

Department of Natural Resources and Mines

Petroleum and Gas Inspectorate

Summary of key activities 2015–16



Introduction

Safety in the petroleum and gas industry in Queensland is regulated under the *Petroleum and Gas (Production and Safety) Act 2004* (the Act) by the Department of Natural Resources and Mines (DNRM). The department exists to ensure the responsible use of Queensland's minerals and energy resources and provide economic benefit to Queenslanders.

Delivering a key part of the department's strategic objective, the Petroleum and Gas Inspectorate (Inspectorate) is responsible for monitoring and enforcement of safety in the petroleum and fuel gas industry. The Inspectorate's functions include monitoring and enforcing compliance with safety management plans and the provisions of the Act relating to safety—from geophysical survey activities in Western Queensland to using a gas fuelled cooker in a campervan on the coast.

However, the Inspectorate recognises that effective safety regulation is not just about monitoring and enforcing the law but also about co-designing effective safety arrangements and building positive partnerships that help advance Queensland toward a safer future for everyone. Through direct engagement with our key stakeholders we are working to improve safety legislation and find more innovative solutions to the safety challenge. By looking for success instead of simply identifying noncompliance, we can help build a safer petroleum and gas industry in Queensland.

Delivering these services is a diverse group including our leaders and managers, technical specialists, inspectors, licensing and administrative officers. To ensure we listen to our key stakeholders and are well positioned for the future, the Inspectorate is establishing two formal stakeholder engagement committees for safety and health and gas work and devices. These will help guide our regulatory services to ensure that we are cognisant of emerging trends, addressing key issues and are focused on a more proactive approach to enhancing safety in the oil and gas industry in Queensland.

In 2015–16, we undertook a broad range of monitoring and enforcement activities across the length and breadth of the state from inspecting drill rigs and operating plant in the Surat, Bowen and Cooper Basins, to LPG networks in the Torres Strait, to working with construction companies in the South-East in relation to complex installations. This report summarises those activities and outlines our strategic focus for 2016–17 and beyond.

I am proud of the efforts of the Inspectorate and we are committed to achieving our mission through continuous improvement and striving to deliver best practice regulatory services.



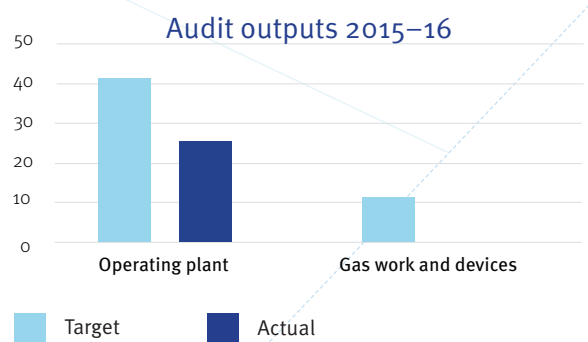
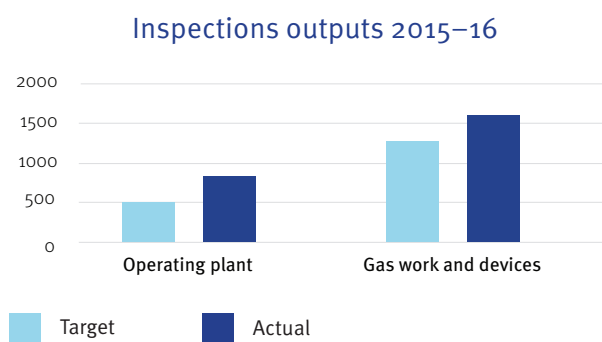
Bill Date
Chief Inspector Petroleum and Gas
Petroleum and Gas Inspectorate
Department of Natural Resources and Mines

Summary of regulatory activities 2015–16

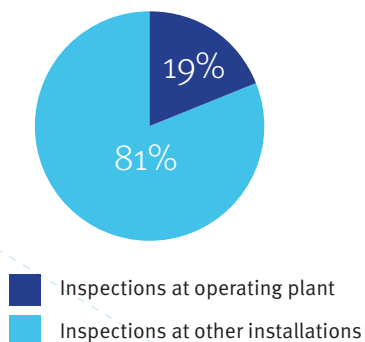
During the 2015–16 financial year, the Inspectorate undertook a broad range of regulatory activities including dealing with enquiries, managing complaints, conducting inspections and audits, responding to incidents, undertaking investigations, participating in technical reviews, delivering trade nights, and numerous engagements with key stakeholders in the oil and gas industry.

