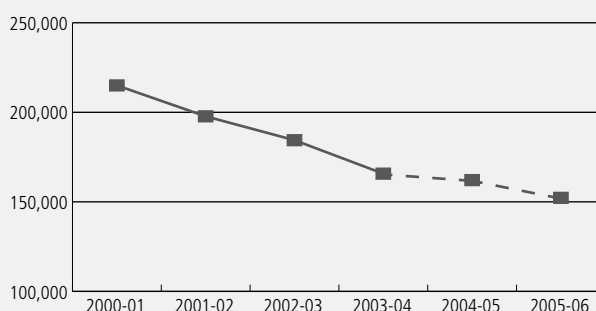
Interpretation for air pollution emissions: DECC has not yet received data from all licensees for the 2006–07 period so this data will be updated in 2008. In addition, data for 2004–05 and 2005–06 is considered provisional (shown by a dotted line), as quality assurance systems can lead to some restatement for up to two years following reporting. Such restatements are usually minor but substantially improve the integrity of the scheme and any decision making based on LBL information.

The PLI for total air pollutant emissions decreased from 2003–04 by 5% to 546,723 in 2004–05, including decreases in the three main pollutants: nitrogen oxides, sulphur oxides and fine particulates. Data for 2005–06 shows an increase of 2.7% on the previous year to 561,700. Increased LBL fees have been introduced in 2006–07 to drive further decreases in pollutant emissions.

Under the LBL scheme, 12 types of air pollutants and 17 categories of water pollutants are reported by licensees and assessed by DECC. Air pollutants are: arsenic, lead, fine particles, fluorides, nitrogen oxides, mercury, sulfur oxides, volatile organic compounds, hydrogen sulfide, coarse particles, benzene and benzo(a)pyrene. Water pollutants are: total polycyclic aromatic hydrocarbons (PAHs), total phenolics, pesticides and polychlorinated biphenyls (PCBs), mercury, arsenic, chromium, salt, phosphorus, selenium, biochemical oxygen demand (BOD), total suspended solids, nitrogen, oil and grease, zinc, lead, copper and cadmium.

In June 2004, recognising growing international concern about the impacts of air pollutants, DECC reformed the LBL scheme by increasing the weightings for many air pollutants, and effectively increased the total air PLI by around 50%. As a result, air data received before 2003–04 is not readily comparable with subsequent years and is not shown.

Total assessable water pollutants PLI



Interpretation for water pollution emissions: DECC has not yet received data from all licensees for the 2006–07 period so this data will be updated in 2008. In addition, data for 2004–05 and 2005–06 is considered provisional (shown by a dotted line), as quality assurance systems can lead to some restatement for up to two years following reporting. Such restatements are usually minor but substantially improve the integrity of the scheme and any decision making based on LBL information.

The trend indicates continued improvement in controlling the levels of harm from water pollutants emitted by licensed activities, with a 29% improvement in the PLI between 2001–02 and 2004–05.

The PLI shows a drop from 162,145 in 2004–05 to 152,233 in 2005–06.

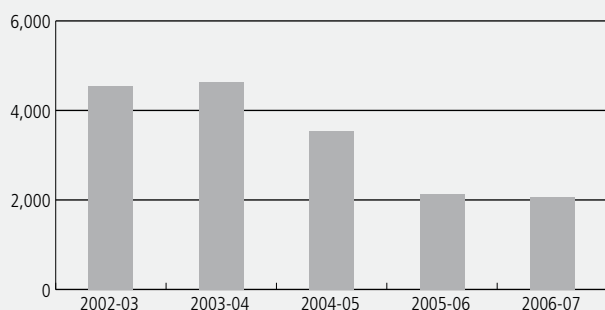
part of the review was conducted in partnership with Tamworth City Council at the Taminda Industrial Estate. DECC identified issues such as lack of spill containment structures, practices resulting in dust and odour emissions and inadequate emergency response procedures. In addition to assessing compliance with environmental requirements, officers highlighted opportunities for industry to adopt resource efficiency and cleaner production practices such as reusing waste water on-site, saving energy and sorting waste to recover recyclable material. The second part of the review will be conducted with Wollongong City Council at Unanderra, commencing in the second half of 2007. A public report will be released in early 2008. DECC expects that industry will use the review's findings to reduce environmental emissions, and to reduce costs by recovering resources from waste.

■ PERFORMANCE INDICATOR

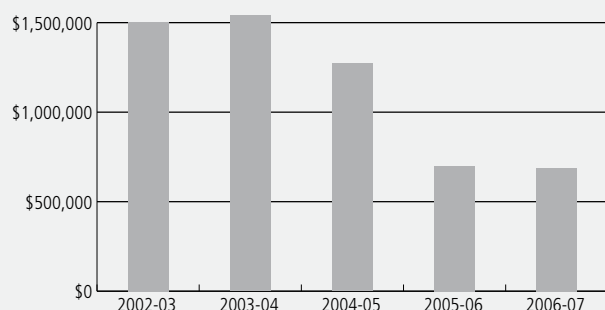
Number and value of penalty infringement notices issued by DECC under EPA legislation

Definition: Penalty infringement notices (PINs) are issued for minor breaches of the Environment Protection Authority (EPA) legislation administered by DECC, as well as for smoky and noisy vehicles and littering from vehicles. PINs impose a fine. This indicator measures only the number of PINs issued and processed by DECC. See Appendix 8 for details of the legislation under which these PINs are issued, and PINs issued by local councils.

Number of PINs issued



Value of fines from PINs issued



Interpretation: In 2006–07, 2067 PINs were issued which imposed fines of \$687,750, similar to 2005–06. In recent years, the number of PINs for motor vehicles, especially smoky vehicles and littering from vehicles, has decreased. DECC's surveys confirm a decrease in the number of smoky vehicles in Sydney. The decrease is partly due to improvements in motor vehicle fuel standards and emission controls, and also reflects the success of DECC's enforcement and education activities.

DECC also conducts compliance audits to target particular environmental issues at licensed premises. During 2006–07, DECC completed 19 compliance audits and 1433 inspections of licensed premises. These activities increased industry awareness of practices which had negative environmental impacts. For example, an audit conducted at a mine led to improved storage of hazardous chemicals, and an audit of an abattoir resulted in better odour management.

To support environmental compliance programs and investigations, DECC scientists conducted more than 118 ecotoxicology and 50,000 chemical tests in 2006–07.

The **load based licensing scheme** (LBL) reduces pollution by linking industry licence fees with emissions. Pollutant load fees are paid by the state's larger, most potentially polluting industries and are proportional to the quantity and type of pollutants discharged and the condition of the receiving environment. Significant reductions in pollution continue to be achieved (see performance indicator, page 35).

Following a NSW Government commitment in March 2007, legislative amendments were passed in June 2007 to significantly increase LBL fees for licensed premises to target air pollution in the Sydney region. The fees apply to premises emitting nitrogen oxides and volatile organic compounds of hydrogen and carbon during December, January and February, when ozone levels in Sydney can be high in hot weather. General licensing fees were also increased for the first time since 2004, to align with the consumer price index. The fee increases will provide a greater incentive for licensees to implement measures to reduce emissions.

Implementing reforms

The **Protection of the Environment Operations**

Amendment Act 2005 commenced on 1 May 2006. The amendments to the POEO Act contained changes that initiated the biggest overhaul of pollution laws in almost 10 years including provisions to:

- simplify and strengthen licensing administration and improve the waste regulatory framework
- improve notice provisions and authorised officer powers
- increase fines and expand sentencing options
- introduce offences for excessive woodsmoke, land pollution and the misclassification of waste
- require consideration of environmental values of water in regulatory decisions.

In 2006–07, DECC implemented this Act by:

- updating the *Guide to notices*, *Guide to licensing and licence forms*, *Noise guide for local government*, *Powers of authorised officers*, woodsmoke resources kit for councils and the brochure, *Managing noise from intruder alarms*
- releasing new information including the *Local government air quality toolkit* (see page 40), a pesticides video for people from non-English speaking backgrounds, and *Technical framework – Assessment and management of odour from stationary sources*

- providing operational guidance on the waste and environment levy, considering environmental values of water when issuing prevention notices, and applying policies on the environmental values of water.

Penalty notices and prosecutions

Prosecutions

DECC can prosecute environment protection offences under the authority of the Environment Protection Authority (EPA). Significant prosecutions completed in 2006–07 are outlined below. See Appendix 8 for details on all prosecutions completed in the year.

Odour

In November 2006, **Shoalhaven Starches Pty Limited** was fined \$125,000 and ordered to undertake an environmental audit after it was found guilty of emitting offensive odours from its licensed premises near Bomaderry. The company was also ordered to publish a notice detailing its conviction in the *Sydney Morning Herald* and the South Coast Register, and on its website. The company operates a starch factory and an environmental farm which generates wastewater. If not dealt with properly, the wastewater produces offensive odours. In April 2004, in response to community complaints, DECC investigated the offence and subsequently prosecuted the company. The company has been prosecuted three times in the last 10 years for odour-related offences.

The Land and Environment Court fined **D F Herbert Pty Limited**, trading as Gundmain Pastoral Company, \$80,000 and ordered it to pay costs of \$14,000 for overstocking its feedlot in the central west of NSW. Nearby residents had raised concerns with DECC about offensive odours from the feedlot, but DECC received more complaints when the feedlot was overstocked. The company pleaded guilty to breaching a condition of its environment protection licence, which limited the number of livestock at the feedlot to 4000, rather than the 6000 head of cattle DECC found.

Waste

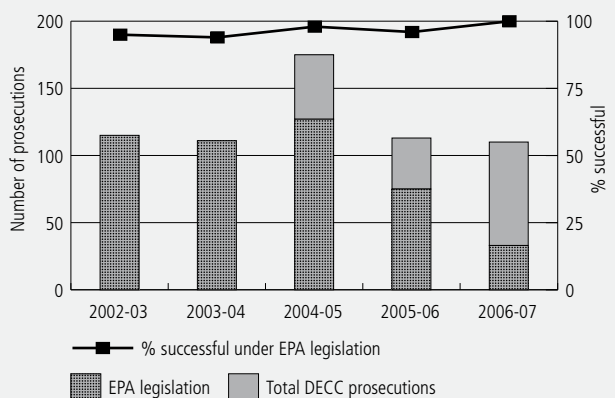
In May 2007, **Mr Bernard Hardt** was fined \$12,000 and ordered by the Land and Environment Court to pay costs of \$105,000 for filling a gully on his Wyee property with hazardous and industrial waste. Mr Hardt was also ordered to remediate the affected land. Mr Hardt pleaded not guilty to the offence but in 2006, the Court found the offence proved. When DECC investigated the offence, it found that about 7200 cubic metres of waste had been illegally used to build a road on Mr Hardt's property, resulting in damage to vegetation and the potential pollution of water channels. Among other things, the waste contained asbestos, herbicides, high concentrations of volatile solvents such as benzene, toluene, ethyl benzene and xylene and concentrations of arsenic and chromium. Mr Hardt has lodged an appeal against the conviction.

■ PERFORMANCE INDICATOR

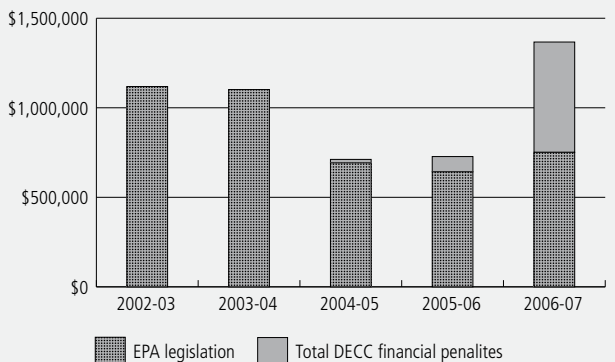
Prosecutions completed under EPA legislation

Definition: This indicator measures the number of prosecutions completed under Environment Protection Authority (EPA) legislation, the proportion that were successful and the resulting value of fines awarded by the Land and Environment or local courts. 'Successful' refers to prosecution cases that DECC won. These include cases where the defendant was convicted and a penalty was imposed and cases where DECC's case was proved but no conviction or penalty was imposed. See Appendix 8 for details of all completed prosecutions.

