



appea

the voice of australia's oil and gas industry

Health, safety and environment report 2015–2016



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APPEA 2015–16: key safety, health and environment achievements

- 1** Launched the Process Safety Good Practice Guide under the Stand Together for Safety (STFS) program.
- 2** Supported the IChemE Safety Centre in producing guidance on leading process safety metrics and process safety competency.
- 3** Worked with the Western Australian Government and the WA Marine Science Institution to develop the Industry-Government Environmental Meta-data (IGEM) system, which allows rapid data sharing in the event of an oil spill.
- 4** Secured positive results for the oil and gas industry in developing regulations under the new *Biosecurity Act 2015*.
- 5** Worked with the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) to develop industry guidelines on stakeholder engagement.



Safety and health

The oil and gas industry continues to experience one of Australia’s lowest injury and fatality rates.

APPEA programs support excellence in the Australian oil and gas industry’s health and safety performance.

APPEA works with its members and key stakeholders to improve the efficiency and effectiveness of safety regulation, share good practices to address health and safety risks, and develop new programs and initiatives to continuously improve the industry’s health and safety performance.

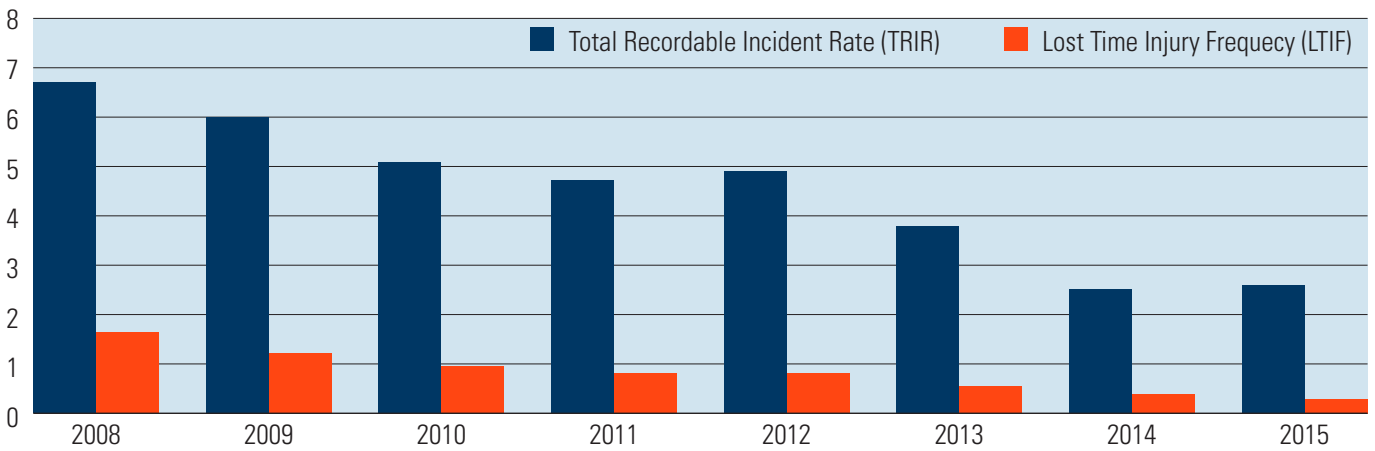
Since 2007, APPEA has worked with the industry on a collaborative strategy to foster continuous improvement in safety performance.

This has seen personal safety performance dramatically improve while work hours have tripled.

The oil and gas industry continues to experience one of the lowest injury and fatality rates of any industry in Australia.

In the 2015 calendar year, APPEA’s member companies achieved parity with the International Oil and Gas Producers Lost Time Injury Frequency rate of 0.29 incidents per million work hours, in line with the global benchmark.

In 2015–16 APPEA achieved significant progress in fostering consistency of safety data by establishing an online portal for safety performance reporting. This will facilitate the production of industry-wide data and benchmarking by individual companies.



IOGP TRIR 1.21 in 2015 vs 1.5 in 2014. IOGP LTIF 0.29 in 2015 vs 0.36 in 2014.

The oil and gas industry continues to experience one of Australia’s lowest injury and fatality rates.

Process safety

Industry leaders have developed a leadership program for addressing process safety challenges.

In safety management, the industry's priority remains improving process safety and preventing major accident events.

Process safety involves the controls or barriers that ensure containment of hydrocarbons and chemicals in plants, pipes or wells and prevent major accidents occurring. It requires the application of sound engineering, design and operating practices.

The industry faces some major challenges in process safety:

- critical assets are ageing, requiring decommissioning or plant-life extensions
- new technologies are being deployed
- several new large projects are becoming operational
- in some locations, construction and production are occurring simultaneously
- cost pressures are mounting.

Industry leaders have applied the lessons and experience gained from the industry's persistent and successful focus on personal safety to develop a leadership program for addressing process safety challenges.

