



HEALTHWATCH
WRAP UP REPORT



This report describes the history of the Health Watch Cohort.

For scientific findings see the Reports on the AIP and Monash University websites
<https://aip.com.au/programs/health-watch>
<https://www.monash.edu/medicine/sphpm/coeh/research/healthwatch>

What was Health Watch?

Health Watch was a cohort study following the cancer and mortality of over 20,000 people who have worked, or currently work, in the petroleum industry. By analysing the findings for various job roles within the petroleum industry and comparing cancer and mortality rates to those of the general Australian population, Health Watch offers valuable insights into industry and lifestyle associated risks.

Why did Health Watch close?

Health Watch followed the health of petroleum industry workers for over 40 years (since 1980). There has been little change in the findings in the past five years since the last report in 2018. Health Watch was therefore no longer providing new scientific information for the industry and its employees. The very longstanding and independent conduct of the Study and its strong international reputation provides well-based confidence in its published analysis and results over its extended investigation period.

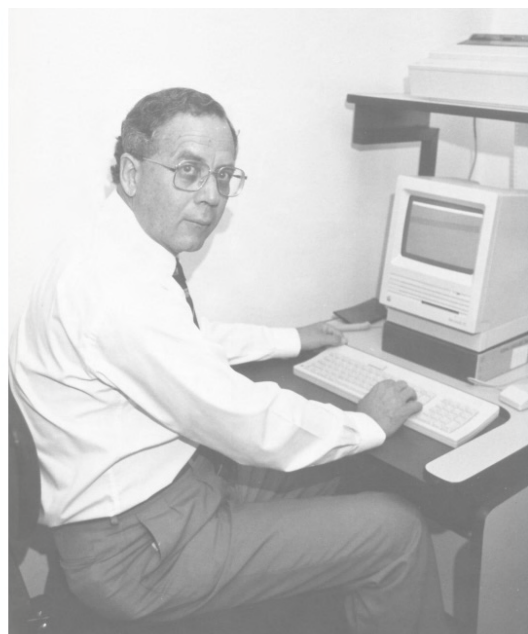
Who set up and oversaw Health Watch?

Health Watch was launched in December 1980 by the University of Melbourne under contract to the AIP after the commitment to the project was obtained from the Australian Council of Trade Unions (ACTU). Health Watch was governed by an Advisory Committee with membership from unions, oil companies and the university, together with independent epidemiologists.

Who managed Health Watch?

The University of Melbourne oversaw the study from 1980 to 1998, starting an investigation of benzene and blood cancers.

In 1999, researchers from Monash University, with the help of colleagues from Deakin University,



Professor David Christie

David was the Project director who designed and established the Health Watch study in the early 1980's at the University of Melbourne.

(Picture courtesy of University of Newcastle, Special Collections)

continued the benzene sub-study. The University of Adelaide took over the Health Watch study until 2005, after which it was transferred to Monash University. Monash University maintained the study through to its conclusion in 2023.

Who was in Health Watch?

This was a nationwide study which involved all oil companies in Australia. However, each individual employee could choose whether or not to participate.

Every employee in the petroleum industry was eligible to take part, providing that they had five or more years’ experience in the industry and worked on sites with at least ten employees. Those who were working in Head Offices at recruitment or as contractors or casual staff were excluded.



How many people joined Health Watch?

The baseline survey began in March 1981. By the middle of 1982, 93% of eligible workers had agreed to take part and had been interviewed (a total of 5000 employees). The table below illustrates the participation rate during the initial recruitment drive in the early 1980s.

Participation rate during initial recruitment drive

State	Employees Eligible	Employees Interviewed	Response Rate (%)
Victoria	3505	3227	93.5
Tasmania	103	98	95.2
South Australia	1169	1070	91.5
NSW	4007	3440	85.8
All States	8784	7835	89.2

Despite some unrelated industrial disputes in NSW, in total, 89.2% of the eligible workers took part. This is an astonishingly high participation rate. This success is thought to reflect: the extraordinary commitment of the staff involved with recruitment including the site nurses; the high level of trust from the workers because the survey was being led by universities and was therefore completely independent of employers; and the invaluable support from the ACTU at the time.

The table below illustrates the number of participants from each work site during each of the four major surveys. Most participants were recruited from refinery and terminal sites, which made up close to 80% of the workforce.

Number of participants recruited at each of the four surveys

	Number of recruits at each survey and year of recruitment (%)				
	1 (1981-83)	2 (1986-87)	3 (1991-93)	4 (1996-2000)	*Total
Refinery	4807 (41.6)	931 (25.9)	1239 (37.6)	704 (47.6)	7681
Terminal	5097 (44.1)	1238 (34.4)	1101 (33.4)	429 (29.0)	7865
Airport	426 (3.7)	104 (2.9)	57 (1.7)	47 (3.2)	634
Onshore Production	833 (7.2)	1094 (30.4)	795 (24.1)	295 (19.9)	3017
Offshore Production	398 (3.4)	233 (6.5)	105 (3.2)	4 (0.3)	740
Total	11561 (100)	3600 (100)	3297 (100)	1479 (100)	19937

*Participants were only included once they reached their 5 years employment in the petroleum industry. 220 participants were later excluded due to withdrawal of one company from AIP. 15 participants withdrawn at member's request.

