2 Protecting ecological and human health

The DEC Corporate Plan 2004–06 identified the following **strategic focus areas** and **outcomes** required to achieve our corporate goal of the 'Protection of ecological and human health'.

Strategic focus areas	Outcomes
A healthier and cleaner environment	Cleaner air, water and land Protection of ecological needs and sustainable use of the environment Understanding of the public health impacts of contamination, chemical use, waste and radiation
Community wellbeing improved	Landuse decisions provide more 'liveable' and healthy communities by: • protecting Aboriginal cultural heritage sites and practices • minimising noise, dust, odour and vibration • promoting environmental health linkages

In this chapter

A healthier and cleaner environment

Corporate plan priorities for 2004–06

Improve approaches to compliance

Improve approaches to compliance for regulatory activities for cultural heritage, environmental protection and threatened species to ensure the highest risks to the environment are effectively managed and controlled.

During 2004–05 DEC worked to focus compliance efforts on high priority areas and progressed related legislation reform. DEC activities included:

- identifying priority environment protection licences to enable a focus on higher risk areas (page 15)
- conducting several compliance campaigns (page 16)
- providing specialised staff training to improve our capacity to undertake compliance activities (page 72)
- reviewing systems, processes and procedures for ensuring compliance with cultural heritage regulation. This regulatory work, including the first successful prosecution under section 90 of the *National Parks and Wildlife Act 1974*, are further discussed in Chapter 3
- integrating audit and enforcement functions for the Threatened Species Licence and the Environment Protection Licence held by Forests NSW to deliver a more coordinated and consistent approach to forestry regulation on public lands (page 16)
- building on and integrating compliance and audit programs as part of the comprehensive approach underpinning DEC environmental compliance program (page 15).

Improvements to environment protection legislation and regulations implemented in 2004–05 include changes to waste regulation (page 25), conclusion of consultation on reforms to the *Protection of the Environment Operations Act 1997* (POEO Act) and a Bill tabled in June 2005. DEC also progressed a range of market-based instruments focused on water quality that demonstrated innovative approaches to environmental and economic improvement (page 23).

NSW Government legislative reforms of the *Threatened Species Conservation Act 1995*, which were passed in November 2004, upgraded the enforcement and compliance provisions of the Act and better integrated threatened species conservation with native vegetation reforms to make them less complex and provide increased conservation incentives.

Emergency preparedness

Support the Government's incident and security emergency preparedness so that we are ready to deal with bushfires and biological, chemical and radiological threats and other incidents

During 2004–05 DEC and emergency response agencies participated in NSW Government Counter Terrorism and State Emergency Management meetings and exercises, addressing potential incidents involving biological, chemical and radiological threats.

DEC provided technical and cleanup advice for 279 hazardous materials (Hazmat) incidents, 73 of them on-site (page 27). DEC's Hazmat response now also integrates radiation incident capability.

DEC has worked to improve bushfire preparedness by implementing fire management strategies in affected reserve areas and participating in fire preparedness activities across the state (page 53).

Staff training strategies for emergency preparedness developed this year will be implemented in 2005–06.

Science investment plan

Develop a science investment plan that recognises the importance of decisions made on a scientific basis and identifies priority areas for environmental science, research and information provision

In 2004–05 DEC completed a review of science across its operations and at 30 June was formalising its Science Investment Plan. The plan will link science and research programs across DEC and will inform a research review being undertaken by the Ministry of Science and Medical Review.

National Chemicals Working Group

Lead the National Chemicals Working Group to achieve a risk management framework for chemicals, and improved criteria, information and education for adverse chemical impacts

The National Chemicals Working Group, chaired by the Director General of DEC, is leading the development of a national environmental risk management framework for chemicals on behalf of the Environment Protection and Heritage Council of state and federal environment Ministers (page 26).

Regulating environmental impacts

DEC is responsible for regulating industrial impacts on the environment through a range of compliance schemes including licensing and prosecutions under the powers of the EPA. Our comprehensive approach integrates compliance audit and licence review programs with on-going regulatory activities. In addition to assessing compliance with existing requirements, the approach aims to improve industry environmental performance with reference to best environmental management practices. The approach also involves greater opportunities for external stakeholders to participate during various stages of the process.

DEC takes a risk management approach to environment protection licensing that recognises that regulatory effort, especially within the POEO Act licensing framework, needs to be closely related to the environmental risk associated with a licensed activity. The greater the environmental risk the more controls are exercised through licence conditions, pollution reduction programs (see indicator right), compliance actions, inspections and follow-up of annual return information. At 30 June 2005, DEC had issued 3173 licences under the POEO Act, 174 of them in 2004–05.

DEC has a program of regulatory reforms to simplify and clarify regulatory requirements and strengthen the integrity of the framework so that it delivers better environment protection and resource recovery outcomes.

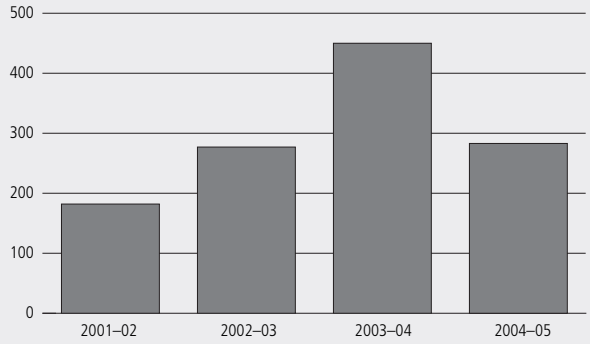
The Protection of the Environment Operations Bill was tabled in Parliament in June 2005.

■ PERFORMANCE INDICATOR

Number of new pollution reduction programs negotiated with licensees

Definition: This indicator measures the number of new pollution reduction programs (PRPs) negotiated during the year. PRPs are legally enforceable programs negotiated with licensees by DEC. They require changes to works or management practices to bring about environmental improvements within a specified time frame. The conditions of a PRP are attached to a licence. A PRP may be implemented in a series of steps over a number of years with specific conditions attached to each stage.

New pollution reduction programs negotiated with licensees



Interpretation: The total value of PRPs negotiated by DEC for 2004–05 was $86 million, which makes the total of upgrades negotiated since July 1998 worth approximately $1.07 billion. Note that this includes the Orica Botany groundwater clean-up notice ($167 million) issued in 2003–04. The number of PRPs decreased compared with the previous year, but was consistent with long-term average trends. The peak in 2003–04 was due to the large number of PRPs negotiated for rural sewage treatment systems. Over half of the PRPs (60% or 170) addressed water quality issues.

Significant PRPs negotiated during 2004–05 included:

- $65 million to commission Blue Scope Steel's Port Kembla briquetting plant and to investigate methods to further the reuse, reprocessing or recycling of waste
- 44 PRPs, worth a total of $1.9 million, with Hunter Water Corporation to reduce the discharge of untreated and partially treated sewage in the Hunter Region
- $1 million replacement of the boiler at the Carter Holt Harvey timber mill, to improve air quality in Oberon.

■ CASE STUDY

Chemicals environmental compliance

In 2004–05, DEC completed its chemical storage, handling and spill management audits program as part of our comprehensive approach to environmental compliance. Previous audits had identified many instances of non-compliance with storage and handling requirements and a number of recent significant environmental incidents caused by poor management.

Audits were conducted on 52 scheduled premises across a number of industry sectors and 10 audits were carried out at non-scheduled premises, including several managed by DEC. Joint compliance inspections were also carried out with a selection of councils at premises they regulate.

DEC staff inspect liquid chemicals during a compliance audit.

■ 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 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. It is possible for a pollutant emitted in very large quantities to have a lower impact than another pollutant with relatively small emissions because of differing levels of toxicity and/or the sensitivity of the environments. 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 more the environmental harm.

Under the LBL scheme, 12 types of air pollutants and 17 categories of water pollutants were reported by licensees and assessed by DEC. Air pollutants were arsenic, lead, fine particles, fluorides, nitrogen oxides, mercury, sulfur oxides, volatile organic compounds, hydrogen sulfide, coarse particles, benzene and benzo(a)pyrene. Water pollutants were 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.

The following presents the total PLIs for air and water pollutants over the last four years of the LBL scheme for which DEC has received complete load data. DEC has not yet received data from all licensees for the 2004–05 period and this data will be updated in 2006. The successful LBL Audit Program (right), has led to some restatement of prior year PLI data where required.