Inspections and audits

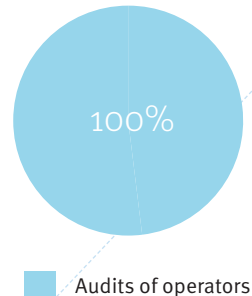
In 2015–16, the Inspectorate conducted 2451 inspections including 857 of operating plant and 1594 in relation to gas work and devices. The Inspectorate also conducted 26 audits of safety management systems at operating plant with additional other specialist audits conducted. The *Category highlights* section provides an outline of key findings in each category.



Inspections by category



Audits by category



Prescribed incidents

During the 2015–16 financial year, the Inspectorate was notified of 557 prescribed incidents including 225 at operating plant and 332 relating to other relevant incidents. The majority of prescribed incidents at operating plant involved the uncontrolled release of fuel gas at authority operating plant while the majority of other fuel gas incidents related to accidental damage to gas supply pipelines (such as dig-ups) or domestic fuel gas use incidents.

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Of the notified prescribed incidents, there were 47 serious injuries reported (down from 90 in 2014–15).

Prescribed incidents 2015–16	
Operating plant	225
Other relevant incidents	332
TOTAL	557

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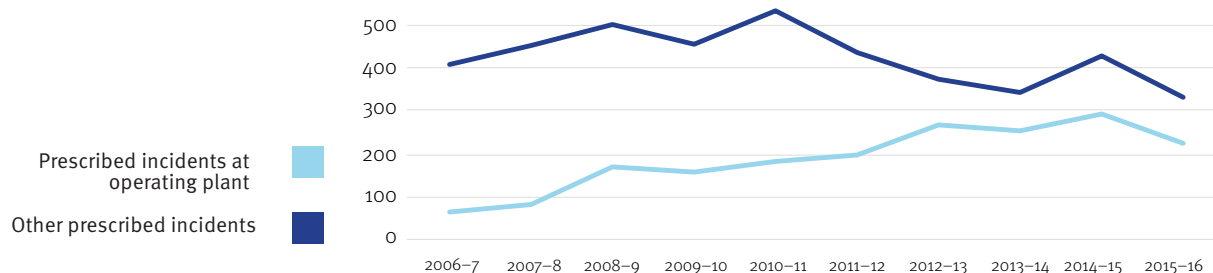
While the majority of these were relatively minor, it is with sadness that this figure includes the fatality of a worker following a gas fuel incident at a workplace in Gladstone in October 2015. Prescribed incidents are assessed in terms of risk and public interest with any significant matters investigated to determine the cause of the accident and any relevant offences.

From 2016–17, the Inspectorate has adopted the national Workplace Injury and Disease Reporting Standard and aligned key definitions with other safety regulators to improve data collection.

The Inspectorate also established the new PGI Hotline 1300 910 933 – a state-wide hotline for industry to notify the Inspectorate about a prescribed incident or to seek specialist advice or support during a dangerous situation or emergency.

The Inspectorate established the PGI Hotline for notification of prescribed incidents and specialist advice.

Prescribed incidents 2006–07 to 2015–16



Complaints

During the year the Inspectorate received 65 complaints about a variety of issues including unlicensed gas work, gas device misuse, safety management and maintenance of operating plant. These matters were assessed and those that warranted further investigation were pursued and appropriate enforcement action was taken. This included giving statutory directions and/or prosecuting more serious offences to minimise risk and act in the public interest.