APPEA's strategic improvement program is delivered in three ways:

- leadership via the CEO Safety Leadership Forum
- process safety expertise via the IChemE Safety Centre
- industry engagement via the Stand Together for Safety program.

At the 2015 APPEA HSE Conference, the CEO Safety Leadership Forum agreed to meet more often and focus on sharing lessons from high-potential process safety events.

CEO Safety Leadership Forum meetings were held in November 2015, April 2016 (in conjunction with

the LNG 18 conference in Perth) and June 2016 (in conjunction with APPEA 2016 in Brisbane).

The CEO Safety Leadership Forum identified various oil and gas industry safety groups in Australia and resolved to bring the four front line safety groups— Safe Ops, DrillSafe, Marine Safe and Offshore Project Safe together for the first time. This took place alongside APPEA's 2016 HSE Forums.

This Forum, held in October 2016, coincided with another meeting of the CEO Safety Leadership Forum.

Process safety documents

In the second half of 2015, the IChemE Safety Centre—founded by nine APPEA member companies—produced two key documents.

- *Process Safety Competency—a Model*. This document outlines a generic process safety framework for different types of roles in an organisation. It is guiding the development of a process safety module for the Common Safety Training Program, which will be delivered in 2017.
- *Lead Process Safety Metrics*. This document defines 21 lead process safety metrics that will be applied by industry as part of a trial program in 2017.

At the APPEA 2016 Conference, the Stand Together for Safety project released *Process Safety—a Good Practice Guide*.

This document uses the proven successes from personal safety management approaches to define rules for process safety and the behaviours associated with them.

It also includes benchmarks of “what good looks like” in process safety, and provides a series of assurance questions to direct effective barrier verification discussions across the industry. All of these documents can be found at www.stfs.com.au—the Stand Together for Safety website.

Regulatory effectiveness and efficiency

APPEA commissioned a safety case working group to identify opportunities to make safety cases more effective and efficient. This working group met with the WA Department of Mines and Petroleum, to provide suggestions for developing the Workplace Health and Safety (Resources) Regulations.

APPEA is engaging with government and industry on how to better use a safety case for regulatory approval and operational implementation. Possibilities include separating the document into a technical section (which describes an activity's risk profile) and an operational section (which describes the control measures operations staff are required to implement). APPEA believes this would enhance communication with regulatory and operational stakeholders.

APPEA also worked with the Department of Industry, Innovation and Science to update Part 5 of the Offshore Petroleum and Greenhouse Gas Storage Act and associated regulations dealing with well integrity. This

influenced the reporting and transition provisions and the required structure of new Well Operations Management Plan documents to meet the revised legislation's requirements.

APPEA's Australian Drilling Industry Steering Committee also engaged with NOPSEMA to determine the appropriate response to the March 2015 incident when several mooring lines on the Atwood Osprey rig snapped during wild weather caused by Cyclone Olwyn.

An industry study was commissioned to inform the appropriate risk management approach for Australian tropical waters. This led to the publication on 1 November 2016 of *MODU Mooring in Australian Tropical Waters: A Guideline*, which provides a consistent and common approach to mooring mobile offshore drilling units (MODU) that are exposed to cyclonic conditions in Australian tropical waters.

This document is available on www.appea.com.au and www.stfs.com.au.

Drilling in 2007 at Shell's Prelude field.



Environmental management

APPEA has coordinated efforts to further improve the industry's environmental performance.

Oil Spill Response capacity and preparedness review

APPEA's Oil Spill Response (OSR) Forum was established in 2013 to support joint industry initiatives and enhance information sharing between OSR specialists. In 2015, the OSR Forum commissioned a review of the upstream offshore industry's oil spill response capacity and preparedness. The review's report highlighted the importance of increased collaboration, not only at a regional level between operators, but also at a national level—between operators, APPEA, the Australian Institute of Petroleum and the Australian Marine Oil Spill Centre.

Marine Environmental Science Program

The industry's Marine Environmental Science Program has commissioned several research projects, including:

- *Underwater Sound and Vibration from Offshore Petroleum Activities and its Potential Effects of Marine Fauna: an Australian perspective*—awarded to Curtin University's Centre for Marine Science and Technology
- *Understanding the potential consequences of unplanned discharges: the Australian context*—awarded to BMT Oceanica
- *Scientific Literature Review of Environmental Impacts of Decommissioning Options*—awarded to Advisian.

The projects' findings are expected by the end of 2016.

IGEM meta-database system

The Industry-Government Environmental Meta-database (IGEM) system enables quicker identification of data sets for environmental planning and spill response following an oil spill. Subscribers can search for relevant environmental studies by: research activity in a specific area; the date it was collected; the organisation that collected the data; type of data; and key words. IGEM's development was fast-tracked for completion, thanks to funding made available from the APPEA Marine Environmental Science Program. The WA Marine Science Institution – which hosts IGEM – developed the system in collaboration with the Pawsey Supercomputer Centre. IGEM went live in February 2016. Nine APPEA members have signed up to access the system.