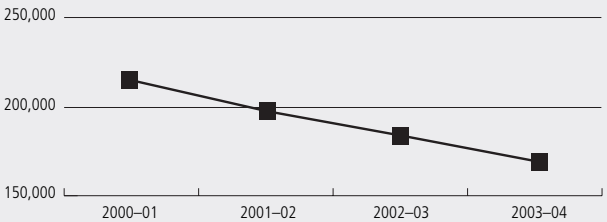
Total assessable air pollutants PLI

The total air PLI trend between 2001–02 and 2002–03 indicated an improvement of 8% in controlling the levels of harm from air pollutants emitted by licensed activities.

In recognition of the growing international concern about the impacts of air pollutants DEC introduced reforms to the LBL scheme, increasing the toxicity weighting for many air pollutants, and effectively increasing the total air PLI by around 50%. As a result the PLI for 2003–04, of 574,760, is not readily comparable to prior years but will be used as the basis for on-going reporting.

Increases to load-based licence fees from this weighting change have created added financial motivation for pollutant reduction.

Total assessable water pollutants PLI



Interpretation for water pollution emissions: The trend indicates an improvement in controlling the levels of harm from water pollutants emitted by licensed activities, with a 22% improvement in the PLI between 2001–02 and 2003–04. Note that the PLIs for individual water pollutants may fluctuate within the total PLI trend.

Load-based licensing scheme

The load-based licensing (LBL) scheme works to reduce pollution by linking industry licence fees to emissions. Pollutant load fees are paid by the state's largest, most potentially polluting activities and are proportional to the quantity and type of pollutants discharged and the conditions of the receiving environment. Significant reductions in pollutant loads have been achieved at premises licensed under the LBL scheme (see indicator, left).

At 30 June 2005, 283 premises were paying fees under the load-based licensing scheme, of which five were added during the year.

Licensees may enter into load-reduction agreements with DEC, allowing for an immediate reduction in LBL fees by committing the licensee to lowering emissions to the environment over the longer term. The money saved can be invested in achieving the planned reductions in emissions. Load reduction agreements usually last up to four years, giving licensees time to introduce improvements to lower their pollutant discharges to an agreed load.

At the end of a successful load reduction agreement period, the agreed load becomes the new load limit on the environment protection licence. DEC has negotiated 26 multi-year load reduction agreements, five completed during 2004–05, preventing 2114 tonnes of pollution per year being discharged into the environment (903 tonnes of air pollutants and 1210 tonnes of water pollutants).

Audit program

In June 2005 DEC completed a three-year program assessing compliance with load based licensing (LBL) requirements. 103 premises were audited, covering all activities for which LBL fees must be paid. We found that although industry was generally attempting to comply with LBL requirements, some non-compliances were noted, ranging from minor administrative issues to important load calculation errors.

The LBL Audit Program has improved licensees' understanding of their requirements, and identified a number of areas where the effectiveness of the LBL scheme could be improved, including amending the Load Calculation Protocol and improving DEC administration of the scheme.

DEC is developing compliance assurance mechanisms to continue to maintain the integrity of the LBL scheme, and the common findings of the audit will be distributed to all licensees to help improve compliance and environmental performance.

Forestry regulation

Forestry activities on public land in NSW are regulated by DEC to protect threatened species and water quality. This is achieved through the setting of best practice conditions within licences issued under the *Threatened Species Conservation Act 1995* and the *Protection of the Environment Operations Act 1997*.

During 2004–05, DEC licensed or set approval conditions for 202 forestry operations for threatened species protection, 245 for water quality protection in native forests and 217 for water quality protection in plantation forests.

DEC conducted 15 audits to check compliance with threatened species requirements and 11 to check compliance with water quality requirements in native forests. Two audits were conducted in plantation forests for water quality protection.

DEC issued 12 warning letters, requested remediation action over 27 separate follow-up issues and issued two clean-up notices. Forests NSW also pleaded guilty to one charge under section 120 of the POEO Act in the Land and Environment Court and were fined $30,000 and required to pay DEC's costs.

Prosecutions

DEC can commence a prosecution for environment protection offences under the authority of the EPA and for offences under National Parks and Wildlife legislation. During 2004–05, DEC commenced 185 prosecutions (127 EPA prosecutions and 58 under National Parks and Wildlife legislation) and completed 175 prosecutions (127 EPA and 48 National Parks and Wildlife, see Appendix 8, page 149). The 175 completed prosecutions resulted in:

- 151 convictions
- 21 matters where the offence was proven but a conviction was not recorded
- three acquittals.

Examples of significant cases completed in the Land and Environment Court during 2004–05 are outlined below.

EPA v Stanley James Perry

Mr Perry was fined $30,000 after pleading guilty to a Tier 1 offence for being a director of a company that negligently disposed of about 3000 tonnes of used tyres in a manner that harmed or was likely to harm the environment. Mr Perry's company had been paid fees totalling $350,000 for accepting used tyres from tyre retailers and mines. It stored the tyres at a site it leased in Gilgandra. In about June 2001, the company abandoned the tyres and the site. In sentencing, the court took into account the serious fire risk posed by the abandoned tyres. The court declined to order Mr Perry to clean up the tyres, noting his personal and financial circumstances.

EPA v Juan Manuel Obaid

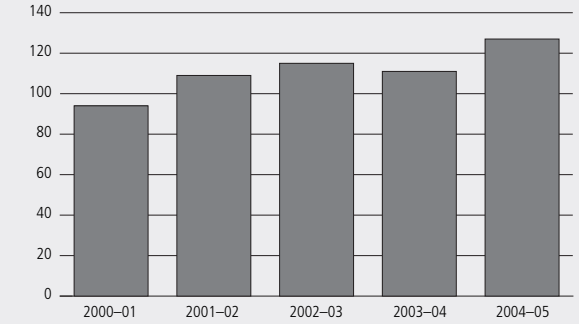
Mr Obaid pleaded guilty to four charges arising out of his involvement in the use of four premises in the Sydney area for the unlawful storage of used tyres. In 2001 and 2002, retailers paid fees totalling $160,000 for the removal of about 100,000 used tyres, which were taken to the four premises. The court found that the risks created by the stockpiling of large amounts of tyres at all of the premises were potentially catastrophic, given that tyre fires are intensely hot, hard to extinguish, a threat to buildings and neighbours, and can emit injurious fumes. The court fined the defendant a total of $73,125. The defendant was also ordered to repay clean-up costs of $17,371 and to remove all tyres remaining at one of the premises.

■ PERFORMANCE INDICATOR

Number of prosecutions completed under EPA legislation, percentage successful and value of fines awarded

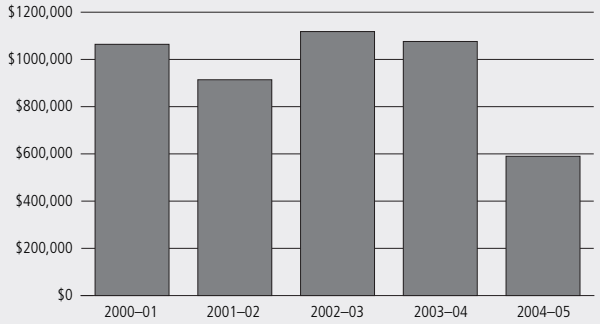
Definition: This indicator measures the number of prosecutions completed by DEC under EPA legislation, the proportion that were successful and the resulting value of fines awarded by the Land and Environment or local courts. For prosecutions under National Parks and Wildlife legislation, see Appendix 8, page 154. 'Successful' refers to cases that were proven in court, including cases where DEC won and a penalty was imposed by the court and where DEC's case was proven but no conviction was recorded.

Prosecutions completed under EPA legislation



Percentage of successful prosecutions under EPA legislation

Value of fines in EPA prosecutions



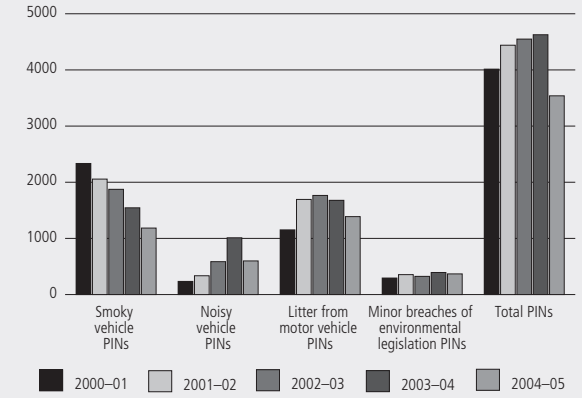
Interpretation: The number of completed prosecutions increased by 16 and the proportion of successful prosecutions increased from 94% to 98% this year. Total fines of about $600,000 are down from the higher levels of the last four years. This reflects a greater mix of prosecution work undertaken by DEC this year, resulting in an increase in the proportion of charges run in the Local Court rather than the Land and Environment Court. Further, the Land and Environment Court imposed fines of $70,000 or more in two cases in 2004–05 compared to six such cases in 2003–04. Finally, alternative penalties, such as carrying out a project for the restoration or enhancement of the environment (an environmental service order) or ordering the offender to publish details of the offence, for example in a newspaper, are often also sought instead of, or in addition to, a fine. The value of environmental service orders imposed by the Land and Environment Court rose from $25,000 in 2003–04 to $102,000 in 2004–05, partially offsetting the decrease in total EPA fine levels.

