We rely on resources such as natural gas and water, and we have the potential to impact the environment through emissions of greenhouse gases (GHG), waste generation and contamination of soil and groundwater. We are committed to our Value of ‘Care for the Community & our Environment’ and we aim to minimise environmental impacts and leave no legacies.

In line with our Value of ‘Care for the Community and our Environment’, we apply a continuous improvement approach to management of environmental matters, focusing on the efficient use of non-renewable resources, environmental management at our sites and the rehabilitation and remediation of contaminated sites.

Our Health, Safety, Environment and Community (HSEC) Policy states that we will conduct our operations in compliance with all relevant environmental licences and regulations; promote the efficient use of resources and energy; and strive to minimise our impact on the environment. This Policy is enacted on a day-to-day basis through our HSEC Management System.

IPL completes the CDP and Water CDP annually. These are available on our website and can also be downloaded here: 2018 CDP Report 2018 CDP Water Report.

We have conducted high level Life Cycle Assessments of the energy and carbon emissions associated with our two major manufacturing processes, being the production of ammonia and ammonium nitrate. The first is based on our Phosphate Hill site, which makes ammonia based fertilisers. The second is based on our Moranbah ammonium nitrate manufacturing site. Each is representative of the scope and activity of our manufacturing operations across the Group.

We have a governance structure in place that oversees the management of our environmental impacts:

• The Board’s Health, Safety, Environment and Community (HSEC) Committee assists the Board in its oversight of health, safety, environment and community matters arising from our activities as they may affect employees, contractors, and the local communities in which we operate.

• The Zero Harm Council, chaired by our Managing Director & CEO and consisting of members of the Executive Team, is accountable for reviewing health, safety and environmental performance, developing strategy and targets, reviewing progress against targets and prioritising activities on a Group-wide basis.

• The Zero Harm Council is supported by Zero Harm Councils within each business unit, down to site level. These Councils are chaired by the business unit head to provide leadership on health, safety and environment. Business Unit Councils meet monthly and report to the Executive Team. Within each of our business units, operations staff and project teams are responsible for preparing and executing plans to support environmental targets and strategies.

• Site managers are responsible for the operation of their site, including their environmental performance. Environmental managers within the business provide site managers with expertise to support the day-to-day environmental management of sites.

• Auditing is a key component of the IPL HSEC Management System and contributes to the effective management of our HSEC risks through ensuring the careful and systematic identification and assessment of specific hazards and the establishment of control measures to prevent negative environmental impacts. Audits are undertaken regularly throughout the company, and a number of internal auditors are trained.
to conduct these audits. All audits are planned and managed through IPL’s Safety, Health and Environmental Reporting System (Cintellate), including audit results and assigning and tracking of corrective actions. In addition, an internal auditing tool outlines the key requirements of the customised audit protocols tailored to IPL’s HSEC Standards.

Our consumption of resources, such as fossil fuels (mostly natural gas), electricity and water and the amount of GHG emissions we produce is representative of the scale and capacity of our manufacturing plants, in particular the energy-intensive manufacture of ammonia-derived products, including urea, ammonium sulphate, ammonium phosphate and ammonium nitrate for the fertiliser and explosives markets. All of these products require natural gas as both an energy source and a raw material for production, with carbon dioxide being liberated during the process. In addition, carbon dioxide is liberated during the acidulation of phosphate rock in the manufacture of phosphate fertilisers and nitrogen oxide (NOx) and nitrous oxide (N₂O, a potent GHG) are released during the production of nitric acid.

IPL has a strong focus on both abatement technologies and progressively increasing resource efficiencies to reduce its impacts on the environment, including NOx and SOx, and GHG emissions which contribute to climate change.

In Australia, the Cintellate system collects energy use, water use and waste data from all manned sites. The data is obtained from utility bills, except where electricity is generated on site. Electricity amounts generated from natural gas and waste heat are metered and entered into the database. Municipal water use is obtained from water bills, whereas volumes for storm water, river water, recycled process water or ground water are typically metered on site. Data is then consolidated and verified for reporting purposes. Energy use, water use and waste data for our sites in North America and Europe are supplied separately.

