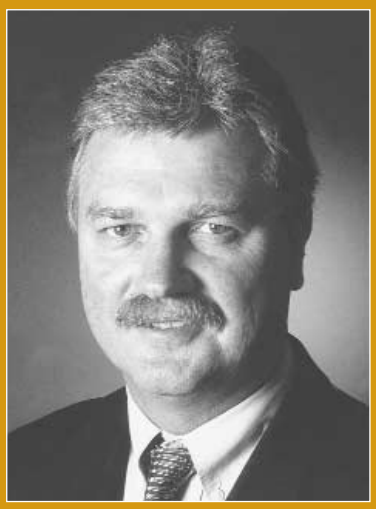
APPEA

AUSTRALIAN PETROLEUM PRODUCTION & EXPLORATION ASSOCIATION LIMITED

HEALTH, SAFETY, ENVIRONMENT AND SOCIAL PERFORMANCE REPORT 2001

APPEA Chairman's Foreword



Dr Agu Kantsler
Chairman—Australian Petroleum Production & Exploration Association Limited

I am proud to introduce the first of APPEA's Health, Safety and Environment Reports. The decision by APPEA and its members to produce a dedicated report on these issues alone, illustrates the critical importance with which they are viewed by the industry.

Our industry does not see best practice safety and environmental management as an aspiration for the future. It is, and has been for some time, a critical, fully integrated part of our day to day operations. Our aspiration is zero safety incidents, zero occupational health issues and zero environmental incidents.

This report represents an important opportunity for APPEA and its member companies to communicate with our peers, regulators, our work force and the broader community about the environmental, occupational health and safety performance of Australia's petroleum production and exploration industry. It represents an opportunity to highlight the range of initiatives currently being undertaken by the industry and the future directions for improving our performance.

It is with the most sincere and deepest regret to those personally affected that we must report that in 2001 we fell short of our expectations and a fatality occurred in our industry. This loss, which is so keenly felt by all of us, serves only to reiterate that zero is the only statistic acceptable. In other measures of safety performance, 2001 was a good year with our best ever performance recorded for medically treated injury frequency rate and second best total reportable injury frequency rate. Again however, zero injuries must be our goal. It is attainable.

This was also the first year that APPEA has recorded industry wide figures on our environmental performance. Whilst it was pleasing that there were no incidents of high consequence, and only seven incidents of medium consequence, there was a large number of low consequence incidents in 2001. Our performance overall in relation to discharges of oil, produced formation water, hydraulic fluids and combustible products was disappointing and we clearly must improve in order to minimise the impact of our operations on the environment.

During 2001 APPEA and its members undertook a number of new initiatives. We held our first environmental workshop, recognised for the first time some of our peer's outstanding environmental performance through a new APPEA Environment Award, and commenced reviewing our Environmental Code of Practice. In 2001 APPEA and a number of member companies also worked cooperatively with governments in developing Guidelines on the Interactions between Offshore Seismic Operations and Larger Cetaceans, in order to minimise potential interference with cetaceans. A number of initiatives in the safety and health field in 2001 included significant input into considering improvements to the offshore safety regime; perception surveys of the workforce to provide an insight into the safety culture of our members; continued support for the successful Health and Safety Representatives Forum; and commencing reviews to improve the safety incident reporting guidelines and the permit to work guidelines.

I believe that this report highlights many of the very good things that we are doing, and demonstrates our commitment to health, safety and environmental issues. I encourage you all to consider the APPEA Health, Safety, Environment and Social Performance Report, to give us feedback on your views and to continue your wholehearted engagement of these most important "sustainability" issues into the future.

I wish you all the very best in your endeavours.

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About APPEA

The Australian Petroleum Production and Exploration Association (APPEA) is recognised nationally and internationally as the representative body of the oil and gas production and exploration industry in Australia. APPEA has secretariat offices in Canberra and Perth, and a membership comprised of both large and small operators in Australia.

APPEA seeks to promote a competitive basis for the development of Australia's oil and gas resources while maintaining the highest standards of safety, health and environmental management. This report focuses on the health, safety, environmental and social performance during 2001for both APPEA and its member companies.

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APPEA's Health and Safety Policy

The Australian Petroleum Production & Exploration Association (APPEA) will promote this health and safety policy among its members. It is directed towards the implementation of safety management systems which:

- Commit all levels of management to accept responsibility for health and safety in all activities.
- Provide a consultative process to involve all employees and contractors in defining their health and safety responsibilities and accountabilities.
- Promote a safe and healthy working environment.
- Provide for effective training and necessary safety equipment.
- Require compliance with all applicable laws and regulations (or responsible standards where laws and regulations are inadequate).
- Facilitate effective rehabilitation programs.

In promoting such a health and safety policy among its members, APPEA will:

- Lead the industry in achieving with government sound health and safety legislation.
- Develop and disseminate industry guidelines to support the Safety Case regime.
- Provide a range of forums to address health and safety issues.
- Collate and disseminate information on safety performance and best practice.
- Recognise excellent safety performance.

Within the petroleum industry, the health and safety of every employee, contractor, customer and member of the general public is central to the way it operates. The goal of the industry is to work in such a way that no one is hurt. The overriding philosophy is that no task is so important that it cannot be done safely. To this end, safety rules and regulations in all areas of operation exist to ensure minimum risk of incidents and accidents.

Commit all levels of management to accept responsibility for health and safety in all activities.

Source: Esso Australia

Lead the industry in achieving with government, sound environmental legislation.

APPEA's Environment Policy

The Australian Petroleum Production & Exploration Association (APPEA) will promote this environment policy among its members and encourage, and where appropriate, support member companies to:

- Comply, at a minimum, with applicable laws, regulations, standards and guidelines for the protection of the environment and in their absence, adopt the best practicable means to prevent or minimise adverse environmental impacts.
- Work and consult with appropriate government agencies drafting policies, laws, regulations or procedures to protect the environment.
- Ensure that adequate waste management practices are carried out based on the prevention, minimisation, recycling, treatment and disposal of wastes.
- Provide adequate training to enable employees and contractors to adopt environmentally responsible work practices and to be aware of their stewardship responsibilities.
- Promote research to conserve resources, minimise wastes, improve understanding of risks and impacts and to cost effectively minimise these, to improve environmental protection.
- Develop emergency plans and procedures so that incidents can be responded to in a timely and effective manner.
- Develop and maintain management systems to identify, control and monitor risks and compliance with government regulations and industry guidelines.
- Monitor environmental effects and assess environmental performance at all stages of exploration, development, production and rehabilitation.
- Communicate openly with government, non-government bodies and the public in a timely manner on environmental issues which relate to the industry's operations.

In promoting such an environmental policy among its members, APPEA will:

- Lead the industry in achieving with government, sound environmental legislation.
- Provide a range of forums to address environmental issues.
- Collate and disseminate information on environmental performance and best practice among member companies.
- Recognise excellent environmental performance.

Source: ChevronTexaco Australia

Our Health and Safety Performance

APPEA and its members strive to continuously improve safety performance. Through the operation of the APPEA Safety Incident Database, the industry is able to monitor its performance on a quarterly basis. The database has the capability to record the nature, mechanism, breakdown and location of the incident, as well as the type of facility on which it occurred. These details are recorded for all employee and contractor incidents.

The APPEA Safety Incident Database is widely accepted for its integrity and quality. Over the past decade, it has highlighted the continuing improvement in the safety performance of Australia's upstream petroleum industry to levels which equal world's best practice. Data submitted to the APPEA Safety Incident Database prior to the end of 1998 were compiled and audited by the National Safety Council of Australia (SA Division). The compilation and auditing of subsequent years' data has been performed by PricewaterhouseCoopers.

Under the APPEA Safety Incident Database Guidelines, an incident is reportable when the operating company has the "prevailing safety influence" over the activity that caused the incident. "Prevailing safety influence" occurs when the operator has control over the activity under consideration and is therefore in a position to positively influence (from a safety perspective) the way in which the activity is undertaken.

While the safety incident statistics recorded by APPEA have their recognised limitations as a predictor of major accident events, the industry continues to identify new systems to further improve and measure outstanding safety performances, a practice that is fostered under an objective based regime. A large number of APPEA members use a wide variety of positive performance measures to better understand their safety performance in terms of reducing the risks of major accident events. While there is no uniform measure adopted by all APPEA members, the greatest benefit and focus should remain on improving the safety performance of individual companies and operations. APPEA members are currently a joint sponsor of a project identifying further new positive performance indicators to better understand the industry's safety performance.

Fatalities in our industry

It is with sincere and deepest regret that in 2001 we fell short of our expectations and a fatality occurred in our industry. In June 2001, a serious incident occurred at Moomba which tragically resulted in the loss of one of Santos' employees. The incident involved an unintended release of volatile product that subsequently ignited. Santos has thoroughly investigated the incident and the findings have been presented to Santos employees. A number of initiatives have been undertaken since the investigation of the incident, however a formal government investigation of the incident is yet to release its findings.

While this single fatality during 2001 is still a better performance than that of many of our peers (see Figure 1.1) in other industries within Australia and internationally, zero remains the only benchmark that is acceptable.

Total reportable injuries

Total reportable injuries include lost time, medical treatment, alternative duties injuries and fatalities. This data has been reported to the APPEA Safety Incident Database since 1996. Since

FIGURE 1.1 Fatality Rates of Selected Industries, 1999–2000

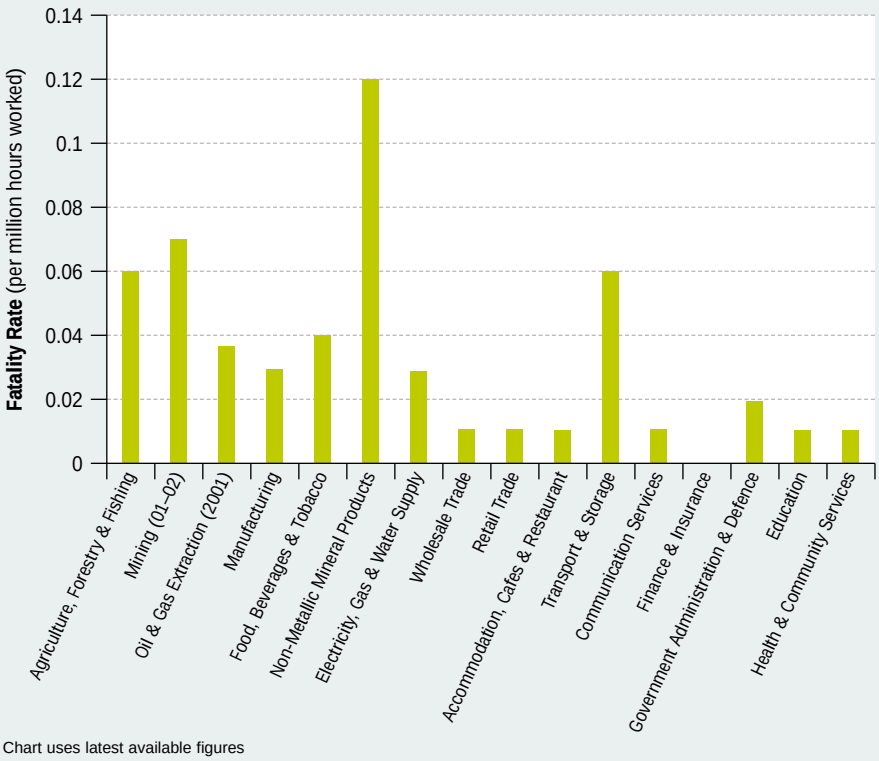


Chart uses latest available figures

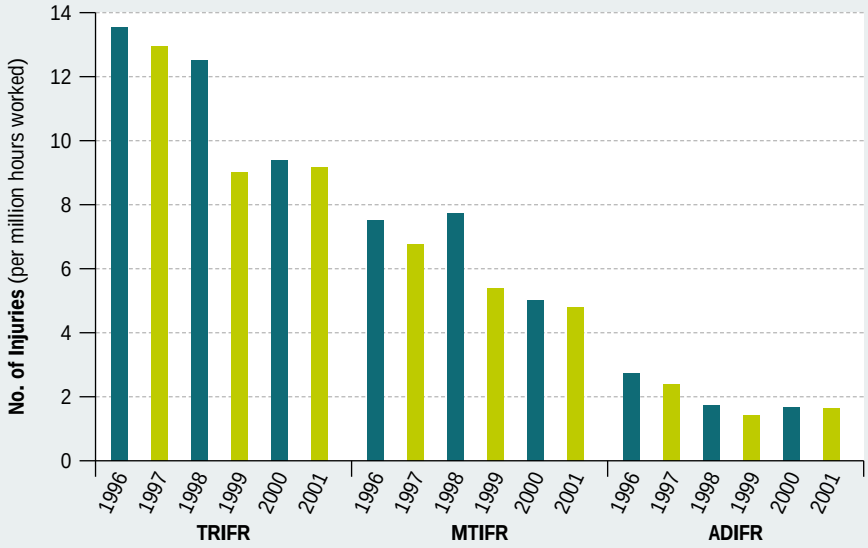
Source: NOHCS, *Compendium of Workers Compensation Statistics, 2001*

industry-wide recording began, the total reportable injury frequency rate (TRIFR) has decreased from 13.4 in 1996 to 9.1 in 2000. The chart below (Figure 1.2) indicates that total reportable, medical treatment (MTIFR) and alternative duties (ADIFR) indicators have all decreased since industry-wide recording began, with a notable decline between 1998 and 1999 in TRIFR and MTIFR, which has since been maintained by the industry. While the rate for ADIFR in 2001 is the same as in 2000, a slight decrease was also achieved between 2000 and 2001 for both TRIFR and MTIFR.

