3

A healthier and cleaner environment, protecting both ecological and human health

Photo: courtesy Fibre Tank Systems.

DECC values its reputation as an effective NSW regulator of air and water quality, noise and odour issues, chemical and pesticide use, waste disposal, use of radioactive substances, and contaminated sites.

Context

The NSW community is faced with many significant environmental issues as a result of the size of the population and the demands placed on the environment. Air and water quality are always important issues statewide, while the use of chemicals, pesticides and hazardous materials can create localised pollution, contaminate land, and harm human health. The over clearing and degradation of native vegetation contribute to the loss of biodiversity.

DECC is responsible for administering most NSW legislation that ensures that the environment and people are protected from these threats.

DECC engages with those in the community who want to help protect the environment, and manages a strategic, risk-based compliance and enforcement program to guide others. Activities cover industry operations, government practices and community activities. DECC manages programs that provide more certainty for business, promote community awareness, and help business and government operate more efficiently.

DECC also advises planning authorities on environmental issues, and administers incentive schemes.

DECC's compliance and regulatory activities include:

- regulating air, water and noise issues; waste disposal and reuse; native vegetation; contaminated sites; radiation activities; and the transport, storage and use of dangerous goods, chemicals and pesticides
- developing appropriate responses to prevent, or early intervention to mitigate, adverse impacts
- administering the Waste and Environment Levy and load-based licensing systems which drive environmental improvements and raise substantial revenue, and which underpin the NSW City and Country Environment Restoration Program
- reforming the environment protection regulatory framework to strengthen its effectiveness while minimising red tape and compliance costs
- responding to reports of incidents or environmental harm received from the public.

Outcomes

DECC aims to provide a healthier and cleaner environment, protecting both ecological and human health, by working with communities, business and governments to:

- prevent, reduce or mitigate air, water and noise pollution and other adverse environmental impacts
- remediate or restore degraded environments
- improve community wellbeing
- eliminate unnecessary regulation.

Key drivers

DECC's work in the area of environment protection and regulation is informed by:

- *State Plan – A New Direction for NSW* (www.nsw.gov.au/stateplan/)
- *Action for Air* (www.environment.nsw.gov.au/air/actionforair/index.htm)
- *NSW Cleaner Vehicles and Fuels Strategy* (www.environment.nsw.gov.au/air/actionforair/drftcvstrat.htm)
- *Contaminated Land Management Act 1997* (www.environment.nsw.gov.au/legislation/legislation.htm)
- *Dangerous Goods (Road and Rail Transport) Act 2008* (www.environment.nsw.gov.au/legislation/legislation.htm)
- *National Parks and Wildlife Act 1974* (www.environment.nsw.gov.au/legislation/legislation.htm)
- *Native Vegetation Act 2003* (www.environment.nsw.gov.au/legislation/legislation.htm)
- *Pesticides Act 1999* (www.environment.nsw.gov.au/legislation/legislation.htm)
- *Protection of the Environment Operations Act 1997* (www.environment.nsw.gov.au/legislation/legislation.htm)
- *Radiation Control Act 1990* (www.environment.nsw.gov.au/legislation/legislation.htm)
- *Waste Avoidance and Resource Recovery Act 2001* (www.environment.nsw.gov.au/legislation/legislation.htm)

Performance indicators

DECC measures performance in the area of environment protection and regulation through the following performance indicators:

- Air quality outcomes in the Greater Metropolitan Region
- Estimated volatile organic compound emissions in the Greater Metropolitan Region
- Environment Line – incident reports about air quality, odours or noise from regulated premises
- Aggregate pollutant load indicator for air and water pollutants from premises licensed under load-based licensing
- New pollution reduction programs negotiated with licensees
- Prosecutions completed
- Penalty infringement notices issued by DECC under EPA legislation
- Regulatory actions under the *Contaminated Land Management Act 1997*
- Contaminated sites remediated
- NSW Waste Avoidance and Resource Recovery Strategy – changes in waste disposed of to landfill in the Greater Sydney Region
- Beachwatch and Harbourwatch monitoring programs.
- Poor regional air quality index days in the Sydney Greater Metropolitan Region

Photo: B. Peters.

Prevent, reduce or mitigate air, water and noise pollution and other adverse environmental impacts

Air pollution

Action for Air

Action for Air is the NSW Government's 25-year air quality management plan, launched in 1998. It contains strategies relating to public transport, motor vehicles and fuels, industry, businesses and homes. An *Action for Air* update was developed during the year in consultation with other state government agencies. This update, to be released shortly, provides a current picture of air quality in NSW and a summary of recent actions to maintain and improve air quality, particularly through dealing with ozone and particle pollution.

Photo: R. Scott, DECC.

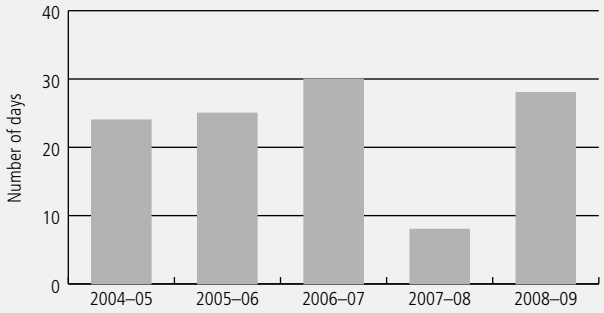
DECC works with Bicycle NSW to support bike riders in improving cycling skills, feeling confident and riding safely.

PERFORMANCE INDICATOR

Air quality outcomes in the 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 (PM_{10}) and lead. This indicator details the number of days in the Greater Metropolitan Region (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 standards exceeded in the Greater Metropolitan Region



Interpretation: Air quality standards were exceeded on 28 days in 2008–09. These exceedences were driven by a combination of photochemical smog, dust storms and bushfires during the summer of 2008–2009. A statewide dust storm on 16 April 2009 caused a major exceedence of the Air NEPM for PM_{10} in all regions of NSW.

Clean air, healthy communities

In November 2006, the Environmental Trust established the Clean Air, Healthy Communities Fund to progress initiatives that improve air quality and reduce greenhouse gas emissions from the transport sector. The Environmental Trust allocated approximately $5 million to the fund over three years from 2007–2010. There are eight programs being funded:

- On Your Bike! – DECC works with Bicycle NSW on this program, which encourages greater use of existing infrastructure, identifies infrastructure enhancements and better integrates cycling with other modes of

transport. Three conferences were held in July and August 2008 to promote opportunities for increased cycling, in particular for short trips. The project complements the development of a new NSW BikePlan.

- Diesel Retrofit Program – see 'Diesel Retrofit Program' in the next column.
- FleetWise – this voluntary partnership with private sector fleet operators helps them reduce greenhouse gas emissions by choosing cleaner vehicles, minimising distances travelled, and operating fleets efficiently. During 2008–09, the FleetWise pilot was completed, covering four participants and over 1,000 vehicles. The pilot achieved a 12% reduction in greenhouse gas emissions from the participating fleets.
- Local Emissions Air Project – this program identified options for reducing emissions from smash repair workshops. The next stage of the project will examine additional sources of local air emissions.
- Sustainable Mobility Initiatives for Local Environments – DECC is researching people's behaviour regarding the current transport system, and what would be required for people to use healthier, more sustainable transport solutions such as walking and cycling. Program staff are also researching innovative practices that reduce greenhouse gas emissions from transport. The research was completed during 2008–09 and a demonstration site was identified to test the program.
- Woodsmoke reduction – see case study below.
- Air Education Support Program – this public education, awareness and behaviour change program aims to increase community understanding of air pollution and its impacts, and build community support for the above programs. During 2008–09, an air education kit was developed, and planning for a program website was completed.

NSW cleaner vehicles and fuels strategy

The final *NSW cleaner vehicles and fuels strategy* was released in August 2008.

The strategy outlines key programs for cleaner vehicles and fuels, including summer-time lower volatility petrol, the Diesel Retrofit Program (see below), the NSW Fleetwise partnership and the proposed introduction of Stage 2 vapour recovery (see below). A number of the programs outlined in the strategy are partly funded by the Environmental Trust through the Clean Air, Healthy Communities Fund.

Diesel Retrofit Program

This partnership between the Environmental Trust, DECC and the Roads and Traffic Authority subsidises the modification of older diesel trucks and commercial vehicles to reduce emissions. Diesel vehicles produce about 60% of particulate matter emitted by road transport in Sydney. In 2008–09, DECC began introducing fuel efficiency devices to further reduce air pollution and greenhouse gas emissions from heavy vehicles, and save fuel costs.

Stage 2 vapour recovery at service stations

NSW will become the first state in Australia to make Stage 2 vapour recovery (VR2) technology mandatory. VR2 technology captures volatile organic compound emissions from vehicle petrol tanks during refuelling at petrol pumps, reducing local exposure to air toxins and summer-time ozone levels, and improving community health.

VR2 technology is being installed in Sydney, Newcastle, Wollongong and the Central Coast on a staged basis. Vapour recovery equipment installation will be required in new and modified service stations from mid-2010, in the largest service stations by 2014, and in all but the smallest service stations by 2017.

CASE STUDY

Woodsmoke reduction workshops improve council officers' skills

Wood heaters are an effective form of heating. However, when not operated properly, they become a key source of particles that harm health. In Sydney, domestic wood heating is estimated to contribute just over 40% of winter fine particles (PM_{10}) and almost 55% of winter very fine particles ($PM_{2.5}$). In regional areas, woodheaters contribute over 85% of winter particles.

As part of DECC's ongoing commitment to help council officers address local woodsmoke issues, DECC held four woodsmoke reduction workshops in Sydney West, Sydney Central Business District, Queanbeyan and Coffs Harbour in May and June 2009. The workshops covered 31 local government areas from metropolitan and regional NSW and were attended by 49 officers. Five officers from the ACT Environment Protection Authority also attended.

Photo: T. Solomon, DECC.

Dr John Todd, Australia's leading researcher on wood heaters and woodsmoke, conducted workshops for council officers, with DECC, around the state.

The workshops gave council officers the skills to enforce legislation that protects against excessively smoky chimneys, improve wood heater installation practices and undertake community education campaigns.

VR2 technology reduces refuelling emissions by over 85% and its implementation will reduce smog-forming volatile organic compound emissions in the Greater Metropolitan Region by 5,000 tonnes per year by 2020.

Reducing volatile organic compounds from the printing industry

DECC worked in 2008–09 to achieve reductions in volatile organic compound (VOC) emissions from the printing industry. VOC and oxides of nitrogen (NO_x) form ozone in an atmospheric photochemical reaction. This project identified four significant emitters of VOCs and some lesser emitters that were not employing adequate means to minimise emissions. As a result of negotiating with the industries involved, each significant emitter has committed to substantially reducing VOC emissions by purchasing new pollution control equipment. At the completion of the project, a reduction in VOC emissions of 1,400 tonnes per year will have been achieved. This is equivalent to taking 200,000 cars off the road.