DECC prosecutions under EPA legislation



Value of financial penalties



Interpretation: DECC maintained its consistently high success rate in 2006–07, winning 100% of prosecutions completed under EPA legislation and 97% of its total completed prosecutions. Total financial penalties imposed for completed DECC prosecutions rose by \$639,652 to \$1,367,212, with financial penalties for EPA prosecutions rising by \$108,600 to \$751,250. Although the number of completed prosecutions under EPA legislation declined to 33, the total number of DECC prosecutions, 110, was similar to 2005–06. The fact that the financial penalties under the EPA legislation increased while the number of prosecutions decreased resulted from DECC focusing on the more serious breaches of the legislation. Further, the reduced number of EPA prosecutions reflects DECC's increased focus on pursuing serious breaches of legislation for threatened species, endangered populations, and Aboriginal heritage provisions under the *National Parks and Wildlife Act 1974* (see performance indicator on page 81).

Data for total DECC prosecutions for 2002–03 and 2003–04 is not available.

See page 66 for prosecutions under native vegetation legislation.

Dangerous goods

MacDermid Overseas Asia Ltd, an international company that manufactures chemical products, pleaded guilty in the Land and Environment Court to breaching the *Road and Rail (Dangerous Goods) Act 1997* after a truck accident occurred at Mittagong in February 2003. A semi-trailer transporting a pallet containing mixed dangerous goods, including silver cyanide and hydrofluoric acid, was involved in a road accident that led to the closure of the Hume Highway for two days. The dangerous goods were incompatible and should have been segregated. The dangerous goods section of the shipping documentation for the load was also incomplete, which caused more uncertainty during the clean-up operation, and increased the time taken to clean up the site and render it safe. The company was fined \$75,000 and ordered to pay costs of \$55,000.

Pesticides

In September 2006, the Land and Environment Court convicted **Mark Peters** of Drummoyne for knowingly providing false information to DECC and for using a pesticide contrary to instructions on its label. As a director of Mandiar Pty Limited, Mr Peters was fined \$80,000 for providing, in response to a statutory notice issued by a DECC officer, falsified certificates for a pesticide used in new homes. As a director of Jalenia Pty Limited, trading as AAA Brookes Pest Control, Mr Peters was also fined \$12,000 for two offences involving the wrongful use of a pesticide. Mr Peters was fined a total of \$92,000.

■ CASE STUDY

Exhaust treatment devices reduce particle emissions from older diesel vehicles

Diesel vehicles, which are increasing as a proportion of the total number of vehicles, produce about 60% of the particulate matter emitted by road transport in Sydney. Despite stricter diesel vehicle emission limits introduced in 2002, diesel engines are durable and older vehicles with higher particulate emissions which will continue to operate for many years. A cost-effective solution for reducing the pollutants they emit is to retrofit them with exhaust treatment devices. DECC has already trialled filters and catalyst converters to reduce pollutants.

DECC works with the Roads and Traffic Authority (RTA) to obtain, fit and evaluate the diesel retrofit devices, which are offered to vehicles found to be blowing significant smoke. In 2006–07, 142 exhaust treatment devices were fitted to vehicles which are expected to reduce over 8 tonnes of particle emissions over the remaining life of the vehicles, avoiding an estimated \$2.1 million in health costs.

The NSW Environmental Trust provided seed funding in 2005. The program is currently funded by:

- the Diesel National Environment Protection Measure (\$1 million)
- the NSW Environmental Trust (\$450,000).

3.1.2 Cleaner air

Under the State Plan, DECC is the lead agency for Priority E3: Cleaner air and progress on greenhouse gas emissions. The State Plan targets on air quality are to meet the national, health-based, air quality standards for six air pollutants by 2008, as set in the National Environment Protection Measure for Ambient Air Quality.

Air quality in NSW is generally very good, meeting four of the six air quality standards – carbon monoxide, sulfur dioxide, nitrogen dioxide and lead. Sydney does not yet meet the goal for ozone and a small number of regional centres have not met goals for particles recently due largely to the impacts of dust and fires.

Action for Air

DECC is implementing actions to improve air quality through Action for Air, the Government's 25-year air quality management plan, which was introduced in 1998. It contains measures to reduce emissions from transport, industrial, commercial and domestic sources to control two main air pollutants: photochemical smog (ozone at ground level) and fine particle pollution. Its progress is reviewed at triennial public forums. The next forum, to review outcomes and consider further strategies to improve air quality, will be held in November 2007.



Exhaust treatment devices are being fitted to diesel vehicles to reduce particle emissions.

The cooperative program is expected to continue in 2007–08. As a result of its success, the State Transit Authority is planning to retrofit 1100 pre-2000 diesel buses in the Greater Metropolitan Region over a five-year period from 2007–2012.

Photo: Courtesy of the NSW Roads and Traffic Authority

Action for Air: 2006 update was published in August 2006. It includes actions to reduce emissions from motor vehicles by half by 2020, despite increases in car travel. This will be achieved by using cleaner fuels, improving car technology, and improving public transport and transport planning. The update is available on www.environment.nsw.gov.au/air/actionforair/index.htm.

As part of the current review of Action for Air, DECC sought input from local government, industry and environment groups. In May 2007, an experts' workshop was held in Sydney to discuss new directions and actions to achieve the best air quality and reduce greenhouse gas emissions. A representative from the United States Environmental Protection Agency participated in the discussions and met with other government representatives to discuss the effectiveness of recent US actions to reduce air pollution. An updated Action for Air will be released in 2008.

DECC also finalised the **NSW Air Emissions Inventory**, which quantifies emissions from the five main sources of air pollution (domestic, commercial, industrial, off-road mobile and on-road mobile). This is expected to be released in 2007.

Significant amendments to the POEO (Clean Air) Regulation 2002 came into force on 1 May 2006, to introduce **new emissions standards** to better protect human health and the environment. For example, for new industries, the standards for emissions of solid particles, and toxic substances such as mercury and cadmium, were made more stringent. In 2006–07, DECC developed a comprehensive guide to the new standards entitled *Part 4 – Emissions of air impurities from activities and plant*, which is available on www.environment.nsw.gov.au/air/faqpoeop4/index.htm.

See pages 18–19 for information on greenhouse gas emissions.

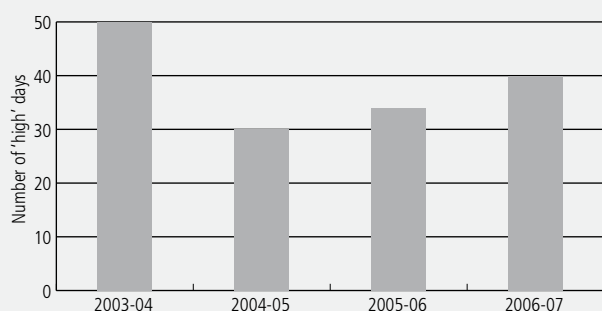
A **Parliamentary Inquiry into Health Impacts of Air Pollution in the Sydney Basin** was established in March 2006. DECC, in consultation with other relevant agencies, prepared the NSW Government submission to the Inquiry, referring extensively to the *Action for Air: 2006 update*. DECC also attended two hearings in August and September 2006. The final report of the inquiry was tabled in November 2006. The inquiry made 45 recommendations including proposals that the Government consider developing a strategy for pollution 'hot spots', and take greater account of the health costs of air pollution.

■ PERFORMANCE INDICATOR

'High' regional air pollution index days in the Sydney Greater Metropolitan Region

Definition: The regional pollution index (RPI) is an air quality index based on measured hourly concentrations of photochemical smog (ozone), nitrogen dioxide and visibility. RPIs are calculated for three regions in Sydney (central east, north-west and south-west), and two in the Illawarra (Albion Park and Wollongong), and for three sites in the lower Hunter (Beresfield, Newcastle and Wallsend). The index is reported twice daily, in the morning and afternoon. RPI values in the 'high' category indicate that ozone or nitrogen dioxide have exceeded the national standards or visibility is less than the NSW goal of 10 km. A day is counted as having high pollution if the RPI in one or more regions reached 'high' in either the morning or afternoon report.

Number of high pollution index days in the Sydney Greater Metropolitan Region



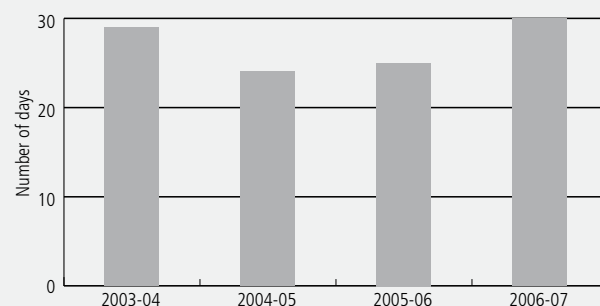
Interpretation: The air pollution index was high on 40 days in 2006–07, six more days than in 2005–06. The continuing drought conditions experienced across south-east Australia during 2006–07 had a major influence on pollution levels, particularly particle levels in NSW. Bushfires which adversely affected air pollution levels in the Greater Metropolitan Region (GMR) included: Yanderra (19–27 August), Lake Burragorang (27 October–3 November), the Blue Mountains (20–23 November and 1 December) and Mt Ku-ring-gai (22–23 January). The Victorian bushfire emergency (December 2006–January 2007) also affected air quality with smoke from these fires being transported to the GMR in shallow southerly flows.

■ PERFORMANCE INDICATOR

Days air quality goals were exceeded in the Sydney Greater Metropolitan Region

Definition: The National Environment Protection (Ambient Air Quality) Measure (Air NEPM) specifies national air quality standards for six pollutants: photochemical smog (ozone), nitrogen dioxide, carbon monoxide, sulfur dioxide, fine particles less than 10 micrometres (PM₁₀) and lead. This indicator lists the number of days in the Greater Metropolitan Region (GMR) (Sydney, Illawarra and the lower Hunter) when one or more of these standards were exceeded at any site. If more than one standard was exceeded on a given day, that day is only counted once.

Number of days air quality goals were exceeded in the Sydney Greater Metropolitan Region



Interpretation: Air quality goals were exceeded 30 days in 2006–07, five more days than in 2005–06. Exceedences of the ozone and PM₁₀ standards occur frequently in the GMR. The continuing drought conditions experienced across south-east Australia during 2006–07 adversely affected pollution levels, as did bushfires at Yanderra (19–27 August), at Lake Burragorang (27 October–3 November), in the Blue Mountains (20–23 November and 1 December) and at Mt Ku-ring-gai (22–23 January). Bushfire smoke affects particle levels, and the elevated levels of volatile organic compounds in bushfire smoke can also contribute to increases in photochemical smog (ozone) pollution. In contrast to ozone and PM₁₀, nitrogen dioxide, sulfur dioxide, carbon monoxide and lead levels were all well below their Air NEPM standards.

A Government response to the recommendations will be provided in 2007.

Managing local air quality

DECC assesses approximately 100 major air reports each year in relation to planned developments or scheduled activities to ensure that air emissions will be controlled. These assessments include applications to install gas turbine power plants, ethanol plants, and sugar mill cogeneration plants, and to expand coal facilities and power stations.

In June 2007, DECC published a web-based **Local government air quality toolkit** which is available on www.environment.nsw.gov.au/air/lgaqt.htm. This was developed as a response to requests from council officers for information and guidance on air pollution issues, and will assist officers to manage local air quality. The kit includes information on the sources and impacts of air pollution, the regulatory framework for protecting air quality in NSW, and air quality management procedures and technologies. It also contains guidelines for managing polluting activities identified by council officers as priority issues.

DECC also provides information on its website to help councils deal with **woodsmoke pollution**. This information includes a resource kit to assist councils to develop and run local community education campaigns to reduce smoke emissions from wood heaters. DECC further supported local councils by running woodsmoke management workshops across NSW in June 2007. The workshops included sessions on issuing smoke abatement notices under the new POEO Act provisions, fostering better installation of wood heaters

under planning legislation, and initiating community education programs to promote better operation of wood heaters. For further information, visit www.environment.nsw.gov.au/woodsmoke.