Enforcement

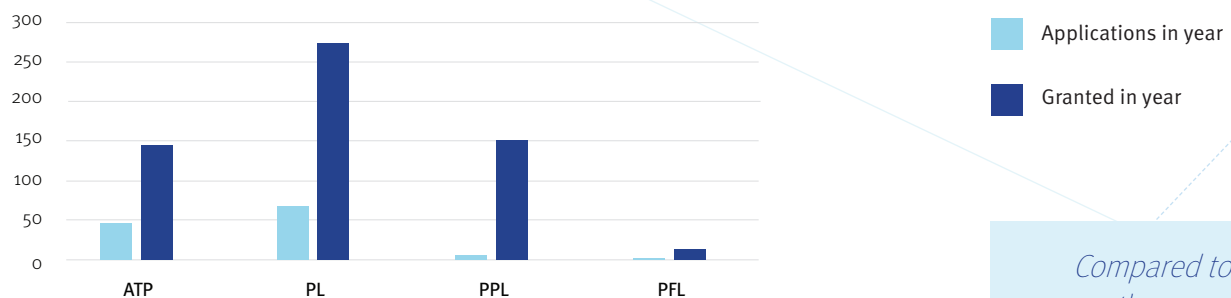
As a result of non-compliances identified during regulatory activities in 2015–16, the Inspectorate gave 62 directions to operators and 121 directions to others in relation to gas work or other gas installations to remedy these issues. A number of complaints and summons were also issued in relation to offences against the Act. While the specific outcomes of these prosecutions are a matter of public record, several resulted in penalties being applied for serious noncompliance.

Category highlights

Authority operating plant

At the end of the 2015–16 financial year, 717 petroleum authorities and tenures existed within Queensland. Authorities and tenures include an authority to prospect (ATP), petroleum licence (PL), petroleum facility licence (PFL) or petroleum pipeline licence and were either under application or granted by DNRM between 17 operators.

Tenure activity 2015–16

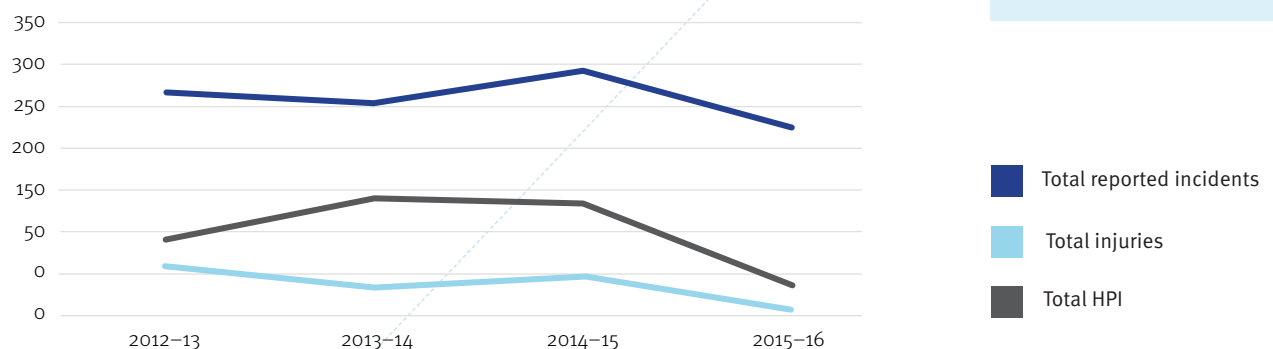


These operations provide the infrastructure to supply domestic and export markets with petroleum and gas products and also importantly support the creation of jobs in support and supply industries not only within Queensland but across Australia and the world.

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Operating plant reported incidents



