

Regulatory Assurance Statement

2018–19



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**The Regulatory Assurance Statement
is the EPA Board's report on the
performance of the EPA, and industry
the EPA regulates, in protecting human
health and reducing degradation of the
environment.**

1. Introduction

1.1. Purpose

Each year, in accordance with the *Protection of the Environment Administration Act 1991*, the Board of the NSW Environment Protection Authority (EPA) provides the Minister for Energy and Environment with a statement that contains or addresses the following matters:

- a. an assessment of the EPA's success in reducing risks to human health and in preventing environmental degradation, and whether the level of environmental protection achieved by the EPA is satisfactory in comparison with other Australian jurisdictions
- b. an assessment of the performance by industries regulated by the EPA in reducing risks to human health and preventing environmental degradation, and their impact on the environment
- c. recommendations for improving the EPA's performance, and the performance of the industries regulated by the EPA, in relation to the matters referred to in paragraphs (a) and (b)
- d. such other matters as may be prescribed by the regulations.

1.2. About the EPA

In carrying out its role of protecting the community and the environment of NSW, the EPA aims to be a:

- leader in protecting the air, waterways, land and health of the community for the future
- partner with communities, government and business to reduce impacts on the environment
- protector by holding people and organisations to account through licensing, monitoring and regulating their interactions with the environment.

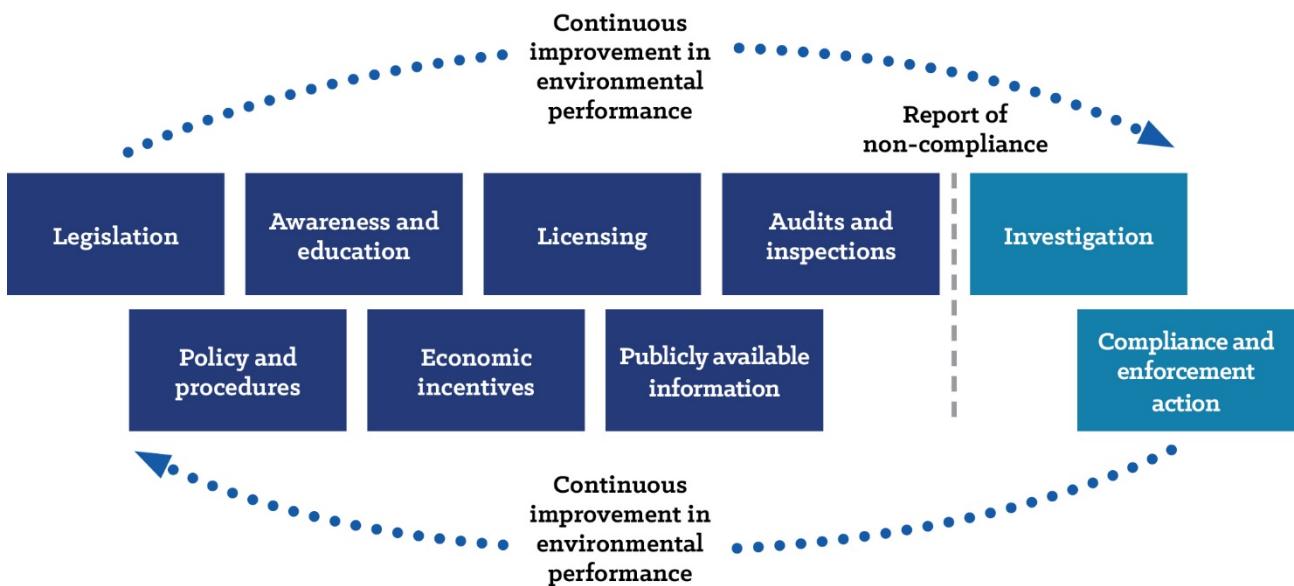
The EPA Board monitors the EPA's performance against the measures in the *EPA Strategic Plan 2017–21*. Assessments of the performance of the EPA against these measures can also be found in the *EPA Annual Report 2018–19*.

The machinery of government changes introduced by the NSW Government in July 2019 brought together a number of agencies as the Department of Planning, Industry and Environment (DPIE) cluster. Some of these agencies, such as the former Office of Environment and Heritage and Department of Planning and Environment changed their identities. The EPA has worked closely with these agencies to deliver environmental outcomes for NSW and continues to work with the new DPIE. For ease of reference in this report, agencies will be referred to by their new name of DPIE and its Environment, Energy and Science Group (EES).

2. Regulatory performance

2.1. The EPA's regulatory approach

The EPA's regulatory framework is made up of complementary components that help the EPA protect the environment while allowing flexibility and minimising administrative burden and cost of regulation to industry and government. The EPA uses multiple approaches and tools to regulate industrial activities and promote emission reductions.



The EPA's regulatory framework represents an end-to-end approach to regulation including:

- **legislation, policy and procedures** which underpin and guide EPA regulatory decisions, approaches and strategic directions
- **awareness and education programs** to increase industry and community understanding of environmental issues and improve compliance with environment protection regulation
- a range of **economic incentives** such as levies, trading schemes, and pollutant load fees to encourage waste reduction and resource recovery, to regulate discharges and reduce pollution
- **licensing**, such as risk-based licensing, enabling environmental performance to be regularly monitored, analysed and reported
- **publicly available information** and working with stakeholders to share information
- **audits, inspections and investigations** to assess compliance and environmental performance of individual operators or industry sectors and for assessing reported or detected environmental harm incidents
- a variety of **compliance and enforcement actions** ranging from advisory letters and formal warnings, to variation, suspension or cancellation of regulatory instruments, to penalty notices and prosecution.

2.2. Regulatory improvement

Regulatory Assurance and Performance Framework

The EPA has established a Regulatory Assurance and Performance Framework to provide increased transparency and assurance to the EPA Chair, the EPA Board, the EPA Chief Executive Officer and the EPA Executive, that the committed outcomes of the EPA's regulatory programs, projects, and activities are being achieved, and being carried out consistently and in line with the EPA's values.

The Regulatory Assurance Framework builds on the EPA's quality assurance processes (further detail on the framework is at section 7.4). This work follows the *Regulatory Assurance Statement 2017–18* which noted that the Auditor-General's *Report on Regulation of Water Pollution in Drinking Water Catchments and Illegal Disposal of Solid Waste* (Audit Office of NSW) and Australasian Environmental Law Enforcement and Regulators neTwork's (AELERT) Modern Regulator Improvement Tool results identified quality assurance as an important area for improvement.

Monetary benefits

The EPA has introduced a robust and transparent framework to recover the proceeds of environmental crime from offenders.

Monetary benefits are the financial advantage that an offender gains from committing an offence. Under the *Protection of the Environment Operations Act 1997*, the EPA can apply to the court for a monetary benefit order to be imposed on an offender as part of the sentencing package.

Monetary benefit orders:

- aim to strip offenders of the financial advantage they gained through their non-compliance
- are additional to any other penalty or fine the court imposes for the offence
- are an incentive for operators to take proper precautions to protect the environment
- provide a strong deterrent for possible future offenders.

The EPA's new monetary benefits framework includes a peer-reviewed *Protocol for calculating monetary benefits* which has been prescribed by Regulation, supporting guidance and calculation tools.

The EPA is a leader in developing monetary benefits approaches in Australia, partnering closely with EPA Victoria. Other Australian EPAs and environmental regulators are at various stages of developing their own monetary benefit approaches. The NSW EPA supports these jurisdictions through AELERT.

2.3. Predicting future risk

Forecasting environmental risks

The ability to effectively forecast environmental risks, issues and problems has been recognised as a focus area by the EPA Board and Executive. The EPA undertakes strategic analytical work to forecast environmental risks and understand emerging issues across a range of regulatory areas. The EPA also undertakes research and analysis to keep abreast of environmental issues internationally and in other Australian jurisdictions through issue-based research projects and the utilisation of forums such as the Heads of EPA and various Australasian regulatory networks such as AELERT. Strategic analysis aims to provide long-term insights on significant issues, impacts and drivers. The outcomes from current projects have informed EPA decision-making on gas and chemical regulation, environment protection licensing, incident response and environmental liabilities.

Projects include:

- risk modelling of emerging contaminants
- horizon scanning of environment protection licensed activities
- understanding the environmental risks of new technologies

- forecasting environmental liabilities
- best practice regulation of the gas industry.

Risk modelling of emerging contaminants

An updated chemical regulation framework to identify emerging issues quickly is being developed. A tool based on 200 mainly industrial chemicals is being trialled to help the EPA identify risks and prioritise chemicals requiring management (further detail is at section 3.1).

Horizon scanning of environment protection licensed activities

The EPA is undertaking a horizon scanning project of environment protection licensed activities (under the *Protection of the Environment Operations Act 1997*) to identify and assess trends and emerging issues towards 2030.

The initial findings indicate significant growth in environment protection licensed activities since 2012.

- Sectors like mining, extractives and waste services have an increasing share of all licensed activities while the sewerage, drainage, mineral and chemical manufacturing sectors make up a smaller share.
- Several activities subject to a high rate of change and poor environmental performance have been identified, indicating where EPA planning and operations efforts should be focused.
- Other notable trends include the forecast transition of the energy market away from fossil fuels, likely growth in intensive agriculture and a long pipeline of road and rail infrastructure projects.

These trends and emerging issues will inform the EPA's regulatory approach and response to environment protection licensed activities.

Understanding the environmental risks of new technologies

The EPA is working with NSW emergency services and other government agencies to assess the benefits and risks of emerging technologies such as new solar panels, lithium batteries and electric cars in the case of fire, flood or short circuit.

The EPA reviewed a new product designed for potential use by first responders (such as emergency services personnel) to reduce the electrical risks to personnel from solar panels. The EPA assessed the product's disclosed chemicals and the aquatic toxicity of its run-off when applied to solar panels. The EPA advised emergency services this product does not pose a significant risk to the environment and no environmental concerns would prevent its use as a risk control measure by first responders. This project has enabled NSW emergency service agencies to make more informed decisions regarding the environmental risks and risks to personnel. The EPA will continue to work with NSW emergency services to assess new technologies in this way.

Forecasting environmental liabilities

The EPA is working to forecast the financial risks to the NSW Government from future environmental liabilities of EPA-regulated sectors and activities. This comparative assessment identified activities with a higher priority for managing environmental liabilities and considered a range of factors including sector growth and change trends, insolvency rates, and compliance and risk metrics. The outcomes will inform the development of policy frameworks, risk assessment tools and other mechanisms such as financial assurances and environmental insurance.

In regard to other jurisdictional work in this area, the Queensland Department of Environment and Science, partnering with Queensland Treasury and the Department of Natural Resources, Mines and Energy, has worked to deliver a major financial assurance and rehabilitation reform program for the resources sector. These reforms consider modern legislation and systems, worldwide best practice and local industry and community needs.

Best practice regulation of the gas industry

The NSW gas industry is subject to a complex regulatory system administered by multiple pieces of legislation, layers of licences and approvals and regulated by several government agencies. The industry is small but has the potential to significantly increase if the Narrabri Gas Project goes ahead.

The EPA is currently developing a best practice system which expands on traditional risk-based licensing to account for the unique regulatory system and to consider additional risk factors. The system will prioritise regulatory activities consistently and efficiently. The EPA has identified specific risks and scenarios applicable to the gas industry and identified improvements. The EPA will continue to develop a plan for resource allocation and create a communications strategy to inform stakeholders.

Regulatory intelligence

The EPA has an Intelligence and Analysis Unit to support decision-making with regulatory intelligence. In 2018–19, the unit delivered a range of operational and tactical intelligence products including:

- profiling pesticides issues in the agricultural sector
- assessing regulatory consistency in the infrastructure sector
- using demographic profiling of communities to support harm reduction programs
- improving investigation outcomes and EPA officer safety by facilitating access to safety, criminal history and corporate information
- working with the EPA Waste Crime Taskforce to provide close support to investigations and regulatory responses.

Future regulatory intelligence capability improvements include developing a new three-year Intelligence Strategy to address current and future challenges, expanding technical expertise, and exploring new intelligence methods, structures and processes to support the EPA to achieve its objectives.

2.4. Engaging with stakeholders

The EPA engages with stakeholders and delivers timely and accurate information to the community on environmental incidents, assists the community to report pollution, and provides information about policy and legislative changes. EPA staff also attend community forums and committees to hear community concerns first hand.