It is of great concern to APPEA and its members, however, that a significant proportion of injuries are occurring among our contractors. As shown in the chart below (Figure 1.3), of a total of 263 injuries, 27.7% occurred among employees, and 72.2% among contractors. This has resulted in an employee TRIFR of 5.5, and a contractor TRIFR of 11.6. While a number of reasons could be attributed to this, including that our contractors are more exposed on average to mechanical operating environments, it is still a disappointing performance. APPEA and its members are undertaking their best endeavours to improve this performance in the future.

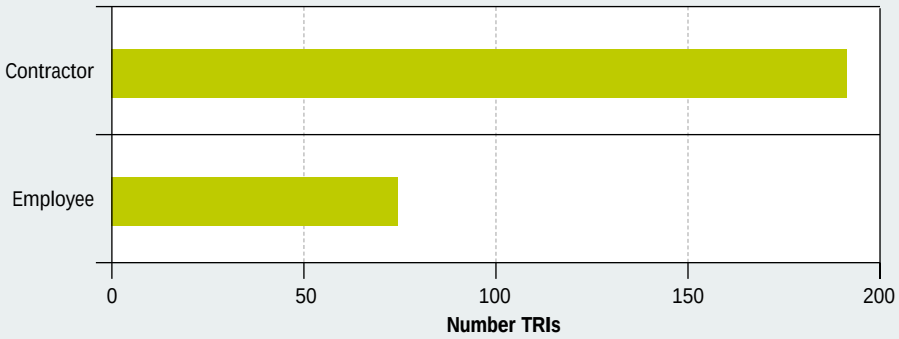
The safety incident database also recorded a substantial difference between onshore and offshore incidents. The figures show that for 2001 there were 66 total reportable injuries in Commonwealth waters, 23 in State waters and 174 onshore. Figure 1.4 breaks these into contractor and employee incidents, which further illustrates the higher proportions of contractor injuries. Unfortunately current information reported to the safety incident database does not allow us to determine the frequency rates between employees and contractors. This is something that APPEA and its members will hope to make available for future reports.

FIGURE 1.2 Total Reportable, Medical Treatment and Alternative Duties Injury Frequency Rates 1996–2001



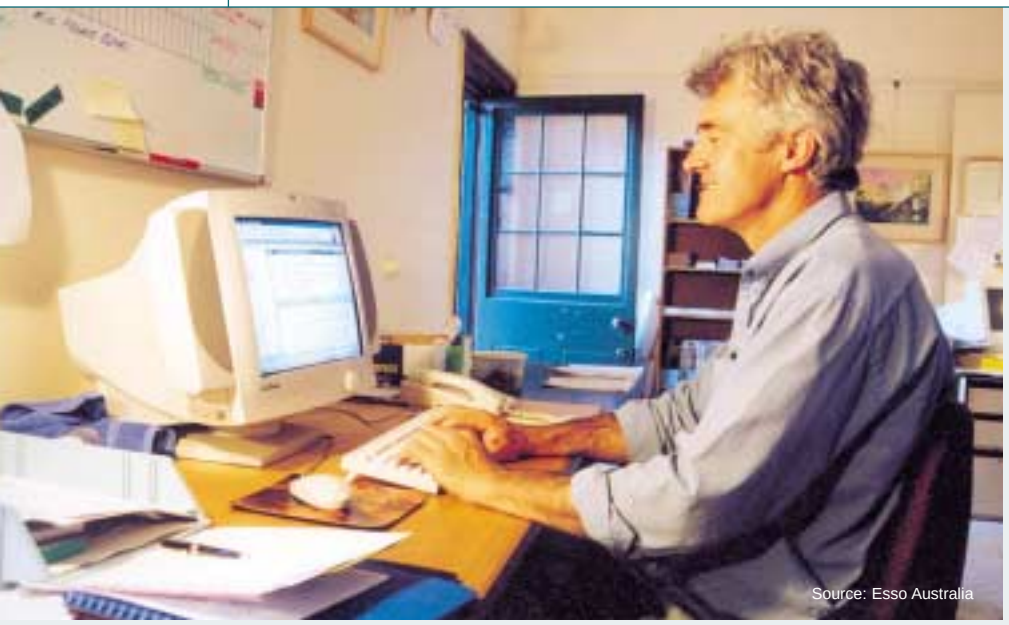
Source: APPEA Safety Incident Database

FIGURE 1.3 Total Reportable Injuries by Employee Type 2001



Source: APPEA Safety Incident Database

Source: Esso Australia


Source: Esso Australia

Lost time injuries

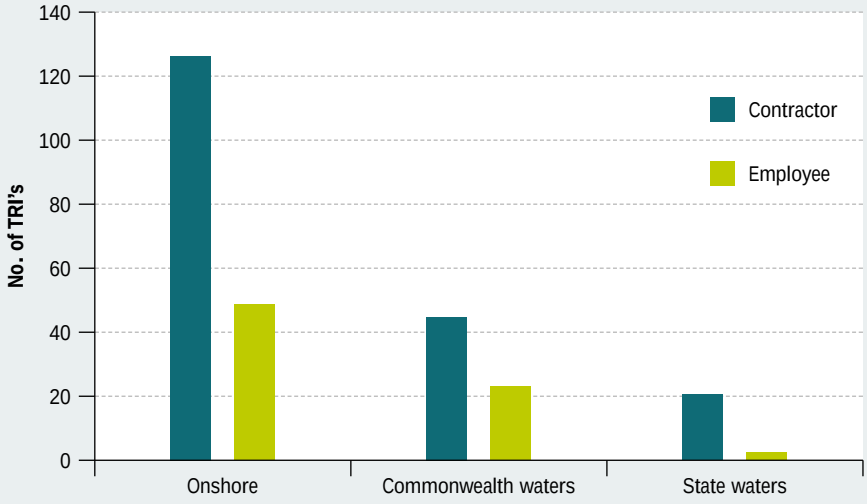
The total hours worked in the petroleum industry, for both employees and contractors, was 28,255,518, an increase of 3,119,336.5 exploration and production hours on last year's figure of 25,136,181.5 hours. APPEA and its members are pleased to acknowledge that the industry's lost time injury frequency for 2001 dropped by 0.113, from 2.626 to 2.513. Figure 2.1 below shows that the LTIFR of the industry has decreased significantly in the last 12 years.

The safety performance data for 2001 (see Figure 1.5) indicates that the greatest number of injuries occurred during production and processing operations onshore, which is similar to last year's figure of 73. There has been a reduction of 65% in the number of injuries occurring on offshore floating production, storage and offtake facilities (FPSOs) since last year. However, injuries occurring during drilling operations onshore have almost doubled, and injuries sustained on mobile offshore drilling units have remained consistent.

While there were few incidents involving hazardous substances such as chemicals and electricity (see Figure 1.6), and other dangers such as pressure, temperature and large volume hydrocarbon releases in 2001, it remains a concern that a high proportion of injuries requiring medical treatment and resulting in lost time resulted from personnel collision impact with moving or stationary objects and muscular strains.

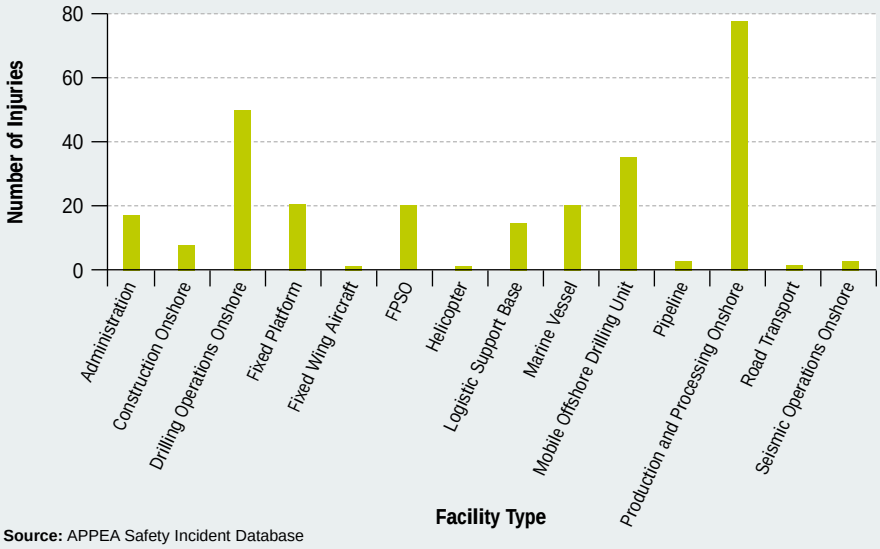
Manual labour, maintenance and drilling/well servicing operators recorded the highest number of incidents (see Figure 1.8), while the most frequent type of injury recorded were open wounds, sprains/strains, contusions and fractures (see Figure 1.7).

FIGURE 1.4 Total Reportable Injuries by Jurisdiction 2001



Source: APPEA Safety Incident Database

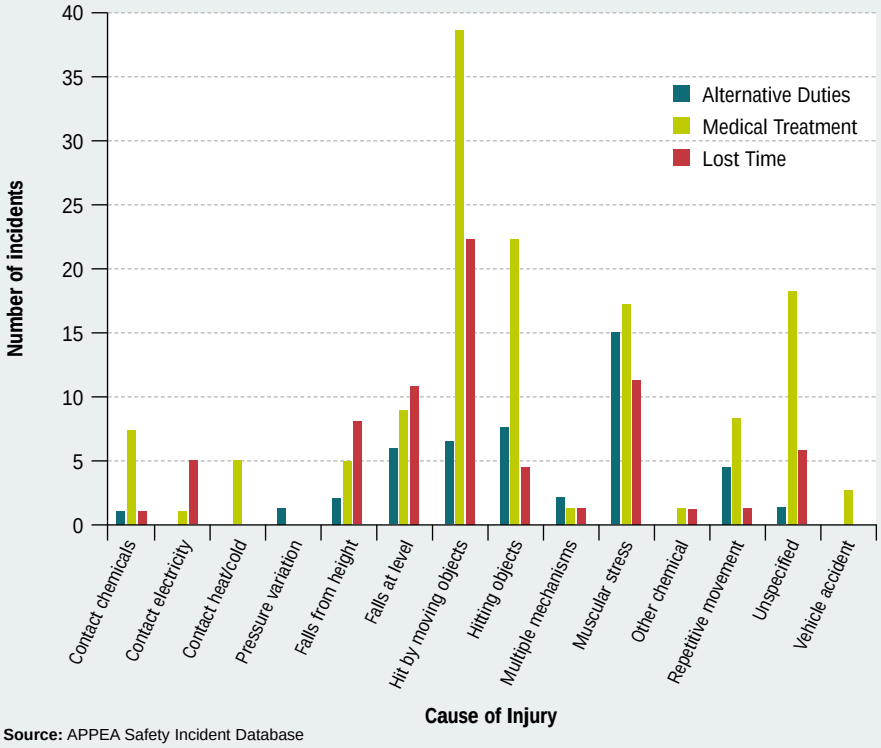
FIGURE 1.5 Total Reportable Injuries by Facility 2001