Industry stakeholder engagement

Consultation and Engagement Guidelines

In 2015 NOPSEMA initiated a Work Program to improve its guidance and practices in relation to the Stakeholder Consultation and Engagement requirements under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009. Aiming to deliver a solution based on the practical experience of companies undertaking stakeholder engagement, APPEA proposed that industry be given the opportunity to develop stakeholder consultation guidelines similar to existing US and UK guidelines. NOPSEMA agreed, and APPEA and a steering group of industry representatives have since developed a draft consultation methodology to improve the consistency, transparency and predictability of consultation associated with environment plans. Preliminary consultation has also been undertaken with NOPSEMA. This project is well underway and APPEA aims to have these guidelines available in 2017.

Commercial fishing industry

In November 2015, APPEA attended the Seafood Directions Conference (the national conference for the commercial seafood and aquaculture sector). This included a presence on the trade floor, and a concurrent presentation with the Commonwealth Fishing Industry Association on developing the joint industry memorandum of understanding. APPEA also sponsored a delegation from the Scottish Fisherman's Federation, which addressed the conference and also spoke at a gathering of APPEA member companies' external affairs representatives. This delegation offered insights into the longstanding relationship between Scotland's fishing and petroleum industries.

Decommissioning

In June 2016, the APPEA Board formed the Decommissioning Committee. This Committee will provide strategic advice to the Board in this increasingly important area, enabling a consistent approach by industry—particularly in engaging with regulators and stakeholders.

In July 2016, APPEA finalised its *Offshore Oil and Gas Decommissioning Decision-making Guidelines*.

Environmental regulation

Throughout 2015–16, APPEA worked with governments to achieve more efficient environmental regulation regimes.

APPEA continues to advocate for eliminating regulatory overlap and duplication between Commonwealth and state/territory jurisdictions.

Regulatory reform can deliver significant efficiency changes without impairing environmental outcomes. Achieving streamlined regulation and reducing inefficient duplication and inconsistency between regulators will redirect resources and efforts to actual environmental benefit in place of bureaucratic process. APPEA will continue to advocate in all jurisdictions for the continuation of this significant national regulatory streamlining process.

Biosecurity Act 2015 and Regulations

Important changes to Australia's Biosecurity System came into effect on 16 June 2016 when the *Biosecurity Act 2015 (Cmwltth)* replaced the *Quarantine Act 1908*.

Under the new legislation, the international waters classification shifts from the Exclusive Economic Zone (200 nautical miles from the coast) to Australian waters (12 nautical miles from the coast). This put numerous Australian offshore oil and gas facilities outside the new boundary, which had the potential to significantly increase compliance costs for operators and contractors.

APPEA's Biosecurity Reforms Working Group liaised closely with the Australian Department of Agriculture and Maritime Industry Australia as the department drafted its regulations. The final regulations enabled operators and contractors to reduce their compliance burden, either by entering an approved arrangement with the department, or through prescribed exemptions that require an activity-by-activity risk-based self-assessment.

Commonwealth Marine Reserves Review

The Commonwealth Marine Reserves Review was completed in December 2015. Its report—released in September 2016—recommends changes to the zoning of the Commonwealth Marine Reserves as they were proclaimed in 2013.

For the most part, APPEA succeeded in minimising the impact on industry operations in producing and highly prospective regions.

The Government is now considering the management plans for the reserves, which will outline what activities are allowed and the required approvals processes.

APPEA continues to advocate for an evidence-based process for managing these reserves. The debate on marine reserves must take into account an area's actual environmental values and whether an industry activity can occur without compromising these values.

APPEA—through its Exploration Committee and the newly-formed Health, Safety and Environment Committee—continues to work closely with the Australian Government to ensure marine reserves protect the environment without unnecessarily increasing the regulatory burden.

NT environmental regulations

In June 2016, the Northern Territory Government introduced new petroleum environment regulations that deliver a best-practice regulatory system for the NT.

These regulations embrace the principles of ecologically sustainable development (as defined in the Commonwealth's Environment Protection and Biodiversity Conservation Act) and focus on minimising environmental impacts to as low as reasonably practicable.

The new regulatory framework is based on recommendations from the Independent Inquiry into Hydraulic Fracturing in the NT and energy law expert Dr Tina Hunter.

APPEA and members operating in the Territory were heavily engaged with government on the development of this framework. The new regulations are an important part of the NT's evolving onshore oil and gas regulatory system, and are crucial to ensuring environmental protection and enhancing community confidence.