Case studies

Regulatory intelligence partnerships

The EPA is building and strengthening relationships with Australian, state and local government partners, and coordinates a Community of Practice for Intelligence under the banner of the Australasian Environmental Law Enforcement and Regulators neTwork. These relationships assist the EPA to effectively share information, develop intelligence policy, access capability development opportunities and undertake collaborative projects on regulatory issues.

Gas

The interagency gas working group aims to build robust relationships across government agencies by having effective coordination of the implementation of the NSW Gas Plan, including media responses, reporting, compliance and enforcement activities, and planning matters. The EPA has chaired and administered the working group meetings and communications to identify emerging issues and ensure a cohesive response. The EPA's ongoing involvement with the meetings has facilitated strong relationships and information flows across government agencies. In addition to the working group meetings, the EPA has also attended 100% of the community consultative committee meetings for the Narrabri and Camden gas projects, demonstrating its commitment to community engagement.

Collaboration with emergency services agencies

The EPA works closely with emergency services organisations to address incident and emergency response related to pollutants, hazardous materials and waste. The EPA continues to improve partnerships with emergency services and other agencies to ensure protection of the environment is considered during emergencies and incident management.

The EPA has enhanced collaboration by:

- membership on state-level emergency management subcommittees working on multi-agency strategic resilience and capability development
- development of the plans and arrangements to inform the way in which environmental protection interests are supported and coordinated during emergencies and across agencies
- opportunities for emergency management and emergency services partners to work with the EPA to share capability, knowledge and expertise.

For significant incidents the EPA facilitates multi-agency debriefs (where the EPA was a lead agency) and provides representation and commentary into multi-agency debriefs.

Engaging with the community about the regulation of contaminated land

A risk communication framework has been developed for frontline officers in the EPA who regulate significantly contaminated land. This framework helps officers plan for effective risk communication with people affected by contamination, so they are satisfied with the amount, timeliness and quality of information given. The framework includes resources to plan for effective risk communication. EPA officers who regulate significantly contaminated land attend a coaching session to learn about risk communication. As a result of this new approach, a strategy is prepared with the EPA's stakeholder engagement team and implemented when the EPA begins regulation of a significantly contaminated site, which typically includes doorknocking and discussion with neighbouring property owners or tenants and distributing written information to affected community members.

Good Neighbour Initiative

The Good Neighbour Initiative is a joint program between the EPA and DPIE to target infrastructure projects likely to have significant impacts on the community. The EPA has continued to engage with the infrastructure construction industry on the key Good Neighbour messages of being respectful of residents affected by the dust, noise and odour impacts of construction and taking responsibility for reducing impacts associated with their works.

In November 2018, the EPA expanded the Good Neighbour Initiative to encompass utilities and infrastructure maintenance contractors. This engagement has seen industry request regular forums to allow engagement and interaction with the EPA and each other, on key environmental and community issues. The EPA and DPIE also regularly undertake joint compliance inspections across the major infrastructure construction projects.

Several projects and government agencies have adopted the EPA's Good Neighbour principles by restricting extremely noisy works to less sensitive periods of the night where possible, using community surveys to establish preferred periods for undertaking night or weekend works and gaining agreement from impacted residents, and embedding the Good Neighbour Initiative in project and contractual documentation.

“Having the [EPA] attend was extremely helpful in working through issues and hopefully providing our community with confidence in the process and regulatory framework.” Feedback from an industry representative on EPA’s involvement in a community consultative process

3. Reducing risks to human health

3.1. Chemicals and contaminants

Why is this issue important?

An emerging contaminant/chemical is a substance that may have been in use for some time and has recently been suspected of posing a greater risk to human health and/or the environment. This greater risk may come from new understanding about ability to bioaccumulate or persist in the environment. In many cases, regulators across the world may take time to determine the exact nature of risk associated with emerging contaminants.

How has the EPA managed this issue?

The EPA is developing an updated chemical regulatory framework so emerging contaminants can be recognised and responded to quickly and effectively. The regulation of chemicals in NSW currently depends on a combination of frameworks which govern some parts of a chemical's use, management, or disposal. This fragmentation can limit the EPA's ability to regulate chemicals in a relevant and risk-based way, particularly as it largely relies on industry scale as a threshold for imposing regulatory controls. From manufacture or import to disposal, export or destruction, chemicals can impact people or the environment in a variety of ways.

Effective regulation is required to prevent adverse impacts. For example:

- emissions or wastes from manufacture or product formulation can cause pollution
- incorrect storage or handling may lead to an incident and cause harm to people or the environment nearby
- people may be exposed to harmful chemicals during use, particularly if they are unaware of the risks and how to prevent exposure
- poor disposal practices can contaminate land and waterways and may lead to legacy issues.

The EPA is developing and trialling a chemical risk prioritisation tool based on 200 mainly industrial chemicals. This will assist the EPA to identify emerging risks and prioritise chemicals requiring management.

Triclosan example

Triclosan is an antimicrobial ingredient that is commonly used in products such as toothpaste, cosmetics, soaps and sanitisers. Developed in the 1960s there is international concern about its human health and environmental impacts due to the quantity entering wastewater from cleaning products. The national industrial chemicals regulator, NICNAS, recommends monitoring environmental levels to determine if regulatory action is required. While there are regulatory mechanisms to do this, a coordinated framework to prioritise when these powers are used is lacking. This is why the EPA is undertaking a review of the chemical management framework to ensure these regulatory tools are appropriate.

What are other jurisdictions doing?

All jurisdictions are working with the Australian Government to develop a *National Standard for the Environmental Risk Management of Industrial Chemicals*. Once the Standard is established all jurisdictions will adopt it within their chemical management frameworks.

Several jurisdictions are developing approaches to prioritising emerging chemicals of concern. Coordination and sharing of this work is being considered through the Heads of EPAs.

What happens next?

The EPA is working on a six-year plan to protect the environment from risks from exposure to chemicals and contaminants, with a series of priorities and actions such as:

- continuing to strengthen regulatory response and programs
- increasing the skills, knowledge and actions of industry and other stakeholders through improved policy, regulatory tools and guidelines
- educating stakeholders on their responsibilities
- focusing on citizens to protect them from land contamination and exposure to hazardous substances, hazardous waste, radiation, pesticides and chemicals.

3.2. Asbestos

Why is this issue important?

When asbestos fibres are breathed in they may remain deep within the lungs, causing inflammation, scarring and some more serious asbestos-related diseases. Illegally dumped asbestos-contaminated waste and asbestos sheeting is a significant issue for communities, councils and the EPA. It poses a threat to human health, and the cost to clean up asbestos-contaminated waste is often significant. Gardening and home renovation present a potential source of exposure to asbestos (and lead), especially in buildings constructed prior to 1990.

How has the EPA managed this issue?

The EPA has taken on the responsibility for coordinating asbestos activities across the NSW Government including the cross-government NSW Asbestos Coordination Committee (formerly the Heads of Asbestos Coordination Authorities). The EPA also has a specific role regulating the transport, storage and disposal of asbestos waste, illegally dumped asbestos waste and land contaminated with asbestos. SafeWork NSW also holds responsibility under Work Health and Safety legislation and administers all licensing of asbestos removalists and assessors.

The NSW Asbestos Coordination Committee is delivering the recommendations of the NSW Ombudsman's 2017 report *Asbestos: How NSW government agencies deal with the problem* and beyond. A new team was formed within the EPA to drive the asbestos function, funded by government for four years. Activities include events to raise community awareness, local government forums, reviewing social research into asbestos behaviours within the community and cleaning up after bushfires at Jubullum and Baryulgil Aboriginal communities in northern NSW.

In 2018-19, the EPA undertook a reassessment of all identified James Hardie legacy disposal sites. In the 1950s to 1970s, industrial building materials company James Hardie disposed of asbestos waste at multiple sites around western Sydney, largely in the City of Parramatta local government area. Other local government areas with potentially affected sites include Cumberland, Liverpool City, Fairfield City and Wingecarribee councils. Between August 2016 and April 2017, during investigations by the City of Parramatta Council and partially funded by the former Heads of Asbestos Coordination Authorities, friable asbestos was identified in the backyards of several houses in Granville. Since July 2017, the EPA has led a free soil sampling program at residential properties where the existence of asbestos in the soil is suspected and has introduced free make-safe measures (such as capping with new soil and turf) when asbestos is found in shallow soil. These make-safe measures are intended as a short-term solution to reduce the immediate risk of exposure until long term management options are developed, whilst the residential sampling and make safe program are ongoing. The results of the recent reassessment will inform further action if required across residential, commercial, industrial and open space sites.

The EPA also facilitates funding to councils for clean-up of orphan asbestos waste under the Emergency Pollution Clean Up Program. The program contributes funds towards the removal, dispersal or mitigation of serious pollution, when measures need to be taken immediately. The EPA also manages asbestos contamination issues alongside other agencies as part of emergency and incident response.

What are other jurisdictions doing?

Australia had one of the highest uses of asbestos in the world before it was banned in 2003. The minerals that make up asbestos occur naturally in rocks, soil and sediment in various places in Australia (and NSW). It was historically mined and used by many industries, including widespread use as

materials in structures such as homes. It is estimated that one in three houses contains legacy asbestos, and it is disturbed in one in five home renovations. Do-it-yourself home renovators are expected to be a third wave affected by asbestos-related diseases (*National Asbestos Profile for Australia*, Asbestos Safety and Eradication Agency, 2017).

What happens next?

The EPA is planning to seek input from the community, industry and government to guide development of a new NSW Asbestos Plan and the Asbestos Waste Strategy and to present on lead and asbestos awareness at future community events.

3.3. Lead contamination

Why is this issue important?

While people of all ages may be harmed by exposure to lead, the risks are greatest for pregnant women and children five years old and younger. Elevated blood lead levels can harm many organs and bodily functions, giving rise to anaemia, kidney problems and developmental effects, particularly in children. Sources of lead include past mining and industrial activities, such as those which occurred in Broken Hill and North Lake Macquarie. Paint containing lead was also used in NSW homes until 1970, when the product was phased out.

How has the EPA managed this issue?

The EPA has launched a lead awareness campaign focusing on providing information to the community on how to renovate homes and to garden in a lead-safe manner. The EPA has hosted several lead awareness events including at the Sydney Home Show and Lake Macquarie Living Smart Festival, where staff discussed and distributed fact sheets on lead awareness and provided free lead test kits.

The EPA established the NSW Lead Strategy Group which includes members from NSW Health and SafeWork NSW. The group is responsible for developing a statewide lead exposure management strategy which identifies key lead-related hazards, prioritises risks and determines management strategies.

The EPA has provided a four-year (2017–18 to 2020–21) \$800,000 grant to Lake Macquarie City Council to assist in the management of legacy lead contamination from the former Pasminco lead and zinc smelter. The EPA is also undertaking studies to investigate potential pathways for lead exposure in the Lake Macquarie area. This includes investigations into the potential for lead from black slag, which came from the smelter, to leach and enter groundwater and the lake.

The EPA is overseeing the administrative functions of the Broken Hill Environmental Lead Program (BHELP). BHELP is a five-year joint NSW Health, EPA and community program with three main focus areas – monitoring and surveillance, communication and engagement, research and remediation. BHELP is a community and multiagency program under the jurisdiction of an independent Steering Committee and independent chair.

In 2018–19, the program provided funding to both the Far West Local Health District and Maari Ma Aboriginal Health Corporation to continue blood lead screening and monitoring, provide targeted education, early intervention, and case management. The program works with the Far West Local Health District and Maari Ma Aboriginal Health Corporation to assess for remediation the homes of children with blood lead levels exceeding 15ug/dL.

All children under the age of five residing in Broken Hill are offered blood lead testing. The 2018 calendar year blood testing results show:

- 637 children were screened at Broken Hill in 2018
- the geometric mean blood lead level for all children tested (aged one to under five years) dropped from 5.7ug/dL in 2017 to 4.7ug/dL in 2018, and
- funding was also provided for remediation of 11 homes of children with blood lead levels exceeding 15ug/dL.

The LeadSmart Stage 2 communication and engagement program's e-learning modules cover lead safety when working in and around homes, on public or private land for mine employees, and for contractors to the mining industry. Curriculum-aligned programs included:

- training and piloting of a school incursion program with the *Lead Ted Junior Roadshow*
- 20 teacher-led preschool to year 6 lesson plans
- raising awareness with an electronic direct mail campaign, targeted school and home marketing and information on a website portal.

In addition, research and remediation projects were completed in 2018–19 including:

- planting and seeding of the University Dams remediation project
- installing children's handwashing facilities and playground equipment shelters at Patton St Park
- studying lead in plastics, residual lead in miners' clothes and household lead dust isotopes.