Oxides of nitrogen emissions from cogeneration activities

Cogeneration involves using otherwise wasted energy from the production of electricity to provide heating and cooling. Gas-fired cogeneration can be one of the most greenhouse-friendly forms of fossil fuel-generated electricity. However, cogeneration also emits significant amounts of nitrogen oxides (NO_x) into the air which react with volatile organic compounds (VOCs) on hot days to produce elevated levels of ozone.

In February 2009, DECC published an interim NO_x policy for cogeneration in Sydney and the Illawarra. The interim NO_x policy requires that all new cogeneration using gas-fired reciprocating engines either be NO_x neutral or achieve an emission performance consistent with best available techniques for cogeneration. In May 2009, DECC conducted a cogeneration workshop with relevant stakeholders to look at the best available techniques. Options examined included fitting emission controls and tuning engines to create fewer emissions.

The policy will be finalised in late 2009, using the outcomes of the workshop.

Waste

Online waste tracking system

The transport of certain wastes, that may be hazardous or harm the environment if dumped illegally, must be tracked within NSW. Waste tracking involves obtaining prior approval from DECC to transport certain wastes and completing documentation each time such waste is received or transported. About 85% of the trackable waste movements in the state are now being monitored through the online waste tracking system. As at 30 June 2009, over 6,800 waste producers, around 880 transporters and 170 receiving facilities that deal with trackable waste are being monitored. The system also provides information about waste flows in NSW, assisting compliance measures such as the collection of the liquid waste levy.

PERFORMANCE INDICATOR

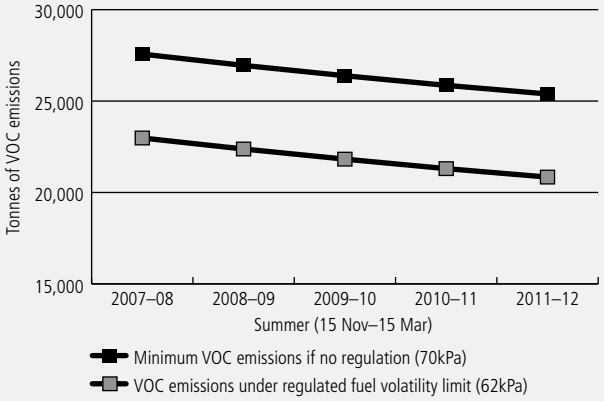
Estimated volatile organic compound emissions in the Greater Metropolitan Region

Definition: Petrol vapour containing volatile organic compounds (VOCs) is a main cause of smog in the Greater Metropolitan Region during summer. Lowering volatility reduces fuel evaporation and emissions from petrol vehicles and machines.

The summer period is targeted because the warmer temperatures contribute to greater evaporation of petrol.

This indicator estimates the reduction in VOC emissions that will be 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



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 improved emission control technology in vehicles.

Waste and Environment Levy

In December 2008, changes were made to the *Protection of the Environment Operations Act 1997* and the Protection of the Environment Operations (Waste) Regulation 2005 to strengthen the effectiveness of the Waste and Environment Levy that encourages waste reduction and greater resource recovery from waste. The levy will increase over the next seven years, and will include coastal council areas north of Port Stephens to the Queensland border and the Blue Mountains and Wollondilly council areas. The levy commences at a rate of $10 per tonne of waste disposed of in these areas.

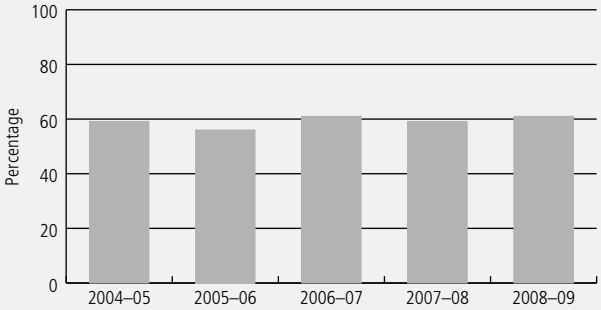
The regulatory amendments also included an enhanced Waste and Sustainability Improvement Scheme that was agreed to in a memorandum of understanding with the Local Government and Shires Associations. These changes provide commitments of $256 million to eligible councils over the next seven years for improved waste management. The levy changes have enabled the NSW Government to support the continuation and extension of the NSW City and Country Environment Restoration

PERFORMANCE INDICATOR

Environment Line – incident reports about 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 12). This indicator measures the percentage of reports received about dust, smoke or other airborne particulate emissions, odour and noise from 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 each year as a percentage of total incidents reported to the Environment Line. In 2008–09, they made up 61% of total incidents reported. This high percentage reflects the public's ongoing concerns about lifestyle, amenity and the impacts of air and noise pollution. Although there was a small decline of 2.6% from 2007–08 in the number of air and odour related incidents reported, reports of noise from regulated premises increased by 25% (reaching 1,136 reports) and were mainly related to noise from railways and mines.

Program, which funds conservation and sustainability initiatives across NSW. The levy is also expected to be a key driver towards the attainment of the state's waste reduction and recycling targets.

Noise pollution

Construction noise guideline

During 2008–09, DECC developed an interim construction noise guideline which sets out ways of dealing with the impacts of construction noise on residences, hospitals, schools and other parts of the community. It presents streamlined and less costly assessment approaches for low-impact and short-duration construction works, recommends work practices that minimise noise impacts and contains effective processes for community notification and complaint handling.

This work was done in consultation with the Department of Planning, Roads and Traffic Authority, WorkCover NSW, NSW Health and the Local Government and Shires Associations. The guideline will be released in July 2009, and reviewed after three years to ensure it meets the needs of the construction industry and the community.

New road noise policy

During 2008–09, DECC continued to develop a new Road Noise Policy for NSW, which will replace the *Environmental criteria for road traffic noise* (ECRTN). As part of this process, DECC has been working with the Roads and Traffic Authority, NSW Health, the Department of Planning, the Ministry of Transport and the Local Government and Shires Associations to develop new assessment approaches to deal with:

- excessive increases in road traffic noise in quiet areas
- inconsistent application of the current ECRTN
- difficulties experienced by affected residents in understanding the likely impact of road proposals.

It is expected that the proposed new policy will be finalised in 2009.

Vehicle noise testing

In September 2007, DECC formally launched its Noise Testing and Anti-tampering Inspection Scheme for vehicles. The aim is to significantly reduce the number of noisy vehicles on NSW roads.

A network of approved inspection stations is being established across NSW to provide a more accessible service for vehicle owners. Previously, a vehicle owner reported to have an excessively noisy vehicle had to have the vehicle tested at the DECC facility at Lidcombe. This limited DECC's capacity to test noisy vehicles outside Sydney, and owners often had to wait several weeks to have their vehicles tested.

Five stations have now been approved at Granville, Campbelltown, East Roseville, Albion Park Rail and Redhead near Newcastle. DECC will be establishing further stations in regional centres where noisy vehicles are a problem for local communities over the next 12 months.

Community advice on noise

Following the new Protection of the Environment Operations (Noise Control) Regulation in March 2008, DECC updated five neighbourhood noise brochures to explain the new regulation and inform the community on how excessively noisy activities can be controlled or stopped.

The brochures provide a simple guide to people's rights and responsibilities regarding neighbourhood noise. The following topics are covered:

- dealing with neighbourhood noise
- managing vehicle noise
- dealing with barking dogs
- managing noise from intruder alarms
- seeking noise abatement orders.

In November 2008, the brochures were distributed extensively to local councils, police stations, community justice centres, local courts and interested individuals.

DECC also began updating the *Noise guide for local government* during the year. The guide assists council officers in the day-to-day management of local noise

Graphic: DECC.

Dealing with barking dogs, *which encourages the correct care of companion animals, was updated in 2008–09 after the new noise Regulation was made.*

problems and in the interpretation of existing policy and legislation. A new Part 4, which explains the laws and procedures for controlling noise (including the new regulatory requirements introduced in 2008) was made available on www.environment.nsw.gov.au/noise/nglg.htm in April 2009. The remainder of the guide is being progressively revised.

Industry regulation

Preventative approaches to contaminated site management

In some industries, current operational practices may lead to premises becoming future contaminated sites. DECC seeks to avoid creation of contaminated sites in the long term by informing these industries about best environmental management practices. DECC has been working with industry representative bodies and local councils to ensure guidance materials are appropriate for these industries. In 2008–09, DECC worked with the marina and dry cleaning industries to implement best practice measures for the storage and handling of fuels, solvents and other potential contaminants, and the appropriate disposal of wastes.

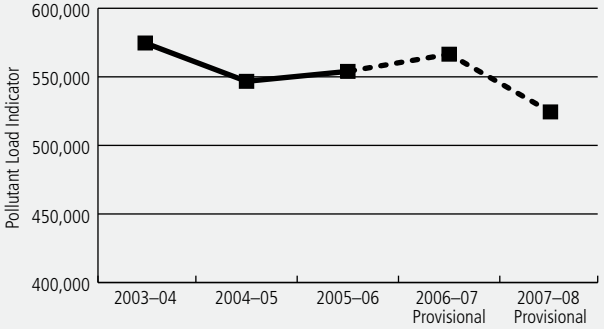
PERFORMANCE INDICATOR

Aggregate pollutant load indicator for 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 it is 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 environmental harm.

Under the load-based licensing 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, total phenolics, pesticides and polychlorinated biphenyls, mercury, arsenic, chromium, salt, phosphorus, selenium, biochemical oxygen demand, total suspended solids, nitrogen, oil and grease, zinc, lead, copper and cadmium.

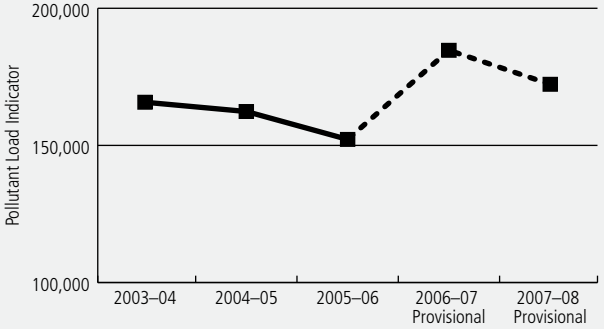
Total assessable air pollutants PLI



Interpretation for air pollution emissions: Following a reduction in pollutant levels up to 2004–05, there was a marginal increase in levels to 2006–07 before they stabilised. Since 2006–07, the pollutant levels have remained relatively stable despite increased industrial production.

Data for 2006–07 and 2007–08 is considered provisional (shown by a dotted line), as quality assurance systems can lead to some restatement for up to two years following reporting. Data from all licensees for 2008–09 will be updated in 2010.

Total assessable water pollutants PLI



Interpretation for water pollution emissions: Following a significant decrease in pollutant levels up to 2006–07, data for 2006–07 showed an increase on the previous year primarily due to significant increases in emissions of total suspended solids by the main Sydney Water sewage treatment systems, and increased rainfall. Data for 2007–08 shows pollutant levels decreasing by approximately 7% from the previous year.

Data for 2006–07 and 2007–08 is considered provisional (shown by a dotted line), as quality assurance systems can lead to some restatement for up to two years following reporting. Data from all licensees for 2008–09 will be updated in 2010.