Key highlights during 2018:

- **35% Reduction in NOx** per tonne nitric acid produced against a 2015 baseline
- **6% Reduction in GHG/Tonne Ammonia** against a 2015 baseline

Assessment of climate change risks and opportunities

We continued to drive environmental improvements and resource efficiencies in 2018 through:

- Implementation of an engineering framing assessment model to identify engineering and operational opportunities to improve environmental outcomes;
- Extension of the use of iAuditor from fertiliser distribution sites to Australian manufacturing sites to conduct daily site photo logs which facilitate continuous improvement in product handling, compliance management and risk management;
- Performance of Environmental Site Assessments at 22 sites across North America;
- Continued auditing of spill prevention, control and countermeasure plans, including stormwater pollution prevention controls, across North America;
- Continued use of visual management tools and lean processes, particularly 5S, to increase loss of containment awareness globally. This has resulted in increased operational control of product and a reduction in environmental risks associated with product tracking and spills; and
- Maintenance of the Environmental Incident Frequency Rate below 1 and setting of a new target of **Zero Significant Environmental Incidents** for 2019.

Key Challenges and Opportunities

- Continuing to identify and prioritise resource inefficiencies and reduce energy, water and waste;
- Securing capital to drive resource efficiencies in difficult market conditions;
- Responding to changing carbon regulatory conditions globally, particularly in Australia;
- Continuing to improve our environmental compliance and management systems, and our environmental performance; and
- Managing the risks and opportunities associated with climate change.

Strategic Priorities

- Continued focus on improving environmental awareness through training, with emphasis on loss of containment, spill prevention, site cleaning processes and stormwater pollution prevention;
- Rollout of the IPL Environmental Awareness Training module through the IPL Learning Management System; and
- Continuing to work with the Australian Federal Government on energy and carbon policy to ensure favourable outcomes for business and the environment.
Although IPL’s energy use increased with increased production, energy efficiency improvements resulted in the maintenance of targeted global reductions in GHG emissions per tonne of ammonia. However, due to an unexpected maintenance issue at our Moranbah site in Australia, our global GHG per tonne of nitric acid increased by 2 percent, with a further increase expected in 2019.

New equipment to address this issue has been fabricated and delivered, and will be installed at the Moranbah site in 2019 to enable 2020 targets to be met. The targeted reduction in GHG per tonne of ammonia produced was achieved due to targeted energy efficiencies at our Waggaman Louisiana ammonia plant which were linked to executive remuneration through the IPL Long Term Incentive plans, as explained on page 32 of our 2018 Annual Report.

Energy use
IPL used 68,500,621 gigajoules (GJ) of energy over the past year, 2,113,300 of which was purchased electricity. Approximately 80 percent of the electricity purchased was generated from non-renewable sources. Approximately 20 percent of the purchased electricity (indirect energy) was generated from renewable resources, mostly hydroelectric. Natural gas and diesel amounts used as raw materials and on-sold in our products have been included in our energy use figure. Approximately 1 percent of our direct energy is from CO2e-free sources, which includes electricity that is generated from heat captured during the manufacture of sulphuric acid.

Greenhouse gas emissions
In 2018 our recorded Scope 1 (direct) and 2 (indirect) absolute GHG emissions increased to 3,751,403 tonnes of carbon dioxide equivalent (CO2e). The total figure comprises 3,423,867 tonnes of Scope 1 (direct) emissions and 327,536 tonnes of Scope 2 (indirect) emissions. While a portion of this increase was due to increased production, the unexpected maintenance issue at Moranbah reported above resulted in an increase in emissions of N₂O at the site. A third party was engaged to provide an assurance opinion over our Australian GHG emissions, energy consumption and production figures for the period 1 July 2017 to 30 June 2018, with the third party issuing an unqualified opinion.