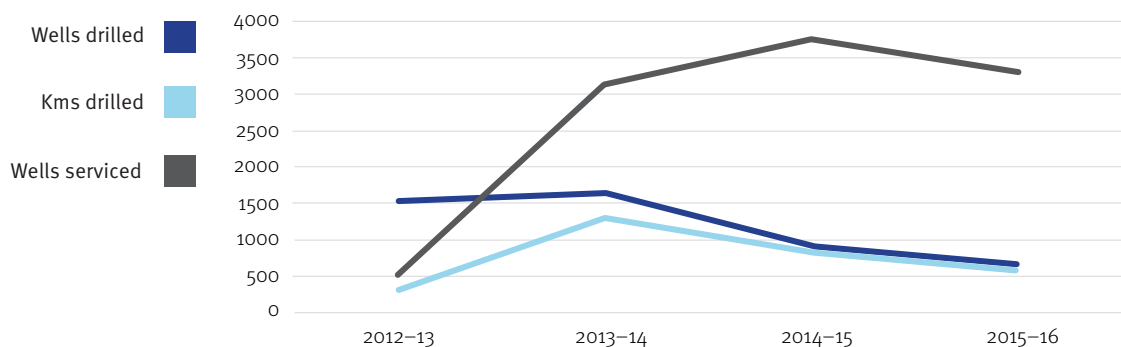
In 2015–16, the Inspectorate conducted 20 inspections and 2 audits of authority operating plant which found safety management systems to be generally of a high standard; however, there were some common themes, such as increasing complexity of systems, overlooking obvious risks, and inconsistencies between work as planned and work as done. Through new consultative arrangements planned for 2016–17, DNRM will provide a pathway to work with industry to co-design new approaches to safety.

Exploration, drilling and well servicing activities

The 2015–16 financial year has continued to see a decrease in drilling activities, particularly in the coal seam gas segment with many companies relying on existing wells and reserves to supply the domestic and export markets. This overall decrease in industry activity is reflected in the number of operating plant (drilling and well servicing rigs) down from 178 in 2013–14 to approximately 35 at the end of 2015–16; however, the need for existing wells servicing has provided some stability for drilling contractors.

In 2015–16, the Inspectorate conducted 3 inspections of geophysical survey activities, 82 inspections of drilling or work-over rigs and 3 audits of drilling or work-over operating entities. Across the category there were consistent concerns about contractor management including issues with overlapping operations and risks, how different activities influence risk, and who is responsible for driving safety during combined operations. There were also consistent issues with the effectiveness of management of change activities undertaken by operators.

Drilling and well servicing activity 2012–13 to 2015–16



New innovations in well servicing equipment can also help to reduce risk and minimise complex and high-risk activities at the well site helping to advance the petroleum and gas industry in Queensland.

Despite an overall decrease in activity, the drilling industry continues to evolve with companies designing safer and more efficient rigs and associated equipment.

New innovations in well servicing equipment can also help to reduce risk and minimise complex and high-risk activities at the well site helping to advance the petroleum and gas industry in Queensland.

In 2016–17, the Inspectorate will continue to work closely with industry to improve safety of workers in the sector.