Pollution reduction programs

DECC uses pollution reduction programs (PRPs) to reduce air emissions and address specific air and water pollution issues. The performance indicator 'New pollution reduction programs negotiated with licensees' explains what PRPs are.

Sixty-six PRPs were completed during the year. DECC also set PRPs as conditions within more environment protection licences, requiring licensees to improve air pollution controls, measures or monitoring equipment.

In Sydney in 2008–09, DECC established PRPs with four licensees in the polyurethane foam sector to minimise their emission of a principal toxic air pollutant, toluene diisocyanate. One licensee agreed to reduce volatile organic compound (VOC) emissions from 200 tonnes per annum to less than 24 tonnes per annum over the next two years. In Sydney's metal coating and plating sector, DECC established PRPs with nine licensees to eliminate VOC emissions in Sydney and the Illawarra. PRPs were also established with two Sydney licensees to eliminate emissions of air toxics such as formaldehyde, furans, polycyclic aromatic hydrocarbons, toluene diisocyanate and diphenylmethane diisocyanate. In the plastics and petroleum refining and handling sectors in Sydney, DECC established PRPs with three licensees to minimise emissions of VOCs and toxic air pollutants such as benzene.

Compliance and enforcement activities

Each year, DECC undertakes strategic environmental compliance and performance reviews of industry sectors. The reviews involve compliance audits and licence reviews, and identify examples of best practice operations that are then shared with other premises in the industry sector.

■ CASE STUDY

Pollution reduction programs improve air quality

Tyco Water

Tyco Water at Yennora in Western Sydney produces about 65,000 tonnes of iron pipe each year. In doing so, about 100,000 kg of volatile organic compounds (VOCs) were being emitted to the atmosphere due to the paints used to seal the pipes.

DECC was concerned about this emission load because VOCs react in sunlight to form photochemical smog, impacting on air quality in the Sydney Basin.

DECC successfully negotiated with the company to switch to external water-based paints to seal the pipes, through a staged pollution reduction program (PRP). This will result in a 70% reduction in VOC emissions from the premises by the end of 2009.

OneSteel

OneSteel mini-mill at Rooty Hill, Western Sydney, has been producing steel billet from scrap since 1994.

The company found it difficult to meet the dioxin limit set in its environment protection licence (0.13 nanogram/m^3), resulting in the issue of penalty notices for licence breaches. OneSteel was issued with a PRP that resulted in an action plan and process optimisation. Dioxin emission testing required by the PRP demonstrated it met the required limits.

OneSteel also trialled using alternative carbon injectants to coke, which is traditionally used as a carbon source in the electric arc furnace. The alternative carbon injectants come from waste tyres or waste plastics. The trial was conducted with the University of NSW and was subject to stringent environmental controls. The trial results achieved up to a 4.7% energy saving and carbon consumption was reduced by up to 18%. Dioxin concentrations complied with the new licence limit of 0.1ng/m^3, which is regarded as the world's best practice. DECC has varied OneSteel's licence to allow ongoing use of alternative carbon injectants in the plant and add new monitoring requirements for total cyanide.

Photo: DECC.

DECC officers arrive to inspect the Tyco Water plant.

Dross recycling plant

Dross are impurities on molten metal. Compliance monitoring for a dross recycling plant at Kurri Kurri in the Hunter Valley identified spikes in dioxin and furan emissions from the smelter. Dioxins and furans are known to seriously affect the health of people and animals.

DECC required the company to undertake a series of PRPs to identify the source of these emissions and investigate ways of reducing them to acceptable levels.

The PRPs included trials of alternative air pollution scrubbers, improvements to the design of air pollution collection hoods, and modifications to the furnaces to reduce emissions. These PRPs were completed in 2008–09 at a cost of $85,000 and recent monitoring indicates that emissions are now within licence limits based on international best practice.

Licence reviews

DECC had 843 licences due for review in the 2008–09 financial year. Of these, DECC completed 784 on time, completed 41 late and did not complete 18. The 59 reviews not completed by the due date were delayed for administrative reasons. In accordance with Section 78(3) of the *Protection of the Environment Operations Act 1997*, DECC advised the EPA Board of this result.

Industry monitoring practices

Industry monitoring of emissions is required as a condition of DECC licences. A review of industry monitoring procedures commenced in May 2008 and was completed during the year. The findings, to be released in late 2009, will be used to increase industry awareness of correct sampling and analysis procedures, and advise industry of the best use of monitoring results to plan site operations and improve environmental performance. The review findings will also assist DECC to carry out its own environmental compliance activities more effectively and consistently.

Effluent re-use in irrigation

In April 2009, DECC commenced a review of effluent re-use practices in irrigation. The review aims to assess licensees' current management practices, monitoring activities, and use of monitoring data in identifying and managing adverse impacts on the long-term sustainability of irrigation areas. The report will be released in 2010.

Waste

The DECC waste compliance and enforcement program uses targeted inspections, sector compliance programs, and education and cleaner industry programs. In 2008–09, DECC conducted 13 waste compliance campaigns and projects targeting the disposal of waste tyres, the transporting and disposal of liquid waste, the compliance with resource recovery exemptions by waste processing and composting facilities, and illegal dumping and landfilling.

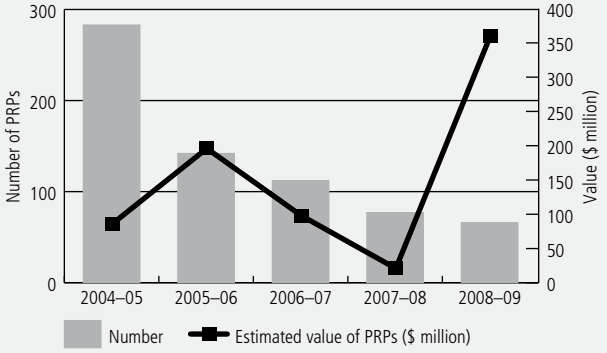
In March 2009, DECC undertook an enforcement campaign targeting liquid waste transporters in Sydney, Wollongong and Newcastle, with inspections at major liquid waste treatment facilities and several waste transporters' depots. On the whole, compliance levels were good, demonstrating the effectiveness of previous campaigns. Some minor irregularities were identified but all were resolved rapidly.

PERFORMANCE INDICATOR

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 programs that are negotiated with licensees and attached to environment protection licences. PRPs require changes to works or management practices to bring about environmental improvements within a specified timeframe. 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.

New pollution reduction programs negotiated with licensees



Interpretation: The estimated value of PRPs negotiated by DECC in 2008–09 was $360,274,700. This high value is due to a PRP for a $348 million upgrade at the Thales Australia Limited plant at Mulwala, due for completion in January 2012.

DECC has implemented measures to ensure that dry cleaners in NSW handle and dispose of perchloroethylene (PERC) waste responsibly. Most dry cleaners in NSW use this solvent, which is hazardous to the environment and a suspected human carcinogen. During the year, DECC conducted inspections and carried out telephone surveys with dry cleaners in NSW. An educational brochure was published in English, Vietnamese and Chinese, and sent to dry cleaners and local councils in NSW. The brochure promotes awareness of waste management responsibilities and encourages the adoption of environmentally friendly systems. DECC is including the dry cleaning industry in its online waste tracking system so PERC waste movements in NSW can be monitored.

In 2008–09, a campaign was conducted to gather information about waste-derived materials used at licensed composting facilities to determine whether they are compliant with the 'raw mulch' or 'food waste compost' resource recovery exemptions, which were introduced in April 2008. DECC surveyed all 65 licensed composting facilities in NSW over the telephone, and inspected, unannounced, nine major facilities to conduct a formal survey and sample compost material. Several specific exemptions will be developed as a result of the campaign to allow bona fide waste derived materials to be reused and recycled in the composting process.

Transport of dangerous goods

DECC conducts combined enforcement campaigns, audits and educational activities with other state government agencies in NSW for road and rail transport activities. In 2008–09, combined enforcement operations with NSW Police and the Roads and Traffic Authority (RTA) showed that some transport operators and drivers were still taking risks with dangerous goods, such as having incompatible loads, not displaying placards, or not carrying appropriate safety and protective equipment or required documentation.

A driver of a tank vehicle was convicted for the unsafe transport of dangerous goods after corrosive liquid leaked from an improperly sealed opening and injured two RTA officers at a heavy vehicle checking station. The driver had not placed warning signs on the tanker, did not have the required safety equipment and provided incorrect information about the danger of the load. The operator was fined $5,000 and ordered to pay DECC's legal costs.

Radiation

DECC maintains a 24-hour radiation emergency response service linked to Environment Line. DECC officers attend radiation incidents to provide advice and investigate potential breaches of environmental legislation. DECC radiation officers also conduct inspections of regulated premises.

A spot-inspection program was conducted in the Greater Sydney Metropolitan area in 2008–09, followed by compliance inspections at premises where non-compliance with the *Radiation Control Act 1990* had been noted previously. This resulted in a number of penalty notices being issued to individuals and companies for the possession of unregistered radiation apparatus or because operators were unlicensed.

In May 2009, a targeted inspection program in the Central West region resulted in a significant number of premises being detected as having unlicensed operators, unregistered radiation apparatus or unregistered sealed source devices.

Elevated dose reports for radiation workers are reviewed quarterly. DECC investigates the cause of an elevated dose and whether appropriate controls and work priorities are being maintained. Radiation accidents reports are provided to the Radiation Advisory Council and the Australian Government to be included on a national register.

In April 2009, DECC radiation and emergency management officers took part in a multi-agency emergency exercise designed to enhance their capacity to respond to a significant radiological incident.

Native vegetation

DECC finalised a Native Vegetation Compliance and Enforcement Strategy in early 2009, which aims to ensure that DECC targets compliance efforts to the highest environmental risks.

During 2008–09, DECC commenced nine prosecutions under native vegetation legislation (see 'Prosecutions') and issued eight penalty notices, 54 legal directions and 103 formal warning and advisory letters.

DECC commenced a compliance campaign with the Hawkesbury Shire Council and catchment management authorities along the riparian areas of the Hawkesbury and MacDonald rivers. This included issuing remedial directions and up to 900 advisory letters to landowners with river frontage.

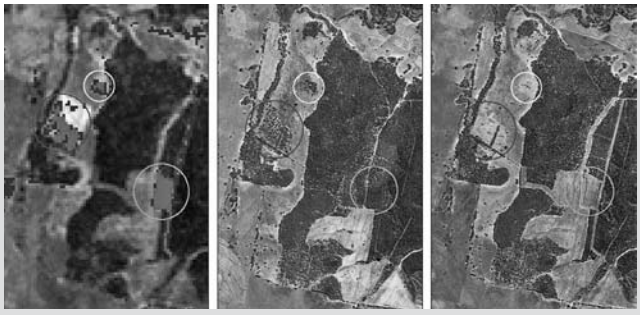
DECC conducted a campaign to raise the awareness of 15 councils in the Murray and Murrumbidgee catchments about their roles and responsibilities regarding native vegetation regulation. Collectively, these councils cover more than 80,000 square kilometres and have a population of more than 90,000 people.