Transport emissions

Noise Testing and Anti-Tampering Inspection Scheme

On 2 March 2007, a new Part 4.8 was inserted into the Protection of the Environment Operations (General) Regulation 1998 to establish a Noise Testing and Anti-Tampering Inspection Scheme. Owners of vehicles that do not comply with requirements under the *Protection of the Environment Operations Act 1997* (POEO Act), POEO (Noise Control) Regulation 2000, or POEO (Clean Air) Regulation 2002 can be issued with defective vehicle notices. In the past, the only way to deal with such a notice was to have the vehicle re-tested and inspected at DECC's Lidcombe office. Under the new scheme, DECC approves qualified individuals and facilities to conduct noise tests and inspect pollution control devices.

By June 2007, DECC had appointed two facilities in Sydney as Approved Inspection Stations and will approve more over 2007–08 as the scheme is rolled out to other areas of NSW. The scheme provides a better service to NSW vehicle owners, and will allow DECC staff to focus more on noisy vehicle compliance and to increase compliance activities in regional areas.

■ CASE STUDY

Sugar mills improve air quality while producing renewable energy

For more than 100 years, three sugar mills in northern NSW have been producing sugar and supplying their own energy by burning bagasse (the fibrous waste produced after sugar extraction). As part of the environment protection licence, DECC has required one of the mills to reduce air emissions. To improve performance, two mills are updating equipment by replacing their old boilers with cleaner models and installing new stacks.

Traditionally, sugar cane was burnt before it was harvested, causing regional air pollution. The cane can now be harvested without burning, reducing local air pollution and providing a valuable renewable source of fuel for the mills' power stations.

Electricity co-generation facilities are being constructed at Condong on the Tweed River (north of Murwillumbah) and Broadwater on the Richmond River (south of Ballina) as a joint venture by NSW Sugar Milling Co-operative and Delta Electricity.

The mills will feed green power into the local electricity grid. The leaf matter and sugar cane



Condong Sugar Mill's new stack and boiler have replaced outdated equipment. The new plant will reuse treated effluent from the Murwillumbah sewage treatment plant, which will help improve water quality in Rous River.

Photo: G. Peterson, courtesy NSW Sugar Milling Co-Operative

bagasse will fuel 30 megawatt power stations at each mill for most of the year. Combined, the first two mills to undergo conversion will generate 400 gigawatt hours of electricity each year, enough to supply power to a town of 60,000 people. This is equivalent to 350,000 tonnes of greenhouse gases per year replaced by renewable energy.

DECC is working with the sugar mill industry while these improvements, which are expected to be completed in early 2008, are being made.



Smog Dog measures pollutants from vehicle exhaust pipes.

Remote sensing of vehicle emissions by Smog Dog

Motor vehicles are the most significant source of urban air pollution in the Sydney Metropolitan Region. A joint state and national initiative to gather better information about vehicle exhaust emissions put 'Smog Dog' to work on Sydney streets in April 2007. The remote sensing equipment beams infrared and ultraviolet light across one lane of traffic to measure the levels of potentially dangerous pollutants such as hydrocarbons, carbon monoxide, nitrogen monoxide and smoke particles being emitted from car exhaust pipes.

The technology will provide a better picture of pollution levels in the Sydney region and of levels of pollution emitted from vehicle makes and models. This information will be used to refine the models used to study air pollution, and will ultimately help to identify new ways of maintaining and improving air quality in NSW.

In June 2006, the Roads and Traffic Authority (RTA) introduced a **video detection system** in Sydney's M5 East Tunnel for heavy vehicles emitting excessive visible emissions. Initially, information was provided to educate tunnel users, with the RTA issuing warning letters and encouraging vehicle owners to have their vehicles fixed. Since the end of the moratorium in January 2007, DECC has undertaken enforcement action for the vehicles detected, including issuing 115 penalty notices to owners and prosecuting repeat offenders.

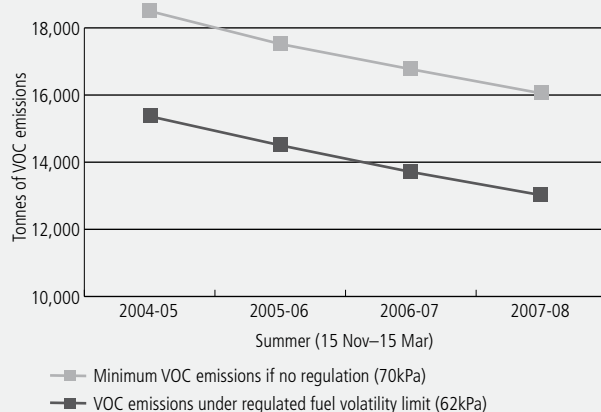
■ PERFORMANCE INDICATOR

Estimated tonnes of VOC emissions in the Greater Metropolitan Region each summer prevented due to DECC regulation of the fuel industry

Definition: Petrol vapour, containing volatile organic compounds (VOCs), is one of the main causes of smog in the Greater Metropolitan Region (GMR) during summer. Lowering volatility reduces fuel evaporation and emissions from petrol vehicles. The summer period is targeted because the warmer temperatures contribute to greater evaporation of petrol.

This indicator estimates the reduction in VOC emissions achieved as a result of the amendments in 2004 to the Protection of the Environment Operations (Clean Air) Regulation. The amendments require those in the fuel industry to comply with volatility limits set on petrol supplied in the GMR between 15 November and 15 March each year.

Estimated VOC emissions from petrol in the GMR in four-month summer periods (tonnes)



Interpretation: The limits in the Regulation, which are the tightest in Australia, commenced in November 2004. The estimate in VOC emissions from the petrol complying with limits is compared with an estimate of the emissions if no regulation of petrol volatility had been introduced. The estimates for VOC emissions with no regulation are decreasing due to emission control technology in vehicles. DECC estimates that the regulation prevented over 3000 tonnes of VOC emissions in the summer of 2006–07. The regulated limits are expected to lead to further falls in VOC emissions in the GMR in the summer of 2007–08.

Monitoring and reporting

DECC's **air quality monitoring network** continues to be the largest in Australia, with 20 stations in the Greater Metropolitan Region (GMR) measuring ozone, oxides of nitrogen and particles as well as visibility. Some sites also monitor carbon monoxide and sulfur dioxide. Additional monitoring stations that measure particles only are in Albury, Tamworth and Wagga Wagga. The Bathurst monitoring station monitors ozone as well as particles.

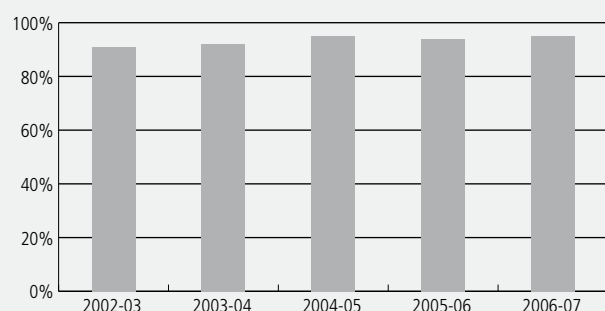
Sydney's air quality has generally improved in recent years. Levels of many pollutants have fallen. The two main pollutants that are still of concern are summertime smog, caused primarily by motor vehicle emissions, and wintertime brown haze, caused primarily by emissions from wood heaters, industry and diesel vehicles.

■ PERFORMANCE INDICATOR

Percentage of time valid air quality data is available from DECC's monitoring network

Definition: This indicator measures the percentage of time valid data was available to the community from DECC's air quality monitoring network in the Greater Metropolitan Region (Sydney, the lower Hunter and the Illawarra) and four regional cities: Albury, Bathurst, Tamworth and Wagga Wagga. 'Valid' data is data that has been fully quality-assured. The maximum time valid data can be expected from the network is about 95%, because of the need to calibrate data monitoring equipment.

Percentage of time valid air quality data is available from DECC's monitoring network



Interpretation: Maintenance, calibrations and quality assurance tasks are routinely performed on instruments in the air quality monitoring network. Loss of data during these tasks means that the optimum percentage of valid online data is about 95%. The network is therefore currently running at optimum levels, with valid data available for 95% of the time in 2006–07.

DECC informs the public about air quality by updating a regional pollutant index (RPI) twice daily on www.environment.nsw.gov.au/airqual/aqupd.asp, providing 24-hour summaries and issuing quarterly air quality monitoring reports. DECC and NSW Health continue to inform the public about days of high air pollution and possible health impacts.

Health alert messages are tailored for the particular pollutant and forecast levels:

Alert level	Regional pollutant index
High	>= 50 for all pollutants
Hazardous	>= 75 for ozone and nitrogen dioxide >= 200 for fine particles

During 2006–07, eight high alerts were issued, one of which was an exceedence of the ozone standard and three of which were exceedences of both the ozone and particle standards as a result of bushfires. No hazardous alerts were issued.

See performance indicators on page 39.

3.1.3 Cleaner waters

DECC programs encourage industry and the community to prevent or minimise pollutants emitted to water and from stormwater runoff. See pages 99–100 for initiatives to improve the health of waterways.

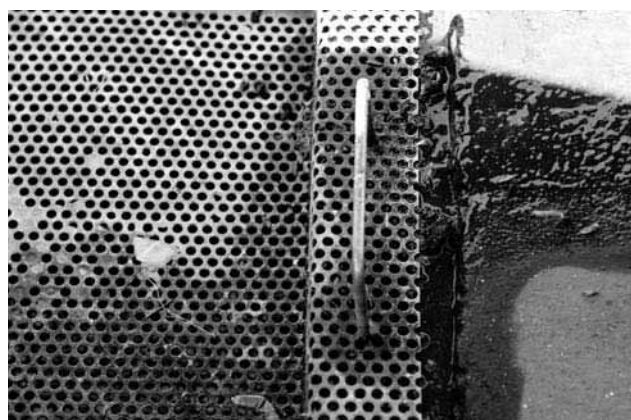
Sewer system regulation

DECC regulates most sewage treatment systems owned by state and local government. The state's largest operator is **Sydney Water Corporation (SWC)**, which has operations in Sydney, the Blue Mountains and the Illawarra. DECC's role includes issuing licences to control pollutant discharges from the sewage treatment plants and reticulation systems, and setting pollution reduction programs for areas needing improvement. DECC uses market-based instruments to influence performance and, where required, undertakes compliance audits and prosecutions.

In 2006–07, DECC focused on SWC's plans to reduce sewer overflows from its sewage treatment systems in wet as well as dry weather, and on environmental monitoring to detect areas where major problems are still occurring. Performance improvements will be achieved through five-year pollution reduction programs with an estimated cost of more than \$158 million to 2010. DECC also worked closely with SWC to improve the notification protocols for sewage overflow incidents.

DECC was also involved in the planning process for the Replacement Flows Project. Effluent from western Sydney will be treated to a very high standard and released into the Nepean River at Penrith to replace water currently being released for environmental flows from Warragamba Dam, allowing supplies in Warragamba Dam to be reserved for drinking. The project will significantly reduce the nutrient load to the Hawkesbury–Nepean River.

In 2006–07, DECC continued to drive water quality improvements through licensing **regional sewage treatment systems**. Licences cover the sewer pipes as well as the treatment plants. Licences for regional sewage systems require the licensees, usually local councils, to prepare investigation reports which identify sewer overflows that could significantly harm the environment or public health, and to identify management priorities to address the risk of harm. Most of these reports are due later in 2007.



Industry is using best practice ways of preventing stormwater pollution. For example, Fenwick Marina's stormwater grate prevents gross pollutants from entering the water.

Stormwater runoff is recognised as a valuable water resource. DECC released Australia's first stormwater reuse guidelines in late 2006 entitled *Managing urban stormwater: Harvesting and reuse*, which explain ways in which stormwater can be collected and treated to filter pollutants, thus preventing the pollution of waterways. Stormwater can be reused in industry or for watering golf courses and parks. To read the guidelines, visit www.environment.nsw.gov.au/stormwater.