What are other jurisdictions doing?

A targeted lead abatement program has been established in Port Pirie, South Australia, that includes monitoring, surveillance and intervention. The program is a joint initiative of industry and South Australian Government with sub-programs focused on decontamination of housing, early intervention for young children, public health strategies, community dust suppression and stakeholder partnerships.

The Lead Health Alliance has been established in Mt Isa, Queensland, which focuses on monitoring of blood lead levels in children and education programs.

What happens next?

The EPA will continue implementing the lead awareness campaign focusing on areas of potential lead sources, for example due to former industrial processes or due to the age of houses. The EPA will continue to fill the gap for contemporary information in the Illawarra with a literature review on all lead information and studies.

The NSW Lead Strategy Group is completing the lead exposure management strategy for the state.

The Broken Hill Environmental Lead Program is funded until June 2020. Ongoing projects include continuation of the monitoring and surveillance programs with the Far West Local Health District and Maari Ma, LeadSmart Stage 2 community education and engagement components, and the public land remediation and home remediation programs.

The EPA grant to Lake Macquarie City Council is funded until 2020–21. The EPA will continue to work with Council to manage the legacy lead contamination from the former Pasminco smelter and will complete the studies into potential lead exposure in the North Lake Macquarie area.

3.4. Radiation

Why is this issue important?

The EPA regulates the use, sale, disposal, transport and clean-up of radioactive substances and radiation apparatus in NSW to protect the community from possible exposure to harmful radiation.

Radiation is used predominantly in two sectors, medical and industrial. It is also used in research, agriculture and mining.

How has the EPA managed this issue?

The EPA administers 15,800 radiation user and 2,600 management licences, accredits 100 consulting radiation experts and radiation security assessors, and conducts compliance and enforcement programs to protect the community and the environment from the harmful effects of exposure to ionising and non-ionising radiation. The EPA also provides administrative support to the Radiation Advisory Council, which provides advice on the prevention and minimisation of dangers arising from radiation.

The EPA undertook several investigations into potential non-compliance in the past year, including the successful prosecution of a mobile dental practice (see section 5.8 for further detail).

The EPA also mounted a number of inspections including a targeted campaign involving several mines across the state. Several relatively minor non-compliances were identified around issues such as record keeping and signage and overall the operators were found to be carrying out their radiation safety responsibilities satisfactorily.

What are other jurisdictions doing?

The EPA bases its radiation protection system on national and international standards and codes. The EPA follows the recommendations of the International Atomic Energy Agency (IAEA) and, in November 2018, participated in an international regulatory review performed by the IAEA of Australia's regulatory framework for radiation protection.

A report from the review identified that the Australian, state and territory governments should ensure all parties with responsibilities for the safety of facilities and regulatory activities:

- have the necessary competence and resources to carry out their responsibilities
- establish a strategy and allocate resources to ensure that inspections of facilities and activities are conducted consistently and in accordance with a graded approach
- assess domestic and international experience related to nuclear and radiation safety, and
- evaluate the need for updating their processes for authorisation, review and assessment, inspections and regulations.

What happens next?

The EPA is in the process of developing a roadmap for delivering better radiation protection outcomes for the people of NSW. This NSW Radiation Protection Roadmap 2019-2025 will identify a set of priorities for the EPA to work on for the next six years. The priorities in the roadmap will include those identified by the IAEA review and participating in work lead by the Australian Government to develop a national strategy for radiation management in Australia.

3.5. Air quality

Why is this issue important?

Emissions or pollutants from industrial processes, transport and bushfires can impact air quality. Air pollutants can affect human health. Particularly vulnerable groups are children, older people, pregnant women and people with pre-existing health conditions.

How has the EPA managed this issue?

The EPA partnered with DPIE to develop a dust risk forecasting system. The system predicts days when the weather conditions are likely to increase PM₁₀ (particulate matter 10 microns or less), levels by 25 µg/m³ or more from the mined area between Merriwa and Singleton. EPA officers used the forecasting system to target inspections of the 21 upper Hunter coal mines on days predicted to be high risk for dust generation to ensure dust controls were effective.

The majority of mines complied with advice to reduce dusty operations on high risk days and there was only one day when the PM₁₀ generated from the mining area exceeded the 25 µg/m³ target. Despite the dry conditions, this was the lowest number of days above the target since monitoring began in 2012.

The EPA has worked with the community and DPIE to set up the Blue Mountains and Lithgow Air Watch project in response to local concerns about air quality and its potential impact on public health. An Air Quality Monitoring Station was installed at Katoomba. Twelve low cost air quality sensors are also located at schools and businesses at Wentworth Falls, Springwood, Katoomba and Lithgow. Data from the monitoring station and sensors is available live. The project is overseen by the Blue Mountains and

Lithgow Project Steering Committee which determined the monitoring sites, arrange volunteers to host and maintain the sensors, and share information with the broader community.

What are other jurisdictions doing?

Through National Environment Protection Measures, the EPA is working with other Australian jurisdictions to improve outcomes for air quality. EPA Victoria is leading a program to review NO_x, SO_x and ozone emissions. The NSW EPA is supporting the delivery of this program.

What happens next?

The EPA will continue to develop and implement compliance programs to regulate coal mine dust as dry conditions continue throughout NSW.

3.6. Water quality

Why is this issue important?

Water pollution can reduce the ability of a waterway to sustain aquatic life and meet community expectations about recreational, commercial and other uses. It can result in risks to human and environmental health and impact on the NSW economy. Treated sewage is discharged to waterways and oceans from sewage treatment plants. Untreated sewage discharge, particularly in wet weather conditions or from private illegal connections on private lines, impacts on water quality.

Forecast population growth in western Sydney, to 3.4 million by 2036, is expected to impact the Hawkesbury–Nepean River system with an increased volume of effluent discharges from sewage treatment plants. The concentration of nutrients (such as nitrogen and phosphorus) discharged from sewage treatment plants must be limited to avoid impacts on the river's ecosystems such as increased frequency of aquatic weed outbreaks.

Stormwater run-off can also contribute contaminants, including those from industrial areas.

How has the EPA managed this issue?

The EPA applies load-based licensing to all sewage treatment plants and requires all ocean and riverine discharges to be monitored for effluent. Operators must publish results on their website and provide annual compliance reports to the EPA. The EPA works closely with water utilities to improve the performance of water discharge points including outfalls and undertakes enforcement action such as penalties or prosecution as required to protect both the environment and public health (more detail on industry performance for sewage treatment is at section 5.4).

The EPA is contributing to the South Creek Sector Review, led by Infrastructure NSW. The review is a key recommendation of the *State Infrastructure Strategy 2018–38* and follows an investigation of Sydney Water's preparedness to accommodate forecast population growth. The EPA is working on the review with DPIE, Sydney Water, WaterNSW and the Greater Sydney Commission. A Strategic Options Business Case (Stage 1) was completed at the end of 2018 and was approved by the NSW Government. EPA involvement included leadership and partnering to provide expert advice on a range of complex environmental issues including economic considerations.

The EPA has also developed a new framework to regulate nutrients from the treatment plants in the lower Hawkesbury-Nepean River catchment in western Sydney. Improved catchment practices and plant upgrades have significantly improved water quality, but nutrients still contribute to algal blooms and aquatic weed outbreaks in parts of the river system. The framework was developed to manage the risk of current sewage treatment plant licence caps not being suitable for the predicted increase of effluent discharges and nutrient loads associated with the forecast population growth. The new regulatory framework will:

- provide concentration limits for nutrients from treatment plants, having regard to the age of the plant

- cap nutrient loads discharged to the river at 2019 levels. This will reduce the nitrogen load in 2030 to 30% below projected levels
- give sewage treatment plant operators the option to use alternative and cost-effective options for meeting their load requirements, by allowing load-trading between treatment plants and offsetting treated sewage water loads with other types of load, for example diffuse run-off capture from agricultural premises.

What are other jurisdictions doing?

Catchment approaches in other jurisdictions such as the Yarra River in Victoria and integrated water use in Wessex in the UK have been considered in the joint government work for western Sydney which is being piloted for broader user in the greater metropolitan area.

What happens next?

Stage 2 of the South Creek Sector Review will involve more detailed development of an implementation framework including governance approaches.

The new framework to regulate nutrients from sewage treatment plants in the lower Hawkesbury-Nepean River catchment will be implemented by amending the environment protection licences of operators from July 2019. Operators have until 2024 to meet the required nutrient loads. The framework will be reviewed every four years. The loads permitted to be discharged from the treatment plants under the licences will continue to be reduced over time.

3.7. Noise

Why is this important?

Noise can be annoying, interfere with conversation and affect sleep. It is a concern for many people in NSW. The impacts of noise depend on the level, its characteristics and how it is perceived by the person affected. Noise can have both short-term and long-term effects on human health.

How has the EPA managed this issue?

The EPA manages industrial noise in NSW through the *Protection of the Environment Operations Act 1997*, the POEO Noise Control regulation and policies and guidelines. The policies and guidelines set noise assessment levels, consistent methods and best practice measures, based on the latest scientific research into the health effects of noise. They balance the need for activities such as road and rail transport and industrial processes with the community's desire to minimise intrusive noise. The EPA also provides support to councils through the *Noise Guide for Local Government*. The guide provides detailed guidance for council officers on managing the range of neighbourhood noise matters that are regulated or managed by councils, including consideration of noise in strategic land use planning.

What are other jurisdictions doing?

The national Environmental Health Standing Committee released a statement *The Health Effects of Environmental Noise* in 2018. The EPA participated in the technical advisory committee for the review.

What happens next?

The *Noise Guide for Local Government* is currently being updated. Council officers have been consulted to ensure the updated guide is a practical tool for the robust and consistent implementation of their regulatory responsibilities and to enhance the consideration of noise in strategic land use planning.

3.8. Liveability and strategic advice on planning policies

Why is this issue important?

The importance of environmental programs in strategic planning is critical to meet the needs of a growing population. This includes incorporating better air quality and water-sensitive urban design and considering the impacts when building new residential developments, infrastructure, schools and hospitals near industrial sites or intensive agriculture. The EPA works with Australian and state governments, councils and other key organisations to ensure environmental issues are considered in major planning assessments and broader environmental policies.

How has the EPA managed this issue?

The EPA has been liaising with the Greater Sydney Commission in the development of Local Strategic Planning Statements. This process is important to identify and reduce potential future land use conflicts. The EPA participated in the Commission's workshops to help councils with key environmental sustainability actions and strategies in their District Plans.

The proposed Snowy 2.0 pumped hydro project will be one of Australia's largest construction projects and is located in the Kosciuszko National Park. This project proposes to increase the current electricity generating capacity of the existing Snowy Mountains Hydro Electric Scheme by 2,000 megawatts.

Construction of the Snowy 2.0 project is being planned to achieve the highest environmental performance standards with procedures and controls to protect the park's pristine waters. To ensure this, the EPA has established a dedicated team to provide regulatory oversight of the project.

The EPA is working with the DPIE, Snowy Hydro Limited and key stakeholders to identify and assess environmental impacts and the development of mitigation measures for the first stage of the Snowy 2.0 project. Following the granting of consent for the project by the former Minister for Planning, the EPA has issued a licence to allow for exploratory work.

The EPA is working with Snowy Hydro Limited and its contractors to monitor environmental performance and ensure the necessary environmental performance standards are well understood.

The EPA worked with DPIE during the environmental assessment phase of significant infrastructure projects such as the CBD and South East Light Rail Project, WestConnex and the Sydney Metro project. The EPA has provided technical advice and input into the development of consent conditions to ensure that proponents undertake adequate monitoring and reporting on a range of potential impacts once these projects become operational.

The EPA also recently issued an environment protection licence to the operator of the Metro Northwest rail network. The licence includes monitoring and reporting conditions to manage noise impacts from the network.

A recent amendment to Schedule 1 of the *Protection of the Environment Operations Act* now allows the EPA to directly regulate both freight and passenger rolling stock operators in NSW through licensing. The EPA is developing licence conditions in consultation with the rail industry in 2019. DPIE is also reviewing the *Interim Guidelines - Development near rail corridors and busy roads* which provides an opportunity to improve how the *State Environmental Planning Policy (Infrastructure) 2007* is applied to noise sensitive development encroaching on rail corridors. The review will consider whether ports and multi-modal facilities should also be in scope. The EPA will provide technical input into the review.