DECC also commenced a staged campaign for clearing contractors and stock and station agents, to improve their awareness of legislative obligations. The campaign involved providing information about the law and ways the community can find out more about native vegetation in NSW. Further stages of the campaign will target land developers, local councils, utilities companies and the NSW Rural Fire Service.

CASE STUDY

New England compliance campaign

DECC promotes voluntary compliance with native vegetation legislation, but also uses sophisticated satellite imagery to identify and investigate where changes in vegetation cover have occurred. Where appropriate, DECC will take enforcement action. In late 2008, DECC undertook a campaign focusing on native vegetation clearing in the New England region. Landsat images were used to undertake broad assessments, and then high-resolution SPOT5 imagery was used to validate the data.



Graphic: DECC.

To check compliance with native vegetation legislation, DECC staff used Landsat and SPOT5 imagery to validate data.

DECC identified instances of clearing that required further investigation, and inspected over 50 properties over two weeks. A range of regulatory responses are being considered.

Prosecutions

DECC can commence prosecutions for environment protection offences under the authority of the Environment Protection Authority. DECC can also commence prosecutions for offences under native vegetation, threatened species, parks, wildlife and Aboriginal heritage legislation. All prosecutions for 2008–09 are detailed in Appendix 8.

Prosecutions under Environment Protection Authority legislation

Significant prosecutions under EPA legislation during 2008–09 include:

Baiada Poultry Pty Ltd – pollution of waters

In September 2008, the Land and Environment Court convicted Baiada Poultry Pty Ltd of polluting waters at Tamworth when an estimated 1,000,000 litres of effluent flowed from a broken pipe at a poultry processing plant into a dry creek bed. Baiada Poultry Pty Ltd was ordered to pay a penalty of $120,000 to Tamworth Council for the North Bolton's Creek extension of the Grassy Box Woodland Conservation Project. It was also ordered to publicise the details of the conviction in the *Sydney Morning Herald,* the *Australian Financial Review,* and the *Northern Daily Leader* and to pay investigation and legal costs.

Ruth Dorothy Buchanan – breach of environment protection licence

In March 2009, Ruth Buchanan was convicted in the Land and Environment Court of being the director of a company that breached a condition of its environment protection licence, which required it to operate in 'a competent manner'. Ms Buchanan was the sole director of Plastech Operations Pty Ltd, which held a licence to operate a hazardous industrial waste treatment and storage facility at St Marys. Around 376 tonnes of hazardous waste and dangerous goods were stored on the premises in an incompetent and dangerous manner. Ms Buchanan was fined $39,500 and ordered to pay legal costs. Ms Buchanan was also ordered to pay clean-up costs of $88,395.75 to DECC and clean-up costs of $375,933.43 to the owners of the premises.

Caltex Refineries (NSW) Pty Ltd – breach of environment protection licence

On 4 July 2008, Caltex Refineries (NSW) Pty Ltd was convicted in the Land and Environment Court of breaching its environment protection licence when the company failed to operate the refinery in a proper and efficient manner, resulting in the release of odorous gases. Thirty-five complaints were made by the community to Caltex and DECC during the incident. The company was ordered to pay a penalty of $78,000 to fund the Towra Point Weed Management Strategy at Towra Point Nature Reserve and to pay legal costs.

CSR Building Products Pty Ltd – pollution of waters

On 22 September 2008, the Land and Environment Court convicted CSR Building Products Pty Ltd of polluting Parramatta River. CSR pleaded guilty to causing between 2,250 and 3,250 litres of Durasol GEP2, a flammable substance which is toxic to aquatic organisms, to escape into the river. CSR was ordered to pay a penalty of $280,000 to fund part of the Parramatta River Fishways Project, to publicise the details of the conviction in the *Sydney Morning Herald* and the *Parramatta Advertiser* and to pay investigation and legal costs. CSR was also ordered to pay $83,407.09 for the two day clean-up of Parramatta River.

Delta Electricity – breach of environment protection licence

In February 2009, Delta Electricity was convicted in the Land and Environment Court of breaching a condition of its environment protection licence by emitting excessive coal dust due to the inadequate management of a coal ash repository at its Wallerawang Power Station. Delta Electricity was fined $45,000 and ordered to pay legal costs.

Orlando Despi – using pesticide contrary to label instruction

In June 2009, Orlando Despi was convicted in North Sydney Local Court of using a pesticide contrary to a label instruction. Mr Despi was fined $10,000 and ordered to pay legal costs. The offence arose out of the application of a pesticide to Department of Health premises in North Sydney. After applying the pesticide Mr Despi failed to ventilate the premises, contrary to a label instruction, requiring thorough ventilation of the premises before they could be re-occupied.

Forgacs Engineering Pty Limited – breach of environment protection licence

In April 2009, Forgacs Engineering Pty Limited was convicted in the Land and Environment Court of breaching its environment protection licence. The offence arose out of the emission of grit blast dust containing the antifoulant TBT from the company's ship repair premises at Carrington. The dust entered Newcastle Harbour and was blown to neighbouring premises. The company was ordered to pay a penalty of $45,000 to Newcastle City Council to fund the upgrade of the Throsby Creek mangrove boardwalk and publish details of its conviction in the *Newcastle Herald*. The company was also ordered to pay legal and investigation costs.

Kate Maree Pal – negligent disposal of waste that harmed/was likely to harm the environment

In February 2009, the Land and Environment Court convicted Ms Kate Pal of causing waste to be disposed of in a manner that harmed or was likely to harm the environment. Ms Pal was prosecuted for illegally arranging for huge quantities of contaminated building and demolition waste to be disposed of at two rural residential properties, south-west of Sydney, resulting in, as the sentencing judge described it, nine hectares of beautiful rural residential land being left in a 'shambolic' state.

PERFORMANCE INDICATOR

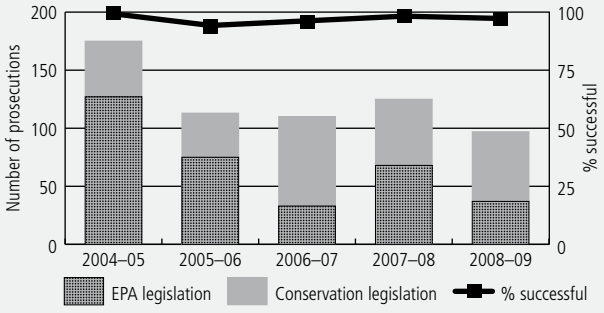
Prosecutions completed

Definition: This indicator measures the number of prosecutions completed under legislation administered by DECC, the proportion that were successful and the resulting value of penalties imposed by the Land and Environment or local courts.

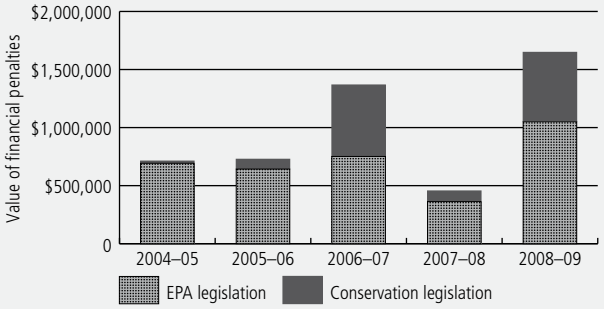
'Successful' refers to prosecution cases that DECC won. These include cases where the defendant was convicted and a penalty was imposed and cases where DECC's case was proved but no conviction or penalty was imposed.

The prosecutions are reported under two categories of legislation: Environment Protection Authority (EPA) legislation, and conservation legislation (which includes native vegetation, threatened species, parks, wildlife and Aboriginal heritage). Data for native vegetation is not included for 2004–05 and 2005–06.

DECC prosecutions completed



Value of financial penalties



Interpretation: DECC maintained its consistently high successful prosecution rate in 2008–09 with 97% of its prosecutions successful: 97% under EPA laws and 97% under conservation laws.

Overall, a record level of $1,648,146 in financial penalties was imposed in 2008–09 for all completed DECC prosecutions, reflecting a greater focus on more serious offences.

Although the number of EPA prosecutions completed declined compared with 2007–08, from 68 to 37, the total of $1,050,300 in financial penalties imposed for EPA offences in 2008–09 nearly tripled compared with the previous year.

Sixty prosecutions were completed for breaches of conservation legislation in 2008–09, and the $597,846 imposed in total fines was significantly greater than the $91,848 imposed in 2007–08. The increase in fines under conservation legislation reflected a greater focus on the enforcement of serious breaches of native vegetation laws. Fines of $449,000 were imposed for offences under native vegetation provisions, compared with fines of $26,000 imposed in 2007–08 and $3,300 imposed in 2006–07.

Year to year fluctuations in the number of prosecutions completed and the levels of penalties imposed is common, as DECC cannot determine when a prosecution will be completed or the level of penalty imposed.

See Appendix 8 for details of all DECC prosecutions.

Ms Pal was sentenced to 450 hours of community service and fined $45,000.

Snowy Hydro Pty Limited and Fulton Hogan Pty Limited – pollution of waters

In September 2008, Snowy Hydro Pty Limited and Fulton Hogan Pty Ltd were convicted in the Land and Environment Court of pollution of the Snowy River at Jindabyne when silt-laden waters entered the river and affected its water quality for about 15 kilometres. The offences occurred in mid-2006 when the companies were involved in carrying out work on the construction of the Jindabyne Dam outlet. Each company was fined $100,000 and ordered to pay legal and investigation costs.

Prosecutions under conservation legislation

Significant prosecutions under conservation legislation during 2008–09 include:

Craig Dugan Alison – disturbing/defacing Aboriginal objects

On 23 October 2008, Craig Alison was convicted in Bourke Local Court for disturbing up to 129 Aboriginal objects and defacing two Aboriginal objects. The Aboriginal objects were collected in 2007 from around a property near Bourke. The defaced objects had been marked for identification with black marker pen. Mr Alison pleaded guilty and was fined $1,650 and ordered to pay legal costs.

DECC investigated Mr Alison after it was reported that he was selling unrelated Aboriginal artefacts on eBay.

Port Macquarie–Hastings Council and Geoffrey Freeman – damaging threatened species habitat, knowing it was habitat of that kind

In February 2009, the council and its former Infrastructure Manager, Mr Geoffrey Freeman, were convicted in the Land and Environment Court of offences involving damaging threatened species habitat, knowing it was habitat of that kind. The offences occurred during construction of roads through the Partridge Creek area, near Port Macquarie airport, which damaged the habitat of several threatened species. The council pleaded guilty to three offences and was fined a total of $45,500 and ordered to pay legal costs. Mr Freeman pleaded not guilty to two offences, but was subsequently found guilty, fined $57,000 and ordered to pay legal costs.

Pasquale Brancatisano – harming animal in a sanctuary zone of a marine park

On 15 January 2009, Mr Pasquale Brancatisano was convicted in Narooma Local Court of harming animals in the Corunna Lake Sanctuary Zone of Batemans Marine Park. Mr Brancatisano was a licensed commercial fisherman operating on the south coast. During a routine patrol, DECC officers apprehended Mr Brancatisano with eight maori wrasse and two red rock cod which he intended to sell at the fish markets. Mr Brancatisano was fined $10,000 and ordered to pay legal costs.