Source: APPEA Safety Incident Database

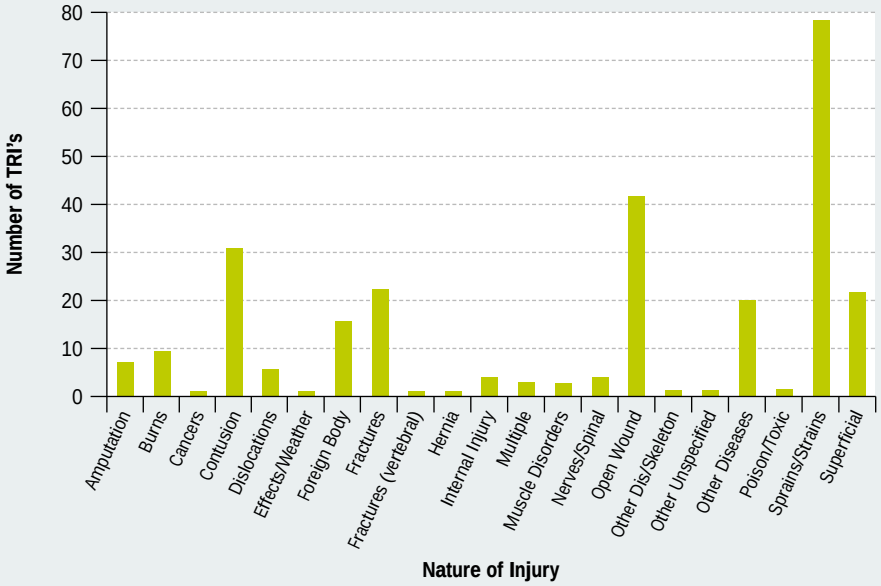
Using the currently available industry-wide indicators of safety performance, Australia's petroleum exploration and production industry, operating under the objective based safety case regime, is among the national leaders. The National Occupational Health and Safety Commission (NOHSC) publishes an annual compendium of workers compensation statistics for key industries in Australia. According to the NOHSC *Compendium of Workers Compensation Statistics 1995/96–1998/99* and the Minerals Council of Australia's *Safety & Health Performance Report of the Australian Minerals Industry 2000–2001*, the petroleum industry's performance for lost time injury frequency rate is superior to the performance of: the other mining industries; transport and storage; manufacturing; agriculture,

FIGURE 1.6 Cause of Total Reportable Injuries 2001



Source: APPEA Safety Incident Database

FIGURE 1.7 Nature of Total Reportable Injuries 2001



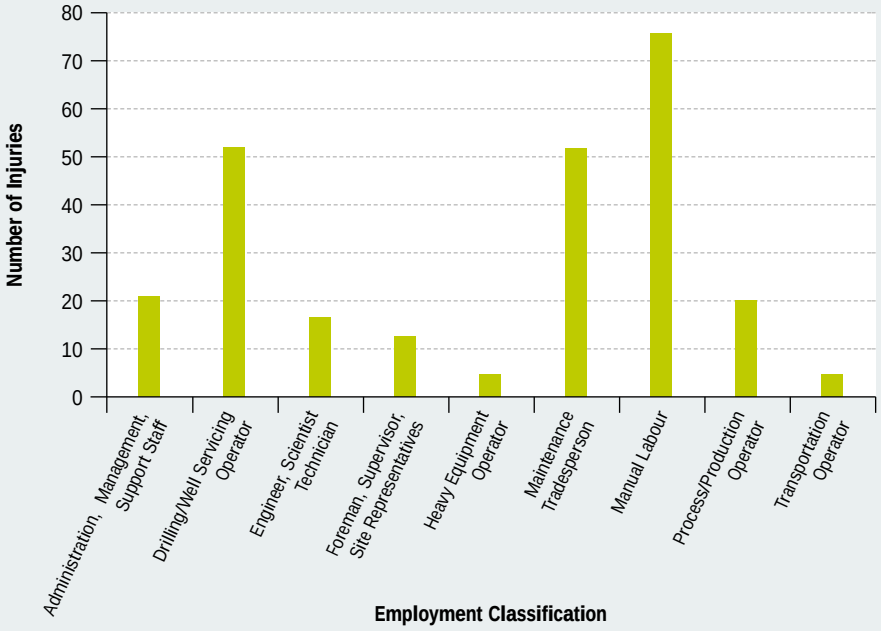
Source: APPEA Safety Incident Database

fishing and forestry; construction; retail; and education, with a similar lost time frequency rate to the finance and insurance industry (see Figure 2.2). The Australian industry's 2001 LTIFR also compares favourably with international safety case regimes (UK, 2.53 and Norway, 2.75—OGP, 2000).

However it was disappointing for APPEA and its members that the average time lost per LTI increased from 16.5 days in 2000, to 17.8 days in 2001, far higher than the best recorded performance of 10.6 days in 1996.

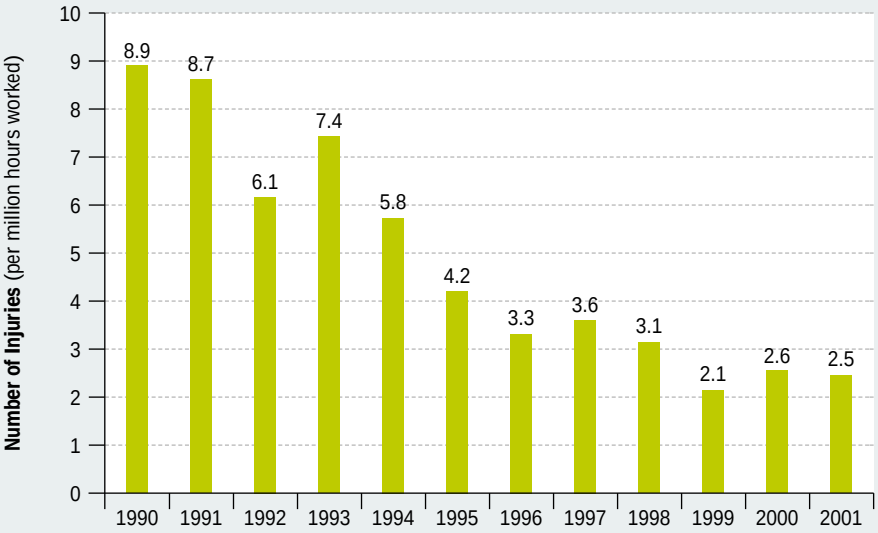
Source: BHP Billiton Petroleum

FIGURE 1.8 Injuries by Employment Classification 2001



Source: APPEA Safety Incident Database

FIGURE 2.1 Lost Time Injury Frequency Rate 1990–2001



Source: APPEA Safety Incident Database

FIGURE 2.2 Lost Time Injury Frequency Rates across Selected Industries 2000–2001

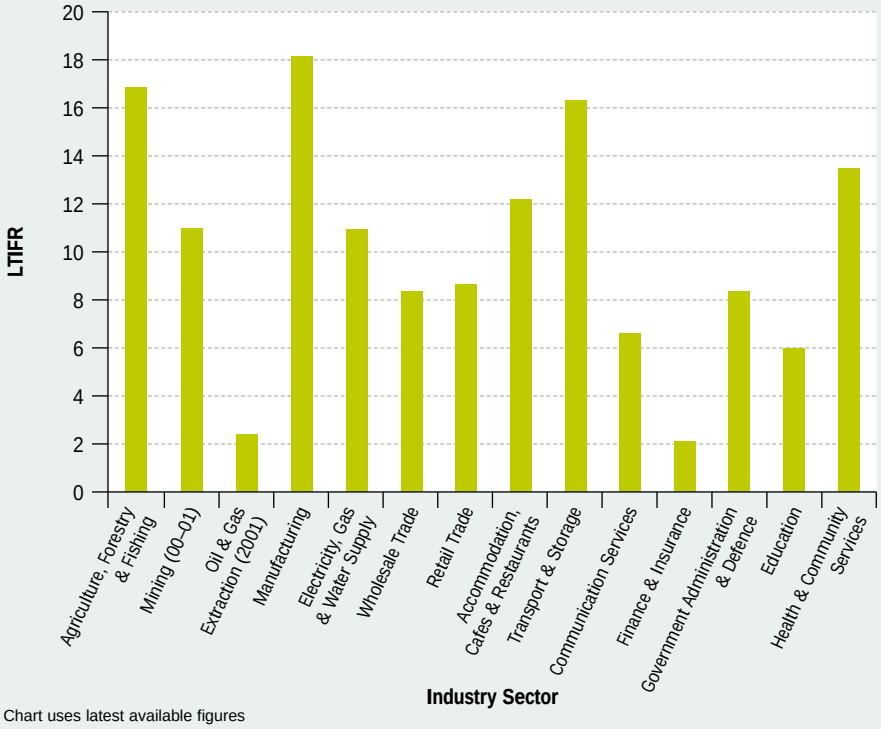
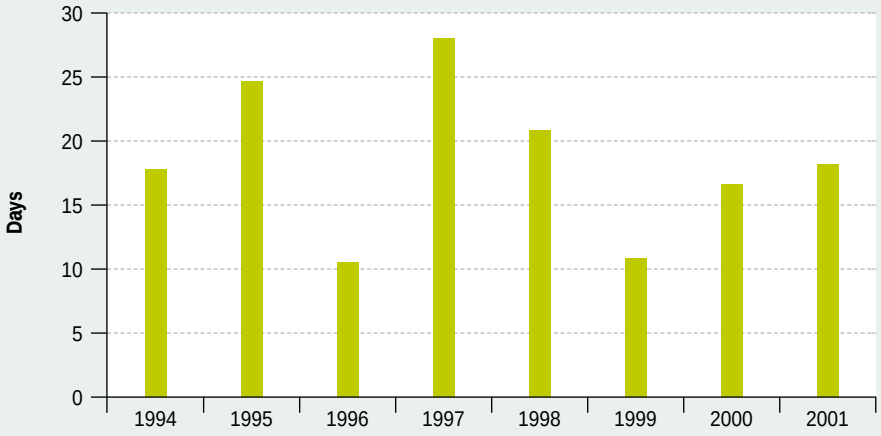


Chart uses latest available figures

Source: NOHCS, *Compendium of Workers Compensation Statistics, 2001*

FIGURE 2.3 Average Lost Time per LTI



Source: APPEA Safety Incident Database

Source: Esso Australia

Our Environmental Performance

One of the most important factors facing Australia's petroleum exploration sector is continuing access to resources. APPEA and its member companies are strongly committed to sound resource conservation and environment protection practices as an integral part of industry operations. The oil and gas industry has been exploring and operating internationally in some of the world's most sensitive environments for over a century, ranging from deserts, coral reefs, tropical rainforests and urban environments. Within Australia, the industry has been active since the 1950s, with no significant environmental impacts because there has been an effective (but arms length) working relationship between regulators, the community and the industry. Since that time, the Australian industry has sought to continually improve its performance to further minimise potential impacts to the range of sensitive environments in which it is capable of operating.

During 2001, APPEA established an environmental incident database to collect quantitative information regarding the environmental performance of the oil and gas exploration and production industry. An original trial of the database was conducted during 2000 and the database is now fully operational with the data collected during 2001 presented in this annual performance report. Given this is a new initiative by APPEA, while the vast majority of member companies are reporting to the environmental database, total coverage of all APPEA members is yet to be achieved.

Regardless, in addition to providing transparent information to the community regarding the industry's performance, it is envisaged that the database will provide a useful tool for environmental risk assessment and act as a benchmark against which APPEA members can strive for and demonstrate the continuous improvement in their environmental management practices. Many member companies also steward incidents internally to very stringent parameters, to further drive continuous improvement.