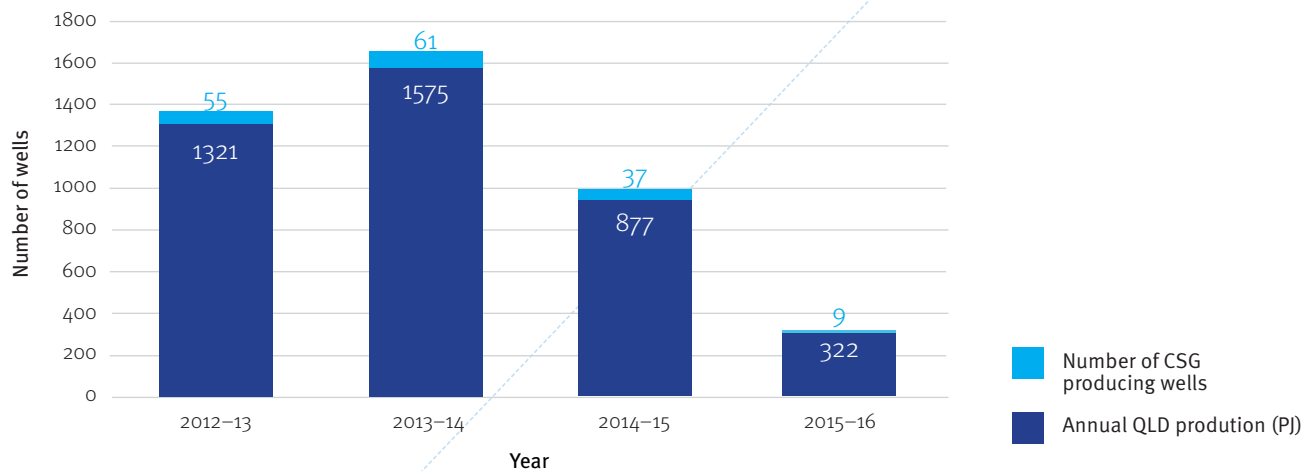


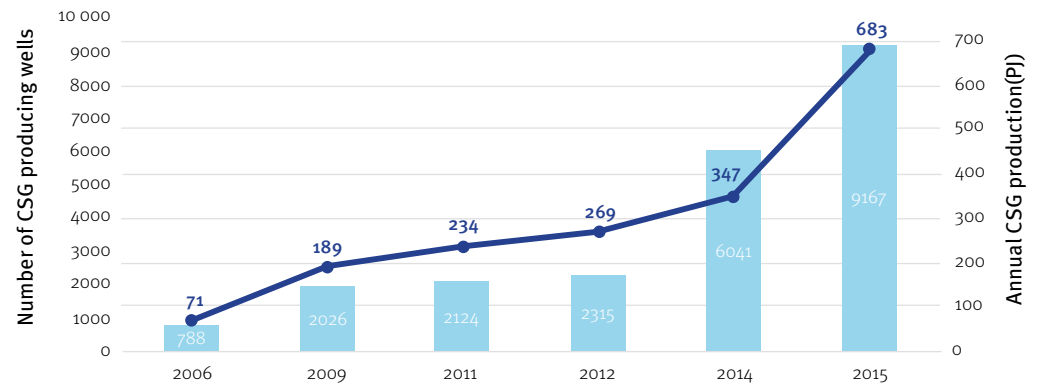
◀ A modern driller's control centre (Photo provided by Easternwell Energy)

Wells

Well drilling activity in 2015–16 was focused on maintaining production for the three producing LNG projects. The number of petroleum wells spudded in 2015–16 was 331 comprised of 322 CSG wells and 9 petroleum wells—a reduction from 914 wells spudded in 2014–15. In 2015–16 the number of CSG producing wells was recorded at 9167 with an estimated production of 683 PJ (compared to 347 PJ in 2014); however, the actual number may vary as production wells are often brought on and off line. It is estimated that to meet the projected requirements of the three LNG projects in Queensland production of close to 1500 PJ per annum will be required from the Bowen and Surat basins.

CSG wells and petroleum wells spudded in Queensland
2012–13 to 2015–16.





In 2015–16, the Inspectorate conducted 226 inspections of wells, two audits of operating entities and seven Well Construction Management System (WELCOMS) audits. Common findings included the need to review and improve well integrity management systems, the monitoring and improvement of well control arrangements, and emergency management planning and response. During the year, the Inspectorate also published the ‘Code of Practice for the Construction and Abandonment of Petroleum Wells and Bores’ (COP). The COP was developed in collaboration with industry and other regulators, such as South Australia under the Queensland Cooper Basin Exploration Policy. In 2016–17, the Inspectorate will revise the *Code of Practice for Constructing and Abandoning Coal Seam Gas Wells and Associated Bores* and it is estimated this will be completed in April 2017. The Inspectorate has planned to conduct six Well Operations Management System (WOPS) audits.

The Inspectorate has engaged the University of Queensland’s Centre for Coal Seam Gas (CCSG) to investigate the use of bentonite plugs in place of cement for the plugging and abandonment of coal seam gas wells. The research aims to assess the suitability of Queensland bentonite for use as a plugging material in Queensland and is being conducted in collaboration with the CCSG’s industry partners. Research is continuing and the Inspectorate is continuing to work on developing or enhancing safety requirements to minimise risks from well engineering and construction.

Petroleum facilities

Over 100 new processing plant have been recently commissioned including a large number for CSG projects. Many of these are significantly larger than other existing processing plant in Queensland. In 2015–16, the Inspectorate conducted 50 inspections of petroleum facilities. These identified that there are some major upgrades and maintenance work being undertaken on older plant to improve reliability. As the industry moves from construction to production these improvements should help to reduce risks across the sector.