Prosecutions under native vegetation legislation

John Hudson – clearing native vegetation

In February 2009, Mr Hudson was convicted in the Land and Environment Court of illegally clearing 472 hectares of native vegetation on a property called 'Yarrol' at Gwydir, near Moree. The vegetation cleared included internationally significant wetlands. Mr Hudson pleaded not guilty and the trial took place in December 2008. Mr Hudson was subsequently convicted and fined $400,000 and ordered to pay legal costs. Mr Hudson has appealed his conviction.

Donald Norman Wilton – clearing native vegetation

In October 2008, Donald Norman Wilton was convicted of two offences in the Land and Environment Court of unlawfully clearing native vegetation near Bombala. Mr Wilton cleared native vegetation with a bulldozer across about 31 hectares of his land to establish a plantation. Mr Wilton was fined $40,000 and ordered to pay legal costs.

Enforceable undertakings

Enforceable undertakings are an adjunct to prosecutions and are available to DECC in dealing with environmental incidents. DECC negotiated one enforceable undertaking in 2008–09.

Leighton Contractors Pty Limited agreed to undertake $100,000 worth of environmental rehabilitation works (removal of willows along a one-kilometre stretch of Tarcutta Creek) after it was found to be responsible for discharging silt- laden water into a stream near Tarcutta during construction works on the Hume Highway.

New and revised regulations

The Protection of the Environment Operations (General) Regulation 1998 has been remade as the Protection of the Environment Operations (General) Regulation 2009. DECC reviewed the Regulation during 2008–09 to:

- ensure that the provisions of the *Protection of the Environment Operations Act 1997* (POEO Act) can be implemented in an efficient and effective manner
- recover the costs of administering the POEO Act and the Regulations, as part of applying the 'polluter pays' principle
- provide additional incentives to industry to reduce emissions.

The key changes introduced by the new Regulation include:

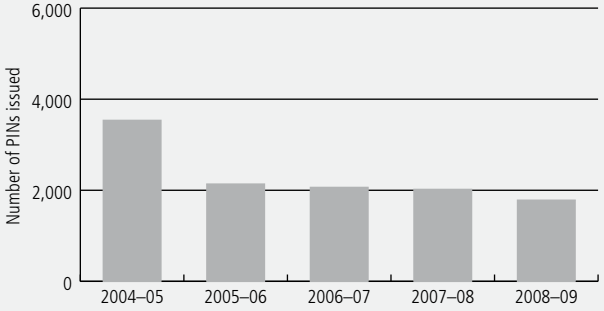
- removing the licensing requirement for some low-risk activities to reduce red tape and cut administration costs for industry while maintaining appropriate environmental controls
- increasing licence fees over the next five years to provide certainty for industry
- amending the load-based licensing scheme to ensure that the most significant polluters are given an incentive to reduce emissions.

PERFORMANCE INDICATOR

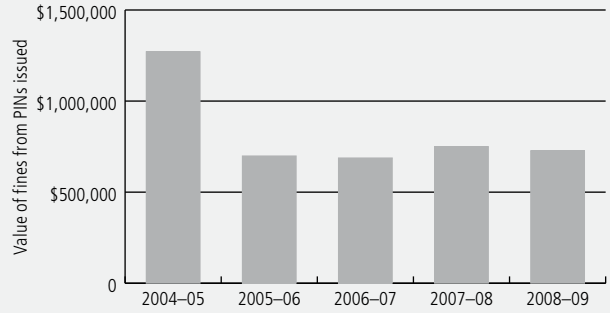
Penalty infringement notices issued by DECC under EPA legislation

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.

Number of PINs issued



Value of fines from PINs issued



Interpretation: In 2008–09, 1,786 PINs were issued which imposed fines of $727,500. In recent years, the number of PINs for motor vehicles, especially for 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.

See Appendix 8 for details of the legislation under which these PINs are issued and PINs issued by local councils.

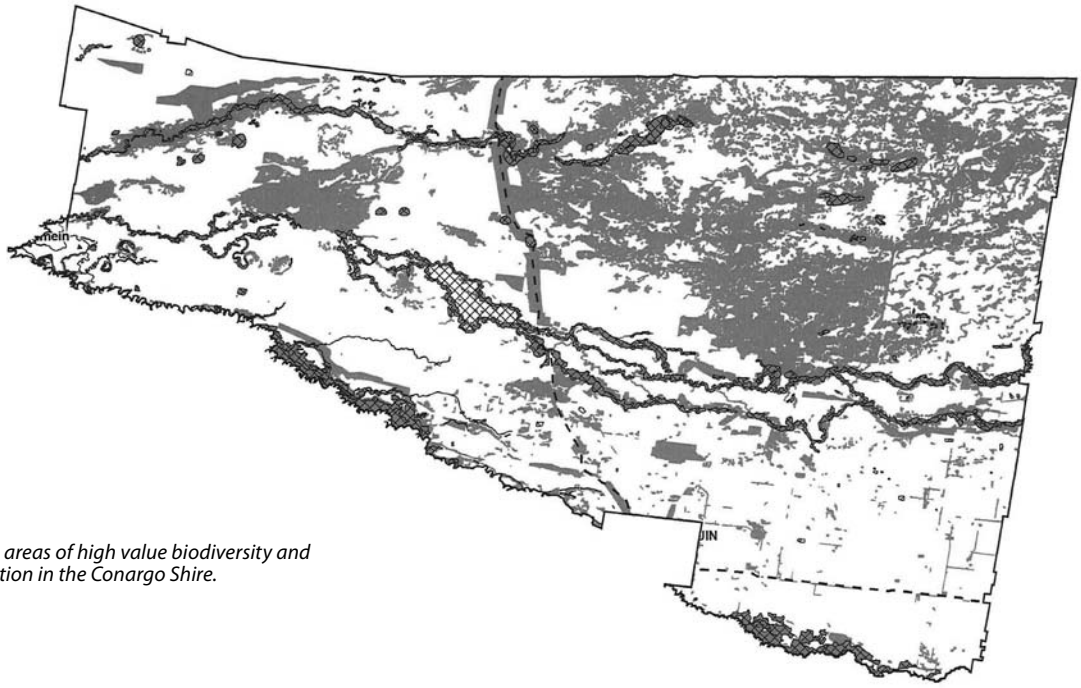
An amendment to the Radiation Control Regulation 2003 to control the use of commercial tanning units (solaria) meant the Radiation Control Amendment (Tanning Units) Regulation 2009 commenced on 29 May 2009. The amendment is consistent with a national approach to reduce the health risks associated with exposure to ultraviolet radiation from tanning units, such as skin cancer.

Local government programs

DECC is helping local councils to prepare new local environmental plans (LEPs). For councils west of the Great Dividing Range, DECC has worked with the Department of Water and Energy and the Department of Primary Industries (Fisheries) to produce maps showing environmentally sensitive areas that should be included in LEPs. These maps also contain associated clauses relating to biodiversity, land and water resources. As at June 2009, 54 councils have received biodiversity maps. As a result, DECC and its partners received a Planning Institute of Australia national award for providing services to local councils in the Murray–Murrumbidgee region.

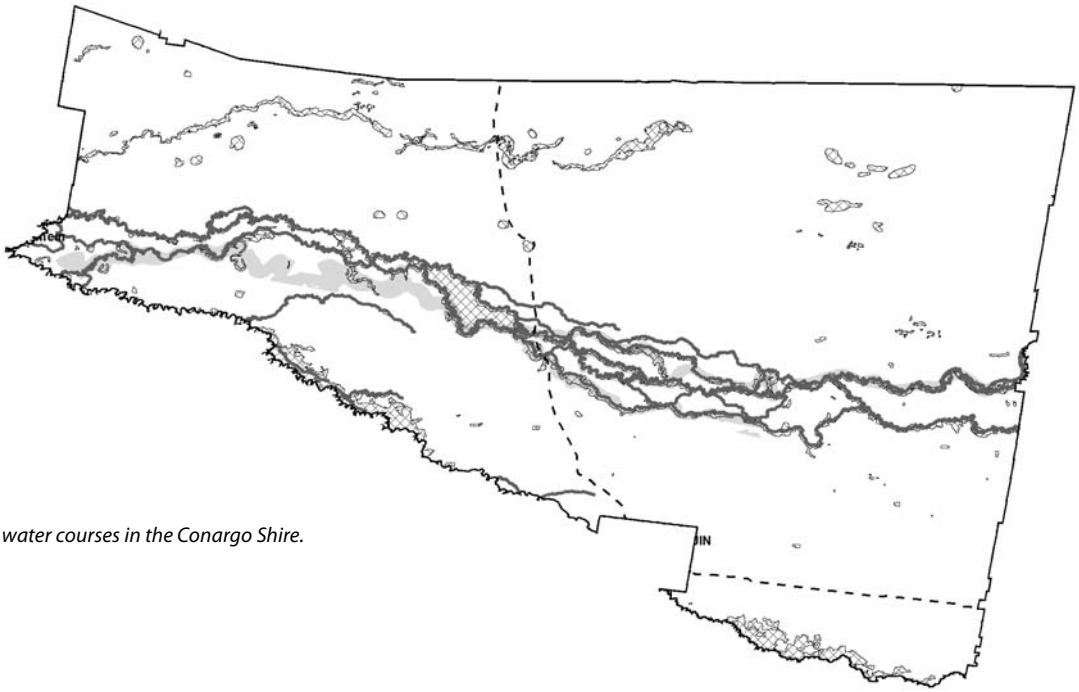
In the second half of 2008, DECC ran information sessions for council civil works staff, environmental officers and development planners to improve awareness and understanding of changes to the waste regulations under the *Protection of the Environment Operations Act 1997*. Seventy percent of councils across the state took part in this project, which also resulted in DECC drafting a standard consent condition for council planners to use when approving development consents involving waste-derived fill material.

Since November 2008, DECC has worked to expand the waste and environment levy to the Blue Mountains, Wollondilly and North Coast council areas. DECC liaised closely with each council to provide tailored advice on record-keeping requirements, conducting volumetric surveys at landfills and reviewing environment protection licences.



Graphic: DECC.

Map showing areas of high value biodiversity and native vegetation in the Conargo Shire.



Graphic: DECC.

Map showing water courses in the Conargo Shire.

Photo courtesy of Thiess.

Remediate or restore degraded environments

Contaminated sites regulated

In 2008–09, DECC regulated 119 contaminated sites across NSW to ensure the protection of human health and the environment. Remediation activities were completed at 13 of these sites, allowing the land to be reused. Significant contaminated site remediation projects occurring or in the planning stage in NSW include:

- Boolaroo – Pasminco and Incitec Fertilizer site remediation (see case study below)
- Rhodes Peninsula and Homebush Bay – Lednez (the former Union Carbide site), the Allied Feeds site and sediments in Homebush Bay
- The Hunter River Sediment Remediation Project – the former BHP steelworks site and soil recycling plant on Kooragang Island
- Darling Harbour – demolition works followed by site remediation
- Kendall Bay – remediation of sediments from a former gasworks.