Improving our performance
Continuous improvements made by our manufacturing plants to reduce energy use and GHG in 2018 include:
• At Cheyenne, Wyoming, the replacement of a prism membrane and painting of the primary reformer with an internal coating to improve firing efficiency will reduce natural gas use and therefore emissions.
• At Louisiana, Missouri, 617 lighting fixtures throughout the plant were rewired to use LED bulbs, improving lighting, reducing annual energy use by 28,700 kWh and reducing annual costs by $29,750.
• At Carthage, Missouri, an explosives manufacturing optimisation project reduced annual energy use by 160,000 kWh and annual scope 2 GHG emissions by 110 tCO2e.
• At Moranbah, Queensland, a project to preheat deaerator feedwater with process heat currently lost to the atmosphere is expected to save 196,000 GJ of natural gas, reduce GHG emissions by 10,000 tCO2e and save over $1,000,000 each year.
• During 2018, IPL’s Waggaman, Louisiana ammonia plant captured 10,990 tCO2e for use by a neighbouring melamine manufacturing plant, avoiding the release of these GHG emissions to air.
• We also quantified the Scope 3 emissions associated with our shipping for the third year.
Nitrogen oxides (NO₂ and NO, referred to collectively as NOx) are released when fuels are burned at high temperatures, and when nitric acid is manufactured. Sulphur oxides (SO, SO₂, SO₃, referred to collectively as SOx) are emitted when fossil fuels are combusted, and in the making of sulphuric acid. This year our operations emitted 3,143 tonnes of NOx and 13,211 tonnes of SOx. This is an absolute reduction of 2 percent in NOx emissions and 28 percent in SOx emissions since last year. Although not greenhouse gases, NOx and SOx have other environmental impacts, such as air pollution. We are committed to reducing emissions of NOx and SOx across our global manufacturing sites.

The US$7,700,000 Selective Catalytic Reduction (SCR) unit installed in 2017 at our Louisiana, Missouri (LOMO) nitric acid plant reduced potential NOx emissions at the site by 98 percent during 2018.

As a result, IPL exceeded its 2018 intensity target of a 30 percent reduction in NOx emissions per tonne of nitric acid produced against our 2015 baseline. With the installation of SCR at LOMO, all of IPL’s nitric acid plants are now fitted with NOx reduction technology.

What is SCR?

Selective catalytic reduction (SCR) is a proven active emissions control technology system that converts NOx into nitrogen (N₂) and water (H₂O), which are natural elements common to the air we breathe everyday. It is called selective because it injects a liquid-reductant agent, in this case, ammonia (NH₃) through a special catalyst to react specifically with NOx. SCR using ammonia as the reducing agent was patented in the United States of America (USA) by the Engelhard Corporation. Development of SCR technology has continued in Japan and the USA with more recent research focusing on less expensive and more durable catalyst agents. The SCR process is the most efficient NOx reduction technology available because it provides the best conversion rate of NOx to environmentally friendly nitrogen and water.

In addition to the significant reductions achieved at Louisiana, Missouri, other sites are also investing in NOx and SOx reductions. At Carthage, Missouri, work progressed during 2018 on the design of a new wet scrubber system for the acid tanks with consultants developing several alternative designs. The project requires permit approval and the application has been submitted to state authorities for review. It is planned that the scrubber will recycle vent fumes from both nitric and sulphuric acid tanks, combining them with water to create a weak acid stream. This stream will then be sent for distillation to separate nitric and sulphuric acid products for use in product manufacture.

At Mt Isa, Australia, we invested $1,480,000 in a new high efficiency catalyst in the sulphuric acid plant converter last year (2017). This new catalyst improved the conversion of sulphur dioxide (SO₂) to make sulphuric acid, reducing SOx emissions at the site by 32 percent against 2016 SOx.
Water is a key raw material for the manufacture of ammonia which is the major component of our explosives and fertiliser products. Within our ammonia plants, the majority of water use is for cooling during the manufacturing process. A small percentage is used for steam to power equipment and as an input for the chemical reaction that makes ammonia. The risks and opportunities associated with water management as it relates to climate change have been assessed and are described in our annual CDP Water submission.

While the majority of IPL’s manufacturing plants are located in regions with plentiful natural supplies of water, some of our Australian sites and one in the South West of the USA operate in regions where water conservation is a critical issue. In other regions, where there is higher rainfall, we recognise that water management is also important.