What are other jurisdictions doing?

Infrastructure Australia, in its 2018 report *Planning Liveable Cities*, notes that Australia's largest cities are growing and changing at an unprecedented rate and that timely and coordinated sequencing of infrastructure is critical to the success of our growing cities.

The *Australia State of the Environment 2016* notes a range of policies and planning mechanisms have been developed across jurisdictions to protect sensitive peri-urban areas, with all states and territories having frameworks for spatial land-use planning. For example, in Tasmania the *State Policy on the*

Protection of Agricultural Land (2009) is intended to ensure the sustainability of prime lands for agriculture.

All state EPAs also provide input on environmental matters to strategic planning proposals depending on their jurisdictional contexts. The Western Australian Environmental Protection Authority, for example, has produced specific guidelines and technical guides on the environmental factors that it considers, during its assessment of significant projects, for protecting sea, land, water, air and people.

What happens next?

The EPA will continue engagement with the Greater Sydney Commission as councils develop their statements over the coming months. The outcome of this work will help guide council amendments to environmental planning instruments and supporting planning controls.

The EPA will continue to attend the White Bay cruise terminal and the WestConnex motorway community forums and committees as needed.

The EPA is also a member of the state significant infrastructure regulator forum. The EPA will continue to work closely with DPIE, NSW Health and SafeWork NSW to minimise impacts on the community from infrastructure projects.

3.9. Incident response

Why is this issue important?

The EPA works with other agencies – especially the NSW Police Force, Fire and Rescue NSW, NSW Rural Fire Service, NSW Health and SafeWork NSW – to deliver effective, coordinated incident management capability that ensures community safety, protects the environment and meets current and future needs. Examples of types of incidents include the release of hazardous materials associated with dangerous goods transportation, licensed facilities or natural disasters including bushfire recovery efforts.

How has the EPA managed this issue?

The EPA maintains a 24/7 Duty Incident Advice Coordinator as a point of contact between emergency services and EPA incident and emergency response. In 2018–19, the EPA’s response team received 256 incident reports from emergency services or other stakeholders. In 98% of cases the EPA responded or decided on appropriate actions within 30 minutes of being notified. The EPA attended pollution incidents reported by emergency services requiring support and assistance for inspection, analysis, clean-up or enforcement actions. It also undertakes regulatory responsibilities and provides advice and guidance to ensure the responsible parties undertake clean-up of pollution at incidents that the EPA did not attend.

The EPA brings together staff with specialised scientific and technical skills and capabilities to support investigations and incident response. Support has been in the form of water and soil sampling, onsite water and air quality measurement, incident management, clean-up operations and technical advice. In 2018–19 this has included assistance with:

- coal ash sampling, Bayswater Power Station
- water run-off, Hunter Valley Operations Coal Mine
- fuel tanker truck fire, West Wollongong
- blue paint spill, Prospect Creek
- mine tailings sampling, Cobar
- Pambula Lake diesel spill, Pambula Lake
- PFAS (firefighting foam compound) groundwater sampling, Lord Howe Island
- mixed waste organic outputs sampling at various locations
- sewage overflow incident management and investigation

- supporting an illegal dumping investigation in south western Sydney
- continued role with Roads and Maritime Services management of the *YM Efficiency* incident where 81 containers fell overboard 30kms south-east of Newcastle.

The EPA is a member of the NSW State Emergency Management Committee with a functional area role for environmental services. This enables the EPA to provide expertise in the development of statewide strategic direction for the management of disaster waste, environmental impacts and hazardous materials impacts, as part of prevention of, preparing for, responding to and recovering from incidents and emergencies. The EPA also chaired and coordinated a waste and environment recovery subcommittee during the bush fire season.

What are other jurisdictions doing?

All state and territory jurisdictions operate a 24/7 pollution reporting and response service which supports combat agencies during an environmental incident or emergency. The NSW EPA collaborates with other jurisdictions through forums such as the AELERT where learnings are shared, and capabilities developed amongst peer agencies to ensure consistent and contemporary incident response.

EPA Victoria assessed the issue of illegally stockpiled chemicals, and other stockpiling issues with fire, explosion or contamination risks. This intelligence was shared through the AELERT network, and the NSW EPA has undertaken a similar assessment of stockpiles.

What happens next?

The EPA is ensuring ongoing collaboration with emergency services through:

- workshops to further develop and document strategies for managing waste and debris with the production of the *Disaster Waste Management Plan*
- exploring resourcing and surge capacity strategies to further support regional incident response in case of protracted emergencies and recovery operations
- engaging with inter-agency and cross-jurisdictional development opportunities for environmental response and waste management in emergencies.

4. Reducing environmental degradation

4.1. Contaminated sites

Why is this issue important?

Contaminated sites can pose a risk to human health and the environment. Unless they are effectively managed, they can make land and groundwater unfit for some uses. Contamination can result in human health impacts and habitat degradation, hamper beneficial use of natural resources and land, and threaten water security.

How has the EPA managed this issue?

The EPA regulates the investigation and remediation of significantly contaminated land to protect people and the environment. The regulatory activities of the EPA and potential risks posed by contamination need to be communicated to affected and interested members of the community.

The EPA continued a statewide investigation program to assess the legacy of per- and poly-fluorinated alkyl substances (commonly known as PFAS) use and contamination across NSW. This included systematically checking potentially affected sites where industries have used PFAS in products or manufacturing processes. By 30 June 2019 the EPA had completed assessments at 842 potential PFAS sites across NSW. Most of these sites were found to be *low risk* with no pathways offsite that could expose human health to these chemicals. The EPA is continuing to actively work on sites that were identified as high-risk.

The EPA undertakes capacity building programs, particularly with councils who manage contaminated land under the planning and development framework. The *EPA Council Regional Capacity Building Program 2018–21* is providing \$3,968,380 in grants to fund the placement of 10 skilled contaminated land professionals in regional areas for up to three years, to improve the technical capacity of councils in contaminated site management and provide a local source of advice on contaminated land.

The EPA also undertakes capacity building programs with contaminated land consultants and public land managers and provides a range of guidance documents on the assessment and management of specific areas of contamination, and on other aspects of managing contaminated land including the duty to report contamination. This ensures its stakeholders are well informed about the EPA's expectations for meeting the requirements of the *Contaminated Land Management Act 1997* and the statutory instruments the EPA issues.

The NSW site auditor scheme is administered by the EPA under the *Contaminated Land Management Act 1997*, with the aim to protect the environment and human health through proper management of contaminated land. Site auditors must meet technical and capability requirements to be accredited. The accreditation process is robust and includes an application, three-hour examination and panel interview. The scheme improves public access to competent technical advice and provides increased certainty in the 'sign-off' of contaminated land assessments and remediation.

Accredited site auditors can be engaged to independently review contaminated land consultant reports, to ensure the methods and interpretation of data are consistent with EPA guidance.

The scheme has an important role in decision-making by planning authorities. Site auditors can provide increased certainty to planning authorities of the nature and extent of contamination and the suitability of a site for a specific use.

The EPA also undertakes preventative programs to guard against legacy contamination from current activities. This has to date largely focused on underground petroleum storage systems.

What are other jurisdictions doing?

NSW and Western Australia are the only states with specific legislation on managing contaminated land. However, Victoria has passed the *Environment Protection Amendment Act 2018*, which comes into effect in July 2020, and essentially duplicates many of the provisions in the NSW *Contaminated Land Management Act 1997*, including the duty to report contamination.

The NSW EPA chairs the National Contaminated Environments Network which comprises contaminated site regulators from all states and territories. The aim of this group is to facilitate the sharing of ideas, problems and solutions to enable the development of a more consistent national approach to managing contaminated environments.

What happens next?

The EPA has started a review of the *Contaminated Land Management Act 1997* and will progress public consultation through release of an issues paper in 2019–20. The EPA will be working to refine the framework to support frontline staff on an ongoing basis. More work is to be done to identify community expectations for information on land contamination.

Work is underway to review and update a number of the EPA's guidance documents and public consultation will be undertaken on these.

The EPA is actively working on 46 high-risk sites that have been identified through the PFAS investigation program. These are sites where PFAS chemicals were likely to have been used in large quantities including defence bases, airports, firefighting training facilities and some industrial sites where there is a history of PFAS firefighting foam use.

The *Council Regional Capacity Building Program* will fund contaminated land professionals in regional areas until 2021. The program aims to ensure participating councils have contaminated land policies and registers, improved knowledge of the legal duties and technical aspects of contaminated land management and for the successful handover of underground petroleum storage system regulation from the EPA.

4.2. Native forestry

Why is this issue important?

Harvesting of native forests can impact soils, water, and threatened plants and animals. The Australian and NSW governments are committed to ensuring native forestry in NSW is ecologically sustainable and that prescriptions are in place to ensure the special conservation values of native forests are maintained during forestry operations.

How has the EPA managed this issue?

The NSW Government has undertaken significant reforms to modernise and strengthen the regulatory frameworks for native forestry on public and private land in NSW. This includes the preparation of the *Forestry Legislation Amendment Act 2018* and the remake of the four coastal Integrated Forestry Operations Approvals (IFOAs), which were led by the EPA.

The Act provides stronger penalties for non-compliance and introduces new enforcement tools, allowing the EPA to drive better environmental outcomes and correct poor performance. The new Coastal IFOA outlines rules to protect plants, animals, habitats and waterways during native forestry operations on public land. Both the Act and the IFOA began in November 2018.

The NSW Government extended the three NSW Regional Forest Agreements in November 2018, providing a renewed commitment to the delivery of ecologically sustainable forest management in NSW.

The NSW Government is also reviewing the Private Native Forestry Codes of Practice (PNF). Local Land Services is leading the review in collaboration with the EPA and DPIE.

The EPA regulates native forestry in NSW under the *Forestry Act 2012* and IFOAs on public land, and the *Local Lands Services Act 2013* and the PNF Codes on private land. These regulations set best practices measures to minimise impacts on soils, water, and threatened plants and animals during forestry operations. They balance the environmental protection need with the NSW Government's ongoing commitment for native forests to deliver a sustainable long-term native forest industry and regional employment.

The EPA maintains a comprehensive compliance and enforcement program. It includes a proactive program targeting high-risk forestry operations, and a program responsive to community notifications or environmental incidents.

What are other jurisdictions doing?

The NSW EPA is the only EPA in Australia to regulate native forestry. In other states, native forestry operations are regulated by other environment agencies or independent statutory bodies. While there are variances in regulatory models, each jurisdiction sets specific regulations targeting general forest management, conservation of biodiversity and the protection of soils and water. Both Tasmania and Victoria are in the process of reviewing their native forestry regulatory frameworks.

Tasmania, Victoria and Western Australia also have Regional Forest Agreements and have specific legislation and prescriptions regulating native forestry and protecting the environment. The regulatory models for each state and territory are dissimilar and reflect different institutional arrangements and the scale of the timber industries.

What happens next?

In 2019–20, the EPA will:

- begin a review of the three Western IFOAs
- complete a review of the PNF codes in partnership with the Local Land Services
- continue the transition process to the Coastal IFOA, including greater engagement with communities and industry as the new rule sets begin to be implemented
- partner with other agencies in DPIE, develop and implement a \$9.2 million statewide forest monitoring and improvement program that will test the effectiveness of the regulatory frameworks, and inform continual improvement processes.

4.3. Gas

Why is this issue important?

Gas extraction can have potential environmental impacts to surface water, groundwater, soil, or air quality and potential human health risks. The EPA as lead regulator is building community confidence in the way gas development is regulated in NSW.

How has the EPA managed this issue?

The coal seam gas industry in NSW operates under some of the toughest controls in the world. The EPA leads compliance with, and enforcement of, the conditions of approvals for gas activities in NSW, excluding work health and safety issues, under the *NSW Gas Plan*. As part of its role as lead regulator for gas, the EPA has led interagency coordination through several initiatives including its involvement with the gas working group meetings.

The EPA worked with other government agencies to ensure the rehabilitation of 20 titles surrendered under a NSW Government buy-back scheme was completed and complied with relevant statutory instrument conditions. The EPA confirmed the last of the titles to be compliant with conditions in July 2018 – a year earlier than anticipated. The scheme reduced the area of NSW covered by petroleum titles from 60% to 7%. The EPA consulted with landowners to assess rehabilitation, recommending title holders implement strategies to establish better vegetation coverage and reduce sediment and erosion impacts.

