Australian Institute of Petroleum

DOWNSTREAM PETROLEUM

ENVIRONMENT, HEALTH AND SAFETY

KEY MESSAGES

- AIP and its member companies are committed to safe and environmentally sound practices in their operations. AIP member companies in Australia share the general community concern for conservation of the environment, and seek to protect air, water and soil from contamination through their operations.
- In this commitment to safety and the environment, their aim is to:
  - achieve a zero accident/harm rate,
  - treat with care all materials that may cause pollution,
  - regularly maintain their refinery, terminal and retail infrastructure to comply with various Federal and State regulations,
  - maintain open communications with governments and local communities, and
  - support market mechanisms for conservation and wise use of our valuable energy resources.
- Some of the programs contributing to these objectives are the AMOSC oil spill response centre, the CRC CARE research program, the petroleum industry Health Watch program, production and supply of low aromatic fuels, and lubricants waste management and recycling programs.

AIP MONASH University Health Watch

HEALTH WATCH

For over 36 years AIP has sponsored an epidemiological study called Health Watch which tracks the health of over 20 ,000 past and present employees of the Australian petroleum industry.

HEALTH WATCH INFORMATION IS IMPORTANT IN IDENTIFYING FACTORS THAT MAY BE A HEALTH RISK TO INDUSTRY EMPLOYEES AND WAYS IN WHICH THESE RISKS MAY BE ADDRESSED.

Health Watch is an independent university-based research program, currently conducted by the Monash Centre for Occupational and Environmental Health, a leading international centre for epidemiological research at Monash University.

Health Watch is highly valued by petroleum companies and their employees and is an internationally respected study. Recently the study was expanded to provide new employees in participating company worksites across Australia the opportunity to join, which expanded the Health Watch cohort by 2 ,000 employees.

The study's findings are published in regular Health Watch reports. Overall, the reports have clearly and consistently shown that petroleum industry employees represented in Health Watch have better health than the general community.

The latest Health Watch Report (14th) published in late 2013 builds on the results of the preceding thirteen reports in demonstrating that:

- the chance of developing most types of cancer is no different for men and women in this industry compared with other Australians
- the overall cancer death rates in the industry workforce are significantly (30%) lower than in the general Australian population
- the death rate is lower for men in all major disease categories: heart disease (25% lower), cancer (20% lower), respiratory disease (30% lower), diseases of the digestive system (40% lower) and external causes like accidents (40% lower)
- the chances of dying or of getting cancer or heart disease are very similar no matter where Health Watch members worked, including refineries, terminal and distribution worksites and upstream production sites.

However, three cancers among men – prostate cancer, mesothelioma and melanoma are occurring at statistically significantly higher rates than in the general population, and will continue to be closely monitored:

- there are more cases of prostate cancer in Health Watch than expected, but death rates for prostate cancer are the same as the general population, suggesting effective early screening and treatment for this cancer
- there are 39 mesothelioma cases, largely in refinery workers who were hired before 1980, and some may have had asbestos exposure outside the petroleum industry
- there are higher rates of melanoma but this is not related to duration of employment which suggests it may not be associated with employment in the petroleum industry.

Health Watch also analyses the powerful effects of lifestyle on the health of industry employees:

- it is estimated that smoking has played a part in about 40% of the deaths among Health Watch members, but quitting smoking noticeably reduces the risks, and
- low to moderate drinkers have lower overall death rates than total abstainers, but heavy drinking (7+ drinks per day) remains associated with increased overall mortality.

For more information on the 14th Health Watch Report see:
www.aip.com.au/health/ohs.htm

The 15th Health Watch Report will be released early in 2018.

CRCCARE

A safer, cleaner environmental future

CRC CARE

AIP is a foundation participant of the Cooperative Research Centre for Contamination Assessment and Remediation of the Environment (CRC CARE). CRC CARE undertakes innovative, cutting edge research aimed at preventing, assessing and remediating contamination of soil, water and air. CRC CARE is delivering research outcomes that underpin policy development work, numerous technology patents and techniques, and extensive academic and industry training.

The research is divided into four complementary programs:

1. **Best practice policy:** More effective, efficient and certain national policy for assessing and remediating contamination,
2. **Better measurement:** More accurate, rapid, reliable and cost-effective measurement and assessment,
3. **Minimising uncertainty in risk assessment:** New technology, methods and knowledge for assessing risks to human health and the environment, and
4. **Cleaning up:** Innovative clean-up technologies and a wider range of effective management options.

AIP'S KEY FOCUS RELATES TO BOTH THE DEVELOPMENT OF THE NATIONAL REMEDIATION FRAMEWORK (NRF) AND THE DEDICATED CRC CARE PETROLEUM RESEARCH PROGRAM

The NRF will provide regulators and practitioners with practical remediation guidance to complement the National Environment Protection (Assessment of Site Contamination) Measure.

It is expected that the NRF will facilitate more effective and efficient site remediation where appropriate for the downstream petroleum industry. The success of the NRF will rely on the development of a clear pathway to adoption by regulatory agencies.

The Petroleum Research Program involves collaboration between industry, researchers and environmental regulators to develop best practice, risk based approaches to remediation of soil and groundwater contaminated by hydrocarbons. The program provides for the development of guidance documents relating to site characterisation, health screening levels for petroleum hydrocarbons, monitored natural attenuation, light non-aqueous phase liquid (LNAPL) remediation, and petroleum vapour intrusion.