Data submitted by APPEA member companies to the Environmental Incident Database is independently compiled and verified by PricewaterhouseCoopers and then aggregated to provide an indication of the overall environmental performance of the Australian oil and gas exploration and production industry. APPEA and its members decided that the definition of a reportable incident in the Environmental Incident Database should be considerably broader than the incident reporting requirements under the *Petroleum (Submerged Lands) (Management of Environment) Regulations 1999*.

For the purpose of the APPEA database, a reportable environmental incident is defined as any incident that impacts on, or may potentially impact on, the environment or any activity that causes the specific conditions or limitations of a license or permit to be exceeded. Hence, any incident, whether it be a spill, leak, emission, quarantine breach or the sinking of a vessel, that has the potential to harm the environment, is reported. However, any discharge or emission that is permitted under a particular permit/licence condition is not considered to be an environmental incident. Fauna deaths resulting from vehicle collisions (ie "road kills") are not reported to the database.

The APPEA Environmental Incident Database even extends to the environmental performance of our service providers and contractors, such as drilling units and supply vessels.

Further information regarding the specific requirements of the APPEA Environmental Incident Reporting Guidelines can be found on our website: www.appea.com.au/environment/index.html

Source: Esso Australia

Number and Severity of Environmental Incidents

While APPEA and its members are pleased to report that there were no high consequence environmental incidents reported to the database by member companies in 2001, there were seven incidents recorded as having a medium impact. Medium impact activities typically result in:

- a minor/localised impact on sensitive environmental features (e.g. mangroves, corals, wetlands, etc.);
- significant short-term changes to flora/fauna populations, habitat and/or aquatic ecosystems;
- non-persistent but possibly widespread damage to land;
- damage that can be remediated without long term loss; and/or
- localised persistent damage.

Twenty seven low impact incidents were also reported by the industry in 2001. These low impact incidents typically result in:

- minor impacts on fauna, flora and/or habitat but no negative effects on ecosystem function;
- no significant impact on water resources or sensitive environmental features (e.g. mangroves, corals, wetlands etc.); and/or
- limited damage to a minimal area of land.

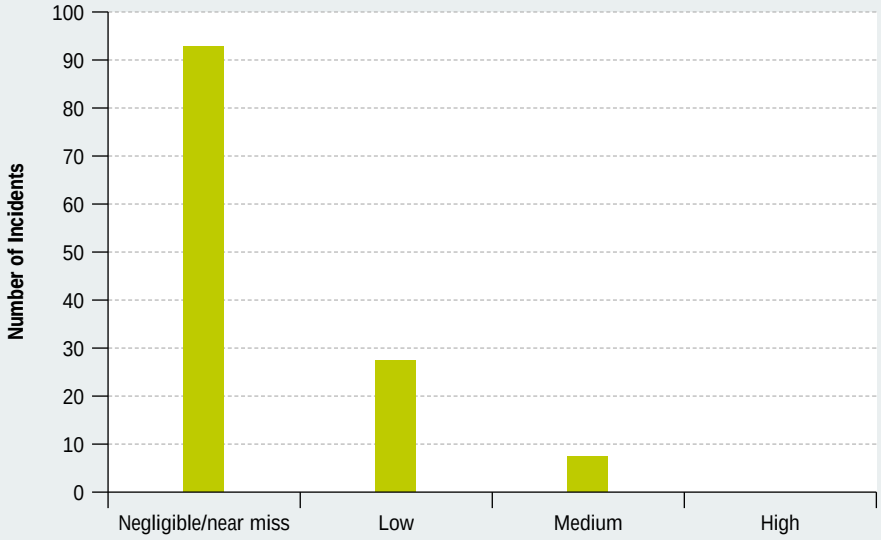
The largest number of total incidents recorded was by fixed platforms, but the greatest number of medium and low consequence incidents was recorded by production and processing facilities onshore. Pipelines and Floating Production, Storage and Offtake Facilities (FPSOs) also recorded a number of incidents.

TABLE 3.1 Environmental Incidents Recorded 2001

	Number	Percentage
Negligible/near miss	93	73.2%
Low	27	21.3%
Medium	7	5.5%
High	0	0%
Total incidents	**127**	

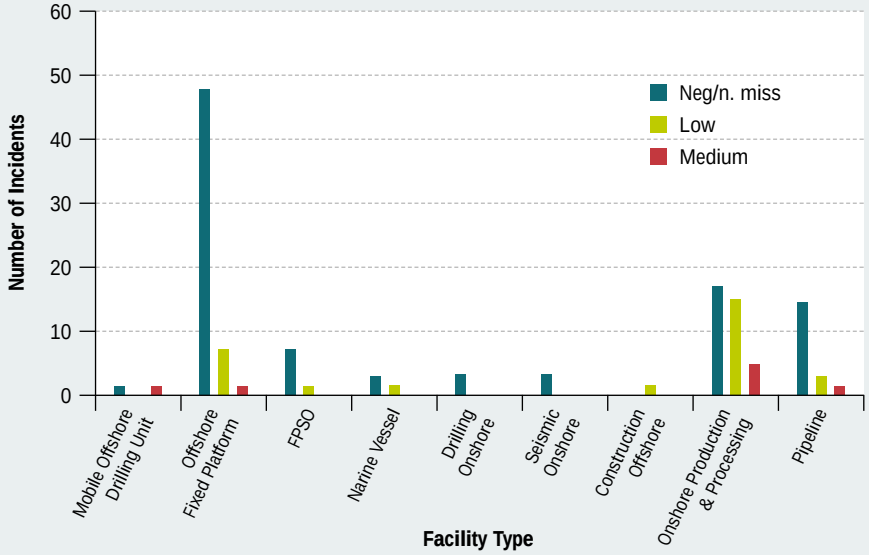
Source: APPEA Environmental Incident Database 2001

FIGURE 3.2 Environmental Incidents in 2001



Source: APPEA Environmental Incident Database 2001

FIGURE 3.3 Environmental Incidents by Facility 2001



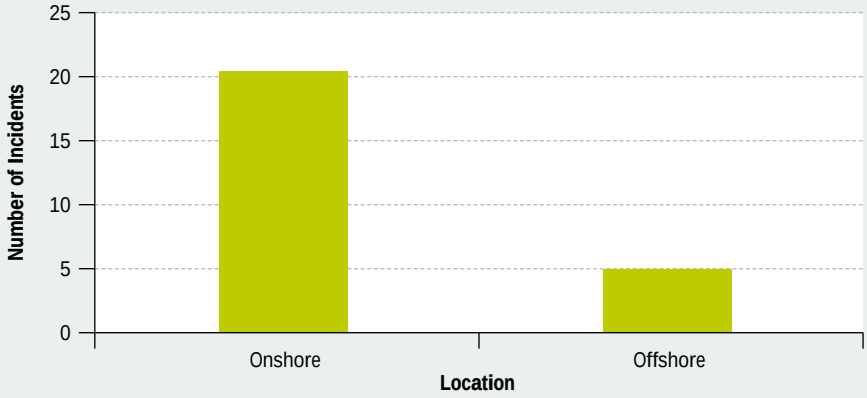
Source: APPEA Environmental Incident Database 2001

Accidental discharges into our environment

One of the greatest perceived impacts of the oil and gas exploration and production industry is oil spills into the environment. However, the perception and what has occurred in reality are quite different. World wide, the exploration and production industry contributes only about 2% of the annual petroleum inputs to the worlds oceans compared with 33% from marine transportation operations and 12% from tanker spills. In Australia, around 16,000 tonnes of oil discharge per year enter the marine environment through terrestrial runoff via sewage systems and urban catchments. The discharge of oil to both land and marine environments by Australia's oil and gas exploration and production industry is less than 1% of this urban contribution (Environment Australia, *State of the Marine Environment, 1998*).

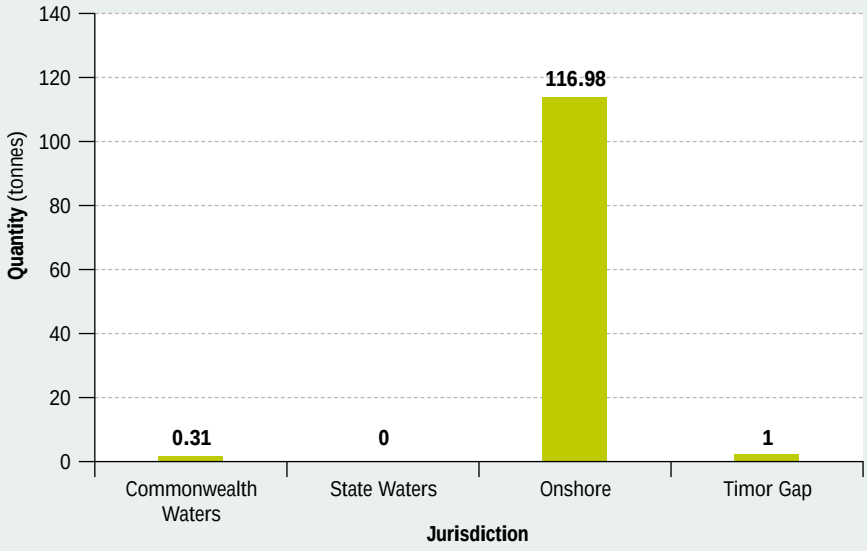
In 2001, just over 118 tonnes of oil was recorded on the APPEA Environmental Incident Database as being accidentally discharged by members into our environment (see Figure 4.2), and 3.4 tonnes of this was recovered. Of the total, 117 tonnes was spilt onshore and 0.31 tonnes into our marine

FIGURE 4.1 Incidents of Accidental Oil Discharge 2001



Source: APPEA Environmental Incident Database 2001

FIGURE 4.2 Quantity of Oil Discharged 2001



Source: APPEA Environmental Incident Database 2001

Source: Esso Australia

environment. Of these accidental discharges 35 incidents were under 1 tonne, and 5 were between 1 and 50 tonnes and there were no recorded discharges in excess of 50 tonnes.

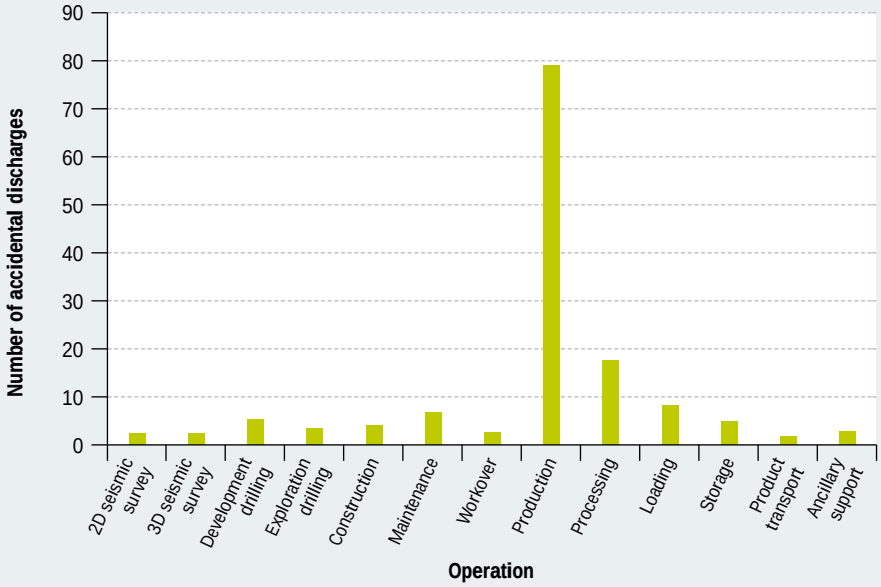
During 2001 over 23.3 million tonnes of crude oil was produced in Australian offshore waters, and over 1.27 million tonnes onshore. This means that there was one tonne of oil spilt onshore for every 11,000 tonnes of production (or an incident every 61,000 tonnes), and one tonne of oil spilt offshore for every 75 million tonnes of production (or an incident for every 4.6 million tonnes). However 118 tonnes of crude oil spilt by our industry into our environment still

exceeds our objective of no accidental discharges into our environment.