■ PERFORMANCE INDICATOR

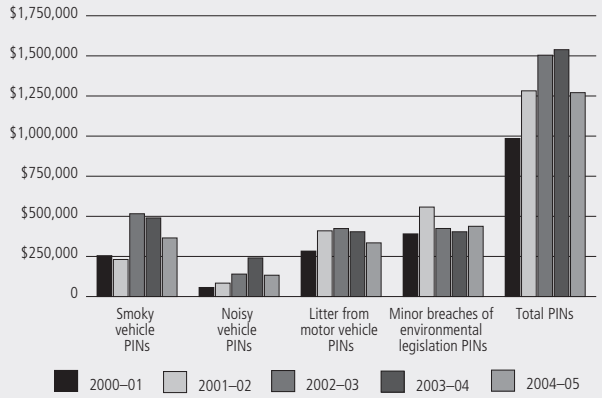
Number and value of penalty infringement notices issued by DEC under EPA legislation

Definition: Penalty infringement notices (PINs) are issued for minor breaches of the EPA legislation administered by DEC, as well as for smoky and noisy vehicles and littering from vehicles. This indicator measures the number of PINs issued and processed by DEC, including the PINs DEC processed and issued on behalf of local councils and the Roads and Traffic Authority (RTA). PINs processed and issued directly by authorised agencies (primarily councils, RTA and the police) are not included in this indicator.

Number PINs issued



Value of PINs issued



Interpretation: The decline in PINS is explained largely by the high number of noisy vehicle PINs issued for 2003–04, when DEC was focusing on noise-related offences. The value of penalty notices for minor breaches of environmental legislation increased by 8%. Also, fewer PINs were referred from other agencies for DEC to issue.

EPA v Bluescope Steel (AIS) Pty Ltd

Bluescope Steel was fined $70,000 after pleading guilty to one charge of breaching a licence condition at its Port Kembla premises. Maintenance works on the electrical systems at the premises caused a major power outage across the steelworks. There was also a failure in the back-up systems, which resulted in the emission of over 30,000 cubic metres of raw coke oven gas. This gas contained carbon monoxide and smaller quantities of benzene, toluene, ammonia, xylene, hydrogen sulphide and hydrogen cyanide.

EPA v Andrew Evan Thaler

Injunctive action was taken against Mr Thaler in 2002 after it was found that hundreds of lead acid batteries had been unlawfully accepted at his Queanbeyan business premises. The court ordered Mr Thaler not to receive any more batteries at the premises and to lawfully dispose of the batteries already there. He didn't comply with these orders and was charged with contempt. Mr Thaler pleaded guilty and the court fined him $50,000.

Air quality

Successful controls on air pollution from industry and motor vehicles have reduced the total contribution of these emission sources over the years, although continued emission reductions are necessary. While motor vehicles remain a very significant source for two key pollutants in Sydney (volatile organic compounds, or VOCs, and oxides of nitrogen), the contribution of the commercial and domestic sector has become relatively more important. As a result, in addition to DEC's emphasis on economic incentives and appropriate regulation to reduce industry emissions and on cleaner vehicles and fuels, our pollution reduction efforts are broadening to include emissions from sources such as solvents, service station and petrol refuelling, garden appliances and woodheaters.

DEC estimates that in 2003 the motor vehicle sector was responsible for 38% and the commercial and domestic sector 41% of emissions of the volatile organic compounds that contribute to ozone formation. Industry was responsible for an estimated 40% and the commercial and domestic sectors 42% of particle emissions in Sydney. New inventory data for 2004–05 will be available in 2006. Managing the emissions from the commercial and domestic sector is complicated by the diversity of pollution sources, and the likelihood that regulation may not be as cost-effective to enforce as it has been for industry.

DEC work in this area emphasises progressing the 25-year NSW air quality strategy, Action for Air, providing useful information to the community on achieving air quality goals through an active monitoring and reporting program. DEC is also examining the air quality implications of emerging issues like climate change and is actively contributing, with assistance from the Clean Air Fund (page 19), to the development of appropriate abatement policies and measures.

2004 Clean Air Forum

Clean air forums provide an opportunity to review progress on Action for Air, the NSW Government's 25-year air quality management plan to encourage broad public input on air quality trends and management strategies, and to explore future environmental issues affecting air quality. DEC convened the second triennial forum, focusing on climate change and air quality issues, in November 2004. Nearly 200 people from community groups, industry, academia and local, state and Commonwealth governments attended.

At the forum, the Premier of NSW announced a range of air quality and climate change initiatives including a one-year trial of after-treatment technology to reduce emissions from older diesel vehicles, and banned the purchase of eight-cylinder vehicles for the government fleet.

Standards, monitoring and reporting

Monitoring and reporting on air quality provides essential information to guide environmental policy and operational decisions at local, state and national levels. DEC's **air quality monitoring network** continues to be the largest in Australia, with 20 stations in the Greater Metropolitan Region (Sydney Metropolitan Region, the Central Coast, the Lower Hunter and the Illawarra). Additional monitoring stations are located in Albury, Bathurst, Tamworth and Wagga Wagga. Most sites measure ozone, oxides of nitrogen and particles as well as visibility. Some sites also monitor carbon monoxide and sulfur dioxide.

During the year DEC changed the way it monitors air quality in NSW in response to developments in science and technology. Older style batch monitoring techniques for particles were replaced with the latest continuous monitoring technology and four redundant monitoring stations were closed.

DEC provides daily air quality information to the public, updates a regional pollutant index twice daily on the website, and provides 24-hour air quality summaries and quarterly monitoring reports. DEC also provides annual reports on air quality to the National Environment Protection Council as part of our obligations under the National Environment Protection Measure for Ambient Air Quality.

During 2004–05 work began on an Environment Protection and Heritage Council **national air quality standards** review. DEC chaired the national working group developing important advice on ground-level ozone standards, which will provide important parameters for the standard-setting process. Consultation is taking place with technical experts and interested community members on issues such as health impacts, exposure patterns, and the achievability of any changes to the current standard.

Air pollution health alerts

DEC and NSW Health launched a new air pollution health alert system in November 2004 to inform the public about days of high air pollution in the Greater Metropolitan Region and possible health impacts. On days when air pollution is forecast to be high or hazardous, a health alert is issued as part of DEC's normal afternoon regional pollutant index (RPI) bulletin.

Health alert messages are tailored for the particular pollutants and forecast levels.

Alert level	RPI
High	⩾ 50 for all pollutants
Hazardous	⩾ 75 for ozone or NO_2 ⩾ 200 for fine particles

Since the system was launched there have been five high alerts and no hazardous alerts. The four ozone alerts were issued for exceedances of standards in the Ambient Air Quality National Environment Protection Measure (AAQNEPM). The alert for fine particles was issued for an exceedance of the NSW amenity goal of nine-kilometre visual distance.

■ PERFORMANCE INDICATOR

Percentage of time valid air quality data available from DEC monitoring network

Definition: This indicator measures the percentage of time valid data was available to the community from DEC's air quality monitoring network in the Greater Metropolitan Region 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.

Result: The network achieved 95%, the maximum possible level of valid data, following previous years which were close to this level (92% in 2004 and 91% in 2003).

Clean Air Fund

The Clean Air Fund, established with funding from the Environmental Trust and administered by DEC, has been instrumental in developing innovative programs to reduce emissions from important smaller sources that cumulatively contribute to air pollution. These include local air improvement programs, reducing emissions from petrol particulate matter (39%). Slight increases in oxides of nitrogen (7.2%) and fuel consumption (3.2%) were consistent with other biodiesel research. Newcastle City Council is now investigating the possibility of converting its entire fleet to 20% biodiesel.