Water use by source

During 2018 we withdrew 50,511 ML (mega-litres) of water, a 6 percent increase from last year. This increase is mostly due to increased production. Our total reported water use includes the categories shown on the right. A large proportion of this water is used more than once within our plants, but most sites do not meter this recycling of water. 781 ML of water was recycled and reused at sites which have meters. This represents 1.5 percent of our withdrawal and 2 percent of our total water use.

Water discharge by destination

During 2018 we discharged 30,901,050 m3 of water to the environment, a decrease of 5 percent. This total discharge excludes sewage, and waste water removed for treatment or disposal as liquid waste (which are included under ‘Waste’). It includes some discharge of rainwater where runoff is collected and treated at several sites in North America, and therefore cannot be separately metered. As shown in the graph, most discharge was clean cooling water which was released to surface waters (the natural waterways from which it was taken) reducing our net water use to 22,978 ML. We monitor the water quality of such discharges on an ongoing basis to meet local regulatory requirements and also seek to improve water quality beyond the standards required by licensing wherever possible.

Improving our performance

Continuous improvements in 2018 included:
- At Cheyenne, Wyoming, continued use of reverse osmosis units recycled a total of 30,968 kL of water for reuse during 2018.
- Water balance projects were initiated at three major Australian manufacturing sites in Geelong, Gibson Island and Moranbah. These are assisting in the management of stormwater storage ponds and aim to increase the use of recycled water.
- A reduction in total water withdrawal target set at our Phosphate Hill site was exceeded, with a 19 percent reduction in total volumes since last year.
- At Carthage, Missouri, a 5 year project to completely redesign the site wastewater system has progressed as scheduled with design alternatives and cost analyses planned for completion in early 2019, followed by the detailed design and construction phase. In addition to reducing waste water, significant water savings are expected to be made due to planned reuse of waste water streams.
- At Louisiana, Missouri, an upgrade of the river water withdrawal system was begun. The upgrade is expected to reduce future water withdrawal.
- 59,367 kL of water was recovered from waste gypsum stockpiles at our Phosphate Hill site in Australia, also recovering valuable phosphates for fertiliser production.
In addition to IPL’s comprehensive annual risk management process, the WBCSD Global Water Tool is completed each year for long term projections and reviewed by the Chief Risk Officer. This analysis is used to identify sites at which water is a material issue.

The tool has identified one ammonia manufacturing site in the United States where baseline water stress in the water catchment area is high. It has also identified one ammonia manufacturing site and several smaller manufacturing sites in Australia as being located in water catchment areas which may experience water stress by 2025. Water supplies and water management strategies at these sites are discussed below.

Cheyenne: Wyoming, USA

At our ammonia manufacturing site at Laramie County, Cheyenne, Wyoming, USA, water resources are of particular concern and management involves multiple stakeholders. Located in a semi-arid area, water for the site is drawn from an underground aquifer which is recharged each year by precipitation, including snowmelt. We engage with key stakeholders including the Wyoming State Engineer’s Office (SEO) which manages stakeholder access to the aquifer and maintains databases for ground water levels, along with the Ground Water Division of the U.S. Geological Survey, and our Cheyenne site monitors wells through totalizing flowmeters and water level measurements and reports to the SEO annually. Water saving initiatives at the site include:

• The monitoring and maintenance of steam traps and condensate systems to reduce water loss;
• Operation of a brine concentrator unit which recycles approximately 100 gallons of water per minute;
• Operation of several mobile reverse osmosis units, which recycled a total of 30,968 kL of water for reuse during 2018;
• Communication to personnel through daily reports to watch for and prevent excess water from running;
• Visual management board for water reduction projects and efforts;
• The creation of the position of Focused Improvement Engineer in 2016 to focus specifically on further water reduction opportunities including the development of a complete water strategy for the site, which was completed in 2017 and has been approved by management. One of the initiatives proposed for 2019 is the purchase of a permanent reverse osmosis water treatment unit to replace one of the mobile units. The overall strategy is to increase the recycling of waste water streams and reduce waste water volumes to deep well groundwaters.