Water treatment facilities

Many new water facilities were constructed as part of the on-going CSG projects this year including reverse osmosis (RO) plants, pump stations and water storage ponds. In 2015–16, the Inspectorate conducted 20 inspections of water facilities. Maintenance of older operating plant remains an integral part of ensuring safe operations. The Inspectorate is continuing to conduct inspections and audits of existing equipment to monitor compliance with the provisions of the Act.

Pipelines

In 2015–16, the Inspectorate conducted 89 inspections and 8 audits of gathering networks, transmission and distribution pipelines.

Recent CSG projects in Queensland were found to have involved the construction of the largest diameter pipelines in Australia. The three 42 inch (1050 mm) pipelines are now operational and run from the Surat basin to Curtis Island. In addition there has been over 600 km of smaller diameter transmission pipelines constructed for these projects - the smallest of which is still larger than any of the pipelines that previously existed in Queensland.

The new polyethylene (PE) gathering systems now commissioned for these projects are in excess of 15,000 km in length and up to 900 mm in diameter. These use innovative welding and construction techniques not previously used in this industry and are significantly larger than any other gathering systems in Australia. There are a number of new pipeline project being developed and several older pipelines undergoing major maintenance work.

Distribution systems are expanding with many large developments in progress including new domestic projects at North Lakes, Ripley and Yarrabilba, in addition to larger project such as the Bundaberg Port development. The Inspectorate is also currently developing a *Code of Practice for Polyethylene (PE) Gathering Systems* in collaboration with industry in addition to continuing involvement in Australian Standards committees (such as the AS2885 and AS4645 revisions).

In 2015–16, the Inspectorate conducted 89 inspections and 8 audits of gathering networks, transmission and distribution pipelines.

Biogas

Biogas activities include locations where biogas, landfill gas or sewerage gas is produced, collected, stored and delivered or used as a fuel in a gas device. There are many different types of biogas facilities in Queensland from local government landfills to commercial piggeries. Some facilities simply vent gas to release pressure while most use the gas to generate electricity to run equipment or to feed into the grid.



◀ A large biogas facility

During 2015–16, the Inspectorate conducted 36 inspections and 1 audit of various biogas facilities across Queensland. While the majority of the operators had safety management systems and were achieving the minimum safety requirements, there are common areas of concern including the identification of hazardous areas and attention to the potentially toxic nature of biogas. The Inspectorate was also approached by industry groups to provide comment on industry guidelines regarding production and use of biogas. The Inspectorate also provided advice in relation to a number of proposed biogas projects.

In 2016–17, the Inspectorate will continue to conduct inspections and audits in addition to continuing to engage with industry to ensure legislative requirements are understood and operators have implemented systems which drive continuous improvement of safety. The Inspectorate will continue to develop the necessary tools and guidance information to provide consistent and technically sound direction for operators and to set the scene for the safe operation of biogas facilities in Queensland.





◀ LPG road tanker

Fuel gas delivery networks

Fuel gas delivery networks include bulk fuel storage, cylinder storage, cylinder/vessel installation and tanker delivery. At the time of this report there were 138 fuel gas delivery networks throughout Queensland, servicing the industrial, commercial and domestic market.

In 2015–16, 122 inspections were undertaken of fuel gas delivery networks. Over 57% of inspections identified significant non-compliances. The common themes were inadequate safety management systems, non-compliant signage, ignition sources found within hazardous zones, non-compliant cylinder storage (location, slab height, restraints etc.) and non-compliant impact protection.

A key focus for 2016–17 compliance plan is to ensure operators of fuel gas delivery networks have a better understanding of their legislative obligations. Discussions between the department and industry regarding the extent of a fuel gas delivery network, needs to be undertaken, especially at an industry body and operator level. These discussions will also include legislation amendments following requests from industry and consumers to reduce regulatory red tape whilst achieving the required safety outcomes. In 2016–17 there will be increased emphasis on the identification and inspection of LPG Delivery Network sub plants (i.e. cylinder/vessel installations). This will be achieved through industry engagements, inspections and audits across the state and across all operators.

There are currently nine corporations (comprised of 93 tankers) conducting tanker delivery operations throughout Queensland servicing the industrial, commercial and domestic fuel gas markets. Of the activities inspected in 2015–16, 16% were found to have issues with vehicle safety systems, emergency response procedures and vessel integrity.