In 2018–19 the EPA established a number of initiatives to strengthen its gas compliance capacity. This included remote sensing methods which were successfully implemented as a compliance tool for the Santos Narrabri Gas Project. Remote sensing allows more frequent monitoring over large geographic areas, analysis of multiple spatial layers and better response time to incidents. Assessment of conditions using remote sensing can reduce long periods of fieldwork, and therefore field-based risk.

The EPA currently regulates over 700 active conditions at the Santos Narrabri site. Approximately 20% of conditions were identified by the EPA as assessable by remote sensing methods, including conditions related to petroleum infrastructure locations and proximity to sensitive receptors, rehabilitation, vegetation clearing and soil/erosion controls.

What are other jurisdictions doing?

The EPA actively monitors domestic and international gas trends and changes to regulatory controls. The various state jurisdictions have differing approaches to managing the risks associated with coal seam gas activities.

Queensland introduced new safety requirements for the industry in the *Petroleum and Gas (Safety) Regulation 2018*. Remote sensing is used in Queensland to assess compliance with coal seam gas activities.

In Victoria, the *Resources Legislation Amendment (Fracking Ban) Act 2017* bans onshore hydraulic fracturing and coal seam gas activities. It also extends a Victorian moratorium on onshore conventional gas. The Act allows for continued underground gas storage and does not affect access to offshore gas resources from onshore areas.

Following an inquiry into hydraulic fracturing (fracking) in 2018, the Northern Territory passed the *Petroleum Legislation Amendment Act 2019*, which includes a moratorium on fracking. In May of 2019, the *Code of Practice: Onshore Petroleum Activities* was also introduced in the Northern Territory.

What happens next?

The EPA will continue to explore opportunities to further improve the NSW regulatory framework for gas. It is committed to working closely with other agencies to ensure robust regulation of the gas industry, including updating relevant standards. The EPA will also continue to work on completing the relevant outstanding recommendations from the NSW Chief Scientist & Engineer's 2014 *Final Report of the Independent Review of Coal Seam Gas Activities in NSW*.

Additionally, the EPA will maintain its involvement in the planning and environmental assessment process for major gas projects to ensure good environmental outcomes.

4.4. Litter

Why is this issue important?

Litter pollutes ecosystems, waterways, built and natural environments. Beverage containers make up 44% of all litter in NSW which costs more than \$162 million to manage and clean up. Plastic litter in marine environments kills marine creatures, such as birds and turtles, and microplastics can disrupt the marine food chain.

How has the EPA managed this issue?

Return and Earn

Return and Earn, the state's largest ever litter reduction initiative, has continued to deliver significant environmental and financial benefits throughout 2018–19. The statewide container deposit scheme tackles drink container litter which, prior to its start-up in December 2017, accounted for 44% of all litter volume in NSW. Through Return and Earn, eligible containers can be redeemed for 10 cents each at hundreds of return points such as reverse vending machines.

Material recovery facility operators are also able to obtain refunds for eligible containers returned via kerbside recycling systems such as yellow-lid recycling bins. To claim these refunds, operators must have refund sharing agreements with the councils they service. Sharing the refunds helps councils to manage their waste management costs.

The EPA works with the scheme coordinator, Exchange for Change, and the network operator, TOMRA Cleanaway, to ensure the effective delivery of the scheme and has regulatory responsibilities in relation to Return and Earn such as approving the containers that are eligible to be included.

The refunds and scheme costs are funded by NSW beverage suppliers.

The scheme is delivered through two main fee-for-service contracts overseen by the EPA; Scheme Coordinator agreement: Exchange for Change, is contracted to provide financial management, scheme auditing, fraud prevention, verification, community education and marketing services. The Network Operator agreement: TOMRA Cleanaway, is contracted to set up and manage a statewide network of return points and manage the logistics to ensure all collected containers are recycled.

Two billion containers were returned – which could have ended as litter – through Return and Earn in just over 18 months. By 30 June 2019:

- a further 1 billion eligible containers were collected through the kerbside collection system (from December 2017 to March 2019)
- 640 collection points were in operation
- the volume of littered eligible drink containers was down by 57% from November 2017 (based on litter survey data from February 2019)
- 91% of adults were aware of Return and Earn
- 48% of adults had participated in the scheme
- 81% of users were satisfied with the scheme.

Return and Earn has also helped raise more than \$440,000 for local charities and community groups through direct cash donations at reverse vending machines.

Litter programs

The EPA reinforced that litter is everyone's responsibility with two statewide *Don't be a Tosser!* campaigns focused around excuses for litter. The results showed people are now more aware of their own littering behaviour. Research and program strategy development has also begun for an upcoming marine campaign.

In 2018–19, more than 8,500 new community litter reporters registered to report littering from vehicles. The EPA launched a new online litter enforcement training module and began customer journey mapping to identify how to improve the system for its 40,000 registered reporters.

The EPA partnered with 16 councils for a cigarette butt litter behaviour change trial. Results show average improvements in binning rates of 58% across the four strategies trialled. The report is due to be published in 2019.

Local Litter Check Online was launched which adapts the current paper-based version of the Local Litter Check to a new internet-based version. This is expected to transform the way the tool is used to assess litter in hotspots with easier entry, compilation and access to data to plan prevention action.

A Key Littered Items study investigation of 12 estuary sites and nine remote beach sites along the NSW coast was completed, and a National Litter Index Dashboard was developed to investigate litter data across NSW. The EPA sponsored, and helped coordinate, two Keep Australia Beautiful NSW Litter Congress events (August 2018 and May 2019) and the annual Tidy Towns and Sustainability Awards.

What are other jurisdictions doing?

South Australia, Queensland, the Northern Territory and the ACT have container deposit schemes up and running. Schemes are being implemented in every other state, apart from Victoria. Most jurisdictions participate in the Keep Australia Beautiful litter surveys, and South Australia and Victoria have litter reporting schemes.

What happens next?

The DPIE's Environment, Energy and Science (EES) team now has responsibility for the container deposit scheme in NSW. The EES will be expanding its litter campaign into the marine environment, targeting single-use plastics and cigarette butt litter, and continuing to build on its network of community leaders. A key focus will be working with stakeholders to help them have the knowledge and confidence to take ownership of litter prevention, set new litter prevention targets and embed best practice litter prevention within their organisations.

4.5. Waste and recycling

Why is this issue important?

Many activities generate waste and certain wastes have properties that make them hazardous or potentially harmful to human health or the environment. To protect air, waterways, land and the health of the community for the future, the EPA manages the transport and disposal of hazardous waste and works with industry to find sustainable solutions to minimise the amount of waste going to landfill.

In April 2018 the EPA was appointed as Chair of the National Sword Intergovernmental Taskforce to lead the response to China's National Sword Policy, which restricted the quality of recyclable materials it accepts. The NSW Government response included a one-off \$47 million package to support local government and industry and forming the Intergovernmental Taskforce to progress a longer-term strategic response.

How has the EPA managed this issue?

The EPA led the National Sword Intergovernmental Taskforce. During 2018 the work of the Taskforce focused on long-term actions, including examining the use of recycled products, improving the planning system to enable new facilities to enter the market and pursuing a national policy, and examining long-term recycling strategies and support requirements. The Taskforce:

- delivered a Circular Economy Policy for NSW
- reviewed and recommended how planning and procurement frameworks could be used to stimulate and improve the recycling market in NSW
- improved the procurement and use of recovered glass in state and local government civil works
- is improving contractual arrangements between local governments and the recycling industry.

The Taskforce wound down in February 2019 with the ongoing work to improve the resilience of the recycling industry folding into the state's 20-Year Waste Strategy.

The EPA has developed and implemented a new method for measuring NSW's performance against the targets of increasing recycling, reducing waste generation and diverting more waste from landfill. For the first time in NSW, data collected under legislation from resource recovery facilities was used to calculate waste generation, recycling and diversion rates for 2015–16 to 2017–18. This data was published in June 2019 in the *Waste Avoidance and Resource Recovery Strategy Progress Report 2017–18*. This is the most accurate, robust and informed waste generation and recycling data ever collected and analysed in NSW.

The reliability and quality of the data has been supported by the introduction in 2015 of online reporting through the Waste and Resource Reporting Portal and new regulations that mandated most resource recovery facilities report waste flows into the portal. In addition, measures and controls are in place to ensure the ongoing quality, giving NSW a baseline for future datasets, including the 2018–19 dataset which is due to be published in late 2019.

What are other jurisdictions doing?

Each jurisdiction has been impacted by National Sword in different ways, and therefore the mitigations and approaches have been specific for each state. NSW continues to collaborate with all jurisdictions on the circular economy, the National Waste Policy and recent Council of Australian Governments decision to ban the export of waste glass, plastic, paper and tyres.

What happens next?

The EPA is collaborating with the Australian Government and other jurisdictions to develop a National Action Plan to implement the *2018 National Waste Policy*, which is based on circular economy principles.

The EPA is partnering with the Energy, Climate Change and Sustainability directorate of DPIE, which is leading development of the 20-Year Waste Strategy for NSW. It will set a long-term vision for reducing waste, driving sustainable recycling markets and identifying and improving the state and regional waste infrastructure network. The 20-Year Waste Strategy will be underpinned by the principles provided in the *NSW Circular Economy Policy Statement* and will build on the work of the Taskforce in strengthening the recycling industry.

4.6. Mixed waste organic outputs

Why is this issue important?

On 26 October 2018 the EPA stopped the application of mixed waste organic outputs (MWOO) on agricultural land, and ceased application on plantation forests and mining rehabilitation land until further controls could be considered. MWOO is a soil amendment made predominantly from organic material found in household general waste bins. This decision was prompted by environmental and human health risks associated with MWOO that were identified during an independent scientific research program commissioned by the EPA, conducted over seven years (2011–2017).

How has the EPA managed this issue?

A Technical Advisory Committee established by the EPA, after analysing the findings of the research program, concluded further land application of MWOO in its current form should be stopped. The Committee's findings confirmed that land applying MWOO does not meet the objectives of the Resource Recovery Order and Exemption Framework, requiring a beneficial re-use of waste, as there are limited agriculture or soil benefits from material use at the formerly regulated rates, and potential environmental risks from physical and chemical contaminants.

The EPA reviewed the final Technical Advisory Committee Report and sought further information from industry, including records from the alternative waste technology operators of the amounts and distribution of MWOO. The EPA also convened and sought specialist advice from an interagency committee to review the information and agree on a course of action. That action included commissioning a human health and ecological risk assessment into risks from chemicals in MWOO after land application.

The risk assessment was conducted by an independent expert risk consultant. The overall conclusion was past application of MWOO to agricultural land may result in exposure to chemicals that is higher than preferred for some people, however health risks are not anticipated from past use on agricultural land.

The EPA committed to a two-phase support package for the alternative waste treatment industry. The Phase One support package provided an immediate response for the first 12 months (up to 1 November 2019). It ensured no disruptions to household waste collection services and reduced potential out-of-pocket cost impacts on councils. The EPA has recently offered to extend Phase One until 28 February 2020. A Phase Two support package is currently under development and will be refined in consultation with stakeholders.

What are other jurisdictions doing?

Generally, European countries use alternative waste technology facilities to treat residual household waste for use as an alternative fuel source to fossil fuels (e.g. refuse derived fuel) and as a source of thermal energy for heating prior to landfill.

Most European countries have established, or are in the process of establishing, mandated source-separation of household organics as a key initiative to meet the European Union's (EU) target of recycling 65% of municipal waste by 2030. Under the European Commission *Circular Economy Action Plan*, the EU is challenging all member states to collect all organic wastes separately by 2023.

MWOO is generated in Hungary and Italy for land application. The Hungarian market has strict technical standards on composts. Italy is making gains towards ambitious targets for the source-separation of organic wastes. This is likely a reaction to the EU's decision to no longer count stabilised organic outputs from European alternative waste treatment facilities towards recycling targets by 1 January 2027.

Within Australia, a few alternative waste treatment facilities are operational in SA, WA and QLD as well as NSW. MWOO is both land-applied in limited amounts and used as refuse derived fuel in these states.

The *National Waste Policy*, released in 2018 by the Australian Government, state and territory governments and the Australian Local Government Association, highlighted the European Commission *Circular Economy Action Plan* to separate collections of biowaste by 2023.

What happens next?

The EPA will hold a public consultation period on the future uses of MWOO and the Phase Two support package. Feedback from the consultation will be considered before the EPA finalises the support package.

4.7. Construction and demolition waste

Why is this issue important?