The figures recorded in the Environment Incident Database (see Figure 4.3) also indicate that by far the largest source of discharges is from production facilities, with 78 reported in 2001, followed by the next largest being 17 from processing facilities. While oil discharges are a concern for our industry, we must also strive to improve our performance in accidental discharges of produced formation water beyond licence parameters, hydraulic fluids and combustible products. Figures 4.3 and 4.4 illustrate the industry's performance in terms of the nature of operation, the substance accidentally discharged and the number of accidental discharges of oil.

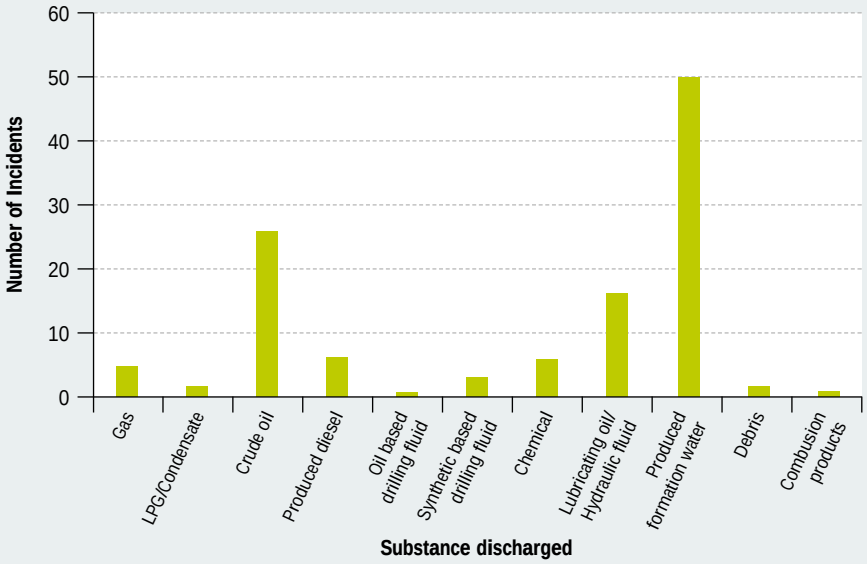
Source: BHP Billiton Petroleum

FIGURE 4.3 Accidental Discharges by Nature of Operation 2001

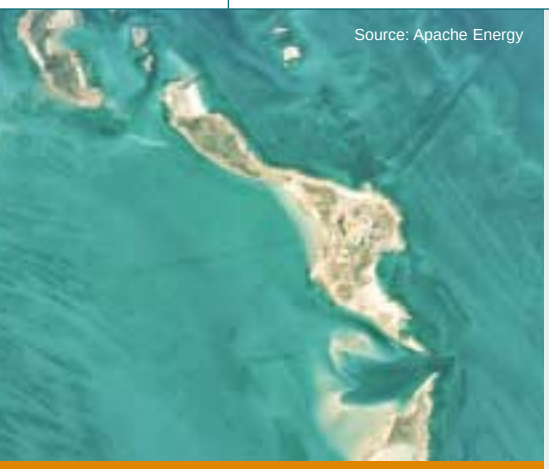


Source: APPEA Environmental Incident Database 2001

FIGURE 4.4 Accidental Discharges by Substance 2001



Source: APPEA Environmental Incident Database 2001



Source: Apache Energy

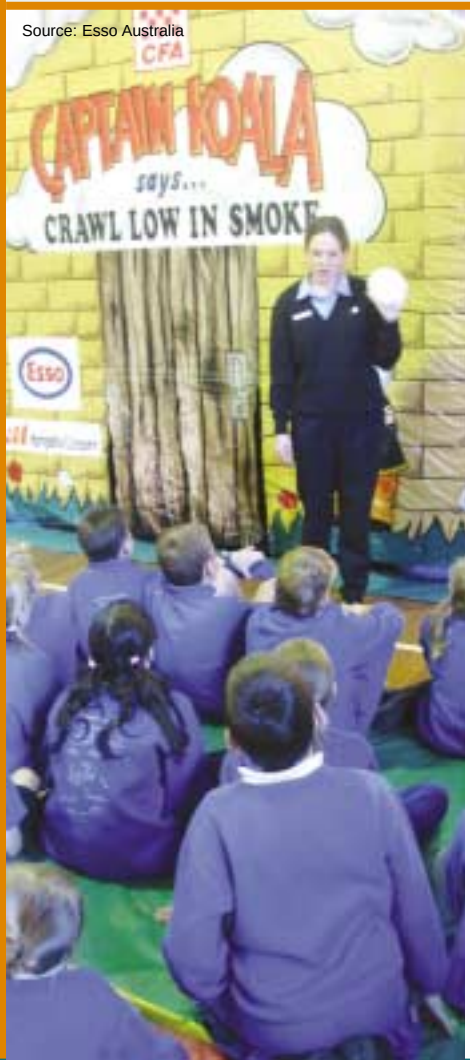
Playing our part in the Australian Economy – Our Socio-economic Performance

While many might think of Australia's oil and gas contribution to the Australian community purely in terms of economic benefits, our industry is a significant contributor to our communities through sponsorships, trusts and sharing our experiences. The industry is a major contributor to a number of significant national cultural events, while at local grass roots levels we have been able to form positive relationships with the communities in which we operate. From assisting local Landcare groups, to helping school children learn how to escape from fires, to bringing an opera experience to regional communities, we are increasingly contributing positively to Australian communities.

In regard to our significant socio-economic performance in 2000/01, Australia's oil and gas industry exported more than $14 billion dollars worth of crude oil and petroleum related products compared with petroleum imports that totalled around $10 billion, which makes the industry a net exporter for Australia. In addition to the export/import impact, domestic production of crude oil, condensate, LPG and gas has also allowed Australia to replace significant levels of potential imports. APPEA estimates that indigenous production

The interconnections within our community

Australia's oil and gas industry not only provides a significant benefit to the Australian economy through sales, import replacement and direct revenue to Australian governments, but is also integral to the success of so many businesses within Australia. A report conducted in 1999 for APPEA undertook a detailed survey to ascertain the level of involvement across the services sector in Western Australia with the petroleum exploration and production industry. Of the 954 service companies that were approached, 889 companies indicated that they have some involvement with the industry, 52 did not respond and 13 indicated that they had no involvement. The report indicated that companies who relied on the oil and gas industry included activities such as geoscience services, materials/goods supplies, engineering/construction, administration, technical services and transport. The survey concluded that within Western Australia alone over 17,000 employees depend on the petroleum sector for their work.



Source: Esso Australia

Esso Australia, BHP Billiton and Improving the Community's Fire Safety

Esso Australia, together with BHP Billiton, have jointly supported the Country Fire Authority (CFA) in Gippsland and Western Port (Victoria) to undertake a "Smokehouse" community fire safety project. The Smokehouse project is used to reinforce the "Crawl Low In Smoke" message and to enhance fire prevention and safety skills being taught in primary schools through the CFA "Brigades In Schools" program.

The smokehouse is an inflatable house, approximately 3 metres by 6 metres, similar to the inflatable jumping castles that are seen at fairs and shows. The smokehouse has internal walls, and is designed to be filled with theatre smoke to simulate a smoke filled building. Children get to experience what it would be like to be in a smoke filled room and how to exit safely.

replaced potential imports of petroleum worth up to $10 billion in 2000/01.

The petroleum exploration and production industry has historically been a major contributor to the Federal and State Governments via direct taxation payments. In 2000/01 alone, APPEA estimates that the industry paid to governments in excess of $3.3 billion in secondary taxation (in return for the right to produce the community's resource). In addition, the industry significantly assists the overall federal budgetary position through company tax payments, peaking at $2.5 billion for the year 2000/01, a year which coincided with a spike in international oil prices.

As a capital intensive industry, the petroleum exploration and production industry generates relatively less direct employment than other sectors of the economy. However, APPEA's annual survey of member companies suggests that the total level of direct employment in the industry exceeds 6,000, while the use of contractors in the industry is likely to double this number. Indeed, it has been noted in some studies that the industry tends to have a small petroleum company employment base with a reliance on a larger service sector.

Source: Woodside Energy

Supporting the development of Regional Communities

The oil and gas industry in Australia is operating in a large number of regional communities. The operations of our industry have resulted in the development of reliable energy supplies and provided significant regional development benefits to Western Australia and Victoria. In Western Australia, natural gas fuels power stations at Port Hedland, Newman, Kalgoorlie, Geraldton, Carnarvon, Mount Keith, Leinster, Karratha and Kambalda. In these areas, natural gas provides a reliable and relatively cheap fuel when compared with traditional energy supplies that must be transported by road over long distances. At the same time, significant quantities of natural gas are being reticulated to Mandurah, Kalgoorlie, Leonora and Busselton.

In addition, natural gas is providing significant opportunities for minerals processing ventures in the Pilbara and south west of the State. Alumina, nickel and iron ore projects are likely to be customers for large quantities of natural gas. The continued performance and growth of Australia's oil and gas industry will fuel significant regional economic development across Australia.

Source: Esso Australia

Our Greenhouse Response

As part of our commitment to health, safety, social and environmental values, APPEA seeks to achieve governmental greenhouse policies and credible industry actions to address greenhouse concerns which are economically and commercially viable. The Council of Australian Governments recognises that for the foreseeable future, Australia will be reliant on fossil fuels to meet its energy needs and in turn, gas as a fuel, particularly in power generation, can create improved emissions outcomes in Australia and that LNG exports can contribute to an improved global outcome. APPEA members are dedicated to economic emission abatement and sequestration, including continuous improvement in technology, market based policies, and research and development into abatement and sequestration options.

APPEA believes Governments should adopt a nationally coordinated approach to greenhouse policies, and continue to recognise that greenhouse policies must allow Australian industry to maintain its international competitiveness. The impact of greenhouse policies on the industry's customers needs to be recognised as a critical test of the appropriateness of greenhouse policies. APPEA has worked closely with government to develop ways to maintain international competitiveness in keeping with the Commonwealth Government's commitments to industry, including the LNG Action Agenda, taking into consideration international developments and their implications for Australia in its policy formulation. APPEA has provided input into modelling work on greenhouse projections and participates in wider dialogue to assist government in developing policies that ensure a least cost outcome for the industry and its major customers.

APPEA is an original signatory to the Greenhouse Challenge Program—an agreement with the Commonwealth that saw the industry commit itself to the implementation of action plans to reduce greenhouse gas emissions. The 2001 *Greenhouse Gas Emissions and Actions Plan Report*, covering emissions for calendar year 2000, continues to show improvements across the industry, not only in emissions intensity, but also changes to enterprise culture and management plans. Data from the reporting year 2001 is published in December 2002. A full copy of the report is available on the APPEA website.

TABLE 5.1 Emissions per unit of product

	Production (million tonnes)	**CO_2 Emissions** (million tonnes)	**Performance Index** (emissions per unit of product)	***Performance Index*** *(as reported in 2000 APPEA Greenhouse Report)*
1996	45.9	16.7	0.36383	0.37473
1997	47.7	16.6	0.34801	0.35849
1998	47.4	17.1	0.36075	0.38396
1999	48.3	16.5	0.34161	0.34161
2000	56.7	17.8	0.31393	N/A

The figures in the table above show that the performance indicator, which illustrates the greenhouse efficiency of oil and gas operations, dropped markedly from 0.34161 tonnes per unit of product in 1999 to 0.31393 tonnes per unit in 2000. The decline illustrates that while production substantially increased from the previous year, the emissions stemming from those operations have continued to decline. This is primarily due to the effect of Action Plans to reduce emissions and increase efficiency. Changes in the corporate outlook to climate change and the willingness of companies to embrace emissions abatement strategies is also a positive driver towards a lower carbon-intensive industry. Forecasts indicate that efficiency in the oil and gas industry will continue to improve.

Woodside's Onshore Gas Plant Greenhouse Gas Reduction Project

In 1999 Woodside Energy Ltd initiated a project to reduce greenhouse gas emissions from the LNG Trains on the Onshore Gas Plant (OGP) on the Burrup Peninsula in the North West of Western Australia.