Underground petroleum storage systems

Over 30% of contaminated sites in NSW are caused by leaking underground petroleum storage systems (UPSSs). This contamination is very expensive to clean up and can have significant impacts on the environment and on landowners.

To prevent leaks from occurring and when they do occur, to deal with them early, the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008 commenced on 1 June 2008 and is being progressively implemented.

The Regulation requires that operators of UPSSs implement industry best practice to manage their sites. It also addresses monitoring, validation and decommissioning of systems and sites.

The requirement to have an environment protection plan in place for existing UPSSs took effect on 1 June 2009. Each plan must contain loss monitoring and incident management procedures, details of system maintenance

■ CASE STUDY

Remediating the Pasminco smelter

An eight-year multi-million dollar project to remediate the 200-hectare former Pasminco lead and zinc smelter site at the north-western end of Lake Macquarie is now well under way. The smelter operated for 128 years, ceasing operations in September 2003. During that period, the smelter contaminated much of the soil on the site, in surrounding residential areas and in Lake Macquarie.

A remediation order was issued by DECC in July 2003, requiring the administrators of Pasminco to clean up the site and make it safe for the community while also allowing for opportunities for it to be revitalised and redeveloped.

The remediation involves:

- excavating approximately 750,000 cubic metres of soil
- temporarily storing and treating excavated materials
- placing more than one million cubic metres of material in a capped containment cell.

Photo: M Lauder.

Remediating the Pasminco smelter.

After the remediation is complete in each section of the site, it will be re-filled or regraded for future development. In addition, a strategy to reduce the potential for lead exposure in surrounding contaminated properties will be implemented. With staged remediation and redevelopment of the site, the first portion is anticipated to be completed in late 2009.

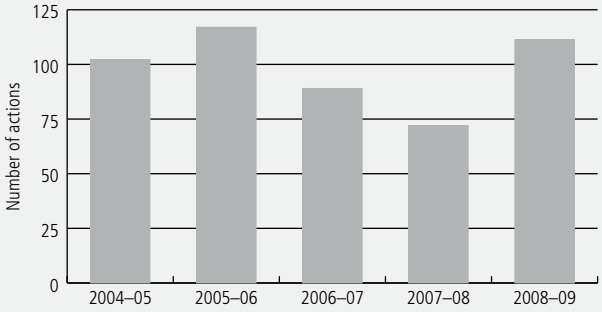
PERFORMANCE INDICATOR

Regulatory actions under the *Contaminated Land Management Act 1997*

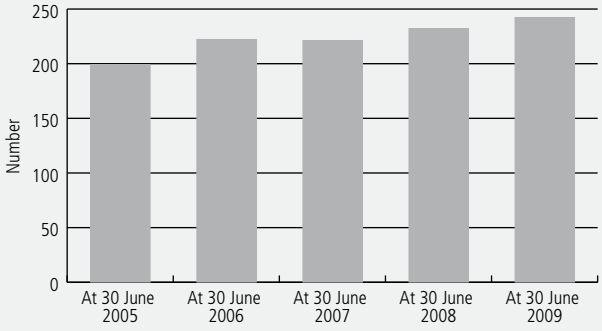
Definition: This indicator outlines the number of regulatory actions DECC has taken under the *Contaminated Land Management Act 1997* (CLM Act). When significant contamination occurs, DECC may take one or more regulatory actions to clean up the site. These actions include assessing contamination under the Act, declaring significantly contaminated land, and developing orders and agreements for voluntary proposals relating to investigation or clean up tasks.

The total number of sites under active assessment and regulation is reported as at 30 June each year. This number includes sites under assessment for significant contamination, significantly contaminated sites requiring regulation, and sites under regulation. It does not include sites that have been remediated and sites that have been assessed as being not significantly contaminated.

Regulatory actions under the Contaminated Land Management Act



Total number of active sites



Interpretation: In 2008–09, DECC undertook 111 regulatory actions compared with 72 in 2007–08. DECC also received 30 new contaminated site notifications, carried out 40 assessments of contaminated land, issued 40 regulatory notices and revoked 25 regulatory notices. Ten more sites were brought under the regulation of the CLM Act, bringing the number of sites under regulation to 119; and the remediation or investigation of 13 sites was completed, bringing the total number of remediated sites to 80.

As at 30 June 2009, 77 sites were under assessment, 46 sites were to be regulated and 119 sites were under regulation.

The number of regulatory actions taken each year fluctuates in accordance with needs. Once a site is brought under regulation, a significant amount of resources can be spent on ensuring an appropriate outcome without any more regulatory actions being taken.

As 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.

Photo: D. Johnson, DECC. Photo provided courtesy of Shell.

A Shell site technician explains the environmental controls engineered into the underground petroleum storage system tank to DECC officers.

and information on the industry standards and specifications used.

DECC prepared guidelines to help operators of UPSSs to meet their obligations under the Regulation, and held information workshops held across NSW. For more information, visit www.environment.nsw.gov.au/clm/upss.htm.

Collaborative pesticides and soil quality research

DECC engaged in a number of collaborative research opportunities this year including:

- scientists from DECC and the University of Technology Sydney completed a study on the presence of pesticide mixtures in horticultural areas around the Hawkesbury–Nepean River. This project was funded by an Australian Research Council Linkage Grant. Spot sampling revealed varying concentrations of the three pesticides: atrazine, permethrin and chlorothalonil. Highest concentrations appeared to be after rain.
- a collaboration with scientists from CSIRO, funded by the Environmental Trust, produced a new risk-based methodology for investigating soil quality – 'A proposed Australian methodology to derive ecological investigation levels in contaminated soils'. The draft methodology describes the significance of contamination levels of arsenic, zinc, naphthalene and DDT in urban areas.

Crackdown on illegal dumping

Illegal dumping of waste is an important issue for DECC, councils and communities across NSW. Illegal dumping degrades the environment by polluting waterways, destroying vegetation and contaminating land. Illegally dumped waste can also pose a health risk and leave landowners with substantial clean up costs. This year's targeted programs and enforcement campaigns to reduce illegal dumping in NSW included.

- *Illegal dumping prevention and clean-up: handbook for Aboriginal communities* – a handbook and DVD released in March 2009 to support Aboriginal people in preventing and cleaning up waste that has been illegally

dumped on their land – see www.environment.nsw.gov.au/waste/illdumpabcommshandbook.htm
- the NSW Illegal Dumping Forum on Construction and Demolition Waste hosted in December 2008 for local councils and government land managers
- *Know your responsibilities – managing garden waste* – educational information published in May 2009 for landscaping, tree and garden service providers – see www.environment.nsw.gov.au/waste/mangardenwaste.htm
- a Sydney region tyre retailer campaign (March to June 2009) – inspections of approximately 80 tyre retailers increased industry awareness of environmental responsibilities and improved DECC's understanding of waste tyre movements in this region
- Eyes in the Sky 2008 – an illegal dumping prevention campaign in November and December 2008 with Hawkesbury City Council, which involved aerial surveillance using helicopters, media promotion, advertising banners at the gateways to the local government area and community information nights.

Photo: B. Graham, courtesy Sutherland Shire Council.

Earth mounds were created on one Aboriginal-owned site to prevent dumpers from illegally accessing private land.

Regional Illegal Dumping Squads

The Western Sydney Regional Illegal Dumping (RID) Squad was established in 1999. With support from DECC, RID member councils (Bankstown, Baulkham Hills, Fairfield, Holroyd, Liverpool and Penrith) work together to ensure illegal dumping is addressed through a combined regional strategy. From 1 July 2008 to 30 June 2009, the Western Sydney RID Squad investigated 2,814 illegal dumping incidents involving more than 2,192 tonnes of waste. Investigations resulted in 16 clean-up notices and 396 penalty notices being issued.

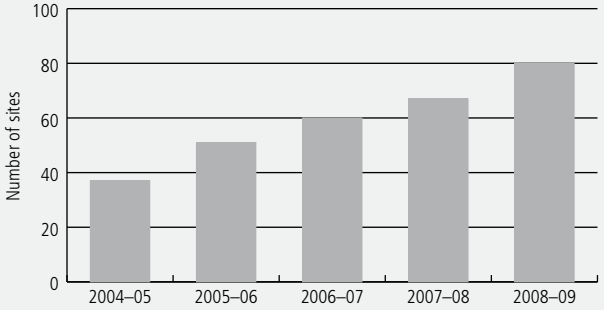
The Greater Southern RID Squad is a partnership between Shoalhaven, Wingecarribee and Eurobodalla councils and DECC, with additional funding provided by the Sydney Catchment Authority. In 2008–09, the Greater Southern RID Squad investigated 598 illegal dumping incidents involving approximately 7,161 tonnes of waste. Investigations resulted in 34 clean-up notices and 78 penalty notices being issued.

PERFORMANCE INDICATOR

Contaminated sites remediated

Definition: The total number of sites remediated is the cumulative number of sites which were considered under the *Contaminated Land Management Act 1997* (CLM Act) to be significantly contaminated, and were reassessed in 2008–09 as being no longer significantly contaminated. Reasons for remediation include regulation under the CLM Act, regulation under the *Environmentally Hazardous Chemicals Act 1985*, and remediation under the planning process.

Contaminated sites remediated



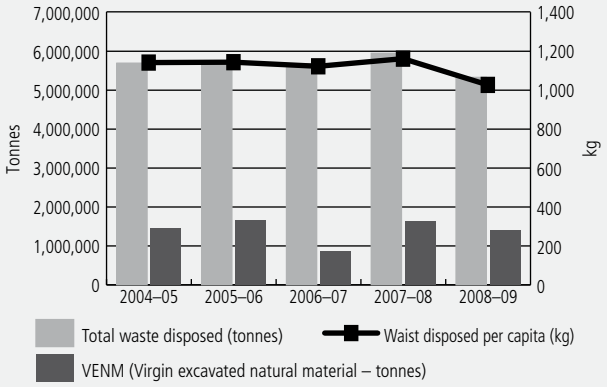
Interpretation: At 30 June 2009, 80 significantly contaminated sites have been remediated. Sixty sites were remediated under CLM Act regulation, and 20 were remediated under other legislation.

PERFORMANCE INDICATOR

NSW Waste Avoidance and Resource Recovery Strategy – changes in waste disposed of to landfill in the Greater Sydney Region

Definition: This indicator measures the tonnes of waste disposed of to landfill from the Greater Sydney Region (from Port Stephens to the Shoalhaven and including the Sydney Metropolitan Area). DECC leads the implementation of the NSW Waste Avoidance and Resource Recovery (WARR) Strategy.

Waste disposed of to landfill in the Greater Sydney Region



Interpretation: Overall levels of waste decreased in the Greater Sydney Region in 2008–09 following an increase in 2007–08.

The waste management industry in Sydney reportedly felt the effects of the global financial crisis, with waste disposed of from commercial, industrial and construction demolition sources declining in the region.

Total waste disposed of per capita has decreased by 15% between 2000 and 2008–09.

Most virgin excavated natural material (VENM) disposed of to landfill is used for approved practices such as final capping, landfill lining and pond filling. Quantities of VENM may fluctuate yearly due to changes in landfill management requirements.