Phosphate Hill: Queensland, Australia

Located in the Georgina Basin, IPL’s Phosphate Hill site in remote North West Queensland manufactures ammonium phosphate fertilisers, which requires large volumes of high quality cooling water. In addition to its ammonia, rock processing, phosphoric acid and granulation plants, Phosphate Hill has its own phosphate mine, ore processing facility and, due to its remote location, its own gas fired power plant, reverse osmosis water treatment plant and employee accommodation village. The WBCSD Water tool identifies this site as being in an area which may experience water stress by 2025 due to the high inter-annual variability of rainfall.

To ensure supply, groundwater is drawn under licence from the phosphate orebody, which is porous and contains an aquifer called the Duchess Embayment Aquifer (DEA). The many aquifers in the Georgina Basin are naturally recharged by rainfall during the summer wet season and were identified as a renewable (annually replenished) groundwater resource with high groundwater development potential (over 100GL/yr) by a recent inquiry into the development of northern Australia by the CSIRO. Although wet season rainfall over the last several years in the DEA has been lower than the long term average, ongoing model prediction and quarterly monitoring conducted using 39 monitoring bores across the embayment indicate that adequate supply to the site is currently being maintained. In addition to monitoring for potential changes in the embayment, the Phosphate Hill site submits an annual Borefield Performance Report to the Queensland Government Department of Natural Resources and Mines (DNRM) each year in September and completes an Annual Aquifer Review in December each year.

Our Phosphate Hill site is committed to reducing water usage wherever possible through continuous improvements and water recycling strategies. These presently include multiple re-uses of cooling water (our major use) and reclamation of water from waste gypsum stacks. Mine dewatering, a process to remove water so that the phosphate ore body can be accessed, was ceased in 2015 and a third party specialist was commissioned to complete a Water Balance Study for the site. This initiated a project to identify specific actions to reduce water use at the site by 5% each year, commencing in 2016. The site used 11 percent less water in 2016 than the previous year, however, projects delivering targeted water reductions for 2017 were delayed due to the construction of a new evaporation pond. Projects involving the reuse of process water to allow both the recapture of phosphates and the reduction of fresh groundwater extraction, were completed during 2018 and contributed to a 19 percent reduction in water extraction in 2018 against 2017 usage. While some of this reduction was due to a planned maintenance shutdown in April 2018, the site exceeded its targeted 5 percent reduction in water withdrawal considerably.
**Geelong: Victoria, Australia**

The Geelong site manufactures single super phosphate fertilisers, a process which requires much less water than ammonia manufacture. However, the site has been identified by the WBCSD Water Tool as being in a water catchment area which may experience water stress by 2025. The site obtains its water from the state government managed Barwon Region Water Corporation, Victoria’s largest regional urban water management body. Barwon water is predominantly sourced from forested catchments on the upper Barwon and Moorabool rivers, but during periods of prolonged drought water is sourced from underground aquifers via the Barwon Downs and Anglesea bore fields. In extreme drought, the water management body can also access supply from the water grid of the City of Melbourne via the Melbourne to Geelong Pipeline, a 59-kilometre underground pipeline which is part of the state’s long-term plan to secure the region’s water supply into the future.

Water saving strategies at the site include the on-site capture, treatment and reuse of large volumes of stormwater, with 32,172 kL being treated and re-used this year. The site began a complete water balance project in 2018 to identify potential water savings and opportunities to better manage waste water and stormwater. This project initiated the use of rainfall prediction models at the site to more closely manage levels and capacities of water storage ponds. The collection of rooftop rainwater was identified as an option to reduce reliance on municipal water supplies and increase the amount of stormwater collected and recycled.

**Mt Isa: Queensland, Australia**

With a population of 22,000, the mining town of Mount Isa is the administrative, commercial and industrial centre for the state’s vast north-western region. Our Mt Isa site manufactures sulphuric acid using waste sulphur obtained from a nearby metal ore mine. This process also uses less water than ammonia manufacture, however steam is also used at the site in the process of generating electricity from waste heat captured from the sulphuric acid making process. Water for the site is obtained through the Mount Isa Water Board which is responsible for the sustainable management of water supplies in the region. Although identified by the WBCSD Water Tool as being located in an arid area which may experience water stress by 2025, the Water Board manages supply using two man-made lakes. Water is drawn mostly from Lake Moondarra (owned by a metal ore mining company, but transported by the Mt Isa Water Board) 13 kilometres downstream of Mt Isa, and pumped 60km up from Lake Julius in times of extreme drought to ensure supply is maintained.