The project titled "Re-routing Flash Gas to LP Fuel" aimed to reduce the amount of hydrocarbon gas vented to the atmosphere from the LNG sulfinol process. This was achieved by collecting flash gas produced in the sulfinol process and then routing the gas via a dew point conditioning unit and pressure let down, into the low pressure fuel gas system, for use as fuel in the condensate stabiliser and domestic gas furnaces. The project both recovered hydrocarbons that would otherwise have been vented to the atmosphere whilst simultaneously offsetting the amount of production gas required for heating purposes. The project was completed at a cost of $2.77 million and has cut CO^2 emissions from the OGP by approximately 300,000 tonnes per annum.

Future Directions

Source: Esso Australia

Throughout 2002, APPEA and its members will continue to develop and implement strategies to improve the health, safety, social and environmental outcomes in the future. Three key activities for APPEA and its members will include:

- working with governments, the community and workforce in order to improve the regulatory framework within which the industry operates;
- providing leadership to the industry to further improve the health, safety, environment and social performance of the industry; and
- improving the communication of our current performance and goals to our stakeholders and the broader community.

APPEA will continue to monitor government policies and processes, including the *Environmental Protection and Biodiversity Act*, marine protected areas, and regional marine plans. Members are also in ongoing consultation with governments regarding improving the arrangements to offshore petroleum safety regulations. APPEA will support consistent health and safety standards and practices at all levels of operations by members through a review of key guidelines consistent with the broader aims of the APPEA Council. The organisation will also further develop and deliver key safety related initiatives. It is also a key objective to effectively promote awareness and understanding of industry commitment to the adoption of health and safety initiatives, practices and policies to the community, decision makers and opinion makers.

To improve communication during 2002, the industry has undertaken to host a dedicated Health, Safety & Environment Workshop to be held in December 2002, expanding on the success of the Environment Workshop of 2001. This two day workshop will bring together Ministers, decision-makers (both State and Commonwealth), NGO's, community leaders, and industry practitioners. APPEA will also be hosting regular forums with NGO's to better understand the expectations of NGO's in terms of information sharing and ideas on environmental management.

The guidelines to industry will also be subject to an extensive review in 2002, including a survey of membership needs and current use of guidelines (both APPEA and internationally), a gap analysis and international literature review of industry guidelines, a review of the guidelines to consider inconsistencies, inaccuracies and liability exposure, and finally a consultation process with stakeholders. A revision will also be undertaken of the Environmental Code of Practice in consultation with government, NGOs and the broader community. APPEA will also be expanding on the work of the independent scientific study undertaken in 1994, with the publication of a new volume of research.

Source: Woodside Energy

Recognising our outstanding performers – The APPEA Annual Safety and Environment Awards

Source: APPEA Ltd

A strong feature of Australia's oil and gas industry is continuous improvement. To foster a culture of continuous improvement, APPEA and its member companies believe that it is important to give recognition to outstanding performance by teams of people in the industry. APPEA has developed a number of categories that recognize these outstanding performances in the fields of environment and safety.

All of the companies short-listed for both the Environment and Safety Awards in 2001 show that regular reviews and upgrades are an essential part of the industry's management systems. APPEA and its members congratulate the efforts of the winners of the APPEA Awards and commend the outstanding work of the short-listed finalists for 2001.

Congratulations also to the winners of the Safety Improvement Award, BHP Billiton Petroleum Pty Ltd, who have improved their already remarkable record and achieved the greatest improvement over the year in TRIFR performance of all APPEA members.

To be considered for an APPEA Award, a company must be a full APPEA member, must have operated a permit in Australia and must have conducted field operations during the assessed year. In addition, any company that has recorded a "High impact" environmental incident, or a fatality, during the year under review, or during the following year (prior to presentation of the Award) are ineligible for an Award. To be eligible for the Awards, member companies report to the Association on their performance in the relevant areas. The data is collected and verified by PricewaterhouseCoopers. Further to this, companies are required to submit a five-page description of their innovations in these areas. A summary of the winners' and shortlisted achievers' submissions follow.

2001 APPEA Environment Award

WINNER
ChevronTexaco

SHORT-LISTED
- BHP Billiton Petroleum Pty Ltd
- Esso Australia Pty Ltd
- Newfield Exploration Pty Ltd

2001 APPEA Safety Award—Category A (Operating Companies)

WINNER
Esso Australia Pty Ltd

SHORT-LISTED
- BHP Billiton Petroleum Pty Ltd
- Magellan Petroleum

2001 APPEA Safety Award—Category B (Explorationj Companies)

WINNER
Tap Oil Limited

SHORT-LISTED
- Kerr McGee NW Shelf Australia Energy Pty Ltd

Source: ESSO Australia

Source: BHP Billiton

2001 APPEA Safety Awards – Category A

WINNERS
Esso Australia Pty Ltd

Esso Australia Pty Ltd operates 20 offshore oil and gas facilities with over 300 wells, as well as gas processing and crude stabilisation. Other sites include a fractionation plant, tank farm, truck and tanker loading facilities, offshore support, a Heliport, and three training centres for fire, helisea and brucker training.

In 2001, Esso achieved the best ever Total Recordable Injury Frequency of 2.2 (per million hours worked) for employees and contractors for the Australia industry An analysis of potential significant incidents that do not result in injury showed a reduction from six in 2000 to three in 2001. The system for incident investigations has also been significantly improved in 2001, through training programs and process reviews. Esso's offshore hydrocarbon release performance also compares favourably with the best performers from UK operations.

A key focus of Esso's activities is management commitment and leadership to improve culture and systems. Esso's safety cases for its onshore and offshore operations support ownership and have achieved a behaviour change, in that development of the cases resulted in all personnel acquiring working knowledge of their safety case, a procedure enhanced by ongoing refresher training and reviews. This extensive employee involvement is the most innovative aspect of Esso's safety management. Comprehensive positive performance measures are used to integrate performance indicators, aiming towards a Flawless Operations Scorecard.

Esso's approach to preparing and implementing safety cases has received strong positive feedback from the industry regarding its applicability, and the organisation is the largest contributor of safety alerts on the APPEA web site. Workforce involvement underpins all of the company's strategies, utilising committee structures and contractor engagement. Site specific safety recognition schemes reward actions taken by teams in enhancing safety. Employees are empowered to address OHS issues, and external reviews have enabled continuous improvement and recognition of strengths.

All policies, procedures and systems build in ongoing continuous review and improvement, ensuring sustainability through regular reviews and forums. Diverse sources of performance information such as internal health and safety assessments, incident reporting and performance indicators are acted on and are effective in identifying and addressing opportunities for improvement.

SHORTLISTED
BHP Billiton

The Griffin Venture (GV) Safety Case is the primary document detailing the hazards involved in the activities undertaken by the GV and the measures used to control those hazards. The E-Safety Case initiative provides staff with electronic access to the Griffin Venture Safety Case. This has enabled a much wider use of this key information, as the package is simple and easy to maintain. By making the full Safety Case more accessible to facility managers, the e-Safety Case provides an alternative to providing simplified Safety Cases to the workforce. Also, BHPB's E-Permit to Work initiative provides staff with CD-ROM access to BHPB's Permit to Work procedures, which reduces onerous and resource intensive training. The results show that the integrity of the Permit to Work system has been maintained despite the brief training provided.

The Australian Operated Asset Team Health Awareness initiative encourages staff to take an active interest in their health, promoting long-term lifestyle changes with follow-up health assessments planned as routine activities. The initiative has achieved a very high level of involvement with increased participation in exercise programs and other benefits. It is expected that long-term benefits resulting from the program will include a reduction in workplace injury, a reduction in absenteeism due to illness, and increased production from a happier and healthier workforce.

SHORTLISTED
Magellan Petroleum Australia

The Palm Valley Gas Processing Facility is operated by Magellan Petroleum Australia Limited, and has been in production since 1983. The Palm Valley gas field lies in close proximity to the Finke Gorge National Park and local Aboriginal community groups, and therefore requires an overall safety management program incorporating safety measures considering the potential implications of field activities upon surrounding communities.

A comprehensive upgrade of the Safety Management System was undertaken, and a team approach throughout the company was considered the key to achieving successful outcomes and promoting a change in the culture. The upgrade was a two stage process, involving the development of procedures and practices, training and associated management of plant change and reporting systems in Part One, and Part Two incorporating design reviews and physical changes to the facilities.

Key initiatives include development by senior management of audit and review practices and procedures, reporting and development of personnel responsibilities and authorities and training requirements, utilization of qualitative risk management and assessment techniques, utilization of external consultants to assist Magellan personnel in the design and implementation of new systems, and an inclusive team approach for assessment and development of work practices, procedures and reporting.

2001 APPEA Safety Awards – Category B

WINNER

Tap Oil

During the 2001 calendar year Tap operated its first offshore well (Lindsay-1 in EP-364) and finalised planning for the offshore exploration well Banjo-1 in EP-397. Operations in 2001 were conducted without any injuries to personnel. As a small operator with limited operational activity and limited time to develop working relationships, the process of positive reinforcement of safe work practises with tangible, albeit small value, rewards proved very effective in focussing contractors on safe worker practises and rapidly building rapport.

Source: Esso Australia

As a relatively young company, Tap has developed its Safety Management System by drawing on industry experience; reviewing, selectively adopting and adapting appropriate industry best practice initiatives from other Operators. In this manner, Tap has developed an HSE management system that is effective, sustainable and appropriate both in terms of company size and frequency of operations. Tap considered its role was to lead by example, motivate and positively reinforce systems already in place, and ensure wherever possible that excellence in safety was a key factor in selection of contractors. Other initiatives included ensuring that safety was often a prime focus, for example, at the pre-spud meeting, and at daily meetings/briefings on the rig.

A key element of the Safety Management System is the process of continuous improvement. A reward initiative for workers was introduced, whereby the supervisor rewards 'on the spot' anyone he sees who is either clearly thinking 'safety' and working 'safely' or who puts forward a practical idea to improve safety in the workplace, be it a change in procedure or design. These rewards, such as lottery tickets ("scratchies") and corporate T shirts, have immediate effect in demonstrating to the worker that the Operator is both watching and recognising the effort the worker makes and in improving communications and the working relationship. This is particularly important in short duration operations.

SHORTLISTED

Kerr McGee

Kerr McGee's offshore program for 2001 consisted of drilling two exploration wells in the Timor Sea, and acquiring 4876 km of 2-D seismic in WA-295-P. Three safety initiatives were implemented in Kerr McGee's 2000 operations program and continued into 2001, which, along with safety programs and culture, contributed to again achieving zero TRIFR in Australia during 2001. In 2001, Kerr McGee internationally had an employee incident rate of 0.83 compared to a peer group average of 1.60. Their contractor incident rate was 1.58 compared to an industry contractor incident average of 7.90.

Kerr McGee recruited an experienced, local team, whose knowledge of Australia safety practices was instrumental in preventing pitfalls that less-experienced team members may not have recognized. The team was also able to construct working bridges between Kerr McGee policies and Australian industry.

A "Stuck Pipe Prevention Champion (SPPC)", with drilling experience and familiarity with the rig and its safety management practices, was recruited from another rig. The initial duties of the SPPC were expanded to oversee all safety practices, starting with the mobilization of the rig through to the completed drilling operations. Rig crews were encouraged to take a pro-active approach to safety management for themselves and their fellow team members, with substantial financial rewards, sufficient enough for the crews to remain interested and to be pro-active, offered for meeting key targets.

2001 APPEA Environment Award

WINNER

ChevronTexaco Australia

The ChevronTexaco approach to quarantine management for its Barrow Island oilfield since 1965 provides an excellent example of successful environmental management for petroleum operators. Barrow Island is a Class "A" Reserve, managed for the conservation of flora and fauna. The objectives of the Barrow Island Management Principles include the minimisation of the risk of pests inadvertently being transferred to the island, and the detection and eradication of pests in the event that they do arrive.

Several native species that have become extinct or endangered on the mainland remain secure on Barrow Island because introduced species have been successfully prevented from establishing on the island. After 35 years of oil production, and principally due to the successful quarantine program, Barrow Island remains one of the most important reserves for mammal conservation in Australia. No other island-based oilfield on the North West Shelf has been able to achieve this level of quarantine success.