Poor waste management practices can expose the community and environment to risks from contaminated material, including asbestos. The EPA is responsible for regulating waste facilities and ensuring all recovered materials are produced according to correct procedures. Significant construction is going on, particularly in Sydney. Construction materials are a valuable resource and should be recovered where possible, rather than discarded into landfill. Poor waste management can undermine community confidence in recycled materials.

How has the EPA managed this issue?

The EPA identified some management practices at construction waste recycling facilities which exposed the community and environment to risks from contaminated material (including asbestos). The EPA developed new *Standards for Managing Construction and Demolition Waste in NSW* after investigations into industry practices and extensive consultation with waste facility operators, local government and industry associations. The Standards require prescribed construction and demolition waste facilities to implement waste management practices and procedures to minimise the risk of harm from asbestos and other contaminants found in construction waste. The Standards prescribe a two-stage inspection process for loads of waste, the rejection of loads that contain asbestos waste and sorting and storage procedures to ensure construction waste is managed appropriately.

What happens next?

The extensive consultation process on the *Standards for Managing Construction and Demolition Waste in NSW* has led to a positive response to implementation of the Standards and genuine improvement in waste management practices at many construction waste facilities. The Standards will also assist to improve industry and community confidence in the quality of resources recovered from construction and demolition waste.

4.8. Water quality and protection of marine life

Why is this issue important?

When there is a discharge of pollutants into water, the environmental values of the water can be harmed. This can impact the waterway's ecosystems and recreational or commercial uses such as fishing. When pollution occurs, the EPA must consider the environmental values of the water and the practical measures that can be taken to restore or maintain those values.

Microbeads are tiny pieces of plastic, often microscopic in size, that once in the water, have the potential to cause harm to the environment and to human health due to their composition, ability to attract toxins and tendency to transfer up the food chain. Microbeads persist in the environment as they do not readily biodegrade and are almost impossible to remove from the environment due to their small size. The best way to reduce the impact of microbeads is to prevent them from entering the environment.

How has the EPA managed this issue?

The legislative framework for regulating discharges to ocean waters is set out in the *Protection of the Environment Operations Act 1997*. This includes matters that must be considered by the EPA (under section 45) when making licensing decisions. To support its regulating role, the EPA has operational guidance and has developed an online training module for operations officers on regulating water pollution, which will also support marine protection. The Chief Environmental Regulator has made completion of the training compulsory for all operational officers.

The EPA was a member of an Interagency Working Group that informed development of the *Marine Estate Management Strategy 2018–2028*. The strategy is based on a threat and risk assessment that identified nine initiatives to address major threats to the marine estate. Under the initiative Improving water quality and reducing litter, the EPA is:

- leading implementation of a targeted marine litter campaign
- providing input on an action to improve the coordination and management of urban and rural diffuse source water pollution.

Through close consultation with industry, the EPA and the Australian Government secured industry support for a voluntary phase-out of microbeads in cosmetic products. As a result, 94% of cosmetic products are now microbead free. The EPA is involved in two extensive research projects into the source and extent of microplastics in the environment to establish if further regulatory action, or voluntary phase-outs of other products may be required.

What are other jurisdictions doing?

The *National Water Quality Management Strategy* sets out a framework for determining environmental values and the associated water quality indicators. The environmental values for NSW waterways are published by DPIE.

What happens next?

To pilot sound outcomes in this complex water and marine area, the EPA will continue to contribute a range of regulatory tools and learn from targeted cross-government projects, such as the *NSW Marine Estate Management Strategy 2018-28*, South Creek Sector Review and *Our Living River* (Parramatta River).

5. Industry performance

5.1. Licensed industries

The EPA's risk-based licensing system recognises certified or specified environmental management systems and practices that licensees use when determining the environmental management category for their licence. These systems and practices, which mitigate environmental risk, can result in a reduction of licence administrative fees. Information on these environmental management systems and practices is reported by licensees in their annual returns.

In 2018–19, a compliance audit program was finalised to assess the accuracy of the reported information, if the fee reductions were appropriate and justified, and to collect information to assist in reviewing the risk-based licensing system.

Thirty audits were undertaken in 2018 of licensees who had significantly improved their environmental management category, and potentially their risk level based on the information reported in their annual return and obtained an administrative fee reduction. These licensees were selected to obtain a representative sample geographically, across industry sectors (including mines and quarries, waste facilities, food industry and animal products/handling, road construction, sewage treatment plants, power generation, wood milling or processing, boat construction and shipping in bulk) and with various environmental management systems and practices in place. Nine of the audited licensees had a certified environmental management system and 21 had other environmental management systems and/or practices in place but without certification.

The audits indicated that more than half of the audited licensees had incorrectly reported information in their annual returns relating to environmental management systems or equivalent practices. Common issues identified included:

- licensees with environmental management systems having areas of environmental concern and/or non-compliances with their Pollution Incident Response Management Plans
- a focus on quality and/or occupational health and safety issues instead of environmental issues during the certification audits of environmental management systems
- granting of multi-site certification based on sampling where it was inappropriate and contrary to the certification standard
- incorrectly reporting internal site audits and third party audits which had not taken place
- not identifying significant environmental aspects/impacts
- not training staff in environmental issues
- poor quality of certification audit reports and lack of competency of certification auditors in the relevant subject matter
- licensed sites not being audited during the annual return period.

The EPA has required those licensees who incorrectly reported information on their environmental management systems/practices in their annual returns to resubmit their annual returns and pay fees that were erroneously reduced.

The EPA has made several changes to address the audit findings. These include refining the environmental management system related questions in the annual return, revising the *Risk-based licensing: Environmental management systems guidelines* to provide more information on attributes that need to be met and the documentation and records the EPA requires licensees to hold to be eligible for a fee discount, and gazettal of a revised calculation protocol to include the revised annual return questions.

The EPA has also used the audit findings to inform the three-year review of the risk-based licensing system.

The EPA will be consulting with licensees and other stakeholders on other potential changes suggested by the risk-based licensing review, via a proposal paper in the second half of 2019.

5.2. Hazardous waste

The EPA regulates the storage, treatment, transport and disposal of hazardous waste through licensing waste receiving facilities, approvals to treat waste and online waste tracking. The EPA regularly assesses the performance of hazardous waste treatment facilities and where the need for improvements is identified, these are implemented through licence conditions and notices under the POEO Act.

These wastes are hazardous due to their explosive, flammable, toxic or corrosive properties. Examples include clinical wastes; waste oils/water, hydrocarbons/water mixtures; wastes from producing, forming and using resins, latex, plastics or glues/adhesives; wastes resulting from surface treatment of metals and plastics; residues arising from industrial waste disposal operations; and wastes containing compounds such as copper, zinc, cadmium, mercury, lead and asbestos.

Following a fire at a chemical storage facility in Campbellfield, Victoria on 5 April 2019, the EPA undertook an inspection campaign of 59 licensed sites in April and May 2019 in metropolitan Sydney and regional NSW (Orange, Blayney and Queanbeyan).

The inspections focused on correct storage of flammable liquid wastes in accordance with licence operating conditions, storage limits and incident risk management. The inspections indicated no evidence of stockpiling beyond legal threshold, however did identify incorrect management of flammable solvent waste. The main issues identified included:

- poor maintenance of ageing infrastructure
- inappropriate labelling, storage and handling of dangerous goods
- staff poorly trained in handling and preparing dangerous goods for transport
- poor contamination controls at facilities storing and processing waste oil
- lack of safety controls in flammable storage areas.

The EPA has required the licensees to rectify any non-compliances identified and will continue to follow-up to make sure they are complying with their legislative requirements. The inspections also found that liquid hazardous waste storage facilities were reducing or ceasing to receive flammable solvent wastes due to limited treatment or disposal options. This in turn places pressure on waste generators trying to properly manage their waste and can contribute to waste stockpiling, an issue which the EPA is working with industry and other stakeholders to resolve.

5.3. Dangerous goods transport

In October 2018, the EPA undertook a joint dangerous goods operation with Roads and Maritime Services (RMS) involving inspections of 18 fuel tankers using the EPA's *Dangerous Goods Tank Vehicle Inspection Manual* (released in August 2018). The Manual is based on the Australian Dangerous Goods Code 7.5.

A number of tankers failed to comply with the Australian Standard (AS 2809.1-2008 Road tank vehicles for dangerous goods) and the Dangerous Goods Code. Non-compliances included structural damage to vehicle components, unsecured safety devices, inaccurate transport and emergency documents and non-compliant fire safety equipment. Penalty infringement notices were issued to drivers and transport companies. Of the 18 fuel tankers inspected, 15 were found to be non-compliant, with three of these tankers banned from transporting dangerous goods until they were appropriately serviced and inspected. Additionally, the status of the vehicles was notified to the Safe Load Program, denying them access to fuel terminals until evidence of repair was provided to the EPA. The EPA conducted further site visits during repairs to reinforce the vehicle operator's obligation to maintain dangerous goods vehicles in accordance with the Dangerous Goods Code and Australian Standard.

The remaining 12 non-compliances were either rectified in the field or operators were directed to fix the issues as soon as possible. These issues consisted primarily of drivers failing to amend their transport documents after unloading, missing safety equipment and minor maintenance issues requiring attention but not substantially affecting vehicle safety. The inspections also provided an opportunity to present the *Dangerous Goods Tank Vehicle Inspection Manual* to transporters. The Manual was developed with input and support from industry and reinforces their legislative requirements for tank vehicle maintenance and the EPA's expectations.

EPA responses to improve dangerous goods transport safety

The EPA undertakes a variety of programs to help industry improve compliance, including campaigns with NSW Police and the RMS. The EPA also trains highway patrol officers on dangerous goods transport so they can undertake compliance inspections. The EPA liaises with, and provides support to consignors, prime contractors and drivers to help them to understand and meet their compliance obligations. The EPA is working with other government agencies and stakeholders to identify the highest safety risks in the transport of dangerous goods. Targeted programs, such as the development and implementation of a bulk tank vehicle inspection checklist and a focus on emergency response planning, are examples of this approach.

A significant proportion of the dangerous goods regulatory program by the EPA has been devoted to improving safety and compliance in tank vehicle dangerous goods transport, considering:

- tank vehicles have the potential for the greatest volume of product loss of any type of dangerous goods transport because they commonly carry gas or liquid rather than solid goods
- all of the (six) fatalities associated with the release of dangerous goods in the previous 10 years were related to ruptured fuel tankers which caught fire, and
- poor maintenance of dangerous goods tank vehicles and their safety and product containment equipment was a common issue.

Transport of dangerous goods in tank vehicles is a high-risk activity warranting continued resource allocation by the EPA. To further address the failings identified during the joint 2018 dangerous goods inspections operation, and to improve safety and compliance, the EPA:

- continues to undertake compliance operations focusing on tank vehicles
- undertakes training of police in dangerous goods vehicle inspection, and
- is currently investigating industry failures with the provision of resources to recover dangerous goods tank vehicles involved in incidents.

The EPA has also negotiated with loading facilities and the fuel industry Safe Load Program to expand vehicle inspection programs at loading terminals. Additionally, fitting roll stability has been extended to all dangerous goods tank trailers. Previously this was only compulsory in new tank trailers. The EPA will continue to evaluate the success of its approaches and consider appropriately strong deterrents to non-compliance in the dangerous goods transport industry.

5.4. Sewage treatment systems

The EPA regulates Sydney Water's sewage treatment systems through 23 environment protection licences. Sydney Water's area of operation covers metropolitan Sydney and the Illawarra. The EPA considers ageing sewage infrastructure and decreased maintenance has increased sewer main breaks, blockages and dry weather overflows. This is further exacerbated by the current drought conditions.

Two compliance campaigns identified that licence obligations to adequately clean up dry weather sewage overflows were not being met. The EPA's initial regulatory actions included:

- three penalty notices for three sites in April 2018
- eight penalty notices related to concerns at six sites in October 2018.

Several of these sites impacted national parks and one impacted the front yards of several residential properties.

The EPA has amended Sydney Water's licences requiring an independent review of the corporation's management and operational framework for responding to dry weather sewage overflows. The review aims to identify necessary improvements to systems and procedures to address poor performance.

The EPA is also currently investigating numerous other incidents relating to Sydney Water operations for alleged breaches of environmental legislation. These investigations may result in regulatory action.

In the Hunter region, there was a slight increase in sewage overflow and discharge reports in the 2018–19 financial year compared to the past two years. This is despite the region being affected by drought. The reports came from both the Hunter Water Corporation and council sewer systems. The EPA will

review guidelines to ensure effective and consistent responses to sewage overflows and will undertake a broad review of sewage treatment plant licences across the Hunter Region focusing on limits, monitoring and operating conditions.