■ CASE STUDY

Biodiesel trials

Two Clean Air Fund–supported biodiesel projects were completed in 2004–05. Camden Council received $41,690 to undertake a six-month trial to compare the performance of 100% biodiesel (B100) with ultra low sulfur diesel in two of the council's rubbish trucks under normal operating conditions. RTA testing revealed that using B100 achieved reductions in tailpipe emissions for smoke (reduced 79%), particulates (91%), hydrocarbons (68%) and carbon dioxide (4%). No significant difference was recorded for oxides of nitrogen emissions.

Newcastle City Council was funded $95,000 to introduce a 20% blend of biodiesel (B20) in its 228-diesel vehicle fleet. Tests of 12 fleet vehicles showed significant average reductions of smoke (30%) and

One of Newcastle City Council's waste trucks powered by 20% biodiesel.

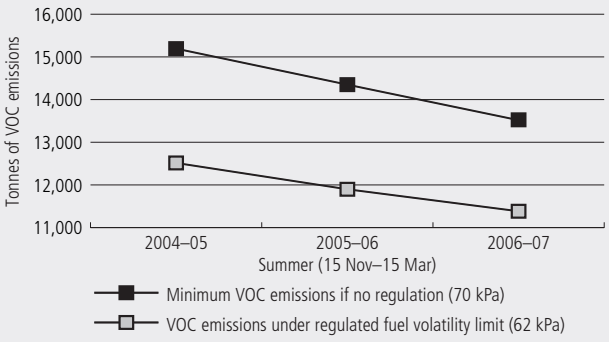
vapour and small engines such as outboard motors. They also include comprehensive work on an air emissions inventory, which will allow more comprehensive and targeted strategies for reducing emissions to be developed.

■ PERFORMANCE INDICATOR

Estimated tonnes of VOC emissions to the Greater Metropolitan Region airshed per summer prevented due to DEC regulation of the fuel industry

Definition: Petrol vapour, containing volatile organic compounds, is one of the major causes of smog in the Greater Metropolitan Region 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, which requires 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 in the Greater Metropolitan Region 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 which would have happened if no regulation of petrol volatility had been introduced. The Regulation replaces the voluntary scheme that operated from 1998 to 2002 under a memorandum of understanding entered into with some industry operators. The regulated limits are expected to lead to further falls in VOC emissions in the GMR in summertime.

■ CASE STUDY

Stage two vapour recovery

In addition to reducing fuel volatility (see performance indicator, above) DEC, in partnership with Blacktown and Gosford city councils, conducted a one-year trial of stage two vapour recovery (VR2) equipment to reduce petrol vapour emissions at petrol stations. The trial is part of DEC's evaluation of VR2 as an option to reduce volatile organic compound (VOC) emissions in the NSW GMR.

The trial involved the modification of petrol bowsers so that petrol vapours are returned to the underground storage tank. User survey results show the equipment is easy to use, considerably reduced petrol odour, and is strongly accepted when its full environmental benefits are known. The equipment proved reliable and abated a significant 884 kg of VOCs at Gosford and 1165 kg of VOCs at Blacktown.

Industrial emissions

Informed by the growing body of health studies which demonstrate the impact of air pollution on human health, DEC has undertaken a significant review of the Clean Air (Plant and Equipment) Regulation 1997. Along with licensing, the Regulation is the key mechanism for controlling the emission of air pollutants from industrial sources in NSW. Following extensive scoping consultation in 2003, DEC conducted formal public information sessions and individual stakeholder group meetings in late 2004 and early 2005. DEC received 31 written submissions on the proposed Regulation from government, industry, and community and environment groups. The results will be incorporated into the Protection of the Environment Operations (Clean Air) Regulation 2005–06.

Air emissions inventory project

DEC is overhauling its air emissions inventory to determine the quantity and contribution of over 90 air pollutants from mobile, industrial, commercial, domestic and biogenic sources in the Greater Metropolitan Region. The new inventory will help DEC, other government agencies and the community determine priorities and create strategies for managing air quality both now and in the future. In particular, it will determine whether there is a need to add to the existing regulatory and non-regulatory mechanisms for managing air pollution.

So far DEC has surveyed around 7500 stakeholders to gather activity data for transport (e.g. planes, ships, trains and motor vehicles), large industry (e.g. licensed refineries and steelworks), commercial businesses (e.g. service stations), domestic sources (e.g. individual households) and natural sources (e.g. bushfires and plant emissions).

The holes in this nozzle recover vapour emissions before they reach the atmosphere.

DEC is now evaluating the cost effectiveness of implementing VR2 at service stations within the Greater Metropolitan Region.

Waters and catchments

In 2004–05 DEC continued to implement a variety of programs to improve the quality and sustainable use of water in NSW. We further developed market-based instruments to promote reductions in industrial emissions to waters, including South Creek and the Hunter River (page 23), while contributing to water allocation decisions at a catchment level through the Murray–Darling Basin Commission (MDBC) and the Metropolitan Water Plan.

DEC also chairs the NSW Government's Water Chief Executive Officers group, which includes the main water-related agencies and state-owned corporations, as well as central agencies. In 2004–05, the group oversaw a broad agenda including:

- revision of the NSW Wetlands Policy and the development of supporting initiatives to improve the health of the Macquarie Marshes and Gwydir Wetlands
- development of 'macro' water-sharing plans for water sources not covered by the existing 36 water-sharing plans
- state-wide arrangements for advice on algal blooms and coordination of algal bloom responses
- review of the government's floodplain harvesting policy.

Murray–Darling Basin

In 2004–05 DEC worked on progressing implementation of the Living Murray First Step initiative and in November 2004 the first four water recovery proposals under the initiative began. This will see the recovery of 240 gigalitres of new environmental water at a cost of $179 million and includes two proposals by NSW recovering 71 gigalitres for $72 million. Work is continuing on development of The Living Murray Environmental Watering Plan and environmental management plans for each of the six significant ecological assets. DEC also supported the Murray–Darling Basin Commission through the Sustainable Rivers Audit (see case study below).

Metropolitan water plan

During 2004–05, DEC worked with the Department of Infrastructure, Planning and Natural Resources, Sydney Catchment Authority, Sydney Water Corporation, Department of Energy, Utilities and Sustainability and other agencies to implement the Metropolitan Water Plan for Sydney. The plan was released in October 2004 and is designed to secure the future supply of water for Sydney's growing population and to allow adequate environmental flows to keep our rivers healthy over the next 25 years. DEC continues to play a role in progressing a range of initiatives under the plan including measures to reduce the demand for water, increase water supplies and increase water recycling.

Urban stormwater

DEC administers the Urban Stormwater Program on behalf of the Stormwater Trust. The NSW Government has allocated $82 million to the trust since 1998 to implement the Urban Stormwater Program as part of the $3-billion Waterways Package.

The successes of the Urban Stormwater Program to date have included:

- stormwater grants of $67 million given to councils around NSW, with an additional $40 million being contributed by councils
- nearly 100 artificial wetlands built to reduce nutrients and sediment entering waterways
- over 300 jobs created across NSW, many in regional areas
- the $7 million Stormwater Education Program, with an independent evaluation showing that 20 per cent of people have changed their behaviour to reduce stormwater pollution and 70 per cent often actively prevent stormwater pollution as a result of the program
- an estimated 19,520 tonnes of pollution at June 2005 stopped from entering our waterways as a result of the program's activities, which is equivalent to over 1900 full garbage truck loads of rubbish.

■ CASE STUDY

Sustainable Rivers Audit

DEC is contributing to the MDBC's $11m Sustainable Rivers Audit (SRA), which will track the ecological condition and health of river valleys in the basin for the purposes of natural resource management.

DEC undertakes the macroinvertebrate river health component of the SRA, which measures impacts on insect life, while other agencies monitor fish communities and hydrology. Macroinvertebrate analysis provides a reliable measure of the health of the invertebrates in a river's ecosystem. This year sampling covered the Border Rivers, Darling River, Namoi River, Lachlan River and Murrumbidgee River. DEC will sample each site every second year and this will continue for a minimum of six years.