Photo: D. Smith.

Improve community wellbeing

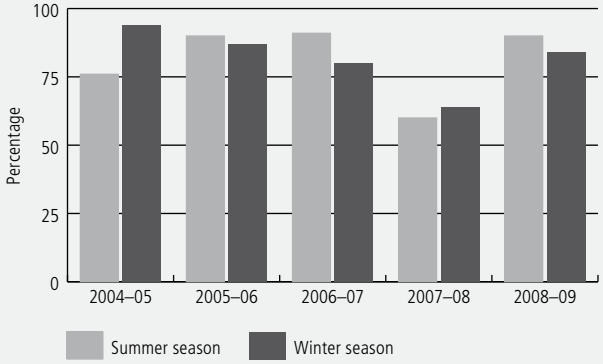
PERFORMANCE INDICATOR

Beachwatch and Harbourwatch monitoring programs

Definition: DECC's Beachwatch and Harbourwatch programs monitor water quality at 131 recreational sites in Sydney, the lower Hunter and the Illawarra, reporting daily, weekly and yearly 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.

In May 2009, the National Health and Medical Research Council's *Guidelines for assessing risks in recreational waters* were adopted for use in NSW. From 2009–2010, results will no longer be reported as a percentage of compliance with legislation. Instead, beaches will be classified as being from 'very poor' to 'very good', based on a risk assessment of pollution sources and water quality data.

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



Interpretation: With a return to average rainfall conditions in 2008–2009, the water quality at ocean and harbour beaches returned to a very high standard. The lower compliance in 2007–08 was the result of pollution from stormwater and sewage overflows triggered by extreme wet weather. Despite this fall in compliance, water quality in 2007–08 was 93% better than it was in 1998–99, a year with similarly high rainfall, reflecting long-term improvements in the management of stormwater and wastewater.

Beachwatch and Harbourwatch

The Beachwatch, Harbourwatch and Beachwatch Partnership programs provide regular information on beach water quality to enable people to make informed decisions about where and when to swim. There are 131 swimming locations monitored in the Sydney, Hunter and Illawarra regions and a further 143 sites monitored in partnership with 12 coastal councils from Ballina to Bega.

Daily and weekly water quality reports are issued in the Sydney region and are available at www.environment.nsw.gov.au/beachapp/default.aspx.

State of the Beaches reports are released in October each year and present detailed water quality information and trend analyses. During the summer of 2008–09, more than 75% of swimming sites monitored under the Beachwatch Partnership Program complied with swimming guidelines in all months. While ocean beaches in NSW are generally in excellent condition, monitoring shows that stormwater runoff affects water quality in coastal lakes and estuaries for several days following rainfall.

Photo: D. Smith.

Beachwatch programs help ensure beach water quality remains safe.

Regional Air Quality Index website

During 2008–09, DECC continued to provide hourly updates of air quality data on its website from its 24 monitoring sites throughout NSW. A Regional Air Quality Index (RAQI) replaced the previous Regional Pollution Index, and is explained in the performance indicator 'Poor regional air quality index days in the Sydney Greater Metropolitan Region'.

DECC and NSW Health continued to operate a Health Alert system for the Sydney region. This is designed to alert asthmatics and other sensitive members of the community to future high pollution days so they can take measures to minimise the impact on their health. This system is complemented by automatic alerts issued by email and SMS built into the new RAQI website, and issued when the measurements at any station in the network exceed the relevant ambient air quality standards or goals.

Members of the community wishing to be better informed on air quality can subscribe to these services by visiting www.environment.nsw.gov.au/AQMS/aboutaqi.htm.

Emergency management

DECC is the coordinating agency for protecting the environment during major disasters and emergencies. DECC is represented on the state and district Emergency Management Committees where it advises other agencies on ways of preventing or minimising environmental impacts. Key emergency management initiatives in 2008–09 included:

- participating in the ongoing review of NSW's State Disaster Plan
- working with the NSW Fire Brigades and NSW Police to improve plans for responding to incidents involving radioactive materials
- involvement in a multi-agency training exercise to test counter-terrorism procedures
- ongoing training for a range of emergency response activities
- the DECC laboratory staff continuing their rapid response to testing chemicals and ecotoxicological substances during emergency incidents.

Significant emergency management cases during the year involved:

- capacitors containing polychlorinated biphenyl (PCB)-enriched oil were found buried at a factory in Wagga Wagga. No PCBs were found in the region's aquifer, but a high concentration of Aroclor 1242 (a commercial mixture of PCBs) was found in the soil. As the soil contained a high level of clay, the migration of the PCB oil was contained and the local clean-up operation was successful.

■ **PERFORMANCE INDICATOR**

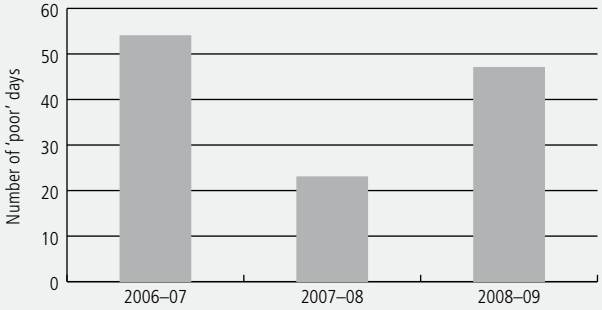
Poor regional air quality index days in the Sydney Greater Metropolitan Region

Definition: The regional pollution index, which was based on measured hourly concentrations of photochemical smog (ozone), nitrogen dioxide and visibility was superseded in June 2008 by the regional air quality index (RAQI). This new RAQI is based on concentrations of photochemical smog (ozone), nitrogen dioxide, sulfur dioxide, carbon monoxide, fine particles (as PM_{10}) and visibility, and has three high pollution categories – poor, very poor and hazardous. RPI data from 2006–07 and 2007–08 has been recalculated to allow comparison with the RAQI.

The RAQI is reported for the three regions in Sydney (central east, north-west and south-west), the Illawarra, and the lower Hunter.

The RAQI is now reported hourly. RAQI values in the poor, very poor or hazardous categories indicate that one or more measured parameters have either exceeded the national standards or that visibility is less than the NSW goal of 10 kilometres. A day is counted as having high pollution if the RAQI in one or more regions reached poor, very poor or hazardous during the day.

Number of poor regional air quality index days in Sydney Greater Metropolitan Region



Interpretation: The air pollution index (RAQI) was high on 47 days in 2008–09, on 24 days more than in the previous year. These exceedences were driven by a combination of photochemical smog during the summer of 2008–09, dust storms and bushfires. A statewide dust storm on 16 April 2009 triggered the hazardous category for PM_{10} in all regions of NSW for most of this day. Easing of the drought conditions experienced across south-east Australia greatly reduced the incidence of elevated particle concentration during 2007–08. There were also fewer bushfires and fewer photochemical smog (ozone) exceedences due to a wetter and milder summer season.

The calculation of the hourly index for PM_{10} is based on a rolling 24-hour average, which will lead to more exceedences than are found in calculating a midnight to midnight 24-hour average, which is the protocol for assessing compliance with the national ambient air quality standard for PM_{10}.

- a slime containing high levels of arsenic, antimony and lead from a gold mine near Armidale threatened to contaminate part of the Macleay River Catchment. It entered the gorge country near the mine and clean-up proved difficult. Extensive chemical and ecotoxicological testing was undertaken to determine the risk of the pollutants reaching the local waterways. DECC continues to monitor the site.

Hazmat incident response

DECC maintains a 24-hour emergency response and hazardous materials advice service linked to DECC's Environment Line and the DECC regional after-hours incident response services. DECC staff attend significant incidents, usually to oversee clean-up or to investigate potential breaches of environmental legislation. In 2008–09, DECC was notified of 166 hazardous materials incidents and attended 34 incidents. Advice was provided via the telephone for the remaining incidents. Significant incidents in 2008–09 included:

- a fire in an illegal tyre dump in Yennora, resulting in contaminated firewater entering Prospect Creek. DECC attended, liaised with the NSW Fire Brigades, and inspected and sampled the creek water.
- an accident in Eden involving a milk tanker carrying 20,000L of milk – the spilled material entered a large pond. DECC liaised with the local council to manage the contaminated water.
- a fire involving a mixture of chemicals at two adjacent factories in Chipping Norton. Firewater run-off threatened a local creek so DECC arranged for the run-off to be pumped out and treated.
- a chemical factory in Somersby being evacuated when stored trichloroisocyanurate was accidentally dampened – mixed with water, the compound releases chlorine and forms bleach, while a concentrated solution of the material can also be explosive. DECC advised NSW Fire Brigades and monitored the situation.
- a barge carrying 200 tonnes of diesel being towed just north of Forster when tow lines broke in rough seas and high winds. DECC staff were put on alert in case the barge ran aground, but another tug managed to respond from Newcastle and rescue the barge in time.
- DECC staff assisting the NSW Fire Brigades in containing the runoff from entering stormwater drains during a fire at a chocolate factory in Marrickville.
- DECC staff assisting with an air analysis to determine the presence of chlorine when the NSW Fire Brigades carried out a controlled destruction of an unlabelled gas cylinder believed to contain chlorine gas.

CASE STUDY

New scientific breakthroughs help protect the environment

A dramatic increase in the production and use of biodiesel has created a need for methods to manage spills.

With the support of an Environmental Trust grant, DECC developed robust chemical fingerprinting methods for determining the source of biodiesel residues up to a month after a spill. Past methods required immediate investigative action and did not give detailed information about the feedstock used to produce the biodiesel.

The new method has been used to investigate several spills. It has also been adapted to the fingerprinting of vegetable oil spills and grease trap wastes, and used for important cases involving illegal dumping of wastes.

DECC scientists utilised the Australian synchrotron microscope this year. DECC used the infrared beamline to match microscopic particles in dust to paint flakes from a suspected source of illegal pollution. DECC will continue to use the synchrotron in its environmental forensics work.

New pyrolysis gas-chromatography/mass spectrometric methods were used during the year to extend DECC's capabilities to identify and match polymeric materials.

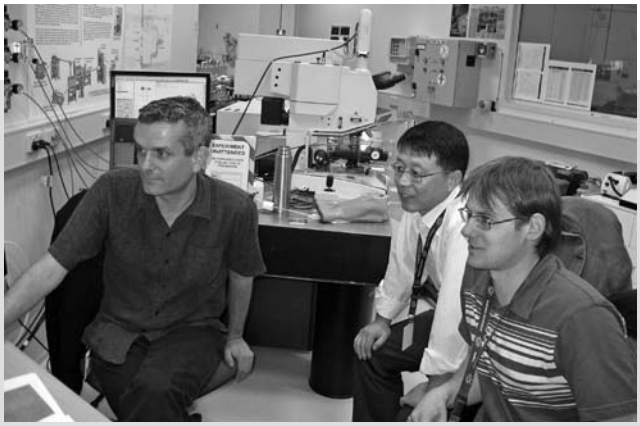


Photo: G. Vaughan, DECC.

A DECC scientist demonstrates the operation of the synchrotron microscope.