DECC is chairing a working group to produce national stormwater reuse guidelines based on DECC's guidelines. These will complement the national effluent reuse guidelines which were released in December 2006.

Diffuse source water pollution, occurring from polluted water flowing into waterways or seeping into groundwater, or from small discharges from many sources, can affect water quality and the health of waterways. To address this problem, in early 2007 DECC began to develop a draft NSW Diffuse Source Water Pollution Strategy, which involved representatives from state and local governments and Catchment Management Authorities (CMAs) attending workshops in the 13 CMA areas. The strategy will provide a coordinated framework for limiting and reducing diffuse source water pollution.

Longwall mining can have significant impacts on surface water flows, groundwater, water quality, biodiversity and threatened species, Aboriginal cultural heritage and

greenhouse gas emissions. After recent inquiries into the Southern Coalfields and Wyong mining area in 2006–07, DECC advised the coal industry on minimising the impacts of mining on natural and cultural features, improving prediction of potential impacts, and improving mining practices to avoid significantly harming the environment.

Toongabbie Creek project

Like many urban creeks, Toongabbie Creek can be affected by runoff from urban and industrial areas. In November 2006, DECC and Blacktown City Council, after notifying businesses, completed random inspections over a five-week period in the Seven Hills Industrial Area to ensure that spills were being prevented, water and waste were being managed on-site and not being washed into the creek, and neighbours were being protected from odour and noise. Businesses were advised of any issues identified during the inspections and were required to prepare and implement action plans to address each identified issue. The most common issues related to the incorrect storage and handling of chemicals, inadequate containment of wastewater, and inadequate preparedness for spills.

Follow-up inspections and other reviews conducted in March and April 2007 identified that most of these issues had either been or were being resolved.

■ CASE STUDY

Offsets to reduce nutrients in South Creek

The South Creek Nutrient Offset Pilot was completed in 2006–07. A number of offset works were put in place on seven properties to reduce nutrient run-off from agricultural sources in the South Creek catchment in south-west Sydney. The works included settlement ponds, constructed wetlands and recycling systems. During 2006–07, water quality tests measured the reductions in nutrient run-off achieved by the works, and nutrient reduction credits were allocated to Sydney Water and Landcom, who funded the works. These agencies can use the credits towards offsetting their contribution to nutrient loads in the South Creek catchment.

The project has contributed to:

- knowledge of nutrient run-off from agricultural properties
- understanding the factors influencing the success of small-scale nutrient reduction measures
- development of administrative frameworks for designing and implementing pollution offsets
- stakeholder understanding of ways in which they might use offsets in future
- capacity building for landholders in the South Creek catchment regarding environmentally sustainable farming.



Richard Weber, DECC's project engineer, inspects the sampling weir that measures the amount of nutrient-rich runoff that the dam captures. The results show the dam and sophisticated pumping system DECC installed are successfully capturing runoff and preventing it from entering South Creek.

Photo: A Mackie, DECC

Landholders involved in the pilot will continue to maintain the works installed on their properties, which have been estimated to reduce nutrient emissions by over 75%.

Sydney Desalination Plant

As part of the Metropolitan Water Plan for Sydney, in November 2006 the Minister for Planning granted concept and planning approval for the Sydney Desalination Plant, to be constructed near Cronulla. The plant will remove salt from seawater to augment the Sydney water supply. The desalinated water delivery system is currently before the Minister for Planning awaiting project approval.

DECC provided input to the planning assessment process on environmental issues related to the proposal, and has subsequently raised environmental issues with Sydney Water Corporation, the Department of Planning and the Department of Primary Industries (NSW Fisheries). These issues include the need for:

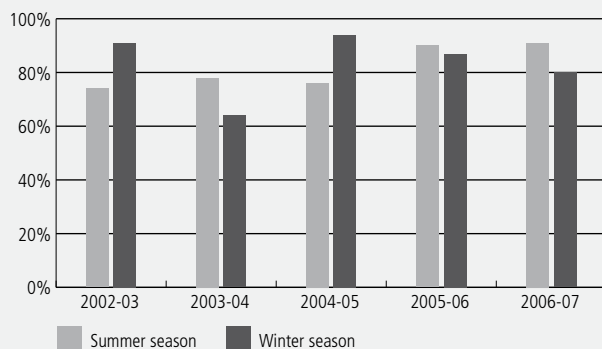
- good inlet and outlet design to protect water quality and marine wildlife
- a marine and estuarine monitoring program
- management of 15 hectares of the site set aside for conservation.

■ PERFORMANCE INDICATOR

Percentage of Beachwatch and Harbourwatch sites that comply with Beachwatch swimming water quality guidelines more than 90% of the time

Definition: DECC's Beachwatch and Harbourwatch programs monitor water quality at 131 recreational sites in Sydney, the lower Hunter and the Illawarra, reporting on a daily, weekly, monthly and yearly basis to the community and stakeholders. Samples are tested for two indicator bacteria, faecal coliforms and enterococci, and sites must meet the criteria for both to meet the swimming guidelines. The winter season extends from May to September; summer extends from October to April.

Beachwatch and Harbourwatch sites complying with swimming water quality guidelines more than 90% of the time



Interpretation: Over the last six summer seasons there has been a steady increase in the percentage of sites complying with swimming water quality guidelines, with 90% compliance with water quality guidelines recorded during summer 2005–06 and 91% during summer 2006–07. These results are due both to dry weather conditions and long-term improvements in the management of stormwater and wastewater.

State of the beaches 2006–07, due for release in October 2007, provides a detailed analysis of monitoring results.

Monitoring

The Hawkesbury–Nepean River Environmental Monitoring Program

The 2006 Metropolitan Water Plan introduced initiatives such as environmental flow strategies, the Weirs Modification Program and the Western Sydney Recycling Initiative. DECC leads the Hawkesbury–Nepean River Environmental Monitoring Program which was developed to monitor the environmental health of the Hawkesbury–Nepean River as these initiatives to improve water flows are implemented. The program began in December 2006 with an 18-month trial during which existing water quality data is being collated and analysed for long-term trends.

Beachwatch and Harbourwatch

The Beachwatch and Harbourwatch programs monitor the health of Sydney's beaches and harbour and issue daily assessments of pollution levels to the public. These programs monitor 131 sites in the Sydney, Hunter and Illawarra regions. A further 153 sites are monitored in partnership with 12 local councils under the Beachwatch Partnership Program, from Ballina in the north to Bega in the south.

The annual State of the Beaches reports are issued each October and provide a comprehensive summary of Beachwatch activities and water quality results. In 2006–2007, water quality was up to 98% better than it was in 1989. The highest levels of compliance in the history of the program have been recorded over the last two swimming seasons, with 90% or more of sites complying with swimming guidelines more than 90% of the time.

Beachwatch data shows that NSW's beaches are generally in excellent condition. During 2006–07, more than 80% of other coastal swimming locations monitored under the Beachwatch Partnership Program also complied with swimming guidelines in all months. Monitoring by some local councils shows that there is still room for improvement at swimming sites in coastal lakes and estuaries, particularly following rainfall.

3.1.4 Regulating waste disposal

The NSW Government provides a regulatory framework for waste management in NSW, through the *Protection of the Environment Operations Act 1997* and the *Waste Avoidance and Resource Recovery Act 2001*, that ensures potential environmental impacts from waste generation, disposal and reuse are appropriately managed. DECC works with the waste industry, councils and the community to deliver consistent regulation, policy advice and targeted guidance.

The Government's NSW City and Country Environment Restoration Program introduced a five-year schedule of annual increases to the **waste and environment levy**, with the first increment effective from 1 July 2006. The levy rate for 2006–07 was set at \$30.40 per tonne for

waste disposed of in the Sydney area and at \$23.10 per tonne in the Hunter, Central Coast and Illawarra regions. The levy is paid on all waste received at licensed landfills for disposal, and acts as an incentive to reduce waste and its disposal to landfill, while providing deductions for waste that is sent from the landfill for legitimate recycling or reuse.

The increase in the levy was in step with industry's request to put resource recovery on a more equal footing with landfilling, and has stimulated development of alternative waste treatment technologies and new ways of recovering valuable resources from waste.

Proceeds from the levy foster sustainable use of natural resources in forestry, fisheries, agriculture and manufacturing, and advance urban sustainability programs and waste service reforms.

DECC's electronic **waste data system**, finalised in October 2006, offers licensed waste facilities required to pay the waste and environment levy an efficient and streamlined means of managing their levy payments and deductions. The system allows DECC to access information in real time and is instrumental in informing good regulatory and policy outcomes.

Waste compliance activities

DECC's waste compliance and enforcement program uses targeted inspections, sector compliance programs, enforcement actions, education and cleaner industry programs to ensure effective compliance.

In 2006–07, DECC conducted 18 **waste compliance campaigns** targeting the disposal of asbestos and waste tyres, companies generating liquid wastes, waste trucks with uncovered loads, waste immobilisation audits, groundwater monitoring at landfills, and illegal waste dumping. DECC found high levels of compliance by the waste industry. Details of some of the campaigns are provided below.

During March and April 2007, DECC conducted 26 **inspections** to monitor compliance with the type of waste being received at landfills. The inappropriate disposal of putrescible and hazardous wastes could negatively affect surface water, groundwater and local air quality. One landfill was issued with a penalty notice for receiving non-compliant waste and one transporter received a written warning for transporting waste to an unlawful place.

During 2006–07, DECC, local councils and NSW WorkCover inspected 12 non-licensed waste transfer facilities to check that they were operating with appropriate approvals and in accordance with legislative requirements. Three clean-up notices were issued to facilities storing waste without approvals.

'Operation Black Swan', conducted in March 2007, involved inspections of 40 tyre retailers and auto dismantlers in the Hunter Region to check compliance with lawful disposal of waste tyres, and found no cases of non-compliance. The inspections increased industry awareness of their environmental responsibilities and improved DECC's understanding of waste tyre movements in the Hunter region.

In a joint operation with police and the RTA, DECC carried out **enforcement blitzes** on vehicles breaching transport and illegal dumping regulations during February. In Sydney, DECC officers checked 27 trucks at an inspection point at Moore Park for illegal waste transport, dangerous goods and pollution breaches, and issued five penalty notices.

Waste management by the construction industry

In May 2007, DECC researched the waste management practices of the construction industry. The research revealed that 70% of respondents were concerned about managing waste from construction sites with 84% checking that waste was taken to a lawful place. Over three-quarters of respondents (77%) had prepared a waste management plan and two-thirds (66%) had requested copies of waste disposal receipts from subcontractors. However, fewer than a quarter of respondents (24%) had audited contractors who managed waste on their behalf.

DECC will follow up in 2007–08 by conducting targeted waste compliance programs in the building and demolition industry, in conjunction with local councils.

Educational material for the construction industry titled *Know your responsibilities: managing waste from construction sites* was released in June 2007. This brochure outlines legal responsibilities, and provides advice on preparing and implementing waste management plans, providing training and supervision, and auditing contractors that manage and dispose of waste.



DECC interviewed over 300 excavation and demolition companies, builders and project managers in May 2007 to benchmark awareness of waste management responsibilities, investigate waste management practices, and assist DECC to design effective education and compliance programs.

Photo: W. Stein, DECC

Illegal dumping

Illegal dumping is an important environmental issue for councils and communities across NSW. Illegal dumping degrades the environment by polluting waterways, destroying vegetation and contaminating land. Illegally dumped waste can pose a health risk and cost landowners significant amounts to clean up.

As part of the NSW City and Country Environment Restoration Program, \$18 million over five years (2005–2010) has been allocated to DECC to tackle illegal dumping. In November 2006, DECC hosted an **Illegal Dumping Forum** which was attended by over 160 delegates from local government, state government agencies and non-government agencies. The forum included presentations on illegal dumping prevention techniques, social research about dumpers, and using legislation to deter and penalise offenders.

DECC developed *Crackdown on illegal dumping: A handbook for local government* to provide practical advice to councils on developing, implementing and evaluating effective illegal dumping programs.