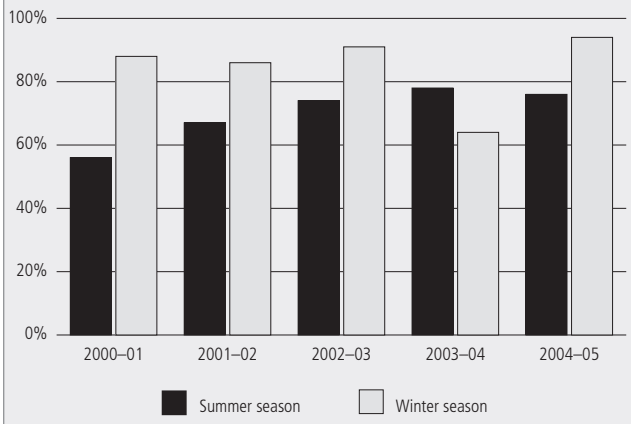
DEC undertakes macroinvertebrate sampling as part of the SRA.

■ PERFORMANCE INDICATOR

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

Definition: DEC's Beachwatch and Harbourwatch programs monitor water quality at 129 recreation 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. Changes in compliance reflect seasonal rainfall and the effectiveness of stormwater and wastewater management. The summer season extends from October to April; winter covers May to September.

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



Interpretation: The percentage of sites complying more than 90% of the time in the summer season remained fairly constant over the past two years, after increases in 2001–02 and 2002–03. The increases were partly the result of an upgrade to the Cronulla Sewage Treatment Plant in April 2001. Compliance levels during winter tend to be higher than in summer due to lower winter rainfall and fewer wet-weather related sewage and stormwater inputs.

The Stormwater Trust program is coming to its conclusion and DEC's role this year has been to continue management of the final grants and to ensure close links with stormwater and natural resources management though the catchment management authorities.

Sewer system regulation

DEC regulates the impact on stormwater of sewage treatment systems operated by Sydney Water Corporation through environmental protection licensing and the POEO Act. This includes discharges from sewage treatment plants and overflow from underground sewer pipes. In 2004–05 DEC amended licences issued to Sydney Water to introduce a 'whole of effluent' toxicity limit and specific chemical limits, and to allow Sydney Water to offer treated effluent to third parties for beneficial reuse.

In June 2005 DEC finalised a new framework for sewer overflow abatement from 2005 to 2010, that includes:

- setting system performance outcomes for 2010 in anticipation of 2021 overflow performance goals
- providing flexibility for Sydney Water to select cost-effective options and adaptively manage sewer overflow abatement response over time
- establishing a monitoring program to help Sydney Water respond to elevated bacterial levels in dry weather
- prohibiting dry weather discharge from all sewage pumping stations from July 2006
- establishing a transparent framework for Sydney Water to prioritise investment in abatement programs, and focus abatement works on the worst performing areas.

■ CASE STUDY

Water information system for the environment (WISE)

DEC developed the Water Information System for the Environment (WISE) database in partnership with the University of NSW, catchment management authorities, the National Heritage Trust, landholders, local government, Aboriginal and other community groups, educational institutions and historical societies. WISE databases have been completed for the Barwon–Darling, Paroo, Warrego, Cooper, Gwydir, Namoi, Castlereagh, Macquarie-Bogan, Illawarra and Hacking catchments. The CD-ROM for the Cooper will be launched in late 2005.

In 2004–05 the WISE databases were extended to an interface that links areas of interest on a map to relevant information. The web software was updated to meet international accessibility standards and improve usability, and to incorporate a feedback

WISE is now available as a decision-making tool for resource managers for more than half of NSW.

feature encouraging submissions for references to newly published articles. WISE databases can be accessed at www.wiserivers.nationalparks.nsw.gov.au and include extensive linking to other sites.

Beachwatch

DEC developed the Beachwatch Partnership Program in 2004 to assist coastal councils with recreational water quality monitoring and reporting. The program provides technical advice, training, quality assurance and assistance with community reporting, the key areas of need identified by local councils. During the 2004–05 summer swimming season, DEC worked in partnership with nine councils to monitor and report on recreational water quality at 125 swimming locations.

Water quality market-based instruments

The Hunter River Salinity Trading Scheme continues to lead the world in using economic instruments for the effective protection of waterways. The Hunter River now has a lower salt content than many bottled mineral waters, allowing agriculture, mining and electricity generation to share the use of the river. Participants in the scheme may only discharge under the its rules, including holding enough credits to cover 'high flow' discharges of saline water.

The scheme establishes target conductivity levels of levels 900 microsiemens per centimetre (µS/cm) and during 2004–05, monitoring showed average daily conductivity at Singleton of 603 µS/cm. At all times during the year, average daily conductivity remained below the target level. This scheme and future audits will provide on-going incentive for industry to invest in strategies to reduce its need to discharge saline water.

During 2004–05, we also conducted three **salinity offset** pilots with environment protection licensees:

- Ulan Coal Mine near Mudgee (Macquarie and Hunter catchments)
- Norske Skog Paper Mill in Albury (Murray catchment)
- Moree Spa baths (Gwydir catchment).

These pilots formed part of the larger Green Offsets for Sustainable Regional Development project, which was completed in June 2005. This project was one of 11 natural resource management projects to receive funding through the first round of the National Market Based Instruments Pilots Program, under the National Action Plan for Salinity.

The South Creek **Nutrient Offset Scheme**, administered by DEC, is a two-year voluntary pilot to improve South Creek's water quality by providing a framework for trading between diffuse and point sources of nutrients (nitrogen and phosphorus). Sydney Water Corporation and Landcom have provided $150,000 to implement nutrient reduction measures (offsets).

During 2004–05 the scheme completed or almost completed a range of works to reduce nutrient run-off at seven properties, including:

- a composting study
- settlement ponds (and constructed wetlands) and recycling systems
- modified farming practices to reduce fertiliser use
- modified grazing practices (including fencing and an off-river water supply)
- design and initiation of a program to monitor the effectiveness of specific measures (including pathogen removal), which will continue into 2006.

■ CASE STUDY

Ulan Coal Mine

Ulan Coal Mine is licensed to discharge excess mine water via an irrigation program. To offset the salt in that water, the mine has implemented land use and land management changes to progressively reduce about 280 tonnes of salt exported from 4460 hectares of land that it owns and manages.
The changes involve:

- revegetating with trees
- sowing and irrigation of perennial pastures
- changing grazing regimes and restocking remnant vegetation.

This has cost the company about $1.3 million to date (on-going operating costs are about $94,000 per year). However, establishing a desalination plant would have cost approximately $15 million, with on-going costs around $6 million per year. The net present value of these savings is about $91 million.

This centrepivot irrigation equipment delivers mine water to perennial pastures.

Waste

DEC regulates the waste industry to provide policy advice and guidance to waste generators and the public, and manages the waste avoidance and resource recovery programs covered in Chapter 4.

In 2004–05 DEC conducted **waste compliance campaigns** to promote compliance, assist waste operators to understand and meet their legislative obligations and take strong and consistent regulatory action against operators who chose not to comply with the law. DEC also conducted 18 audits and 73 other inspections within the successful waste levy audit program in 2004–05, supporting the NSW Government waste levy (page 66).

Litter programs

Under the POEO Act, authorised officers from DEC, other state agencies and councils have the power to issue penalty notices for littering offences and members of the community can also provide reports to DEC. During 2004–05, 1363 penalty notices were issued and 4834 warning letters were issued as a result of community reports.

DEC works with councils and other agencies such as the Sydney Catchment Authority to form regional illegal dumping (RID) squads. In its first year of operation to March 2005, the Southern RID Squad commenced over 1300 investigations and issued over 100 penalty notices and 18 'clean-up' notices under the POEO Act. The Western Sydney RID Squad, made up of seven councils, issued over 450 penalty notices and 28 clean-up notices

Operation Litterbug, launched in September 2004, is a joint initiative between DEC, Western Sydney councils, Western Sydney RID Squad and the RTA to target roadside litter and illegal dumping in Western Sydney. The education and enforcement programs included:

- 'Stop and pull-over' program for uncovered waste trucks near landfills and waste facilities and surveillance from footbridges to detect uncovered loads, particularly targeting the M4 motorway
- 'Cover your load' messages displayed on electronic signage boards along the M4 and 'Don't be a Tosser' banners on roadside bridges
- distribution of 10,000 'Don't be a Tosser' car litter bags via service stations and convenience stores near roadside litter hotspots
- advertisements to deter illegal dumping of asbestos and building and construction waste
- development of educational material for home renovators and builders on how to safely dispose of asbestos waste.

DEC conducted 40 inspections of landfills and waste facilities during the operation and issued five penalty infringement notices for poor waste storage and handling practices. Surveillance of 160 trucks transporting waste resulted in 18 penalty infringement notices for uncovered loads.