There are 138 fuel gas delivery networks throughout Queensland, servicing the industrial, commercial and domestic markets.

Automotive or vessel propulsion

The fuel gas automotive or vessel propulsion sector has approximately 160,000 vehicles active throughout Queensland across the industrial, commercial and domestic market. In 2015–16, the Inspectorate conducted 76 inspections with common issues including non-compliance with minimum safety requirements (Australian Standards), gas leaks, unapproved conversion kits and no annual certification of hire vehicles.

The key focus for 2016–17 is to coordinate with industry bodies and operators to assess authorisation holder. The Inspectorate will also be conducting training of inspectors to improve industry knowledge and understanding of key issues that arise when conducting inspection of fuel gas propulsion systems.

This category also includes monitoring the authorisation for persons doing the installation, servicing, maintenance and certification of gas fuelled engines used for propulsion. While most systems use LPG, some systems use CNG and LNG. In 2015–16, there were 91 inspections of authorisation holders conducted with concerns at more than half. Key challenges include LNG industry developments, importation of gas fuelled garden equipment, small marine outboard engines, and certification and calibration of essential workshop equipment.

The key focus for 2016–17 is to coordinate with Authorisation Holders to reassess competency.

Installations (General)

Installations (General) includes gas work at Type A gas installations at domestic, commercial and industrial locations and Type B gas installations where each device is less than 5 GJ/h input or where one or more devices have an input of between 5 GJ/h and 50 GJ/h.

In 2015–16, the Inspectorate conducted 1051 inspections of gas work at Type A gas installations and 140 inspections of gas work at Type B gas installations. These inspections resulted in 5 Dangerous Situation Directions and over 50 Compliance Directions being issued. A broad range of feedback was provided to gas fitters in relation to noncompliance with safety requirements. The Inspectorate also carried out several industry engagements such as Trade Nights, TAFE presentations and presentations to the Master Plumbers Association Queensland.

In 2016–17, the Inspectorate will continue to proactively inspect gas work across Queensland to ensure compliance with safety requirements and improve gas safety. The Inspectorate will be utilising new Penalty Infringement Notices (PINs) to deal with certain noncompliance and in doing so support those gas fitters working hard to improve safety in the industry. The Inspectorate will also continue to educate stakeholders through our Gas Work Information Sessions and Gas Safety Awareness Activities along with continuing to develop guidelines for industry such as a new Gas Work at Complex Installations Guideline.

The Inspectorate conducted 1051 inspections of gas work at Type A gas installations and 140 inspections of gas work at Type B gas installations.





^ Type A gas device



^ Type B gas device

Installations (Caravans and boats)

There are approximately 115,000 caravans, campers and similar vehicles registered in Queensland and approximately 20 manufacturers and importers in Queensland. In 2015–16, 147 inspections were conducted, with the most common issues being compliance with safety requirements, manufacturers not using licensed fitters to install systems, people not undertaking annual safety inspections, gas leaks, incorrect ventilation and unapproved devices in imported vans.

The key focus for 2016–17 is to work in partnership with key stakeholders, such as Caravanning Queensland, to promote and improve gas device safety. The Inspectorate will be working with industry to develop and diversify inspector's knowledge of key issues that arise when conducting recreational vehicle inspections and to improve positive feedback to industry.

Queensland also has approximately 250,000 recreational and 13,000 commercial vessels many of which have gas devices on board. During 2015–16, seven inspections identified continuing non-compliances with imported vessels and gas devices that have not been certified to Australian Standards. While gas devices are common on some vessel types, the risk is reduced when installed correctly by a licensed gas fitter and/or certified at the time of sale/transfer of registration.

Many commercial fishers have also begun converted existing commercial gas devices on board to lower risk diesel or electric systems. As a result, the risk associated with gas device use in the commercial sector has reduced considerably. The key focus for 2016–17 is to work in partnership with key industry associations and the Australian Maritime Safety Authority to further promote gas safety on-board.



Theatrical or other special effects

Theatrical or other special effects include a place, or part of a place where fuel gas is used for the activity of special effects including theatrical events, special flame effects, bursts of ignited hydrocarbons, and simulated explosions. In 2015–16, the Inspectorate undertook 4 inspections to monitor theatrical or other special effects and some associated enforcement action to minimise risk.