This technique has provided critical evidence in several investigations, including the rapid characterisation of material discharged into the Parramatta River.

Recent advances in liquid chromatography mass spectrometry provide an opportunity for measuring and regulating dissolved organic carbon in industrial effluents. During 2008–09, a grant from the Environmental Trust supported the development of a rapid scanning procedure for measuring herbicides, pesticides and their metabolites in environmental samples. This new method will be used to support DECC's emergency response work.

Nanotechnology inquiry

Nanotechnology is the manipulation of matter at the nanoscale to create new materials, structures and devices with novel properties. Products containing nanomaterials, such as some sunscreens, could enter the environment through waste disposal and sewage systems, and runoff.

The NSW Legislative Council Standing Committee on State Development conducted an inquiry into nanotechnology in NSW and released its inquiry report in October 2008. DECC contributed to a whole-of-government response, which was tabled in the Legislative Council in March 2009.

The NSW Government generally supports the recommendations and has undertaken to work with other governments and organisations to implement them. The recommendations include reviewing regulatory systems; improving access to research data; strengthening governance; and developing education programs, skills and knowledge to support nanotechnology. Some activities will be undertaken by the Australian Government, such as some of the regulation, labelling and industry reporting. The full report is available at www.parliament.nsw.gov.au/Prod/parlment/committee.nsf/0/35D2E3E37498A908CA2574F1000301BB.

Hazmat technology assessments

DECC assesses and regulates technologies used for the treatment of hazardous materials in NSW. In 2008–09, DECC carried out an assessment of a small direct thermal soil treatment unit and approved its use for treating contaminated soil at the Lednez and former Allied Feeds sites at Rhodes.

DECC was also involved in the planning approval process for the proposed directly heated thermal desorption treatment of Orica's car park waste. DECC continued to regulate storage of Orica's hexachlorobenzene waste while the issue of its ultimate destruction was further investigated. In November 2008, Orica lodged applications with the Australian Department of Environment, Water, Heritage and the Arts to export this waste for destruction in Denmark.

New requirements for licensed pest controllers

The NSW Government has a longstanding commitment to staged implementation of notification of pesticide use. New notification requirements were gazetted in 2008–09 that require licensed pest management technicians to provide prior notice of their intention to use pesticides to nearby 'sensitive places' such as schools, childcare centres and nursing homes. The new requirements commence on 1 September 2009.

1080 pesticide control orders

1080 is used as a pesticide in NSW to control wild dogs, foxes, feral pigs and rabbits. As use of 1080 baits can harm the environment, wildlife and domestic animals, all 1080 pesticide products are regulated by DECC under the *Pesticides Act 1999* by a pesticide control order. The order states who can use 1080 and how it can be used in NSW.

Following the Australian Pesticides and Veterinary Medicines Authority's review of 1080 pesticides, DECC issued a new pesticide control order in October 2008 to consolidate all NSW restrictions on the use of 1080 and implement recommendations from the review. Key recommendations were to modify the existing NSW requirements for neighbour notification, distance restrictions and signage.

DECC delivered a presentation on the new pesticide control order to livestock health and pest authority staff and other vertebrate pest control organisations. Educational material for all 1080 users was also developed – see www.environment.nsw.gov.au/pesticides/1080PCOfactsheet.htm.

Photo: Courtesy of Thiess.

Eliminate unnecessary regulation

National and state regulatory reform

DECC aims to cut red tape and reduce the regulatory burden on business, government and the community whilst maintaining appropriate environmental controls and outcomes. In 2008–09 DECC engaged in the following reforms:

- Following stakeholder consultation, the Environmentally Hazardous Chemicals Regulation 1999 was remade and commenced in September 2008.
- In May 2009, the Environment Protection and Heritage Council (EPHC) endorsed a new national standard setting body and a register of environmental controls.
- DECC remade the Protection of the Environment Operations (General) Regulation after a review identified opportunities for cutting red tape for industry and improving the effectiveness of the load-based licensing scheme.
- In collaboration with the Radiation Advisory Council, DECC initiated the review of the *Radiation Control Act 1990* and released the discussion paper *Review of the NSW Radiation Control Act 1990* for public comment in January 2009. The review was undertaken to ensure that the objectives of the legislation are being met and that the regulation of radiation in NSW is both efficient and effective in controlling risks to human health and the environment.
- DECC consulted industry and the community on some minor changes to the Pesticides Regulation. It is proposed to remake the regulation in September 2009. The Council of Australian Governments also intends to move to a single national framework for regulating agricultural and veterinary chemicals in Australia, which is expected to lead to changes to the *Pesticides Act 1999* and the Pesticides Regulation.

Planning reform – review of concurrences and referrals

The NSW Government introduced a number of reforms to streamline the state's planning and development approval processes. State Environment Protection Policy (SEPP) (Repeal of Concurrence and Referral Provisions) 2008 commenced on 15 December 2008. DECC strongly supported the proposed SEPP reforms and agreed to remove over 92% of concurrence and referrals related to DECC.

In May 2009, the Department of Planning conducted an audit of concurrence and referral processes and has requested that all government agencies establish a reporting system to collect concurrence and referral information. DECC is participating in the process which is starting on 1 July 2009.

Contaminated Land Management Act 1997 amendments

Amendments to the *Contaminated Land Management Act 1997*, which were assented to in December 2008, will allow sites to be cleaned up more efficiently while reinforcing the 'polluter pays' principle. The amendments include:

- streamlining 'investigation' and 'remediation' stages into a single contaminated site management stage
- issuing preliminary investigation orders to obtain information on potential contamination
- expanding the range of people that DECC can order to investigate or remediate a site, to allow more timely clean-up of contaminated sites
- basing the reporting of potential contamination on objective criteria rather than a subjective 'risk of harm' concept, which increases industry certainty
- clarifying procedures for the disclosure of site audit statements and related reports to provide greater transparency.

Aligning waste management with resource recovery regulation

DECC's regulatory framework for waste balances environment protection with resource recovery goals. By streamlining regulatory provisions for waste in NSW, industries, recyclers, waste processors, land developers and landowners now have a clear set of standards for when waste and waste derived materials can be reused without harming the environment. DECC has granted resource recovery exemptions to enable the reuse of certain waste materials . During 2008–09, DECC granted 18 resource recovery exemptions for commonly recovered wastes. DECC has also formalised agreements with over 20 companies for the reuse of specific waste derived materials in industrial processes or construction and landscaping projects.

For more information on the 18 resource recovery exemptions DECC has granted for commonly recovered materials, see www.environment.nsw.gov.au/waste/RRecoveryExemptions.htm and the next section.

Resource recovery exemptions facilitate using waste in infrastructure

In November 2008, DECC completed a compliance program profiling the construction and demolition waste recycling industry and gathering information on waste processors who produce 'recovered fines' – a soil/sand substitute derived predominately from the residue of mixed construction and demolition waste collected in skip bins. DECC contacted 127 construction and demolition waste receivers, recyclers and skip bin operators to determine whether these operators were correctly processing the fines and complying with the requirements of the resource recovery exemption. DECC officers visited 18 facilities, explained the legal requirements and took samples from fines stockpiles.

In June 2009, DECC followed up with a targeted enforcement blitz, inspecting all facilities that process fines in the Sydney area. DECC interviewed processors and took further samples from fines stockpiles.

This follow-up action showed a marked improvement in the industry, with most facilities able to produce the required records, including test results for their material demonstrating compliance with the resource recovery exemptions. This means the quality of recycled materials is improving as waste processors raise their performance to meet DECC requirements and environmental standards.

Waste data system

Operators of licensed waste facilities must pay the waste and environment levy on every tonne of waste they receive, and report to DECC on the waste they receive each month. In 2008–09, DECC introduced an efficient electronic service that allows facilities to complete and submit their waste data online. This service reduces administrative costs and sends email prompts when reports or payments are due. This system has enabled more responsive waste management and will ultimately lead to better environmental outcomes in line with community expectations. As at June 2009, almost 85% of the waste received at landfills within the regulated area was reported online.

Transport of dangerous goods legislation

In 2008–09, DECC worked with the National Transport Commission and other Australian governments to finalise a new Australian Dangerous Goods Code, and new dangerous goods legislation came into effect in most jurisdictions including NSW. The reforms replace the existing legislation with an updated uniform national regulatory scheme which matches the UN Model Regulations to ensure that classification, packaging, labelling and placarding requirements are compatible with international regulations and codes. The NSW component of the new legislation is the *Dangerous Goods (Road and Rail Transport) Act 2008* and Dangerous Goods (Road and Rail Transport) Regulation 2009, which commenced on 1 May 2009.

DECC provided information sessions to industry groups on the new dangerous goods legislation. These included presentations at the Australian Environment Business Network seminar in Sydney and the Plastics and Chemical Industry Association member conference.

Dangerous goods education and training

DECC worked with other states and territories to develop a competency-based national dangerous goods driver training framework, with a new national competency-based training framework to be designed and agreed to before the end of 2009. A new training course was finalised in late 2008 and is now available to registered training organisations.

Radiation control

During 2008–09, DECC participated in national uniformity of radiation protection through the development and implementation of the National Directory for Radiation Protection. The directory is being developed through the Radiation Health Committee and facilitated by the Australian Radiation Protection and Nuclear Safety Agency. DECC contributed to the development of national codes of practices and radiation standards, including the *Code of practice for radiation protection in the use of ionizing radiation by chiropractors* and the *Code of practice and safety guide on radiation protection in veterinary medicine*. DECC also contributed to the safety guides *Management of naturally occurring radioactive material* and *Use of radiation in schools part 1: ionizing radiation*.

The Radiation Advisory Council (RAC) and DECC established a working group to consider the management of naturally occurring radioactive materials and technologically enhanced radioactive material emitted by specific industries, and to develop guidance material for these areas.

In February 2009, DECC released *Draft Radiation Guideline 7: Radiation shielding design assessment and verification requirements* for public comment. DECC prepared the guideline in consultation with the RAC to assist owners of radiation apparatus or sealed source devices, occupiers of facilities and consulting radiation experts in assessing shielding requirements for registration purposes under the Act. DECC is currently reviewing feedback obtained from public consultation and publication of the final guideline is expected in late 2009.

In July 2008, DECC made a submission to the Parliamentary inquiry into the former uranium processing site at Hunters Hill. The Parliamentary inquiry made recommendations to ensure that appropriate remediation of this land is undertaken to protect human health and address community concerns. DECC has implemented several of the recommendations including commissioning a survey of surrounding land and communicating the results to the community. DECC will ensure this contaminated site is effectively rehabilitated.

Photo: DECC.

DECC staff inspect radiation equipment.

During the reporting year, the RAC progressed the implementation of the code of practice on the security of radioactive sources agreed to by COAG in April 2007 as part of Australia's Chemical, Biological, Radiological and Nuclear Strategy. DECC is working with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) on implementing the code, and in April 2009, in collaboration with ARPANSA, provided two three-day training courses for relevant organisations and individuals in NSW on the requirements of the code. DECC has also implemented new conditions on relevant radiation licences and registrations to meet obligations for the security of radioactive sources.