DEC also conducts an audit program to monitor compliance with the NSW waste levy, which is applied to waste disposal in Sydney, the Hunter and Illawarra. At rates per tonne of $21.20 in Sydney and $13.20 in the Hunter and Illawarra in 2004–05, the levy provides an economic incentive for reducing waste and promoting resource recovery.

Asbestos waste

DEC, in conjunction with WorkCover NSW, undertook inspections of 35 waste facilities and landfills in April and May 2005 to check compliance with handling and disposal requirements for asbestos waste. Ten of the inspections were conducted in partnership with local councils. DEC issued two fines, two clean-up notices and seven warning letters for breaches detected during the campaign.

In March 2005 DEC released educational material for home renovators and builders on how to safely dispose of asbestos waste from homes. The brochure, prepared with the assistance of WorkCover NSW, provides advice on the legal

■ CASE STUDY

Operation White Ibis

In December 2004, DEC began the latest round of inspections under 'Operation White Ibis', a campaign that targeted the inappropriate disposal of degradable and industrial wastes at landfills across Western Sydney. During 2004–05 DEC carried out 73 unannounced inspections of landfills to monitor the types of waste they received.

Four penalty infringement notices were issued to landfills for breaching licence conditions by unlawfully accepting waste. Three transport companies also received fines.

Evaluation of the campaign revealed that landfills had improved their waste acceptance practices, and waste transporters had educated their customers and changed their business practices to ensure that waste was disposed of at an appropriate disposal facility.

A DEC officer conducting an inspection of waste at a Sydney landfill.

The unannounced inspections served as a reminder to the industry that DEC is actively monitoring compliance, and campaigns are now part of DEC's overall waste compliance and enforcement strategy.

requirements for safe handling, storage, transport and disposal of asbestos waste.

The brochure was developed in response to community concerns, reflected in a recent survey of Western Sydney residents which found that 77 per cent of residents were concerned about the impacts of asbestos on their health and 83 per cent thought that the health of home renovators was at risk.

Environmental guidelines

In July 2004 DEC released *Environmental guidelines: composting and related organics processing facilities* to clarify requirements for those facilities under the waste framework.

DEC released further guidance on the classification of waste containing a number of specific contaminants in May 2005 through publication of additional contaminants for tables A3 and A4 of the *Environmental guidelines: assessment, classification and management of liquid and non-liquid wastes*.

Alternative fuels

As part of its wider waste reform agenda, the NSW Government has recently released guidance on the use of alternative fuels, which can include a variety of waste materials. The guidance makes it clear that the government will only support proposals that constitute genuine energy recovery and not those which are a backdoor means of waste disposal.

DEC has provided guidance on its website to clarify how it will assess proposed uses of wastes and other materials as non-standard fuels in terms of both air emission and waste aspects. The waste criteria for assessment include:

- Are any practical higher order reuse opportunities available?
- Does the waste meet the required calorific and thermal efficiency thresholds?
- Is the waste physically and chemically homogeneous and of consistent quality?
- Is the use in accordance with agreed specifications, standards or conditions (fit for purpose)?

Liquid wastes

In 2004–05 DEC conducted 156 inspections of companies licensed to generate or store liquid wastes. The inspections aimed to ensure that storage and handling requirements for liquid wastes did not pose a risk to the environment and that the treatment and disposal of these wastes were adequate.

Companies with poor storage and handling practices were required to address these issues and implement improvements. To date two companies have been issued fines ($1500) where the follow-up inspections revealed that storage and handling practices had not improved.

In November 2004, DEC conducted an inspection program for licensed waste transporters to check compliance with waste and dangerous goods legislation. Seventy liquid waste tankers were inspected, and nine fines totalling over $14,000 were issued to licensees.

During 2004–05, 60 companies attended a training program to help generators of liquid waste understand their legal requirements for waste classification, storage and disposal.

In June 2005, over 40 businesses that generate liquid waste attended a Liquid Waste Forum DEC hosted in partnership with Parramatta City Council. The forum encouraged businesses to explore options for reducing the toxicity and volume of waste they generate.

Regulatory reforms

Consultation on the **Protection of the Environment Operations Bill** was initiated this year with the tabling of the Bill in Parliament in June 2005. It includes a revised waste definition that clearly establishes that materials made from waste that enter the environment as fertiliser, fuel or fill will be regulated as wastes. Subsequent changes to the waste Regulation will specify how such materials can be exempted from waste regulatory requirements. These amendments aim to facilitate the beneficial and appropriate reuse of waste, while stamping out dangerous, polluting or harmful reuse of waste on land or as fuel.

The Bill introduces strict new liability offences for polluting land and for supplying false or misleading information about waste.

The **Residue Wastes** amendment to the Protection of the Environment (Waste) Regulation 1996, developed jointly by

■ CASE STUDY

Blue Circle Southern Cement

After extensive negotiations with Blue Circle Southern Cement Works in Berrima, DEC agreed to a modified proposal for the use of alternative fuels subject to the most stringent best-practice emissions standards ever established for such a facility in Australia. The agreed controls are as stringent as those used by the European Union and are considerably more stringent than those imposed for conventional fuel use such as coal or oil.

A liquid oily material and used tyres will be the first alternative fuels in the trial.

This kiln at the Blue Circle cement works at Berrima is being used to trial alternative fuels.

DEC and the Department of Primary Industries with the aim of protecting land, food and the environment from the inappropriate application of high-risk residue wastes, was gazetted in June 2005 for commencement on 1 December 2005.

The new Regulation makes it an offence to cause or permit the application to land of residue waste, or any substance(s) made from residue waste, for the purpose of growing vegetation. The prohibition does not apply to soil improving agents, fertilisers or liming materials or trace element products within the meaning of the *Fertilisers Act 1985*.

Where it is demonstrated that the residue waste is beneficial and will not cause harm to the environment, human health or agriculture, DEC can grant an exemption from the regulation. Guidance and fact sheets on the requirements have been released for waste generators and for farmers.

Pesticides and chemicals

The Environment Protection and Heritage Council National Chemicals Working Group, chaired by DEC, is developing a framework to assist Australia to better manage chemicals and respond to international developments. As part of this work during 2004–05, the working group developed information projects for the public, industry and government.

DEC also progressed a range of regulations and programs under the *Pesticides Act 1999*, including a program for the implementation of mandatory training provisions for the use of pesticides. In May 2005, the Minister for the Environment tabled the final report by the Pesticides Implementation Committee in Parliament.

A major focus of the pesticides reforms has been to make certain that vulnerable members of the community are protected from harmful impacts of pesticide use. In particular, great efforts have been made to ensure that regulations are brought forward to provide protection and safety for those members of the community, like children, who are most vulnerable to the effects of pesticides.

DEC is currently working on a regulatory proposal for pesticide notification in public spaces and in the common areas of multiple-occupancy residential complexes.

Reforms in the important area of sensitive sites will continue. The Minister has indicated in parliament that, once we have new notification arrangements in place for public sector pesticide users, notification requirements for private sector pesticide users will be added.

A regulation will be made for the use of pesticides by pest management technicians that will specifically address the safety and protection of places where children and other vulnerable groups in the community gather such as schools, child care centres and hospitals. It is intended that this regulation will be finalised by December 2006.

In May 2004, Australia ratified the Stockholm Convention, which requires member countries to undertake measures to eliminate or reduce the release of persistent organic pollutants (POPs) into the environment. POPs, including dioxins and DDT, are chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of living organisms, and are toxic to humans and wildlife.

In NSW, DEC assists compliance with the convention through our assessment of treatment technologies proposed for the remediation of sites contaminated with legacy wastes. During 2004–05, these assessments included proposals to clean up Orica's Botany site, remediate contaminated land on the Rhodes peninsula and treat chemicals on former cattle dip sites in northern NSW.

Household chemical clean-up

DEC continues to provide a collection system for household chemicals in an effort to keep them out of stormwater and sewerage systems and clean up waste sent to landfill. In 2004–05, 15,400 people delivered over 560 tonnes of chemicals to 59 collection events in the Sydney, Illawarra and Hunter regions. Data from these collections is being analysed and will be fed into discussions on product stewardship responsibilities for the manufacturers of these materials.

Radiation and dangerous goods

The *Radiation Control Act 1990*, administered by DEC, aims to protect people and the environment from the harmful effects of radiation. This is achieved through measures such as licensing people to possess, use and sell radioactive substances and radiation equipment, and registering radiation equipment and premises. The legislation also contains the safety requirements for workplaces where radiation is used and provides powers for DEC to deal with dangerous situations.