DECC's brochure, *Avoiding the dangers of accepting fill on your land*, published in January 2007, contains procedures for landholders to follow such as obtaining appropriate approvals before accepting fill, and taking precautions to ensure fill is not contaminated.

Regional Illegal Dumping Squads (RID Squads) address illegal dumping on the urban fringes of western Sydney, the south coast and the southern highlands. The Western Sydney RID Squad involves Bankstown, Baulkham Hills, Fairfield, Holroyd, Liverpool and Penrith City councils. The Greater Southern RID Squad involves DECC, the Sydney Catchment Authority, and Shoalhaven, Wingecarribee Shire and Eurobodalla councils.

In 2006–07, the RID squads commenced 2271 investigations, issued 457 penalty notices with fines valued at \$167,390, and issued 35 clean-up notices. Over 60,000 tonnes of illegally dumped material was removed.

In February 2007, DECC, Baulkham Hills Shire Council and Western Sydney RID Squad undertook a joint campaign to crack down on illegal dumping around Baulkham Hills by inspecting 14 construction sites to check compliance with lawful disposal of waste. The level of compliance was high, although one transporter was issued with a penalty notice for depositing waste soil at an unlawful place.

■ CASE STUDY

Clearing up illegally dumped waste on Aboriginal-owned lands

In many cases, people who are not members of Aboriginal communities have illegally dumped waste on Aboriginal-owned lands. In 2006–07, DECC initiated the Aboriginal Lands Clean Up Project to enable Aboriginal communities, Local Aboriginal Lands Councils (LALCs) and local government to work cooperatively to remove illegally dumped wastes from Aboriginal-owned lands, reuse materials from the wastes, and deter further dumping. DECC has provided \$300,000 for projects at Queanbeyan and Menai (described below), Port Stephens, Appin, Taree and Cranebrook.

DECC provided Gandangara LALC and Sutherland Shire Council in Menai, and Ngunnawal LALC and Queanbeyan City Council in Queanbeyan with \$50,000 grants to help them remove illegally dumped waste.

By December 2006, in Menai, Gandangara LALC had removed three tonnes of asbestos, four truckloads of tyres and eight truckloads of general waste, with around 23 tonnes of waste going to landfill. Gandangara LALC is reusing materials on the site where possible, for example, bricks, concrete blocks and steel from dumped building waste. It has also rehabilitated the access tracks that were degraded by off-road vehicles and motorbikes trespassing on the site. Gates, fences and boulders are being installed to prevent unauthorised access. DECC will continue to work with the LALC to find funding for ongoing works, develop surveillance strategies to catch illegal dumpers, and develop long-term deterrence strategies.

In Queanbeyan, stakeholders formed the Mirrabee Working Group with representatives from Ngunnawal LALC, Queanbeyan City Council, the Jerrabomberra



Sturdy gates and fences made from recycled materials were erected on the Mirrabee site in Queanbeyan.

Photo: G. Gillespie, DECC

Residents Association, NSW Rural Fire Service, Queanbeyan Police, DECC, BushCare, LandCare groups and Readymix.

The size and commitment of the group enabled:

- illegally dumped materials to be cleaned up over an area of 84 hectares, and 21 cubic metres of mixed waste in skip bins to be removed
- steel, metals, plastic, glass and paper to be stockpiled for recycling
- repeated illegal boundary fence cutting to be repaired
- sturdy gates and fences to secure access to the site to be erected, made from recycled materials
- surveillance measures with the council and local police to be implemented – these included purchasing a motorbike.

The projects also enabled the Aboriginal communities to care for Country, increased cultural awareness and education for all concerned, and created a foundation for further collaborative projects in the future.



Photo: D. Cole, DECC

An illegal dumping site identified by the Eyes in the Sky Program.

Advertisements in local papers warned rural residents of the dangers of accepting fill on their land.

In April 2007, DECC conducted covert surveillance from helicopters as part of the **Eyes in the Sky Program** across the Wingecarribee, Shoalhaven and Eurobodalla council areas. The flyover, conducted in partnership with Greater Southern RID Squad and Sydney Catchment Authority, identified 31 suspected illegal dumping sites, and RID Squad officers have commenced on-ground investigations of these sites.

Liquid waste handling

If handled inappropriately, liquid wastes such as those contaminated with organic compounds or heavy metals, can harm the environment because of their toxicity and mobility. In 2006–07, DECC targeted the personal care industry such as shampoo manufacturers, conducting waste audits of six companies and inspecting 29 companies to check compliance with waste handling, storage, tracking and disposal requirements. DECC required 17 of the companies to rectify non-compliant activities detected during the inspection, such as inadequate containment of stored chemicals and wastes, and having no equipment that dealt with spills.

In September 2006, DECC undertook 'Operation Valdez', a two-day enforcement campaign involving 22 DECC officers inspecting 63 liquid waste tankers in Sydney, Wollongong and Newcastle. DECC officers checked log books, licences and safety equipment, and collected samples of waste loads. As a result of this campaign, three liquid waste transporters received penalty notices for not carrying appropriate emergency response equipment and three received warning letters for breaches of dangerous goods transport legislation.

A total of 29 waste facilities in the Hunter Region were inspected in 2006–07 as part of 'Operation Flush Out'. The inspections identified environmental practices that could pollute stormwater and required licensees to improve operating procedures. Improvements to be implemented included regularly cleaning and maintaining forecourt areas and stormwater drains, installing stormwater treatment devices and improving handling of chemicals and wastes.

3.1.5 Reducing exposure to chemicals, radiation, noise, waste, and odour

Responding to community concerns

Environment Line is DECC's general enquiries and advice line, which also responds to community reports of pollution. A 24-hour emergency response and hazardous materials advice service is linked to Environment Line.

Pesticides and chemicals

Changes made in 2005 to the Pesticide Regulation 1995 recognise that people must be informed when pesticides are being used so they can choose to avoid affected sites. As a result of these changes, two new **pesticides notification requirements** came into force on 1 February 2007 which require:

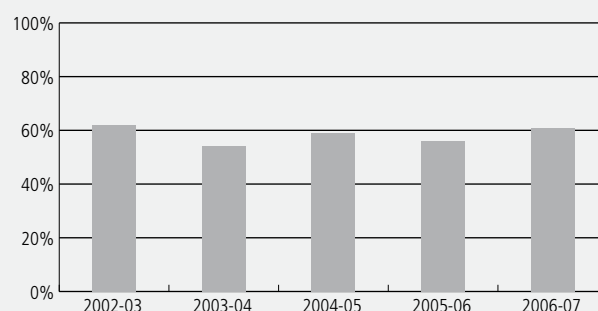
- public authorities, including DECC and local councils, to prepare plans to inform the public before pesticides are used outdoors in public places such as ovals, parks and playgrounds

■ PERFORMANCE INDICATOR

Percentage of total incident reports to Environment Line relating to air quality, odours or noise from regulated premises

Definition: DECC's Environment Line receives reports from the public and industry on pollution incidents (see Appendix 13). This indicator measures the percentage of reports received about dust, smoke or other airborne particulate emissions, odour and noise from the premises which DECC regulates.

Percentage of total incident reports to Environment Line relating to air quality, odours or noise from regulated premises



Interpretation: When viewed over the past five years, combined air and noise pollution incident reports have remained steady at between 55% and 60% of total incidents reported to Environment Line each year and were 61% in 2006–07. This large percentage reflects the public's ongoing concerns about lifestyle, amenity and the impacts of air and noise pollution. While the percentage rates have remained steady, overall report numbers have declined. In 2002–03, the total number of air and noise complaints was 6574 and by 2006–07 this had fallen by 36% to 4182 complaints, indicating improvements in the management of major sources of pollution on-site, and the implementation of stricter odour and noise guidelines and pollution reduction programs. In some cases weather conditions, including prolonged drought, may also have influenced the level of reporting.

- property managers in multi-occupancy dwellings (such as home units, townhouses, retirement villages and some caravan parks) to notify residents at least five working days before pesticides are applied to common areas, and pest controllers must put up signs while the work is in progress.

During 2006–07, DECC provided printed guidelines and information for public authorities, property managers and pest controllers on www.environment.nsw.gov.au/pesticides/pesticide_notification.htm, and advice through Environment Line.

Pesticide control orders

Under the national registration scheme, the Australian Pesticides and Veterinary Medicines Authority (APVMA) evaluates and registers pesticides for use in Australia. DECC's role is to control the use of restricted chemical products as determined by APVMA by specifying in pesticide control orders how they can be used and who is authorised to use them in NSW.

During 2006–07 DECC reviewed the pesticide control orders for the poison 1080 (sodium fluoroacetate) which is used in fox baits and other applications. In consultation with DPI and the State Council of Rural Lands Protection Boards, DECC is currently developing a new **1080 pesticide control order**. After the APVMA 1080 review findings report has been released in July 2007, DECC will issue the new order.

DECC is also developing a new pesticide control order for the use of **copper chrome arsenate** (CCA) pesticides by timber treatment facilities after APVMA announced it would declare CCA a restricted chemical product. APVMA released its final report in July 2005 which recommended restrictions on future use of CCA, including banning its use in decking, hand rails, and structures frequently used by children. The new order providing for restricted use of CCA in NSW is expected to be gazetted in 2007.

Registration of pesticides and permits for minor use

DECC coordinates NSW advice to APVMA on pesticides issues. During 2006–07, advice was provided on emerging issues such as the proposed phase-out of 2,4-D high volatile esters and other pesticides under the ongoing APVMA review. DECC also advised on applications for minor use permits that APVMA is considering issuing for NSW. DECC continued to play an important role in coordinating NSW input on pesticide issues at APVMA's Registration Liaison Committee which addresses national issues on pesticides and veterinary medicines.

Assessment of hazardous waste destruction technologies

DECC assesses and regulates the technologies used for hazardous waste destruction in NSW. During 2006–07, DECC assessed the technology being used to destroy chemical waste on the former Allied Feeds site and the adjoining Lednez site at Rhodes Peninsula, the Orica Botany industrial site in Sydney, and Hydrodec in south-west NSW. DECC ensured that the technologies and activities complied with international best practice under the Stockholm Convention for Persistent Organic Pollutants and the national requirements for the management of hazardous chemical wastes.

DECC continued to regulate storage of Orica's hexachlorobenzene (HCB) waste during 2006–07 while the issue of ultimate destruction of the waste was further investigated. DECC advised on a new facility to repackage the HCB waste more securely. Following a trial phase, this facility began operating in April 2007 and is subject to ongoing regulation by DECC. During 2006–07, DECC also advised the Commonwealth Department of Environment and Water Resources on the possible export of the HCB waste to Germany.

National Chemicals Working Group

Over 40,000 industrial chemicals are used in Australia. While most have been used for years without apparent adverse consequences, many have never been assessed for their environmental or health impacts.

In June 2007, Environment Ministers endorsed the **National Framework for Chemicals Environmental Management (NChEM)** developed by the Environment Protection and Heritage Council's Chemicals Working Group which is chaired by DECC. NChEM is designed to provide a consistent nationwide approach to managing chemical risks, focusing on industrial chemicals while reducing duplication and red tape.

In 2006–07, DECC led the development of the NChEM package. It includes a Ministerial agreement on principles for better environmental management of chemicals, and a supporting action plan which contains actions such as strengthening environmental risk assessment, streamlining environmental controls, providing better information for making decisions, and prioritising actions. The Ministerial agreement followed the release of a discussion paper in June 2006, which was followed by six public forums around Australia, and three workshops with interested stakeholders. DECC made presentations to all the forums and workshops, as well as participating in major national industry conferences, and provided input to key advisory groups.

DECC provided extensive technical support for the preparation of **environmental risk assessment guidance manuals** for industrial and veterinary chemicals, which Environment Ministers have agreed to release for public comment.

Regulatory changes at state and federal level will be considered as part of a broader Council of Australian Governments' review of chemicals and plastics that is expected to be completed in 2008.