5.5. Rail

The Australian Rail Track Corporation's Inland Rail Project is improving the national freight network between Melbourne and Brisbane via regional Victoria, NSW and Queensland. In NSW, the Inland Rail Project is comprised of seven separate projects being assessed by DPIE. The construction of all sections of the Inland Rail Project will be regulated by the EPA through environment protection licences.

The EPA has provided advice to DPIE during the planning and assessment stages on contamination, water, air and noise impacts. The EPA has also provided recommended conditions of approval.

Parkes to Narromine was the first section of the Inland Rail project to be approved by DPIE. Construction began in 2019 and is regulated by the EPA through the licence. Since construction started, the EPA has investigated complaints regarding noise and dust, brokered a meeting with affected stakeholders and the construction company and undertaken unannounced inspections. No non-compliances with the environment protection licence have been identified.

5.6. Gas industry

As the lead regulator, the EPA inspected all gas sites with active wells to assess compliance with a range of instruments, including environment protection licences, development consents, water access licences and petroleum titles.

To minimise impacts on human health and the environment, the EPA used an optical gas imaging camera to monitor for potential leaks during many of these inspections. A total of 252 gas inspections were completed in 2018–19, comprising of:

- 172 leak detection and repair inspections
- 58 general inspections
- 22 rehabilitation inspections.

The inspections found that industry generally had high levels of compliance.

AGL Gloucester Gas Project closure

In February 2016, AGL announced it was ceasing operations at its Gloucester project. As lead regulator, the EPA had regulatory oversight for parts of the closure and worked closely with the NSW Resources Regulator and the Department of Resources and Geoscience to provide a whole-of-government approach to the project closure. The EPA's petroleum engineers and hydrogeologists ensured the subsurface integrity of the decommissioned wells. A total of 14 wells were successfully decommissioned. Numerous inspections were undertaken and where sites did not meet the required standards, the EPA issued directions to AGL to undertake further works. Final sign-off was achieved in July 2018, with 100% of sites successfully rehabilitated.

5.7. Waste Crime Taskforce

The EPA Waste Crime Taskforce undertakes high-level investigations of waste crime. Last year, four investigations were completed, and 10 commenced. Investigations resulted in the EPA pursuing charges laid under the *Protection of the Environment Operations Act 1997* for illegal dumping, pollution and use of a place as a waste facility without lawful authority. These matters have not been finalised in the Land and Environment Court.

Investigations from the taskforce also supported NSW Police to bring 32 charges under the *Crimes Act 1900* against three people for fraud, money laundering and criminal group offences. NSW Police also issued asset confiscation orders under the *Confiscation Proceeds of Crime Act 1989*.

The EPA's Operation Waste Wise uses a range of covert and overt techniques working with other agencies and the EPA Waste Compliance Branch, to deter illegal business models and encourage compliance with waste legislation.

The Waste Crime Taskforce aims for a 50% reduction in recidivism by people or companies of interest, including those investigated by the taskforce. Except for two minor breaches of WasteLocate, there have been no reports of recidivism by this cohort since the taskforce began in October 2017.

5.8. Prosecutions and enforceable undertakings

The EPA continues to successfully prosecute environmental offences. In 2018–19 the EPA completed 66 prosecutions with a success rate of 100% for substantive prosecutions (excluding littering). Prosecutions under EPA legislation resulted in the courts imposing \$748,210 in total fines and other penalties.

Enforceable undertakings were entered into between the EPA and four entities, requiring them to pay more than \$400,000 for environmental rehabilitation and enhancement works.

A selection of prosecution case studies (presented below) provide insight into the range of offences that the EPA regularly prosecutes. Further details on prosecutions can be found in the EPA's *Annual Report 2018–19*.

Australian Aged Dental Care Pty Ltd

Australian Aged Dental Care Pty Ltd operated four mobile dental units that travelled throughout NSW providing dental treatment to school children. The mobile dental units were large semi-trailer trucks, fitted with consultation rooms and an orthopantomogram (a type of X-ray machine) and staffed by 'clinic managers', who took an orthopantomogram of every child who entered the mobile dental unit, despite not holding a radiation management licence to do so.

The Downing Centre Local Court convicted Australian Aged Dental Care Pty Ltd of nine offences of failing to ensure regulated material was not used by a person who did not hold a radiation management licence. Australian Aged Dental Care Pty Ltd was ordered to pay a total of \$198,000 in fines and the EPA's legal costs. It was also ordered to publicise details of the offences.

Edward Gilder

Newcastle Waste Recycling Pty Ltd operated a waste recycling facility from a property at Tomago. In 2014, the amount of waste stored at the facility exceeded the licensing threshold, thereby requiring an environment protection licence issued by the EPA. Following investigation, in 2017 the EPA commenced a prosecution against the company for carrying out waste storage without an EPA licence. The EPA also separately prosecuted Edward Gilder in his capacity as the site manager.

In August 2018, the Land and Environment Court convicted Mr Gilder of unlawfully using a place as a waste facility. Mr Gilder was ordered to pay a \$37,500 fine and the EPA's legal costs.

Viva Energy Australia Pty Ltd

In December 2016, marine fuel oil leaked from a five-metre-long overhead pipe at Viva's fuel import and storage facility at the Gore Bay Terminal at Greenwich. The leak resulted in about 500 litres of oil entering the waters of Gore Bay. The leak occurred from two small holes in the pipe, which was covered with insulation at the time of the spill. The spill affected approximately 350 metres of shoreline in Gore Bay and resulted in the death of oysters along the shoreline. Some aquatic organisms were also affected. Viva undertook an extensive clean-up operation.

In March 2019, the Land and Environment Court convicted Viva Energy Australia Pty Ltd of polluting waters and breaching a licence condition. Viva Energy Australia Pty Ltd was ordered to pay \$100,000 in total to the NSW Environmental Trust; the EPA's investigation costs of \$3,050 and the EPA's legal costs. Viva was also ordered to publicise details of the offences.

Whitehaven Coal Mining Limited

Whitehaven Coal Mining Limited's coal mining operations include the Rocglen coal mine (Rocglen) for which it holds an environment protection licence. Post-blast fumes or 'NO_x fume' can arise from the detonation of ammonium nitrate-based bulk explosives used in the processing of coal overburden. On 10 August 2016, a blast was fired at Rocglen. The blast NO_x fume migrated off the premises, across a public road, and onto the neighbouring farm where it appeared to move in close proximity to a number of sheds.

In March 2019, the Land and Environment Court convicted Whitehaven Coal Mining Limited of breaching a licence condition. Whitehaven Coal Mining Limited was ordered to pay \$38,500 to the NSW Environmental Trust and the EPA's legal costs. It was also ordered to publicise details of the offence.

6. Valuing people

6.1. How the EPA delivers its values

Foundational statement and values

The EPA's vision of a healthy environment, healthy community and healthy business is underpinned by five foundational statements (see below diagram).



Values in practice

Values	How the EPA describes its values
Integrity	Act professionally with honesty, consistency and impartiality and without prejudice. Show leadership and courage and place public interest over personal interest.
Trust	Invite collaboration, appreciate difference, welcome learning from others and build relationships based on mutual respect. Uphold the law, institutions of government and democratic principles.
Service	Strive to deliver quality, timely and reliable service to the community, government and business stakeholders of the EPA. Focus on providing excellent service and information for better environmental outcomes.
Accountability	Take responsibility for decisions and actions and ensure the use of public funds and resources is efficient and effective. The safety of staff, the community and the environment is paramount.
Innovation	Foster a culture of creativity, problem-solving and forward thinking. Always open to new ideas and we strive to lead the way to improve the EPA's service and deliver more effective regulatory and environmental outcomes.
Transparency	Share information and provide opportunities for stakeholder engagement. Public scrutiny helps make better decisions and balances the needs of the environment, community and business.

6.2. Exemplary organisation

Work health and safety

The EPA is committed to providing a safe work environment and has one of the lowest incident rates within the DPIE cluster. The EPA Board, Finance, Audit and Risk Committee and Executive meetings receive a report on the EPA's WHS performance at every meeting. Other measures to drive safety include:

- all executive staff model a safety-first culture by logging a minimum of one safety interaction (such as a safety message or observation) per month
- staff log any near misses, incidents or accidents into the online WHS system
- all staff returning to work from an injury have a return-to-work plan, even if the injury was not work-related.

Regulatory capability

The EPA supports its staff in the delivery of best practice regulation by embedding core regulatory policies and procedures into the work of regulatory officers to enhance skills and knowledge. The EPA has delivered a Regulatory Capability Framework providing:

- clearly defined regulatory capabilities for operational roles, giving staff and managers a clear view of the regulatory skills, knowledge and experience needed to carry out their duties
- a Regulatory Capability Assessment Tool, consistent with the NSW Public Sector Capability Framework, that operational staff and managers must complete annually to help formulate development plans.

The EPA is recognised as a quality learning and development provider within the AELERT network having designed, developed and delivered a range of regulatory training programs with a special focus on local government. The EPA currently has over 1,100 internal and external active learners using online, webinars, short courses and more complex courses, such as Certificate IV and Diploma in Government Investigation.

The EPA has been in a unique position to offer courses to external clients for a fee, providing a small revenue stream that has assisted in ensuring courses and learning activities remain of high quality. The EPA has also improved online and on demand learning capabilities by enhancing the use of a Learning Management System with offerings to allow staff to undertake learning when it suits their work schedules. Examples of courses run by the EPA include environmental auditor training led by professionals who are accredited with an internationally recognised environmental management systems certification and internal incident response training on the EPA's incident management system and sampling techniques. The EPA also participated in emergency management training and exercises provided by other government agencies.

Diversity

The EPA has an Inclusion and Diversity Committee, a formal subcommittee of the EPA Executive that reflects the diversity of the wider community. Initiatives to improve the inclusive culture of the EPA include:

- launching the EPA's first *Inclusion & Diversity Strategy 2019-2021*
- organising a successful event on the wellbeing of caregivers in the workplace as a significant portion of staff are involved in caring for the elderly
- participating in the review and development of policy documents to improve inclusive practices for Aboriginal and Torres Strait Islander staff, staff with a disability, female staff and LGBTIQ+ staff within both the EPA and broader cluster.

The Committee is leading the EPA's participation in the second Diversity Council of Australia's Inclusion@YourWork Index to assess the diversity and inclusiveness of workplaces in the public and private sectors, with results due by December 2019.

7. Evaluation of the EPA's performance

7.1. Monitoring performance against the Strategic Plan

To help guide the EPA in delivering its priorities and working towards its vision, the *EPA Strategic Plan 2017–21* includes specific outcomes, actions and measures. Every quarter the EPA Executive and EPA Board examine the organisation's progress towards the Strategic Plan outcomes via a Key Performance Indicator Report. This includes monitoring the results, discussing mitigation measures and providing direction to support delivery of the EPA's outcomes. The EPA also established a KPI Working Group and expanded its quarterly reporting framework and procedures.

In 2018–19, 42 of the 61 KPIs were met or on track, and another 13 were close to being met and require monitoring or further action to meet their targets.

A sample of KPIs that met targets include licensees having a pollution incident response management plan in place, the prosecution success rate, inspection of gas sites with active wells, container deposit scheme access and litter reduction results, and stakeholder communication evaluations being undertaken for new significantly contaminated land declarations.

The EPA Executive considered KPIs that did not meet targets and areas for improvement. This includes ensuring new staff undertake the new online induction program within six months of starting work, that all EPA Branches have branch plans, additional monitoring of contaminated sites data and supporting the growth in the Aboriginal and Torres Strait Islander employment rate.

7.2. People Matter Employee Survey

The EPA has consistently performed well, and above the public sector average, in the NSW Public Service Commission's *People Matter Employee Survey*. Following the 2018 results, the EPA Executive developed an action plan for areas to be improved with a commitment to be open and transparent with their response. In developing the plan, Branch Directors/Executive Directors held feedback sessions within their respective branches.

In 2019, the EPA's results showed further improvement compared to 2018 for all but one measure which remained unchanged. In almost all measures the EPA's results were above the public sector average. The EPA's employee engagement results, at 72%, were 6% higher than the public sector average (66% public sector). The EPA's culture is reflected in the high results in areas such as diversity and inclusion (81% for EPA compared with the public sector average of 69%), communication (74% for EPA, 62% for public sector), high performance (71% for EPA, 65% for public sector) and satisfaction with access to flexible working (76% for EPA, 59% for public sector).