In 2016–17, the focus will include a variety of activities across this category focusing on public shows and events where temporary pyrotechnic displays are used (e.g. sporting venues, concerts and theatre), fire-fighting training installations and equipment, and permanent theatrical displays where large numbers of people are present (e.g. amusement parks).

Fuel gas refrigeration

The Petroleum and Gas Inspectorate achieved the compliance activities for hydrocarbon refrigerants (HCR) outlined in the compliance plan 2015–16. There has been a lot of work in the white goods and appliances sector by the Inspectorate to ensure compliance with Queensland. A significant amount of consultation has occurred with industry bodies such as AIRAH to improve awareness of the safety issues with the use of HCR.

Proactive work included inter-agency inspections of automotive air conditioning systems with inspectors from the Department of Transport and Main Roads. The Inspectorate has improved its capability to analyse the refrigerant gas in systems with more inspectors trained in how to take gas samples and the purchase of a further three refrigerant identification devices. The Inspectorate has also formed a working group with a range of industry experts to find ways to improve legislation relating to HCR to enhance safety while also reducing red tape.



Licenses and authorisations

In 2015–16 the Inspectorate issued 1678 Gas Work Licences and 111 Gas Work Authorisations with only 59 applications refused. Throughout the year, there were 2135 Gas System Compliance Certificate books, 366 Vehicle/Vessel books, 263 Defect Notice books and 4972 bundles of Gas System Compliance Plates purchased.

During the year, the Inspectorate also officially launched the Licensing and Authorisation Unit centralising application processing for Queensland. This also included a significant move online with the introduction of Smart Forms in March 2015 allowing our customers to access forms online and make applications 24/7. At least 80% of applications are now made online and the Inspectorate is working hard to add online forms for our other applications, notification and reporting.

2016–17 and beyond

In order to foster a more positive and engaged approach to safety regulation grounded in modern safety science, from 2016–17 the Inspectorate has committed to the following principles:

- Harnessing people as a key part of the safety solution
- Supporting positive safety interventions
- Focusing on resilience and risk competence
- Assuring safe systems and practices
- Empowering people to innovate
- Increasing ethical responsibility
- Minimising bureaucratic accountability
- Continuously improving our business

A key part of this new approach is the establishment of two Strategic Engagement Committees to inform and guide our regulatory approach and the services we provide. The committees will focus on the two core parts of the industry regulated by the Inspectorate – safety management (at operating plant); and gas work and devices. These committees represent a commitment by the Inspectorate to improve our approach to regulatory services in the oil and gas industry.

The Inspectorate will also be adopting a new approach in relation to inspections and audits focused on looking for success rather than just focusing on noncompliance. It is recognised that the majority of people want to do the right thing and a punitive approach does not support this. While the Inspectorate will need to exercise its powers in response to certain behaviour and/or risk, it is anticipated that this new focus will improve outcomes across the industry by sharing lessons learnt and safety success stories. These outcomes will be shared through our on-going engagement activities, across our social media streams and in our annual briefing.

In 2016–17, the Inspectorate is also working to establish a centralised Customer Service Line for our customers and stakeholders to simplify contacting us and to help direct your call to the person who may best assist you with your enquiry. More information will be released as this is finalised. We are also working hard to improve our web presence, expand our online services and streamline the ways we engage with stakeholders.

From 1 July 2016, the Queensland Government introduced Penalty Infringement Notices (PINs) in relation to gas work and devices to provide the Inspectorate with a low-medium level enforcement tool other than prosecution. PINs will help minimise lengthy investigations by dealing with low-medium level offences more quickly. This will help support businesses working hard to do the right thing and improve public confidence that minor offences and associated safety risks are dealt with quickly.

These key projects are in addition to our on-going advocacy and continuous improvement in relation to the safety requirements that help keep workers and the public safe from risks in the industry in Queensland. By working together, we can ensure a safe and reliable petroleum and fuel gas industry that helps to advance Queensland.



Petroleum and Gas Inspectorate

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