Chemical outreach programs

In 2006–07, DECC continued its work with market gardeners and horticultural workers from non-English speaking backgrounds (NESB) by running the **NESB Pesticides Training Program**. This program, initiated by DECC in 2003 and supported by Environmental Trust funding, includes working with the Department of Primary Industries (DPI) and training organisations to help NSW growers meet pesticide training laws by providing subsidised training and access to bilingual field officers. The field officers provide practical advice to assist growers to undertake or renew their training in the safe use and handling of pesticides, and to help them implement their training and skills on their farms.

DECC, the DPI and the Sydney Catchment Authority published **educational resources** to complement formal pesticides training. These resources – a poster and DVD published in English and other community languages such as Arabic, Mandarin, Khmer and Vietnamese – were well-received by growers when DECC launched them during early morning trading at the Sydney Growers Market in Flemington in June 2007.

ChemCollect

ChemCollect was a joint Commonwealth/state funded program which provided farmers with a free, one-off opportunity to collect and dispose of unwanted and deregistered farm chemicals from November 2000 to December 2002. A total of 36,000 kg of organochlorine pesticide (OCP) waste was collected in NSW under the program. By the end of June 2007, 73% of the OCP waste collected in NSW had been destroyed. The remaining waste is expected to be destroyed in early 2007–08.

Pesticide applications on DECC's reserves

Wherever possible, DECC uses more than one technique to control pests. However, pesticides are often the most cost-effective means of controlling pests and weeds and hence are used widely in national parks to help protect native flora and fauna. DECC undertakes environmental assessments and notifies the public before applying pesticides to its lands.

In December 2006, DECC's **Pesticide Notification Plan** was finalised. While DECC has always had systems in place to ensure people are aware when pest management work is happening, the new notification plan helps park visitors and neighbours decide whether they need to avoid a section of the park where a pesticide has been used. The plan describes:

- what parks and other public places are covered by the plan
- who regularly uses these parks and other public places and an estimate of the level of use
- ways in which, and when, DECC will notify the community about its pesticide applications in these parks and other public places
- ways in which the community can get more information.



Photo: M. Mahoney, DECC

DECC is researching the effects of herbicides on the southern bell frog (*Litoria raniformis*) in the Riverina region. This endangered frog, one of Australia's largest at up to 104 mm in length, exists in NSW only in isolated populations in the Coleambally Irrigation Area, on the Lowbidgee floodplain and around Lake Victoria.

The plan is available online at www.nationalparks.nsw.gov.au. Follow links to 'Nature & conservation' and 'Pests and other threats' pages.

DECC updated its Pesticide Manual in 2006–07. Details of pest control programs undertaken by DECC in its reserves during 2006–07 can be found on pages 89–92.

Household use

Information for householders on the safe use of chemicals in the home and garden, and in home renovations, is being developed by the Total Environment Centre in partnership with DECC under the banner of **Safer Solutions**. The information is progressively being made available on www.safersolutions.org.au. Aspects of the project are also being collated for use by other states and territories. The project is being funded by an Environmental Trust grant as part of the *Our environment – it's a living thing* Integrated Sustainability Education Program.

Research on the environmental effects of chemicals

Ecotoxicologists from DECC made significant contributions to a project that won the Land and Water Australia Eureka Prize for Water Research, presented in August 2006, and that will lead to improved management and protection of water and water-dependent ecosystems in Australia. Project personnel researched the assessment and regulation of **contaminants in aquatic sediments**, revised assessment protocols, introduced new sediment toxicity tests, and revised sediment quality guidelines and actions to protect Australia's benthic and aquatic ecosystems. The sediment assessment handbook is available on www.csiro.au. The project, funded in part by an Environmental Trust grant, was led by the CSIRO Centre for Environmental Contaminants Research, and involved scientists from DECC and the University of Canberra.

DECC has commenced work on a project, funded by the Environmental Trust, to develop more rapid and sensitive chronic **tests for contaminants in sediments** using embryonic stages of an amphipod which burrows in sediments. This test is proving to be as sensitive as the six-week full lifecycle test previously developed by DECC.

DECC scientists have been working on a five-year project, funded in part by the Rural Industries Research and Development Corporation, to provide the rice industry and regional irrigation cooperatives in the Murrumbidgee Irrigation Area, which use herbicides, with a sound basis for assessing irrigation water for ecological sustainability. In 2006–07, DECC developed innovative **passive samplers** that offer a cheaper and more effective procedure for measuring herbicide concentrations over time than conventional manual sampling procedures.

DECC has also commenced assessing the **effects of herbicides on frogs**, including the endangered southern bell frog, on rice farms in the Coleambally Irrigation Area in the Riverina. Passive samplers are being used to determine the levels of herbicides. DECC is also investigating the effect of pesticides on tadpole development. This research is funded by the Centre for Ecotoxicology and Land and Water Australia.

Noise control

DECC is committed to reducing noise under State Plan Priority R3. During 2006–07, DECC prepared a **revised POEO (Noise Control) Regulation**. The draft Regulation, regulatory impact statement and supporting information sheets were released for public comment in June 2007. The regulation introduces new noise levels for motor vehicles and marine vessels and community standards for noise generated from home and building alarms, power tools, air conditioning units and amplified music which intrudes into neighbouring homes. For more information, visit www.environment.nsw.gov.au/noise/rispoeonoise07.htm.

During 2006–07 DECC consulted with industry and the community about the development of a new **construction noise guideline**, with further consultation to be carried out later in 2007.

During 2005–06, DECC worked with the rail sector to develop new guidelines for **managing rail noise** from development of the rail network. The *Interim guidelines for the assessment of rail noise from infrastructure projects* were released jointly by DECC and the Department of Planning in April 2007. The guidelines will be in place for three years before being further reviewed in the light of community feedback – visit www.environment.nsw.gov.au/noise/railinfranoise.htm.

As a member of the inter-agency Rail Noise Steering Committee, DECC is working on a whole-of-government rail noise package which will include an abatement program and a noise management manual.

DECC provided input to the Department of Planning's state environmental planning policy (SEPP) on infrastructure, particularly the provisions for addressing **noise impacts at new residential developments** around major roads and railways. DECC has been working with the Department of Planning to develop guidelines to support the SEPP and to mitigate air and noise impacts from busy roads. DECC is undertaking a survey of trends in community activity in early morning hours to assess road, rail and industrial noise levels for that period.

DECC also provided advice to the National Transport Commission on developing a procedure to measure **heavy vehicle engine brake noise**.

In 2006–07, DECC undertook 217 **noise assessments** of planned developments or scheduled activities, for example a gypsum loading facility and a proposed coal export terminal at Kooragang Island.

During 2006–07, DECC carried out 11 motor vehicle enforcement operations with NSW Police. During these operations, DECC officers tested vehicles suspected of being excessively noisy and carried out inspections to identify tampering with emission control devices. Owners of vehicles that were not compliant had to repair their vehicles, and penalty notices were also issued. For details of the Noise Testing and Anti-Tampering Inspection Scheme, see page 40.

Odour control

In November 2006, DECC released the *Technical framework – assessment and management of odour from stationary sources in NSW* which is available on www.environment.nsw.gov.au/air/odour.htm. This framework is accompanied by guidelines for assessing and managing activities that emit odour: *Technical notes: Assessment and management of odour from stationary sources in NSW*. The documents were developed by DECC, with input from the Department of Primary Industries, the Department of Planning and the Intensive Agriculture Consultative Committee.

Radiation control

The *Radiation Control Act 1990* (RC Act), administered by DECC, aims to protect people and the environment from the harmful effects of exposure to ionising and non-ionising radiation. DECC regulates users of devices containing radiation, radiation sources and premises where radiation sources are kept or used, and ensures compliance with radiation safety principles and practices.

DECC is currently reviewing the RC Act to determine the degree to which it may incorporate outcomes-based provisions using risk management principles, and to streamline DECC's system of licences and registrations.

In 2006–07, DECC inspected 30 sites as part of its **radiation compliance campaign**, and undertook compliance blitzes targeting 329 Sydney premises where it was likely that unregistered diagnostic x-ray equipment was in use or operators were not licensed. In all, 257 premises were found to be non-compliant. Of these, 110 premises have since been rectified and the remaining 147 are being followed up. None of the non-compliances was serious, and operation of the x-ray equipment at the premises presented minimal risks.

Audit of coal washing facilities in the Hunter Valley

DECC audited coal mines in the Hunter Valley to assess the fixed radiation gauges used in the coal washing process. Compliance levels were generally high. DECC followed up with an education program, sending letters to coal mining companies across NSW and to the NSW Minerals Council. As a result, the gauge owners are more aware that staff working in the vicinity of the gauges must have adequate safety training, warning signs must be legible, and radiation sources must be disposed of responsibly.

Dangerous goods

DECC administers the *Road and Rail Transport (Dangerous Goods) Act 1997*, which adopts uniform national requirements for the transport of dangerous goods, including the requirements of the Australian Dangerous Goods Code. The Act and its Regulations ensure that dangerous goods, which put people, property and the environment at risk if they are not handled appropriately, are properly classified, packaged, labelled and transported.

In 2006–07, DECC worked with the National Transport Commission to develop new legislation and a code, which will streamline administrative procedures to minimise red tape and synchronise requirements for companies transporting dangerous goods to and from NSW. The code was approved in February 2007, and is expected to come into effect in 2008.

In addition, during 2006–07, DECC, WorkCover NSW and the Independent Transport and Reliability Regulator conducted several enforcement campaigns, audits and education activities in NSW relating to road and rail transport activities to ensure that goods are transported safely.

DECC regularly trains its officers to maintain their dangerous goods knowledge and enforcement skills. During the first half of 2007, three training courses were held on industry premises. A recent initiative has been to involve the transport industry in dangerous goods **training programs** on industry premises so they can learn about DECC enforcement activities and be exposed to examples of good and bad industry practice.

DECC officers are regularly involved in joint heavy vehicle **enforcement** activities with NSW Police and the Roads and Traffic Authority throughout NSW. Enforcement activities in 2006–07 included combined operations at Forbes, Moore Park (Sydney) and Boggabilla. These operations indicated that some transport operators and drivers still take risks with dangerous goods, such as having incompatible loads and not carrying required documentation. Following the Forbes operation in July and August 2006, DECC issued 13 penalty notices totalling \$18,800 in fines. After a similar operation in Dubbo in May 2007, DECC issued 25 penalty notices totalling \$44,200 in fines. Ten serious cases of non-compliance were referred for court action.

The transport of dangerous goods is prohibited on some carriageways such as the M5 East tunnel. In February 2007, DECC investigated an incident in the tunnel where a vehicle laden with dangerous goods broke down, and issued penalty notices.

DECC continues to work closely with the waste industry to advise on the transport of dangerous goods, and undertakes enforcement activities when regularly inspecting waste tankers.

■ CASE STUDY

Safe disposal of radioactive components from crashed aircraft

A small aerobatics plane crashed in Turon State Forest near Bathurst in October 2006, causing two deaths and creating a 75-hectare fire. Some components of the vintage aircraft were constructed with a magnesium alloy containing radioactive thorium (Th-232). DECC staff inspected the crash site with Forests NSW to determine the location of radioactive materials from the wreckage, which was spread over about one kilometre. DECC is continuing to work with Forests NSW to manage safe disposal of radioactive aircraft components and to remediate the site.



Ross McAllum, DECC Radiation Operations Officer, inspects air crash debris.

Photo: T. McNaught, Forests NSW



Photo: R Sherack, Skycam Australia

3.2 Remediating or restoring degraded environments

3.2.1 Reducing the number of significantly contaminated sites

Under the *Contaminated Land Management Act 1997* (CLM Act) and the *Protection of the Environment Operations Act 1997*, DECC regulates remediation of contaminated sites in NSW. Developers have remediated former industrial sites around Sydney Harbour and Newcastle, including Rhodes Peninsula and Homebush Bay, and the former Mortlake gasworks site. These sites are significant due to the scale of their redevelopment and for the innovative and sustainable approaches used to achieve clean-up.

Most sites were contaminated in the past when environmental knowledge and regulation were minimal. When the legacy of contamination cannot be assigned to a responsible or financially capable person, the innocent property owners and the broader community bear the cost of remediating the land when the contamination presents a serious risk of harm. The Environmental Trust provides grants to help innocent owners. The Trust also assists local councils to clean up former gasworks sites such as those in Bathurst and Katoomba, and provides seed funding for councils to develop remedial responses and investigate the costs of remediating former gasworks sites.