ChevronTexaco's Quarantine Procedure is continually reviewed and improved, and is used by the company, and its suppliers and contractors. There are no known feral animals present on the island, and it is the largest land mass in Australia, and possibly the world, that is not infested by the black rat. In 2001, monitoring of mammals and weeds programs have been upgraded. The quarantine system for Barrow Island exceeded regulatory requirements and has set the benchmark for offshore island petroleum operations in Australia, and arguably worldwide. The approach to quarantine was, and remains, a reflection of a proactive and ecologically based approach to environmental management is now gaining wider adoption in sensitive environments.

The long-term success of the quarantine program for the Barrow Island oilfield could not have been achieved without the ownership of, and involvement in, the Quarantine Procedures by all ChevronTexaco employees and contractors. The use of training programs and manuals ensures that all personnel are empowered to take action in this area in an effective way. The ChevronTexaco approach to quarantine on Barrow Island has, in itself, been directly relevant to petroleum developments that have occurred on other offshore islands in the region. It is recognised that these principles have now been largely adopted by the industry. The Quarantine Procedure has been sought by various organisations, both in Australia and New Zealand, as a reference for establishing similar programs for other shore-based operations.

SHORTLISTED

Newfield Exploration

Newfield operates the FPSOs Jabiru Venture and Challis Venture located in the Timor Sea some 200 kms from the nearest coastline. During 2001, Newfield undertook comprehensive and systematic corrosion management to prevent loss of containment, with investigation and repair to the Jabiru Venture flow lines and the water bottoms of the crude oil tanks on the Challis Venture. Newfield also extended their corrosion management plan.

In 2001, Newfield initiated a review of the potential environmental aspects associated with chemical use on Jabiru Venture and Challis Venture. The information gained in this study will inform the second stage of the review, which will consider the fate and effects of these chemicals in the marine environment.

Source: ChevronTexaco Australia

SHORTLISTED

Esso Australia

Esso Australia operates in various environmentally sensitive areas, with 20 offshore oil and gas production facilities in Bass Strait and the Wandoo facilities on the North West Shelf. Innovative environmental management protocols were developed to ensure effective management of the environmental risks of the Northern Fields 3D Seismic Survey of the Gippsland Basin. All sites have integrated environmental management plans in place, and extensive reviews are undertaken periodically.

Other innovations of Esso Australia in 2001 included extensive oil spill prevention measures and training, cetacean interaction survey and mitigation programs, and key research into naturally occurring radioactive materials. Esso Australia also supports a number of community environment initiatives. The company has an impressive record of environmental performance, highlighting integrated management systems and workforce involvement, both at the development level and at implementation.

SHORTLISTED

BHP Billiton

In 2001, BHP Billiton Petroleum became the first offshore oil and gas producer in Australia to obtain ISO 14001 certification for its environmental management systems. BHP Billiton Petroleum was formally awarded ISO 14001 certification for its Perth office, the Griffin Venture, the Griffin Export Facility and associated pipeline infrastructure.

To obtain certification, a company must have an implemented environmental management system which includes an environmental policy and systems for the identification of environmental risks, processes to prevent or mitigate the risks, and procedures for staff training, emergency response and documentation management.

BHP Billiton recognises the advantages of ISO 14001 certification, and aims to have all key assets certified by 2004. Certification of Australian Operated Asset Team's (AOAT) operation well in advance of this internal target demonstrates a pro-active approach to environmental management, and sets a precedent for other BHP Billiton operations and for the industry as a whole.

APPEA Environment Workshop 2001

Biodiversity: Synergy or Conflict

In December of 2001, APPEA hosted an interactive workshop in Fremantle, WA. The event was well attended, with 120 representatives from all areas of the oil and gas industry, government bodies, and non-government organisations. The theme for the workshop was "Biodiversity: Synergy or Conflict?" and focused on Commonwealth environmental approvals processes, community concerns, and the industry's ability to operate in sensitive environments. Its purpose was to discuss the extent to which Australia's oil and gas industry is achieving an acceptable balance between exploration and production activities and their impacts on marine and terrestrial biodiversity.

The speakers included representatives from the World Wide Fund for Nature, the Whale and Dolphin Conservation Society, the National Oceans Office, the industry, and a range of government bodies. The workshops were highly productive, covering such topics as the Environmental Protection and Biodiversity Act and its effects, consultation and biodiversity conservation, development in sensitive areas, research and communication, and coexistence between conservation and resource development. The themes of transparency, consistency, responsibility, and early and effective consultation, for both industry and the government, were highlighted as requiring attention in the future.

The Environment Workshop was a valuable exercise for all participants, encouraging communication between sectors and thorough discussion of many sensitive topics. It enabled the various sectors to gather together for productive discussion and sharing of views, with the result of firmer cooperation and a strong view of the future.

APPEA's 2002 Health, Safety & Environment Workshop

Health, Safety and Environmental Responsibility – Corporate Citizenship in a Changing World

10–11 December 2002
The Sheraton Perth Hotel
Perth, Western Australia

Registration Brochure out now!

For further information, please see the APPEA Website

www.appea.com

or call Suzanne Nicholls on 02 6267 0906
or email snicholls@appea.com.au

Health and Safety Innovations & Initiatives

The Australian petroleum production and exploration industry enjoys an impressive health and safety record, both with respect to people directly involved in the industry as well as community stakeholders. In order to maintain this record, the industry is committed to working closely with government, employees, contractors and service providers to continually enhance practices, policies and performance.

As part of this commitment to health and safety, APPEA and its members have implemented a number of key initiatives designed to further enhance awareness and development of continual improvements in health and safety management. These include (as featured in this report), the annual Safety Awards, APPEA's Safety Alert System, and a series of health and safety guidelines. APPEA also supports various information forums such as the APPEA Conference and Journal, the annual Health & Safety Representatives Forum, and the regular meetings of its Health, Safety and Operations Committee.

APPEA Safety Incident Database

Since 1989, APPEA has been compiling quantitative information regarding the safety performance of the oil and gas exploration and production industry in a safety incident database. This database has enabled APPEA to provide transparent information to the community with respect to the industry's safety statistics, and has demonstrated a clear trend of improvement in safety performance. The APPEA Safety Incident Database was expanded in 1996 in order to collect additional information which is used for industry risk assessment.

Data submitted by APPEA member companies to the Safety Incident Database is independently compiled and verified by PricewaterhouseCoopers.

APPEA Safety and Environmental Alert System

During 2001, APPEA has continued to maintain the Safety and Environmental Alerts System, an online incident reporting system for Australia's petroleum production and exploration industry. The alert system was established to ensure that the details of incidents, near-misses and mitigating actions are available to member companies and their service providers to learn from in a timely, efficient and accurate manner.

During the year, APPEA and its members began the process of opening up the Safety and Environmental Alerts System to public access. This way, the broader community can benefit from the important environmental and safety learning of Australia's oil and gas industry.

Source: Woodside Energy

Environmental Innovations & Initiatives

The Australian petroleum production and exploration industry is continually looking to improve its record of environmental performance. The industry is proud of this record to date and is committed to pursuing environmental excellence through best practice and engagement in a range of innovative and proactive environment initiatives. The industry places a high priority on an improved understanding of the range of environments in which it operates, improving its environmental management and continuing to reduce impacts and risks associated with the industry's activities.

The petroleum industry is continuously undertaking scientific investigations and researching methods of modifying exploration and production practices so as to cause the least possible disturbance to the environment. Numerous environmental initiatives have been undertaken by APPEA member companies in order to gain further information about the environments in which they are working, to provide information to the community, to contribute to conservation and to improve environmental management. Part of APPEA's website is dedicated to the environmental initiatives of our members. In this way, APPEA promotes continuous improvement in performance, whilst providing a mechanism to report this progress to the public.

Source: Esso Australia

Apache Energy—Satellite Tracking of Hawksbill Turtles

Apache Energy operates oil and gas processing facilities on a portion of Varanus Island, off the coast of Western Australia. Varanus Island is a C class Nature Reserve for the protection of flora and fauna, and is a known nesting and feeding ground for the Hawksbill turtles (Eretmochelys imbricata), an endangered species.

Limited studies had previously been conducted on the habitat range of the population of Hawksbill turtles that visit and nest on Varanus Island. To ensure Apache operates the adjacent petroleum facilities in such a way as to protect the sea turtles and their habitat, female Hawksbill turtles were fitted with a satellite transmitter to plot their activity during the summer breeding season. The tracking was aimed at identifying both internesting activity during the Hawksbills' breeding season (where they go after nesting) as well as whether their habitat range was restricted to the surrounding waters of the Lowendals or extended further north of Australia following the completion of breeding and subsequent migration.

Very few large nesting populations of Hawksbill turtles are left in the world and consequently the major nesting areas in Australia are considered significant on a regional scale. The project is still ongoing and is being used to gather information on where Hawksbill turtles go after they have laid their eggs on the sandy beaches of Varanus Island. The information provided by the research project will identify the habitat range of the Hawksbill turtles of Varanus Island. It will determine if the population is restricted to the waters of Western Australia, or whether the turtles foraging range extends to northern Australia and beyond where they may come under threat from human activities.

Conservation Volunteers Australia

Esso and Mobil have been working with Conservation Volunteers Australia for almost a decade. Conservation Volunteers Australia involves the community in conservation projects in urban, regional and remote Australia ranging from tree planting, seed collection, endangered species protection, development of walking trails, fencing, flora and fauna surveys and environmental monitoring.

The most recent initiative supported by Esso and Mobil has focussed on the safety of volunteers involved with CVA projects. With Esso and Mobil's support, CVA has produced a risk assessment manual for all project leaders—Safety Prompts for Practical Conservation Projects. Safety messages have also been produced in a safety poster series and each volunteer receives a Safety Guide card. The safety prompts, which include 31 fact sheets, cover the commonly experienced risks and tasks undertaken by volunteers participating in CVA projects. Topics include: manual handling, falls, weeding, working at heights, working near water, working in snake habitat, using swinging tools, and working with chainsaws.

The safety manual was produced in recognition of the need for safety information to help project supervisors to develop risk control strategies and to talk with volunteers about safety issues and injury prevention.

Woodside's Partnership with the Western Australian Museum

Western Australia's North West Shelf is the leading area for exploration and production of hydrocarbons in the nation. The nearby Dampier Archipelago is a key component of nearshore marine ecosystems and is a major area for recreational activities such as boating, fishing and diving. The archipelago is known to harbour a diverse range of biota in a variety of habitats but this biodiversity has never been documented in detail.

As part of Woodside's commitment to move beyond regulatory requirements and continuously improve environmental management, Woodside entered into a multiyear partnership with the Western Australian Museum to document the Dampier Archipelago's marine biodiversity. The project aims to scientifically document the marine biota of the Dampier Archipelago; develop a collection at the WA Museum to permanently record the fauna collected; present the information to the scientific community and make the data available to environmental managers in Western Australia; and publicise the results through displays, a website and a major television documentary to be shown worldwide.

The project has involved over 40 scientists, with Woodside's primary commitment to the project being $636,000 paid over four years to the Western Australian Museum Foundation. The Woodside funding is being matched by the State Government, bringing the total project value to over $1 million, ensuring the benefits of the Woodside sponsorship will continue for many years into the future. In recognition of its importance this project, received Western Australia's Golden Gecko Award for Excellence in the Minerals and Petroleum Industries in 2001.

Source: Esso Australia

Social Innovations & Initiatives

The Australian petroleum production and exploration industry recognises its responsibility to the community regarding the environment, culture, and human health and wellbeing. As part of this, extensive community consultation is undertaken by members when considering new projects, including with environmental groups and indigenous peoples. The industry understands the need to recognise and respect the rights of other landholders and users, and so consults with government authorities and landholders before, during and after exploration, development and production programs.

The workforce is an integral part of any operation. Industry recognises that their employees are as much a part of the community as other stakeholders, and that the morale of employees is integral to the success of the operation, in terms of both safety and production. As such, the involvement of the workforce is essential in operational planning and innovation, and in social activities such as the Woodside Environmental Awards detailed in the following pages.

As the expectations of the community with respect to the petroleum industry increase, so does the industry's commitment to the community. This can be seen in Santos Ltd's cooperative engagement with the University of Adelaide.

Santos Ltd—Establishing A School of Petroleum Engineering and Management—Adelaide University

Source: Santos

Santos will fund a new School of Petroleum Engineering at the University of Adelaide to commemorate the pioneering contribution Santos has made over 45 years to the establishment and development of the petroleum exploration and production industry in South Australia. This $25 million commitment, which will be paid over a 10-year period, is believed to be the largest single industry sponsorship ever given to a public university in Australia.