CRC CARE is also leading a project on the assessment, management and remediation of perfluorooctanesulfonate (PFOS) and perfluorooctanoic acid (PFOA). These perfluorochemicals have historically been used to improve the ability of fire-fighting foam to smother fire. The project will not only develop comprehensive guidance documents for site assessment and remediation in relation to PFOS and PFOA, but CRC Care has developed a proven on-site solution called matCare that removes aqueous film forming foams from contaminated soil and wastewater.

OIL SPILL RESPONSE

Each of the companies involved in petroleum exploration and production, and in refining and distribution of petroleum products, has major programs in place to minimise the risk of a marine oil spill.

COMPANY PERSONNEL ARE ALSO TRAINED TO RESPOND TO ANY OIL SPILL SO AS TO MINIMISE ANY ENVIRONMENTAL IMPACT.

AMOSC
Australian Marine
Oil Spill Centre Pty Ltd

AMOSC's primary roles are to:

- provide equipment and personnel on a 24-hour basis to support a major oil spill response,
- maintain petroleum industry stockpiles of equipment for use in a response to a major oil spill,
- maintain the Australian petroleum industry Subsea First Response Toolkit,
- maintain and support petroleum industry capability to respond to oiled wildlife during an oil spill response,
- coordinate Australian petroleum industry mutual aid arrangements for oil spill response, and
- train, accredit and maintain a core group of spill response personnel.

These company specific petroleum industry activities are supported and supplemented by the Australian Marine Oil Spill Centre (AMOSC), a wholly owned subsidiary of AIP set up in 1991. AMOSC has offices at Geelong, Victoria and Perth and Fremantle, WA.

AMOSC also provides a range of ancillary services and advice to the petroleum and shipping industries, and to governments in Australia and in the South Pacific region on:

- oil spill response plans,
- selection and management of oil spill response equipment, including short term equipment hire,
- operational and strategic advice on oil spill response matters, and
- access to international oil spill response providers and petroleum industry spill response networks.

AMOSC forms a key part of the petroleum industry's commitment to support Australia's national oil spill response arrangements, as set out in Australia's National Plan for Maritime Environmental Emergencies, in petroleum industry obligations under the Environment Protection and Biodiversity Conservation legislation, and in requirements imposed on the petroleum industry by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

AMOSC resources and services are also made available to Australian governments, through a memorandum of understanding with the Australian Maritime Safety Authority (AMSA), to support responses to oil spills from general shipping and other sources.

AMOSC has provided substantial support to all major oil spill responses in the Australasian region for many years, including the Montara oil spill off the northwest of WA, the Pacific Adventurer and Shen Neng oil spills off Queensland, the Pasha Bulker incident at Newcastle, and the Rena oil spill in New Zealand.

FUEL FOR REMOTE COMMUNITIES

Petrol sniffing continues to be a major concern in some remote communities.

Industry actively supports Government initiatives to address this concern. Since 2005, the industry has produced low aromatic fuels to be supplied to remote communities and the regions surrounding these communities. Low aromatic fuel has been designed to discourage people from sniffing by lowering the amount of the toxic aromatic components, which give people who sniff petrol a 'high'.

THERE ARE AROUND 170 RETAIL SITES ACROSS QUEENSLAND, THE NORTHERN TERRITORY, WESTERN AUSTRALIA AND SOUTH AUSTRALIA THAT SELL LOW AROMATIC FUEL.

The replacement of regular unleaded fuel with low aromatic fuel in targeted regions is a proven strategy to reduce petrol sniffing. Research by the Menzies School of Health Research has found that:

- low aromatic fuel is linked with a continuing decline in the numbers and frequency of young people sniffing petrol in remote communities;
- sniffing rates have been reduced by 88% across communities surveyed since 2005-07; and
- a comprehensive regional approach works best to reduce petrol sniffing.

AIP member companies continue to work closely with federal, state and territory governments to help tackle petrol sniffing.

WASTE MANAGEMENT AND RECYCLING

Lubricants are not completely consumed in use and result in waste oil that needs to be collected and recycled. AIP members have adopted a product stewardship role for their products and are actively supporting the collection and recycling of waste oil and its packaging.

The Australian Government has introduced a product stewardship scheme for waste oil to support recycling, funded through an excise on sales of lubricants. AIP members are also active signatories to the Australian Packaging Covenant which aims to design more sustainable packaging, increase recycling rates, and reduce packaged litter.

AIP, on behalf of its member companies, established and operated a collection and recycling program for used plastic oil containers across Australia for more than ten years. However, due to significant free rider issues where around half of all market participants did not financially contribute to the scheme, the program was closed at the end of 2016. At full scale, over 430 collection sites across Australia were maintained by VIP Packaging on behalf of AIP, with around 500 tonnes of plastic being recycled into various industrial products.

AIP remains committed to identifying a workable solution where all industry participants (beyond the four AIP members) contribute to managing this waste stream. AIP supported the listing of Used Oil Bottles on the National Product Stewardship List and expects that this process will deliver a workable solution to this waste stream.

For more information visit www.aip.com.au