■ CASE STUDY

Remediating Rhodes Peninsula and Homebush Bay

Operations by Union Carbide and its predecessor Timbrol between 1928 and 1985 on the Rhodes Peninsula produced a wide range of organo-chlorine chemicals including DDT; 2,4,5 T; 2,4 D (Agent Orange); and dioxins. The contaminated waste from the plant and the use of industrial waste to reclaim parts of Homebush Bay has created highly contaminated land and sediments, with environmental and human health implications, and has led to fishing restrictions in Sydney Harbour.

For the last six years DECC has been assessing and regulating remediation projects on the Union Carbide and adjacent former Allied Feeds site. These projects involve the use of two thermal treatment plants that, because they are located in the heart of Sydney, have been the focus of community concern, and have faced complex challenges with regard to approvals and licensing. The first thermal plant, which commenced operation in 2006 on the Allied Feeds site under close scrutiny by DECC, with the support of the United States Environment Protection Authority, must comply with stringent DECC licence limits. The second thermal plant is due to begin operating in early 2008 on the former Union Carbide site.



Photo: R Sherack, Skycam Australia

Remediation under way on the Rhodes Peninsula.

During 2006–07, approximately 70,000 tonnes, close to 50% of the contaminated material on the Allied Feeds site, was successfully treated in the thermal plant. During the processing, the plant only exceeded emission limits once and appropriate corrective action was taken.

When completed, the thermal plants will have treated 300,000 tonnes of contaminated foreshore land, fill, and sediment, making this the largest thermal treatment and sediment remediation project in Australia.

It is expected that the Allied Feeds site and Homebush Bay sediments remediation will be completed in 2008, and the Union Carbide site remediation in 2009.

DECC identifies sites with potential risks, such as sites being sold on which petroleum operations or landfills with contaminated waste have been based. DECC also works with local government to identify contamination issues that require intervention.

DECC runs **preventative programs**, using education and targeted compliance, to reduce the numbers of sites becoming contaminated by galvanising and dry cleaning activities, or by underground petroleum storage. See page 35 for DECC's 2006–07 review of preventing contaminated sites.

DECC administers a **site auditor scheme** which ensures sites are remediated appropriately.

During 2006–07, DECC coordinated the NSW response to the Assessment of Site Contamination National Environment Protection Measure, which will update the 1999 measure with current knowledge.

Dioxin in Sydney Harbour

DECC has been involved with studies of fish and prawns in Sydney Harbour since it collected data to use as a basis for comparison before and during the remediation of the dioxin-contaminated sediments in Homebush Bay. The first studies, undertaken in late 2005, showed high levels of dioxin contamination in bream and prawns, and led to restrictions on recreational fishing throughout Sydney Harbour in February 2006. In September 2006, DECC provided the Dioxin Expert Panel with results of additional studies on 14 species in Sydney Harbour and, as a result, in December 2006 recreational fishing restrictions were refined to allow some species caught east of the Sydney Harbour Bridge to be eaten in limited quantities.

The additional data collected by DECC showed that the behaviour of the species affected the level of contamination they accumulated. For example, because sea mullet moves throughout the harbour, its dioxin levels were not as high as less mobile species. Studies usually consider only the diet of the species, plus characteristics of the chemical and the environment, to predict contamination. DECC's behaviour-based information will now be used to more accurately predict concentrations of persistent chemical compounds in organisms.

Groundwater contamination

Groundwater, which exists beneath the earth's surface, is a valuable water resource. Under the *Contaminated Land Management Act 1997* (CLM Act), DECC regulates serious groundwater contamination that poses a risk to human or ecological health. Managing contaminated groundwater is costly and technically complex, and risks create significant public concern.

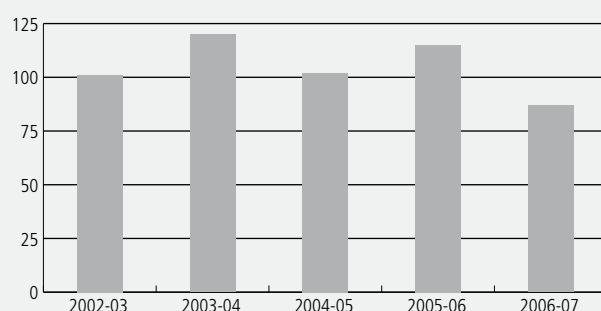
To address these concerns, DECC has developed a process to better identify groundwater contamination and assess the urgency of regulatory intervention. In March 2007, DECC published **guidelines for assessing and managing groundwater contamination**. These guidelines outline ways of consistently identifying the risks posed by contaminated groundwater, and give an outline of best practice management principles.

■ PERFORMANCE INDICATOR

Regulatory actions under the *Contaminated Land Management Act 1997*

Definition: This indicator outlines the number of regulatory actions DECC has taken under the *Contaminated Land Management Act 1997* (CLM Act). When contamination presents a significant risk of harm as defined under the Act, DECC may take one or more regulatory actions to clean up the site. These actions include assessing contamination under the Act, declaring investigation areas and remediation sites, and developing orders and agreements for voluntary proposals relating to investigation or clean-up tasks.

Regulatory actions under the Contaminated Land Management Act



Interpretation: The number of regulatory actions each year fluctuates in accordance with regulatory needs. Several actions are normally taken to regulate a site. Completing the clean-up of a site can take several years. As equilibrium has not been reached between the number of new contaminated sites notified and the number of sites successfully cleaned up each year, the number of sites under active regulation is still increasing.

In 2006–07, DECC undertook 87 regulatory actions, compared with 115 in 2005–06.

In 2006–07, DECC has:

- received 34 new contaminated site notifications
- assessed significant risk of harm to people and the environment on 40 sites
- issued 30 regulatory notices and brought 10 more sites under the regulation of the CLM Act to a total of 116 sites under management
- overseen completion of the remediation or investigation of six sites, which has allowed 19 regulatory notices to be withdrawn and brought the total number of sites remediated since 1998 to 59.

In 2006–07, DECC continued its significant involvement with the contaminated Botany aquifer, and delineated further aquifer zones where access was restricted to ensure protection of public health. In Moree, DECC required clean-up of a shallow aquifer which was contaminated with fuel from petroleum storage terminals.

3.2.2 Emergency preparedness

The NSW State Disaster Plan outlines the whole-of-government approach to preparing for, responding to, and recovering from major incidents and emergencies. Under this plan, DECC coordinates environmental responses. DECC's Environment Line receives incident reports and links callers to the appropriate response section in DECC. DECC also maintains a 24-hour emergency response and hazardous materials advice service linked to Environment Line and the regional after-hours incident response services.

Significant incidents

DECC staff attend many significant incidents to:

- advise the NSW Fire Brigades on minimising further harm to the environment
- oversee clean-up operations
- investigate potential breaches of environmental legislation
- provide forensic analysis to identify substances and trace their sources.

Significant incidents in 2006–07 included:

- an unidentified white substance being discharged from a stormwater drain into the Parramatta River near Camellia – DECC laboratories identified this as an acrylic polymer used on roof tiles
- a truck rollover at Glen Innes, which resulted in 26 tonnes of molasses mixed with fuel entering a nearby ravine
- a major fire at the Vales Point Power Station transformer
- a major fire in Appin at a factory producing solvents, degreasers, paints and aerosols at which the highly toxic firewater runoff was prevented from entering the water catchment

- a herbicide spill in a transfer station at which washings flowed into a dam used for watering stock near Dubbo – DECC provided emergency sampling advice and undertook urgent analyses to determine whether the water supply was safe for stock
- a vehicle stolen from a pesticide company which was set on fire in Yass – DECC provided urgent analysis of the chemicals to enable effective clean-up
- a fire at an aerosol manufacturing plant in Windsor – DECC urgently analysed the water to decide whether the runoff should be released to local waterways or pumped to a waste facility.

Preparation, training and capability enhancement

The NSW Government uses exercise scenarios to test emergency management arrangements and preparedness. DECC officers participated with other agencies in state and federal exercises during 2006–07 which tested responses to incidents such as a national influenza pandemic and terrorism. For example, in April 2007, DECC staff participated in Exercise Kip, a counter terrorism exercise involving radioactive materials.

In addition, during 2006–07, DECC ran training courses for 45 staff to maintain and improve DECC's responsiveness to hazardous materials incidents and other emergencies.

■ CASE STUDY

Providing expertise to help prevent an oil spill

On 8 June 2007, the bulk coal ship, Pasha Bulker, ran aground in heavy seas and gale force winds on Nobbys Beach in Newcastle. The ship had over 700 tonnes of heavy fuel oil and smaller quantities of other oils aboard. DECC worked with the State Emergency Management Committee to prepare for a possible oil spill, and to refloat the ship, by:

- providing key technical and scientific staff to advise on the possible impacts of an oil spill on water quality and marine life, and ways in which a spill could be cleaned up
- using a jet ski fitted with sounding equipment to map sand levels and reef distribution in the shallow waters around the ship, to determine ways in which the ship could be released without harming the marine environment
- assessing the potential toxic impact of paint gouged from the ship onto the reef during salvage operations.



Photo: P. Scanes, DECC

DECC helped to prevent an oil spill when the ship Pasha Bulker ran aground off Nobbys Beach in Newcastle.

The vessel was successfully refloated on 2 July 2007 without any significant environmental impact on the sensitive coastal ecosystems or migratory bird habitat and feeding areas.

Security of radioactive sources

Due to heightened concerns over the malevolent use of radioactive materials, DECC and other key NSW agencies have been involved in the development of the national Code of Practice for Security of Radioactive Sources. Under the code, details of all risk sources must be supplied to DECC and other regulators, security plans must be prepared for these sources, and security background checks will be made on people handling high risk radioactive sources. The code was published by the Australian Radiation Protection and Nuclear Safety Agency in January 2007 and endorsed by the Council of Australian Governments in April 2007. DECC plans to implement the code through the Radiation Control Act over 2007–08.

Flood management

DECC is responsible for managing coastal and floodplain hazards under the Coastal Management Program (see pages 101–102), Estuary Management Program (see pages 102–103) and Floodplain Management Program (see pages 103–105). In June 2007, DECC staff were involved in the emergency management response to the destructive storms and floods in the Hunter and Central Coast regions. DECC kept the Minister and the State Emergency Management Committee fully briefed and prepared for specific actions needed to protect the environment and the public.

Tsunami project

Under the NSW Tsunami Emergency Sub Plan, DECC is responsible for providing scientific and technical advice on the nature of any tsunami threat to the State Emergency Service (SES), other NSW government agencies and local councils. As a result, DECC, with the SES, Geoscience Australia and the Bureau of Metrology, is undertaking a detailed tsunami risk assessment to examine the level and extent of risk posed by tsunami along the NSW coastline. Stage 1 of the project will identify vulnerable areas, and subsequent stages will involve detailed modelling of potential tsunami inundation which will then be used for risk quantification and emergency planning.

Fire management

DECC plays a critical role in fighting bushfires under the NSW State Disaster Plan, and manages some of the most rugged and remote bushfire-prone country in the world. Under the *National Parks and Wildlife Act 1974* and the *Rural Fires Act 1997*, DECC is responsible for protecting human life, property, and natural and cultural heritage from bushfires on lands that it manages.

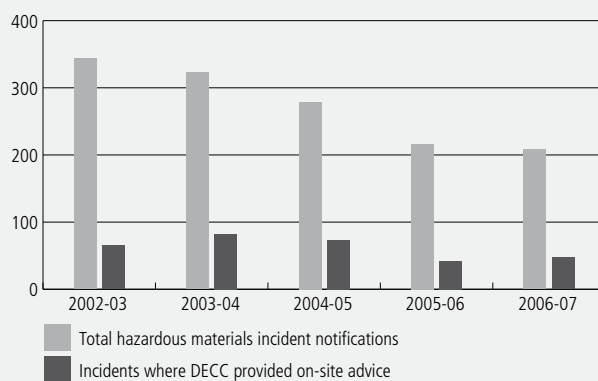
To ensure its preparedness for suppressing bushfires in national parks and on adjacent lands, DECC has in place a **Fire Fighter Health and Fitness Program** based on national and international standards. The program consists of an annual medical assessment and fitness test which is completed before the start of each fire season. The objectives of the program are to improve employee safety and performance and ensure fire fighters are only assigned tasks they are medically and physically able to carry out. During 2006–07, 1138 staff attempted the assessment, with a success rate of over 98%.