On 1 July 2004, provisions in the Act commenced for registering a wider range of equipment and premises, establishing a more comprehensive registration scheme, and enhancing radiation safety and the security of radioactive material.

In 2004–05 DEC also conducted 60 site inspections and 12 audits as part of its radiation compliance program.

DEC worked with the Commonwealth and other states and territories to develop national approaches to radiation protection, such as the first edition of the National Directory for Radiation Protection released in August 2004.

Hazardous materials incidents

DEC maintains a 24-hour emergency response and hazardous materials advice capability linked to our Environment Line service and the regional after-hours incident response service. In some circumstances, DEC staff attend the incident site, usually to oversee clean-up once the NSW Fire Brigades leaves or to investigate potential breaches of environmental legislation. Examples of significant incidents in 2004–05 included:

- On 11 January 2005, a truck carrying waste oil ran off the road at Urana (west of Wagga Wagga), losing 31,000 litres of a 44,000 litres load into Urangeline Creek. NSW Fire Brigades worked for five days to contain and collect the lost oil so that it didn't contaminate local water supplies.
- On 26 February 2005, a petrol tanker overturned on Pacific Highway at Wahroonga near the entrance to the Newcastle Freeway, resulting in a spill of approximately 34,000 litres of fuel into a nearby creek. The creek was dammed and the fuel collected to prevent further environmental harm.

NSW uses exercise scenarios to test emergency management arrangements and preparedness for major emergencies. DEC participated in a number of exercises during 2004–05, including:

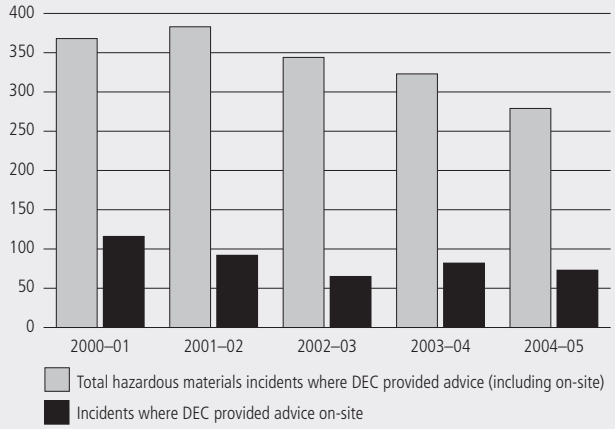
- Exercise Flashlight and Exercise Moonlight, exercises based on a prolonged major power outage in a significant area of Western Sydney. Environmental issues included hazardous materials releases, waste build-up and sewage overflows
- Exercise James Cook, based on a major crude oil spill from a tanker into Botany Bay causing significant environmental effects
- a national tsunami effect workshop to assess the risks, vulnerability and planning for tsunamis in NSW
- a food safety workshop run by the Department of Primary Industry to identify and assess risks to the food chain.

■ PERFORMANCE INDICATOR

Number of hazardous material incidents where DEC provided technical or clean-up advice

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

Number of hazardous materials incidents where DEC provided advice



Interpretation: In 2004–05, DEC provided advice on 279 hazardous materials incidents. For 73 (26%) of these incidents advice was provided on-site. This proportion is consistent with the previous four-year average.

■ CASE STUDY

Groundwater contamination at the Orica site at Botany

The groundwater treatment plant being constructed on the Botany Industry Park in Sydney.

In September 2003, DEC issued Orica with a Notice of Clean Up Action to expedite groundwater remediation at its Botany site. The company must prevent further movement of the contaminated groundwater towards Botany Bay and clean up the contamination. To meet these requirements, Orica proposed construction of a treatment plant to remove and destroy contaminants by air stripping and thermal oxidation. Community workshops were held to discuss the proposal, which was outlined in an environmental impact statement in late 2004.

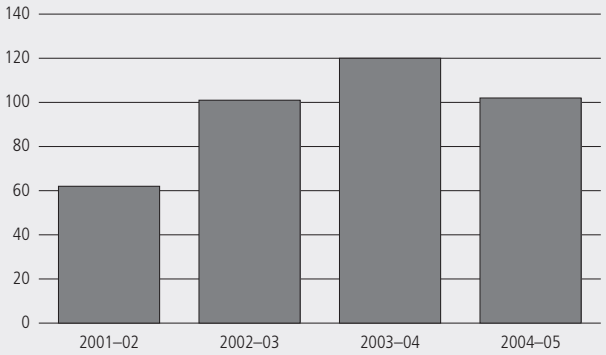
After consideration of public submissions and advice of independent experts, including the US Environmental Protection Agency and government agencies, DEC approved the $167-million proposal subject to stringent conditions to protect the community and restore the health of the environment as quickly as possible. Orica commenced pumping the contaminated groundwater in October 2004 and will complete the major groundwater treatment plant in late 2005. DEC has required Orica to provide a financial assurance to guarantee the completion of the clean-up. DEC has also required the establishment of an independent monitoring committee, with community representation, to oversee the operation of the plant.

■ PERFORMANCE INDICATOR

Number of regulatory actions under the Contaminated Land Management Act

Definition: This indicator outlines the number of regulatory actions DEC has taken under the *Contaminated Land Management Act 1997*. DEC 'actions' include assessment of contamination under the Act, declarations of investigation areas and remediation sites, and orders and agreements to voluntary proposals relating to investigation and/or clean-up tasks. When contamination presents a significant risk of harm as defined under the Act, DEC may take one or more of these regulatory actions to lead to site clean-up.

Regulatory actions under the Contaminated Land Management Act



Interpretation: In 2004–05, there was a small decrease in the number of regulatory actions taken. The number of contaminated sites being identified tends to reflect the rate of property development. The average number of actions taken over the 2002–04 period was considerably higher than in previous years.

Contaminated sites

The *Contaminated Land Management Act 1997* (CLM Act) gives DEC power to regulate the investigation and remediation of significantly contaminated sites to ensure the protection of ecological and human health. The clean-up of these sites can be very complex and costly and take a number of years. This year, DEC completed the investigation and oversaw the clean-up of eight sites. DEC continues to oversee the clean-up of major sites including contaminated groundwater at the Orica site in Botany; the Pasminco Cockle Creek Smelter site; the former Mudgee Gasworks site; former BHP Newcastle sites; and the land and sediment contamination at the Rhodes peninsula. Over 70 sites are in the process of being investigated or remediated.

Approximately a quarter of the sites regulated by DEC under the CLM Act have been contaminated by fuel leakages. To reduce the risk of future soil and groundwater contamination, DEC is developing a regulation that would adopt best management practices, and focus on early detection and clean-up of leaks and environmentally sound management of these sites.

DEC provides access to records of contaminated sites through its website.

■ CASE STUDY

Tempe lands remediation and redevelopment

The 40-hectare Tempe Tip was the site of a rubbish tip, right next to the Alexandra Canal and close to Sydney Airport. Leachate generated by the buried waste over many decades of the tip's operation was causing an unacceptable impact on the canal. Remediation was required and was regulated by DEC. The large scale of this compulsory remediation project was particularly challenging in its urban environment. However, it provided an impetus for Marrickville Council to rehabilitate and redevelop a large piece of derelict land in a well-planned manner.

The remediation was completed in early 2005 and the results are impressive. The construction of an in-ground leachate cut-off wall along the canal to stop harmful substances from entering the canal commenced in April 2004 and was completed in October 2004. This was followed by the construction of the leachate collection and treatment system, completed by December 2004. Since early 2005, the leachate treatment system has undergone a commissioning phase. Its treatment capacity is expected to be gradually increased to the designed level. Existing original wetlands have been retained and enhanced and other land has been dedicated for community recreational use including a golf driving range. The total cost of the clean-up and redevelopment is estimated to be $12 million. This is a good example of how appropriate regulation, combined with the genuine efforts of stakeholders, has delivered an environmental outcome and additional benefits for the community.

Installation of the leachate collection system following construction of the in-ground leachate cut-off wall.

Improving community wellbeing

Corporate plan priorities for 2004–06

Promoting 'liveability' concepts

Establish and promote new 'liveability' concepts, such as linking improvements in health and air quality and by promoting 'healthy parks and healthy people'

DEC continued to work with NSW Health on critical issues including the DIY Safe guidelines for home renovators. DEC actively participated in 'Healthy Parks Healthy People' in 2004–05.

During 2004–05 DEC also contributed to liveability by pursuing environment protection, sustainability and conservation goals through input into the NSW Government's Sydney Metropolitan Strategy.