Water saving strategies at the site include the condensing of all steam used in our on-site electricity generation turbine and the returning of any blow down water from our cooling towers to the nearby metal ore mine as process water.

**Bajool: Queensland, Australia**

Our site at Bajool, Australia, manufactures explosives emulsions. Although identified by the WBCSD Water Tool as being in a watershed area which may experience water stress by 2025, water supply is not considered a material issue at this site due to the low water usage required for emulsion manufacturing processes. Drinking water is delivered in bottles and all other water for the site, including amenities, is drawn from a small on-site bore under licence granted by the Queensland State Government.
Solid waste by destination

This year our sites generated 6,611 tonnes of solid waste, 0.5 percent more than last year. 21 percent of this waste, 1,377 tonnes, was sent for recycling. As shown in the graph to the right, our global waste to landfill has declined since 2014 when waste-to-landfill reduction targets were introduced. In 2018, approximately 2.4 percent of our solid waste was classified as hazardous and was mostly waste from the manufacture of our explosives products. In the Americas, 18,087 tonnes of ammonium nitrate that was unsuitable for use in explosives manufacturing was converted to fertiliser and sold to local farmers as either a nitrogen rich liquid fertiliser, or a low grade solid fertiliser. In Australia, 3,792 tonnes was recycled into making explosives emulsions.

Solid chemical waste

Our sites generated 2,307,510 tonnes of solid chemical waste this year, an increase of 3.7 percent from last year. Over 99 percent of this was phosphogypsum chemical waste that was stockpiled at our site in Phosphate Hill, Queensland, Australia. This waste is considered hazardous because of its low pH, however water and phosphate are currently being reclaimed from this material and it is planned that these stockpiles will ultimately be capped and re-vegetated. The other 502 tonnes (0.02 percent) of hazardous chemical waste was mostly generated during explosives initiation system manufacturing.

Liquid waste by destination

Our sites generated 19,575 kL of liquid waste that was sent offsite for re-use, recycling or disposal this year, an increase of 22 percent from 2017. This increase was due to greater rainfall in Australia, which increased the volumes of nitrogen rich (contaminated) water captured on sites, and an increase in septic pump outs during the year. The liquid waste total includes 11,181 kL of contaminated water, 7,546 kL of hazardous liquid waste and 848 kL of non-hazardous waste. Approximately 51 percent of the total liquid waste was nitrogen-rich water from our fertiliser manufacturing and distribution sites in Australia that was sent offsite to third parties for use as fertiliser and/or woodchip additive. 95 percent of the hazardous liquid waste was septic liquid or sludge (considered a bio-hazard) which was sent offsite for disposal or treatment.

2018 Waste reduction initiatives

• At Carthage, USA, a 5 year project begun in 2016 to completely redesign the site wastewater system has progressed as scheduled with design alternatives and cost analyses planned for completion in early 2019. The project is considering all wastewaters and evaluating each stream for reduction, elimination or reuse to reclaim valuable ammonia and nitrates. During 2018, evaluation of solids recovery in the Cast Booster plant was completed, followed by the redesign of the filtration systems to allow solids to be recaptured for product manufacturing. This resulted in a reduction of approximately 2 tonnes of hazardous waste in 2018.

• The $260,000 Micro-Auto Gasification System (MAGS) purchased last year at our Carthage, USA site reduced solid waste by 9 tonnes in 2018. The MAGS converts the organics in non-hazardous explosives contaminated waste into syngas, which is used as fuel for the MAGS and to generate hot water, saving approximately $130,000 in waste disposal costs and reducing energy costs.

• At Simsbury, USA, the switch was made from ordering new drums with tops to ordering reconditioned drums without tops, as the tops were previously discarded. This has resulted in an ongoing reduction of half a tonne of metal waste each year and cost savings of over $5000.