■ PERFORMANCE INDICATOR

Hazardous material incidents where DECC provided technical or clean-up advice

Definition: This indicator measures pollution incidents where DECC assisted response agencies with technical advice on environmental clean-up both on-site and on the telephone.

Number of hazardous materials incidents where DECC provided advice



Interpretation: In 2006–07, DECC provided advice on 208 hazardous materials incidents. For 47 (22.5%) of these incidents, advice was provided on-site.

The total number of notifications from NSW Fire Brigades has been steadily declining over recent years. DECC has been training NSW Fire Brigades' Hazmat Technicians. An increased awareness and knowledge of environmental protection issues may have resulted in a more effective response by the fire fighters and less need for DECC attendance on-site. DECC's compliance and education campaigns ensure that industry is aware of the need to comply with requirements for safe transport of dangerous goods.

DECC is a Registered Training Authority (RTO) for delivering **fire and incident management training** under the Public Safety Training Package. As an RTO, DECC assesses the competencies of its fire fighters and incident management personnel to ensure that fire fighters remain highly skilled and meet national competency standards. In 2006–07, 900 frontline fire fighters, plus over 450 other staff in management and support roles, undertook fire management training.

DECC's **Fire Management Manual** provides guidance for staff and increases DECC's ability to work cooperatively with other fire authorities, emergency services and the community. The manual is reviewed annually.

DECC is developing reserve **fire management strategies** which incorporate fire suppression schedules and maps. See page 93.



Photo: P. Mathews

3.3 Improving community wellbeing

3.3.1 Encouraging community connection with, and enjoyment of, the environment

Linking environmental and human health

Under the State Plan, DECC is a partner for Priority E8: More people using parks, sporting and recreational facilities and participating in the arts and cultural activities. DECC is working towards the target to increase visits to NSW Government parks and reserves by 20% by 2016.

DECC manages parks and reserves under the banner of the NSW National Parks and Wildlife Service and botanic gardens under the Botanic Gardens Trust, and has many programs in place to encourage people to visit and enjoy these parks, reserves and gardens. The Botanic Gardens Trust produces a separate annual report which describes its programs and is available on www.rbgsyd.nsw.gov.au.

Throughout the world, there is a growing awareness of the important role parks play in the health of the community. Research has shown that visiting a park can lower blood pressure and improve mental wellbeing, and that physical activity is part of good asthma management. Contact with nature and recreation in national parks can reduce the stresses of living in an urban environment and enhance community cohesion, health and wellbeing. National parks also have economic benefits, attracting businesses and visitors, encouraging nature-based tourism and generating employment in regional areas.

DECC promotes the health benefits of parks and encourages more visitors by promoting regional trails and iconic drives through the Healthy Parks Healthy People program.

Healthy Parks Healthy People

Originally launched by Parks Victoria in May 2000, Healthy Parks Healthy People promotes the physical, social and mental health benefits of spending time in parks and reserves. In NSW the program was launched in October 2003 by the Sydney Parks Group, of which DECC is a member. In 2006–07, DECC promoted the program in free visitor guides, participated in events and festivals such as Parks Week, Seniors Week and the Great Australian Bushwalk, and promoted regional trails and iconic drives.

DECC is further developing its Healthy Parks Healthy People program. The Marketing and Education Manager from Parks Victoria joined with DECC staff in November 2006 to provide advice, and a working group was established in December 2006 to develop the marketing strategy to ensure that information and events meet community needs. In June 2007, DECC joined the newly established National Steering Committee for the program.

Parks Week is an annual celebration of parks and gardens in NSW. Running from 15–22 October 2006, Parks Week included over 50 events and activities in NSW, and DECC's activities included:

- the Great North Head Walk along the recently-opened track from Shelley Beach at Manly to North Head
- *Banks' Botany* – a wildflower walk in Botany Bay National Park
- the Royal National Park Coastal Walk from Bundeena to Marley
- the White Sands Walk in Jervis Bay National Park
- 'Explore the Never Never' in Dorrigo National Park
- a lighthouse tour at Cape Byron.

Seniors Week is about encouraging older people to be active and healthy. On 14 March 2007, DECC provided free entry for NSW Seniors Cardholders to all 44 fee-charging national parks and reserves, except the Sydney Harbour National Park islands. DECC also organised activities across NSW, including a skywalk, ranger talks, bird-watching expeditions and rock pool rambles.

On 10 September 2006, DECC assisted the National Parks Association with their annual **Great Australian Bushwalk** which involved 1386 registered participants. This national event fosters environmental awareness and encourages a healthy lifestyle. Many of the bushwalks were in national parks. DECC offered participants free park entry with registration.

In January 2007, DECC released two **free guides** to help people explore national parks during the summer. The *2007 Guide to NSW national parks* has information on over 200 parks and reserves across NSW. The inaugural *Walk in the park* brochure highlights specific walks and picnic spots in and around Sydney, including the Manly Scenic Walkway, the Coast Track on the Central Coast and Blue Mountain's National Pass. Both booklets are free and can be obtained at national parks visitor centres or by phoning Environment Line on 1300 361 967.

Regional trails and iconic drives

Regional drives and trails allow people to enjoy nature, not only in reserves but also across lands managed by other agencies. In 2006–07, DECC promoted regional trails and iconic drives across NSW, including:

- managing a \$40,000 project to provide orientation and interpretive displays along **Moonpar Forest Drive**, a popular scenic route north-west of Dorrigo in northern NSW – displays provided information on threatened species, old growth forests, timber industry heritage and the Nymboida River
- contributing to the New England to Coffs Coast Program which identifies, develops, coordinates and markets nature-based tourism along the **Waterfall Way**, a road which passes through several national parks and World Heritage-listed areas between Tamworth in the northern tablelands and the Pacific Highway on the coast
- promoting **The Rainforest Way** which was launched in February 2007 by local and state governments to encourage visitors to explore the World Heritage rainforests and hinterland of the Northern Rivers region in NSW and south-east Queensland
- promoting the **Grand High Tops Walking Track** in the Warrumbungle National Park and the many drives and walking tracks in **Kosciuszko National Park**.

DECC also identified a number of iconic **drives in and around Sydney**, including:

- the Old Great North Road from Wisemans Ferry to Bucketty, passing through Dharug National Park
- the Botanist Way linking the Hawkesbury region with the Blue Mountains and Lithgow, which contains signage to encourage visitors to the Mount Tomah Botanic Garden
- the Greater Blue Mountains Drive that provides a nature-themed touring route through the Greater Blue Mountains World Heritage Area, with access to walking trails
- the Grand Pacific Drive, which begins at Royal National Park and travels along the coast to Nowra.



People enjoying the view from the skywalk in Dorrigo National Park during Seniors Week in March 2007.

Photo: B Webster, DECC

Increasing visitation levels

DECC is developing **Branch Visitation Management Plans** (see page 95) for specific operational areas to develop strategies to encourage more people to visit parks while managing and minimising any potential impacts on conservation values. These plans contribute to the State Plan commitment of increasing visitor numbers to parks and reserves in the next 10 years.

Visitor Information Centres, established across NSW, host a variety of events and exhibitions each year to encourage visits to parks. The centres have found that hosting exhibitions increases both local and regional visitation. For example, the Dorrigo Rainforest Centre in the northern tablelands hosted a wildlife art exhibition in April 2007 and the travelling World Heritage photographic exhibition in May. The Fitzroy Falls Centre on the southern tablelands holds an annual wildflower display each spring, in conjunction with the local Tulip Time festival. It changes its exhibitions monthly to attract visitors.

A further attraction for visitors is the **National Parks Discovery Program**, including *Aboriginal Discovery* and *Discovery for Schools*. See pages 94 and 114 for more information.

In 2006–07 DECC continued to promote the cottages, cabins and camping sites in national parks and reserves to cater for visitors wanting overnight stays. Such sites include the cottages at Smoky Cape Lighthouse, the Blue House at Point Plomer in Limeburners Creek Nature Reserve, the Trial Bay Gaol camping area in Arakoon State Conservation Area, and the refurbished lighthouse quarters on Montague Island. DECC also continued to upgrade its **visitor facilities** across the reserve system (see page 96–98).



Photo: DECC

The Sea Acres Rainforest Centre in Port Macquarie provided displays on rainforests, eco-footprints and global warming in 2006–07 to attract more visitors to the area.

Promotion

DECC encourages visitors to enjoy and value national parks through:

- providing an annual park visitor guide that lists natural features and facilities available at each park
- ongoing membership on tourism boards and committees across NSW which ensure national parks have a high profile and benefit from joint promotional initiatives – in 2007, DECC participated in meetings of the Tumut Region Tourist Association, the Snowy Mountains Tourism Committee, Riverina Highlands Tourism and the South Coast Regional Tourism Board
- regular participation in field days and regional shows across NSW such as the Cobar, Bourke and Dubbo regional shows – on the south coast, staff participated in the Eurobadalla and Illawarra Seaside Festivals and World Environment Day expos in Shellharbour and Wollongong.

In February 2007, two **television** commercials, sponsored by DECC and the Broken Hill Regional Tourism Association, aired in South Australia to promote the far west region of NSW. One commercial promoted the five national parks in the region – Kinchega, Mutawintji, Mungo, Paroo-Darling, and Sturt national parks – while the other featured Paroo-Darling National Park *Discovery Tours* based at Wilcannia.

In the Snowy Mountains, the local community FM **radio** station continued to provide promotional advertisements for the Tumut Regional Visitor Centre, Yarrangobilly Caves and Currango Homestead, made DECC community announcements and provided time for DECC staff to present environmental management issues.

The annual **Warrumbungle Concert** attracts large crowds to the park in November. In 2006, Vince Jones was the feature artist and over 700 people attended the concert. The 2007 concert will feature Kate Cerebrano. In May 2007, Coolah Tops National Park, north-west of Newcastle, hosted **Jazz in the Tops** as part of the Coolah Tops Jazz Festival, attracting around 800 people.

3.3.2 Considering the environment in state and local planning

The disturbing effects of noise, odour and vibration need to be considered strategically when planning for new developments to prevent future negative impacts. Over 60% of pollution reports received by DECC's Environment Line in 2006–07 about premises DECC regulates related to air quality, odour and noise (see page 47). Effective state and local planning balances development and population growth with liveability and the protection of biodiversity and cultural heritage. DECC contributes to the development of plans to ensure that the environment and human health are protected, and provides requirements and advice on development applications being assessed under the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Environmental planning and assessment

Under the EP&A Act, DECC advises the Department of Planning (DoP), councils, and other consent authorities on issues such as air quality and noise, Aboriginal heritage impact permits, and consultation or concurrence requirements for development that will affect critical habitat or threatened species, populations or ecological communities.

With the introduction of Part 3A of the EP&A Act in August 2005, DECC's role changed from a statutory role to an advisory role. In 2006–07, DECC continued to make a significant contribution by ensuring that information about environmental values is available to the Minister for Planning when determining major projects.

DECC provided input to DoP in developing the **Standard Instrument Principal Local Environmental Plan** which was gazetted in March 2006. It ensures that all new local environmental plans (LEPs) reflect statewide standards for planning. DECC continues to work with DoP to ensure that there are adequate safeguards in LEPs for the protection of water quality, biodiversity and Aboriginal culture and heritage.

Metropolitan and regional strategies

In 2005–06 and 2006–07 DECC worked with DoP in developing the Metropolitan Strategy for Sydney and regional strategies for the Far North, Mid North, Lower Hunter, Central Coast and South Coast regions. For more information, see pages 30 and 67–68.