The EPA's highest scoring results showed that employees agreed they understand what is expected in their role (90%, which is consistent with the public sector average of 90%), agreed that their work groups strive to achieve customer/client satisfaction (89%, slightly above public sector average of 86%), are comfortable with notifying managers about risks at work (95%, higher than the public sector average of 88%) and have respect for individual differences (89%, higher than the public sector average of 77%).

The EPA will be focusing on further improvements in change management, with 41% of staff feeling that change is managed well (the public sector was 32%), and other areas identified at discussion groups to develop an EPA-wide action plan for 2019–20.

7.3. Lessons from other industries

To learn from the experience of other industries with regulatory responsibilities, the EPA has taken an interest in the February 2019 report by the Honourable Kenneth Hayne AC QC for the *Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry*.

The report made observations critical of the regulators and recommendations for the regulation of the finance industry. While the Royal Commission did not apply to the EPA or environmental regulators, two recommendations are relatable to the work the EPA performs – regulatory enforcement, regulatory capture (industry influence) and capability reviews.

Regulatory enforcement and capture

The EPA has undertaken a review of its regulatory governance and controls to ensure that its enforcement approach is consistent and based on the *EPA Compliance Policy*. This review, to ensure the appropriate level of protection is in place, followed the Hayne Report into the banking, superannuation and financial services industry.

As an output of this review the EPA has provided additional support to frontline regulatory staff relating to the risk of regulatory capture and steps to recognise, report and address the risk. Additional guidance is under development to increase this level of support.

The EPA has commenced reviews to check consistency and appropriateness of regulatory and enforcement approaches across the EPA including:

- self-reported non-compliances via the Annual Return Process to ensure consistent application of the *EPA Compliance Policy* (phase one of this review is complete), and
- use of the case management system (CIRAM) for alignment with the EPA Guideline to Case Management procedure for cases reported to EPA's Legal Branch with a view to prosecution.

Capability reviews

As part of the Financial Services Royal Commission, Honourable Hayne made an observation and recommendation for regular capability reviews within the financial services regulators.

This reinforces the EPA's establishment of the Regulatory Assurance and Performance Framework. Integral to this Framework is the regular review of the EPA's regulatory programs, projects and activities, so the organisation can identify risk, understand capability and resourcing, and make changes to address any gaps.

The EPA uses a risk-based approach to identify what needs to be reviewed and when. The review process allows the EPA to be sure it is doing the right thing, that policies and procedures are being adhered to and committed outcomes are being delivered. In addition, the EPA is implementing a Regulatory Capability Framework to ensure EPA staff have the right capabilities. Both frameworks will contribute to the continual reassessment of the EPA's regulatory approach and to help it remain a credible and effective regulator.

7.4. Progress on the NSW Auditor-General's Report 2017

The EPA has completed all recommendations from the June 2018 NSW Auditor-General report on *Regulation of Water Pollution in Drinking Water Catchments and Illegal Disposal of Solid Waste* (Audit Office of NSW).

Key actions included the development of an improved performance framework and improvements to monitoring of regulatory operations. The EPA has developed and embedded a Regulatory Assurance Framework (see section 2.2 for more detail) which includes reviews of the EPA's regulatory governance and controls (see section 7.3 for details).

In addition, the EPA improved its operational guidance for staff in early 2019 with the launch of its internal e-library for staff that provides access to current operational policies, procedures and guidelines.

In response to the NSW Audit Office's recommendations, the EPA has also finalised a review of the likely influence on the water quality in Lake Burragorang from premises with environment protection licences that have conditions allowing them to discharge into the catchment.

The review screened licences using a risk-based approach based on the relative contribution from the premises to the total load of pollutants that could be entering Lake Burragorang. The review has found that even applying a very conservative approach, the discharge from licensed premises is very minor

compared to inputs from broadscale land uses across the catchment. Despite this, the EPA's management of licensed premises will continue to appropriately regulate the impacts on Lake Burragorang into the future.

7.5. NSW State of the Environment 2018

The *NSW State of the Environment 2018* report found that, while many aspects of the environment are in generally good condition, population growth and human activity are having an impact on air and water quality, fragile ecosystems and threatened species. The report demonstrates the EPA's ongoing commitment to reporting that supports informed decision-making and transparency in government. Through this report the EPA continues to provide leadership and direction in improving and enhancing the environment of NSW.

Most other states and the Australian Government also prepare State of the Environment reports, generally over a longer timeframe of four or five years. The NSW EPA currently leads in the ability to update information having developed a new, innovative and consumer-friendly flexible platform, for maintaining and updating its State of Environment information and content online with increased ability to reflect significant environmental developments and changes as they occur. Australian jurisdictions are now moving towards online delivery of these reports and the development of supporting information systems. However, content for these reports is still mainly compiled and developed offline.

7.6. Supporting systems

Over the past year the EPA has enhanced the use of its stakeholder relationship management system. Infosys has been contracted to design and build the EPA's new case management system which is expected to go live in early 2020. Work is also currently underway to integrate the case management system with the systems the EPA uses for licensing, regulatory information, record keeping and stakeholder relationship management. This will provide users with a single integrated view of all information held across these systems and thereby facilitate better informed and more timely decisions. The EPA's new case management system is also being designed to support EPA operational staff conducting inspections and investigations with significantly enhanced mobile functionality.

8. Progress on previous year's recommendations

In its previous *Regulatory Assurance Statement*, the EPA Board made recommendations to the EPA in the following areas. Detail on progress is provided in the various sections of this document.

1. Addressing the Auditor-General's recommendations – noting the EPA's progress with the Regulatory Assurance and Performance Framework (details at section 7.4).
2. Maintain focus on strategic waste management issues – noting a significant achievement with Return and Earn results and progress on the National Sword Intergovernmental Taskforce (section 4.4 and 4.5).
3. Complete the *Contaminated Land Management Act* review – in 2018–19, the EPA commenced the review and will progress public consultation through release of an issues paper in 2019–20 (section 4.1).
4. Continue to focus on new and emerging contaminants – a number of projects are being progressed to forecast future environmental risks (section 2.3) and a chemical risk prioritisation tool is being trialled (section 3.1).
5. Focus on ocean water quality and protection of marine life – noted the successful voluntary phase-out of microbeads in cosmetic products and further research projects into microplastics (section 4.8).
6. Strengthen relationships with other government departments – significant and ongoing partnerships with other government agencies, examples are throughout this document.
7. Continue to successfully prosecute - the EPA had a 100% success rate for prosecutions in 2018–19 (excluding littering) (section 5.8).
8. Embrace digital technology – the EPA has continued progress on a new stakeholder relationship management system and case management system (section 7.6).
9. Continue to provide strategic advice on key planning policies – engagement on significant planning projects (section 3.8) including Local Strategic Planning Statements, South Creek Sector Review, Snowy Hydro 2.0, infrastructure projects for Sydney and rail.
10. Maintain a safe and valued workplace – the EPA's commitment to safety, people and culture (section 6.2), is referenced in its safety results, the *People Matter Employee Survey Action Plan*, Inclusion and Diversity Committee and supporting staff in the office move to Parramatta.
11. Embed the new regulatory assurance function within the EPA – detail on the EPA's Regulatory Assurance and Performance Framework is at section 2.2 and 7.3.

9. New recommendations

The EPA's vision is a healthy environment, healthy community and healthy business. The Board notes the outcomes of the *NSW State of the Environment 2018* report which provides a clear picture of the state of our environment and actions underway to care for it. By 2036 the population of NSW is expected to grow to 9.9 million people, with most of this growth expected to be in Sydney. This growth brings challenges. In 2019-20 the EPA became part of a wider collection of NSW Government agencies within the Planning, Industry and Environment cluster. This will provide an opportunity for greater levels of integration and efficiency across key areas, such as environment protection, long-term planning, infrastructure collaboration, open space, natural resources and energy.

In setting the priorities below, the Board encourages the EPA to work with its partners, such as local councils and cluster agencies, to prepare for the wide range of pressures that could impact NSW now, and into the future. Direction setting requires the creation of a long-term view of the EPA that we want to see in three to five years. The EPA Board notes that capacity building takes time and that many of these recommendations have a longer timeframe beyond 2019–20, while some will continue to build on existing work.

9.1. Recommendations

1. The EPA should develop a **data and technology strategy** that improves its readiness to benefit from emerging opportunities and challenges, strengthens technological capabilities, and embraces emerging trends. The strategy should consider how the EPA can stay up-to-date with technological shifts that could positively impact effectiveness and costs, including potential utilisation of artificial intelligence and big data in predicting emerging chemical and other risks, and adopting new sampling technologies.
2. The EPA should set up formal processes to **share knowledge and results** and learn about **best practice** with other jurisdictions in Australia and globally. As part of this the EPA should continue to take advantage of important networks formed with the Heads of EPAs Australia and New Zealand, and other Australian and international environment protection networks, to support and leverage environmental outcomes on the national agenda. While processes for shared learning are currently occurring between the EPA and other agencies for specific environmental issues, the EPA could explore further opportunities for international comparisons and cooperation for collective problem-solving.
3. An important foundation to the EPA's work is that **everyone in NSW shares responsibility for the protection of the environment**. The EPA could further demonstrate its commitment to this foundational statement by building on the success of EPA-initiated programs such as Love Food Hate Waste and Return and Earn, which have mobilised the community in positive ways. This presents an opportunity for the EPA to promote ways that the community can help look after the environment and to explore new methods, such as apps and online tools, that empower the public to share a responsibility for protecting the environment.
4. The EPA should continue to support and achieve sound environmental outcomes when **providing advice on planning for the future of Sydney**. This role is particularly important as Greater Sydney expands, and new precincts and infrastructure are developed. For example, projects for which the EPA provides advice include the new aerotropolis in western Sydney, South Creek Sector Review programs, Local Strategic Planning Statements, and the Western Sydney Growth Infrastructure Compact.
5. Informed and risk-based approaches will assist the EPA to identify future issues around human health and the environment. The EPA should **develop a road map** for the next three to five years that addresses key environmental challenges and sets priorities for individual areas of environment protection. This should incorporate learnings and build on the EPA's regulatory assurance and emerging contaminant work.

6. To ensure the EPA is a centre of excellence for regulatory practice across DPIE, the EPA should focus on **continuous improvement in EPA regulatory practices** from end-to-end. This includes setting directions for regulatory practice, learning from other regulatory bodies and ensuring the EPA's legislative base is relevant, modern and adaptable to future risks and technological impacts.
7. Continue to **collaborate, develop connections and facilitate coordination** with new and existing departmental partners in DPIE, and across state and local government. The EPA should continue to build partnerships with agencies to deliver environmental outcomes including where the EPA retains a statutory role, co-regulates with local government or is the lead regulator.
8. Continue to lead and assist strategic policy development for **better environmental outcomes for air, land and water**. This could include finalising the Load-Based Licensing review, Clean Air for NSW, a plan for reducing wood smoke and, in partnership with DPIE, review and remake the Protection of the Environment (Clean Air) Regulation 2010. To improve environmental outcomes, the EPA should maintain partnerships with other agencies to monitor beaches, inland waterways and catchments, and to be engaged in cross-governmental strategies to reduce the impacts of microplastics and other plastic pollution. Waste is an important issue for the community and the environment, especially the scale of waste following China's National Sword Policy to restrict the types of recyclable waste China will accept. The EPA should continue to ensure it meets its legislative responsibilities for waste and support Environment, Energy and Science in DPIE in the delivery of the 20-Year Waste Strategy.
9. Focus on addressing **environmental legacies** and protect communities from harmful contaminants, waste and other legacy products, including developing strategies for lead and asbestos and to review the *Contaminated Land Management Act*. The EPA should seek ongoing funding for programs to protect communities from environmental lead, particularly the extension of the Broken Hill Environment Lead Program and ensure ongoing engagement with communities and other agencies with the EPA-led NSW Government PFAS Investigation Program. In addition, the EPA should continue to support planning authorities with advice on environmental legacies, particularly for special activation precincts and other state significant projects.
10. **Stay informed of community concerns** on environmental issues to maintain credibility with stakeholders by partnering with, and learning from, the community. The EPA should continue to monitor community sentiment, including undertaking a stakeholder survey to understand how stakeholders and the community view the EPA, and to act on that feedback.
11. Ensure systems are in place to support informed decision-making and seamless **service to those we regulate, other stakeholders and the community**, including integration and development of data management, case management and stakeholder engagement systems.