The school will be fully operational by the year 2002 and will provide significant benefits to the University, a major institution in South Australia and Australia, as well as to the South Australian community, to Santos, and to the petroleum industry in this country. Santos is also committed to the community in many other different ways, including sponsorship of Circus Oz, and providing the fuel for the Eternal Flame in the Pool of Reflection at the Australian War Memorial.

Woodside's Environment Awards

Woodside Energy has successfully combined social objectives with environmental outcomes in their internal Environment Awards. These awards were inaugurated in 1997 as an extension of Woodside's emphasis on encouraging greater commitment to health, safety and environment within its workforce and to improve Woodside's environmental performance.

The Environment Award programme is open to all Woodside employees and contractors for projects and initiatives undertaken for all Woodside operations. Eligibility is based on projects that have made or will make a significant contribution to improving Woodside's environmental performance. The winner of each Woodside Environment Award receives $25,000 to donate to an approved environmental charity or project of their choice. The last winners of the Environment Award were the Green Transport Committee which achieved a 5% reduction in single occupant vehicle use, launched a popular web site with a carpooling database and public transport links and information, and initiated investigation into Woodside's fleet car conversion to liquefied petroleum gas.

Source: Esso Australia

OzOpera (Opera Australia)

Esso and Mobil's sponsorship of Opera Australia spans twenty-two years. It is one of the longest running business and arts partnerships in Australia. Esso and Mobil's support helps make possible the Opera Australia's touring programs known as OzOpera. OzOpera tours a modified opera and orchestra to remote and regional audiences around Australia. The OzOpera Schools Company tours a specially designed opera for primary school children in Victoria and New South Wales. Both initiatives aim to promote community access to opera and to share the talents of Australia's national opera company with broader audiences.

In 2001 the OzOpera performance of Rigoletto toured to Queensland, Northern Territory and Western Australia, including remote towns such as Mt Isa, Alice Springs, Karratha and Geraldton.

The Schools Company performance of the Barber of Seville entertained around 80,000 primary school children in Victoria and NSW. For many children this opportunity provided their first experience of opera. As well as developing an appreciation and knowledge of music and opera, it is also hoped that this kind of experience will assist students to actively participate in the arts and encourage them to value all that it offers. The Opera Australia partnership with Esso and Mobil is a good example of how industry and the arts can work together to provide a truly unique experience for people who might not otherwise get the opportunity to see live opera.

Data Appendices

REPORTING REQUIREMENTS

The requirements for reporting to APPEA's incident databases are outlined in the documents *APPEA Environmental Incident Database Reporting Guidelines* of November 2001, and *APPEA Safety Incident Database Reporting Guidelines* of May 2002. These documents ensure that data received from companies is consistent and comparable.

Statistics from industry are collected each quarter by PricewaterhouseCoopers, and are used in this report, APPEA's Annual Report, and in assessment of APPEA's Safety and Environment Awards, which are independently audited by PricewaterhouseCoopers.

METHODOLOGY

The health and safety performance data in this report is compiled from the APPEA Safety Incident Database and external sources including the National Occupational Health & Safety Commission (NOHSC), Minerals Council of Australia (MCA) and E&P Forum.

The APPEA Safety Incident Database was developed and implemented in 1989. The APPEA Health, Safety & Operations Committee has continually improved the operation of the database, to provide more detailed information and better output with which to assess the safety performance of the oil and gas exploration and production industry. The Committee has also developed comprehensive guidelines for reporting to the APPEA Safety Incident Database (see http://www.appea.com.au/safety_section/).

Incident reports are submitted to the database in accordance with the reporting guidelines on a quarterly basis. APPEA presents the aggregated information from member companies on a calendar year basis. The expansion of the database in 1996 enabled the collection of Total Reportable Incident (TRI) data, that is Lost Time Injuries (LTI), Medical Treatment Injuries (MTI) and Alternate Duties Injuries (ADI). The database also has the capability to record the nature, mechanism, breakdown and location of the incident, as well as the type of facility on which it occurred. These details are recorded for all employee and contractor incidents.

Key Industry Wide Indicators of Our Performance

Safety performance is assessed across the petroleum industry using the following indicators-

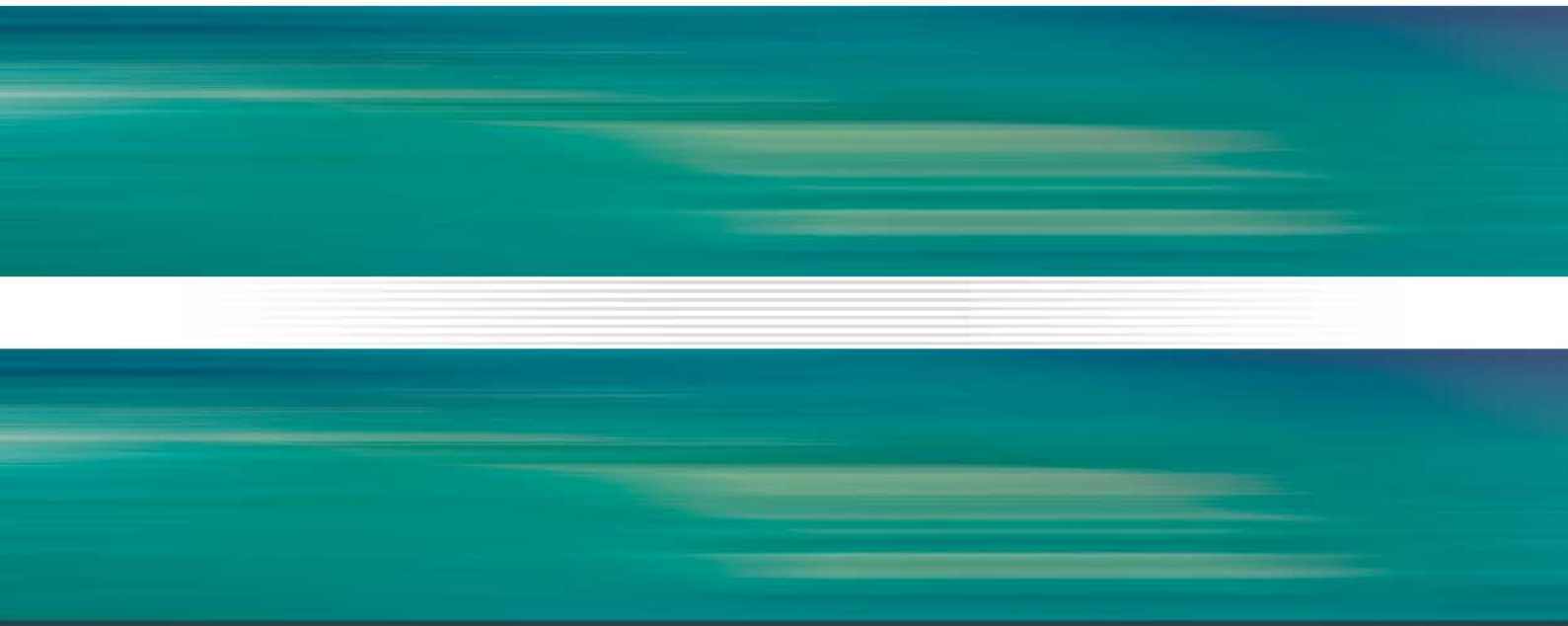
- **Lost Time Injury—LTI**. This is defined as an injury or occupational illness that results in a permanent disability; or time lost of one complete shift, day or longer, as defined on the current medical certificate.
- **Alternate Duties Injury—ADI**. This is defined as an injury or occupational illness that results in the injured person:
  - (a) being assigned to another job; or
  - (b) working at their permanently assigned job with some restrictions on duties; or
  - (c) working at their permanently assigned job with some restrictions on their working time

  for periods of a complete shift or day or more as defined on the current medical certificate.
- **Medical Treatment Injury—MTI**. This is defined as any work-related loss of consciousness, injury or disease requiring more than minor First Aid treatment by a medical practitioner or registered medical personnel but not resulting in lost time or alternate / restricted duties.
- **Total Reportable Injuries—TRI**. These include the following injury classifications: lost time injuries; medical treatment injuries; alternative duties injuries; and fatalities.
- **Frequency Rate—FR**. This is defined as the number of injuries per one million hours worked. The frequency rate is calculated as follows:

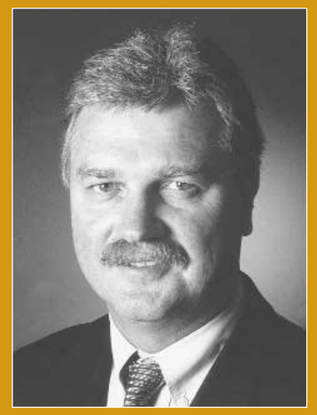
$$\frac{\text{Number of injuries in the period x 1,000,000}}{\text{Number of hours worked in the period}}$$

- **Average Lost Time**. The average of the time lost for each lost time injury. This is a measure of severity of the injuries and is calculated as follows:

$$\frac{\text{Number of working days lost}}{\text{Number of LTIs in the period}}$$



APPEA Chairman's Foreword



Dr Agu Kantsler
Chairman—Australian Petroleum Production & Exploration Association Limited

I am proud to introduce the first of APPEA's Health, Safety and Environment Reports. The decision by APPEA and its members to produce a dedicated report on these issues alone, illustrates the critical importance with which they are viewed by the industry.

Our industry does not see best practice safety and environmental management as an aspiration for the future. It is, and has been for some time, a critical, fully integrated part of our day to day operations. Our aspiration is zero safety incidents, zero occupational health issues and zero environmental incidents.

This report represents an important opportunity for APPEA and its member companies to communicate with our peers, regulators, our work force and the broader community about the environmental, occupational health and safety performance of Australia's petroleum production and exploration industry. It represents an opportunity to highlight the range of initiatives currently being undertaken by the industry and the future directions for improving our performance.

It is with the most sincere and deepest regret to those personally affected that we must report that in 2001 we fell short of our expectations and a fatality occurred in our industry. This loss, which is so keenly felt by all of us, serves only to reiterate that zero is the only statistic acceptable. In other measures of safety performance, 2001 was a good year with our best ever performance recorded for medically treated injury frequency rate and second best total reportable injury frequency rate. Again however, zero injuries must be our goal. It is attainable.

This was also the first year that APPEA has recorded industry wide figures on our environmental performance. Whilst it was pleasing that there were no incidents of high consequence, and only seven incidents of medium consequence, there was a large number of low consequence incidents in 2001. Our performance overall in relation to discharges of oil, produced formation water, hydraulic fluids and combustible products was disappointing and we clearly must improve in order to minimise the impact of our operations on the environment.

During 2001 APPEA and its members undertook a number of new initiatives. We held our first environmental workshop, recognised for the first time some of our peer's outstanding environmental performance through a new APPEA Environment Award, and commenced reviewing our Environmental Code of Practice. In 2001 APPEA and a number of member companies also worked cooperatively with governments in developing Guidelines on the Interactions between Offshore Seismic Operations and Larger Cetaceans, in order to minimise potential interference with cetaceans. A number of initiatives in the safety and health field in 2001 included significant input into considering improvements to the offshore safety regime; perception surveys of the workforce to provide an insight into the safety culture of our members; continued support for the successful Health and Safety Representatives Forum; and commencing reviews to improve the safety incident reporting guidelines and the permit to work guidelines.

I believe that this report highlights many of the very good things that we are doing, and demonstrates our commitment to health, safety and environmental issues. I encourage you all to consider the APPEA Health, Safety, Environment and Social Performance Report, to give us feedback on your views and to continue your wholehearted engagement of these most important "sustainability" issues into the future.

I wish you all the very best in your endeavours.

APPEA

AUSTRALIAN PETROLEUM PRODUCTION & EXPLORATION ASSOCIATION LIMITED

APPEA's 2002 Health, Safety & Environment Workshop

Health, Safety and Environmental Responsibility – Corporate Citizenship in a Changing World

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For further information, please see the APPEA Website
www.appea.com

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