APPEA HSE Awards

The APPEA Health, Safety and Environment Awards were presented on 8 September at the 2015 APPEA HSE Conference and Awards Dinner, held at Crown Perth, Burswood.

The Environment Award and the Health and Safety Award were judged by two panels of industry practitioners with expertise in the respective fields. There were also two Delegates' Choice awards—one for Health and Safety and another for Environment. These allowed all conference delegates to vote for the work of their peers based on the finalists' posters on display in the exhibition area.

Woodside Energy won the 2015 APPEA Health and Safety Award—and also the Delegates' Choice Award for Health and Safety—for 'Use of Remote Digital Video Inspection in a novel LNG turnaround application'. This initiative used existing remote digital video inspection (RDVI) technology to reduce risks for workers by minimising the need for confined space entry. Eliminating the need for 36 confined space entries saved almost \$4.5 million and reduced the turnaround from 35 days to 25 days, with zero recordable

injuries. Coupling RDVI with non-intrusive inspection techniques during the 2015 Pluto turnaround not only eliminated the requirement for confined space entry but also enhanced inspection in hard-to-access areas.

Chevron Australia won the 2015 APPEA Environment Award for 'Gorgon Project domestic gas pipeline construction and rehabilitation'. Gorgon's 90 km domestic gas pipeline traversed sensitive mangrove and samphire communities. The route was planned to minimise environmental disturbance and preserve 100-year-old trees. Creeks and water courses were rebuilt back to natural contours to ensure they flowed at their natural capacity. Chevron also planted more than 4000 mangrove seedlings.

The winner of the 2015 Delegates' Choice Award for Environment was Woodside Energy for 'Managing marine biofouling in the petroleum industry'.



The first cargo leaving Gladstone LNG, October 2015. In a busy year, Santos delivered an outstanding safety performance.

The Safety Excellence Award and the Environment Excellence Award are given to APPEA full member companies for displaying organisational excellence in a calendar year. These are presented at APPEA's annual conference.

Safety Excellence Award

Santos received the APPEA Safety Excellence Award at the APPEA 2016 Conference Dinner in Brisbane on 7 June.

The award recognises responsible management of risk based on sound science; application of new systems and technologies; and constructive engagement with the workforce, project partners, government and the wider industry in enhancing workplace health and safety.

Santos maintains that no business objective will take priority over safety, and no task is so important or urgent that it cannot be done safely.

Santos has enhanced its tracking and measurement of safety culture and critical controls management, enabling it to systematically and effectively minimise risks.

In 2015, Santos recorded a lost time injury frequency rate of just 0.12, and a total recordable case frequency rate of 2.8.

These are company's best injury figures in the last 15 years. Indeed, this is considered to be a world-class safety performance, and this was achieved during a phase of potentially high-risk operations—including the commissioning of major operational CSG and LNG hubs.

Santos has also shown leadership in oil and gas industry safety initiatives, including Queensland's Safer Together Forum.

Environment Excellence Award

Woodside Energy was presented with the Environment Excellence Award at the APPEA 2016 Conference Dinner. The judges found that Woodside has consistently shown excellence across all facets of environmental performance.

Woodside minimises its footprint by integrating world-class environmental management into its exploration and its facilities. Its streamlined environment systems minimise complexity and enable standardised, risk-based management of all kinds of projects around the world.

Woodside also emphasises the importance of sound science and understanding local environments. It identifies key scientific partners and global service providers to enhance local knowledge, and works to build long-term relationships.

Woodside's scientific collaborations include partnerships with:

- the Australian Institute of Marine Science to study the causes and effects of coral bleaching off the WA coast.
- the Western Australian Museum in a Kimberley marine biodiversity survey program that has recorded more than 16,000 species—including almost 180 previously unknown to science.
- the Western Australia Marine Science Institution to deliver a massive marine research program to find ways to reduce environmental risks associated with dredging.

APPEA conferences and forums



APPEA National Health, Safety and Environment Conference and Exhibition

5–9 September 2015 – Perth, WA

More than 400 delegates attended the APPEA HSE Conference.

This event delivered a world-class program of panel discussions, presentations, and key networking events.

There were more than 80 top-quality international and local presenters (industry leaders, regulators, safety staff and frontline workers, and technical and other experts).

These speakers addressed critical issues facing the industry and discussed relevant research, science, technology innovations and operational processes.

HSR Forum

The 2015 HSR Forum was held at Crown Perth, immediately preceding the APPEA National HSE Conference. The forum enabled health and safety representatives to discuss issues and share their safety experiences, lessons and good practices. It also focused on helping them develop safety leadership and representative skills.

OSR Forum

The Oil Spill Response Forum was held as an adjunct to the APPEA National HSE Conference. A diverse group of guest speakers—including regulators and technical experts—presented on a range of issues. Participants shared regional, national and international oil spill response and oil pollution research findings and best management practices, as well as lessons from company operations.