Aboriginal participation in conservation management

Increase the active participation of Aboriginal communities in conservation management, on and off reserved land

DEC respects and acknowledges the central role of Aboriginal peoples in the management and protection of their cultural heritage.

In 2004–05, DEC developed the *Interim community consultation requirements for applicants* to guide people involved in the preparation of applications for permits and consents under Part 6 of the *National Parks and Wildlife Act 1974*. The requirements recognise that the values and concerns of Aboriginal peoples need to be taken fully into consideration in the assessment processes.

During 2004–05 DEC worked with Aboriginal communities and other NSW government departments to assist Aboriginal communities to increase their capacity to engage in the management and conservation of land, water and natural resources (page 41).

Odour mitigation

Complete the development of a NSW odour mitigation policy

At 30 June 2005, DEC, the Department of Primary Industries and the Department of Infrastructure, Planning and Natural Resources were finalising the NSW odour mitigation framework, aimed at providing industry, odour specialists, consent authorities and environmental regulators with up-to-date information and guidance for assessing and managing activities that emit odour. The policy will clarify approaches for reducing odours, reducing land-use conflicts and, although not regulation, will be guided by key odour-related provisions of the *Protection of the Environment Operations Act 1997*.

Noise mitigation

Develop a noise mitigation policy framework to guide development within the state

DEC has continued to develop the noise mitigation policy framework, providing training to support the June 2004 publication of the *Noise guide for local government*, amending the draft *Guidelines for construction noise* after further input from industry, and reviewing the Noise Control Regulation.

■ PERFORMANCE INDICATOR

Percentage of general terms of approval for Integrated Development Assessment processes issued by DEC to consent authorities within statutory time frames

Definition: As part of the integrated development assessment process, DEC has responsibility for approving certain applications made under Part 4 of the *Environmental Planning and Assessment Act 1979*. We have a role as an approval body where:

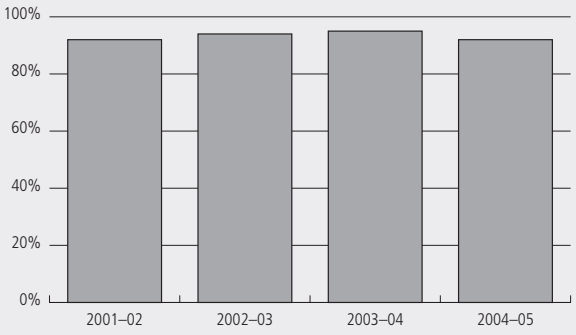
- the proposed development also requires an environment protection licence or a variation of a licence issued under the *Protection of the Environment Operations Act 1997*
- the proposed development requires consent to knowingly destroy, deface or damage, or knowingly cause, or permit the destruction or defacement of, or damage to, an object or Aboriginal place under the *National Parks and Wildlife Act 1974*
- we have responsibilities for species protection under the *Threatened Species Conservation Act 1995*.

In the cases where the integrated development assessment requires an EPA environment protection licence, we determine the necessary requirements called 'general terms of approval' to consent authorities, such as the Department of Infrastructure, Planning and Natural Resources or local councils, within prescribed time frames, generally 60 days. This may take longer if insufficient information is provided. Any subsequent planning approval must not be inconsistent with these requirements.

This indicator outlines the proportion of general terms of approval processed by DEC within the stated time frames.

Recent reforms to planning for major infrastructure projects, removing DEC's requirement to issue general terms of approval, will affect this indicator in future years.

Percentage of general terms of approval for integrated development assessment processes issued by DEC within statutory time frames



Interpretation: DEC continues to have a high level of performance in issuing general terms of approval, reflecting efficient internal procedures. We issued 96 general terms of approval compared to 86 in 2003–04 with a slight drop in the percentage issued on time (from 95% to 92%).

Responding to noise

Transport infrastructure

During 2004–05, DEC continued to regulate the construction of important government infrastructure projects, including the Cross City Tunnel, Chatswood to Epping Rail Link, the Lane Cove Tunnel and the Westlink M7.

DEC has required licensees to investigate and implement alternative work practices that are designed to reduce the impact of night works on impacted residential communities. While recognising the need to provide a safe working site for employees, DEC is working with the RTA and the WorkCover Authority to encourage the use of less intrusive forms of reversing alarms, one of the most annoying sources of noise from these types of construction projects.

DEC has also worked closely in the last year with the RTA's Transport Management Centre to help ensure noise issues are addressed when organisations are applying for out-of-hours road occupancy licences.

Noisy vehicles

As part of DEC's motor vehicle compliance program, 16 joint operations were carried out in 2004–05 with the NSW Police and RTA. DEC officers tested vehicles against noise emission levels specified in the Noise Control Regulation, and to ensure pollution control devices had not been tampered with. As a result of the operations, defect notices were issued to non-complying vehicles for them to be fixed and retested, and penalty notices were issued for offences such as exceeding the legal noise limits.

Review of the noise control regulation

DEC is currently reviewing the Protection of the Environment Operations (Noise Control) Regulation 2000 to ensure it sets an appropriate balance between providing the community with adequate protection from undue noise and allowing legitimate activities. Representatives of local government and police are included in the regulatory review working group to ensure it has the input of its primary enforcement agencies.

Healthy Parks Healthy People

Healthy Parks Healthy People was established in NSW in 2003 by the Sydney Urban Parks Education and Research Group (SUPER) to encourage visitation to Sydney's parks and gardens by highlighting their mental and physical health benefits. DEC participates on SUPER together with Centennial Parklands, Botanic Gardens Trust, Parramatta Park Trust, Sydney Olympic Park Authority and the Sydney Harbour Federation Trust.

Events conducted by SUPER in 2004–05 included:

ParkFest

Over 4000 people participated in ParkFest in Centennial parklands in October 2004. DEC staff, including *Discovery* guides from Royal, Sydney Harbour and Blue Mountains national parks, attended the event to answer questions and distribute information.

Seniors Week celebrations

Working with the Department of Ageing, Disability and Home Care, on 16 March 2005 DEC provided free entry for NSW seniors to all fee-charging parks and reserves other than the Sydney Harbour National Park islands.

Sydneysiders use of parks survey

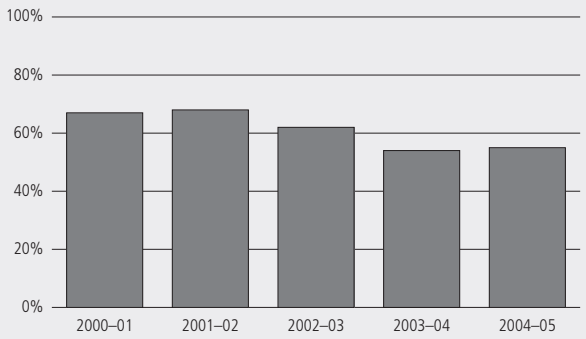
The third survey of Sydney residents' use of parks and gardens was undertaken in late 2004. Of all respondents, 99 per cent rated their visit to a park as enjoyable, with most visiting a park to relax or take a walk. Findings of this three-year study indicate that encouraging people to visit parks and gardens more often, to do some exercise or relax, can improve their physical, mental and social wellbeing, which in turn can lead to reduced health costs for the community.

■ PERFORMANCE INDICATOR

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

Definition: DEC's Environment Line (formerly known as Pollution Line) receives reports from the public and industry on pollution incidents. This indicator measures the percentage of those reports related to dust, smoke or other airborne particulate emissions, odour and noise where DEC is the authority responsible for action or has an overarching responsibility to try to resolve the issue.

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



Interpretation: When combined, air and noise pollution incident reports show a small but steady downward trend (with a slight increase of less than 2% this year), but still account for over 50% of total incident reports to Environment Line each year. The percentage of reports reflects the public's concern about lifestyle and amenity. The decrease in reports over the years indicates improvements in the management of major sources of pollution onsite, including the implementation of stricter odour guidelines and improved communication with surrounding communities. In some cases weather conditions may also influence the level of reporting.

■ CASE STUDY

The Great Australian Bushwalk

This national event is conducted annually by the National Parks Association (NPA) to foster environmental awareness and protection, develop community spirit and encourage a healthy lifestyle. The daylong event held in October 2004 consisted of numerous bushwalks held in different locations across the state, many within national parks. DEC staff worked with the NPA to identify appropriate tracks and monitor use by participants who were offered free park entry with registration.

Enjoying the views in Royal National Park on the Great Australian Bushwalk.