• At Wolf Lake, USA, the recycling of pentolite floor sweepings has reduced hazardous waste and saved an estimated $46,000 in 2018. Paper cannister recycling was also implemented this year with both waste and cost reductions expected in 2019.
Environment

Environmental Compliance

As a Large Emitter under Australian National Greenhouse and Energy Reporting (NGER), IPL is required to report annually on energy and GHG emissions associated with more than 50 sites across Australia. Direct and indirect emissions from our Australian operations are reported to the Government under this national initiative, which began in 2009. Assurance was obtained over our Australian GHG emissions, energy consumption and production figures for the period 1 July 2017 to 30 June 2018. The third party issued an unqualified opinion over our reported emissions, energy production and energy consumption.

We report environmental release and discharge data to the National Pollutants Inventory in Australia, the Toxic Release Inventory in the USA, the National Pollutant Release Inventory in Canada and the Register of Pollutant Release and Transfer in Mexico. As required in New South Wales (NSW), Australia under the Protection of the Environment Operations Act 1997, holders of Environment Protection Licences who undertake pollution monitoring as a result of a licence condition must publish monitoring data on their corporate website. Of the five Environment Protection Licences which we hold for our NSW sites, there was one which required us to undertake pollution monitoring during 2018 (Kooragang Island) and we continued to publish this data on our website.

We are subject to environmental regulation under the jurisdiction of the countries in which we operate including Australia, USA, Mexico, Chile, Canada, Indonesia, Papua New Guinea and Turkey. These environmental laws and regulations generally address the potential aspects and impacts of our activities in relation to, among other things, air and noise quality, soil, water, biodiversity and wildlife. We operate under a Global Health, Safety and Environment Management System which sets out guidelines on the Group’s approach to environmental management, including a requirement for sites to undertake an Environmental Site Assessment. In certain jurisdictions, the Group holds licences for some of our operations and activities from the relevant environmental regulator. We measure our compliance with such licences and report statutory non-compliances as required.

Continuous improvement during the 2018 financial year was focused on improved product handling, compliance management and risk management.

Highlights included the following:

- The implementation of an engineering framing assessment Model to identify engineering and operational opportunities to improve environmental outcomes;
- Extension of the use of iAuditor from fertiliser distribution sites to Australian manufacturing sites to conduct daily site photo logs which facilitate continuous improvement in product handling, compliance management and risk management;
- Performance of Environmental Site Assessments at 22 sites across North America;
- Continued auditing of spill prevention, control and countermeasure plans, including stormwater pollution prevention controls, across North America;
- Continued use of visual management tools and lean processes, particularly 5S, to increase loss of containment awareness globally. This has resulted in increased operational control of product and a reduction in environmental risks associated with product tracking and spills; and
- Maintenance of the Environmental Incident Frequency Rate (EIFR) below 1 at 0.35 and the setting of a new target of Zero Significant Environmental Incidents for 2019.

Fines

In May 2017, the Land and Environment Court of New South Wales ordered a subsidiary of the Company to pay a fine of $460,000 and costs of $72,750 in connection with an incident at the Group’s Warkworth manufacturing facility in New South Wales involving an inadvertent release of waste water during remediation works on site in 2015. Following an appeal in December 2017, the fine was reduced to $360,000. For the 2018 financial year, the Group received two penalty infringement notices issued by a regulatory authority arising from the overflow of a site containment pond in Queensland, Australia, which resulted in fines totalling $25,230. The Group also received a fine of US$250,000 for untimely reporting of an inadvertent release of anhydrous ammonia into the air at a site in the USA.

Incident management

In accordance with Standard 16 of the IPL Global Health, Safety and Environment Management System, all incidents, including near misses, are reported immediately to the Manager of the Site and elevated to Senior Leadership, Legal and/or external authorities based on the event potential consequence and outcome. All incidents are recorded and investigated according to the IPL Incident Reporting, Investigation and Root Cause Analysis Procedure. Incident investigations identify and prioritise corrective and preventative actions, in order to eliminate or reduce the risk of the incident recurring.