The table below illustrates the numbers of men and women who took part in Health Watch. Reflecting the workforce overall, most of the participants in the study were men. Over the 40 years of the study, a similar proportion of men to women was retained.

Men and Women in Health Watch from 1981 to 2020

	1981	1982	1983	1984	1986	1987	1989	1991	1996	2007	2020
Male	2333	5524	8335	8841	9979	10262	12181	12935	15709	16623	16660
Female	95	253	373	412	510	539	679	760	1199	1374	1374
Total	2328	5777	8708	9253	10489	10801	12860	13695	16908	17997	18040



Risk by Job and Workplace

The Health Watch study categorised workers by their job. The job types were Drivers, Refinery Operators, Terminal Operators, Maintenance, and Office workers. Five types of workplaces were also considered, namely: Refinery, Terminal (Distribution Centre), Airport, and Onshore and Offshore Production (production of crude oil and natural gas), allowing the researchers to compare health effects for different types of workers in different settings.

Personal risk of disease

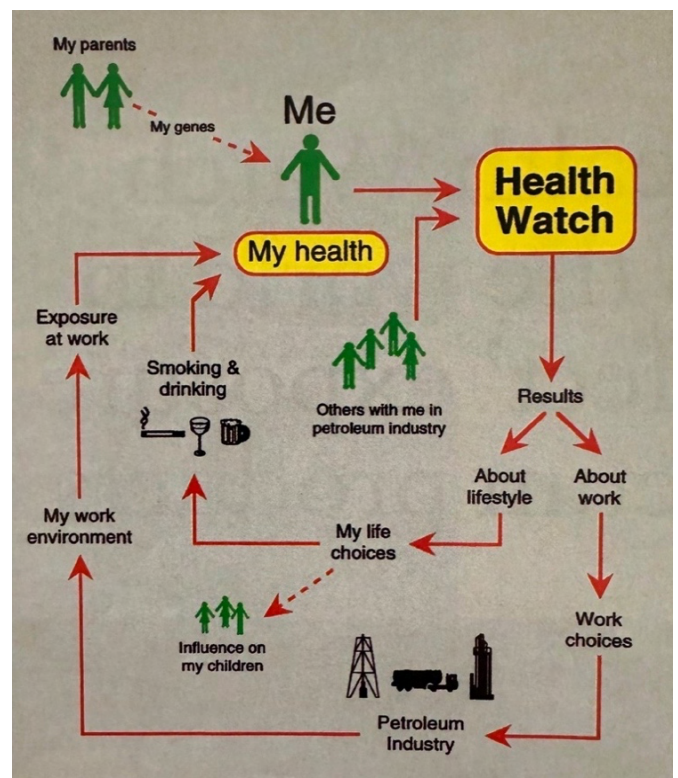
Risk of disease throughout life is affected by many factors, including genetics, the environment, our lifestyles, and our dietary habits. The workplace is an important part of our environment. However, to understand whether factors at work are creating or exacerbating illness, it is important to consider the other factors. To do this, the survey asked workers about a range of factors, including age, sex, cigarette smoking, alcohol intake (see diagram, below).

Smoking probably played a part in over 40% of deaths.

There is a noticeable and unsurprising pattern indicating that smoking is linked to an elevated risk of overall mortality, particularly from heart disease. Smoking is also associated with an increased risk of overall cancer incidence and cancer related mortality, and of bladder cancer incidence.

Risk of lung cancer and heart disease is clearly reduced by quitting smoking.

Heavier drinkers who consume up to 3 drinks per day experience a 50% higher death rate and a 22% increased rate of cancer compared to moderate drinkers.



This diagram was taken from the 1996 Petroleum Gazette and illustrates the effects of lifestyle factors and employment. It indicates that health is influenced by genetics and lifestyle as well as the work environment.

Monitoring workers after the survey

The workers gave Health Watch permission for ongoing monitoring. Over 40 years, the study monitored the cause of death and when these workers died, regardless of whether they were still working or had retired. To begin with, Health Watch collected information about deaths from company reporting systems. The records were checked, when necessary, with the certifying doctor. All the companies cooperated in forwarding information, initially twice per year, letting Health Watch know about people who had transferred employment, retired, resigned or died. More recently, as more workers had retired, companies provided updates every five years. The research team kept in contact with retired employees through the mail using a questionnaire, and in the early days, company pension systems.



Monitoring deaths

After each reported death, the researchers obtained copies of the death certificate to understand the cause of that death. In later years, deaths were monitored every five years by linking the Health Watch cohort to the Australian Institute of Welfare's (AIHW) National Death Index (NDI).

Monitoring cancer

A unique feature of the Health Watch study (compared with other studies in this industry at the time) was that researchers not only monitored deaths from cancer, but also monitored for all new cases of cancer. In the beginning, researchers checked the study cohort with each individual State Cancer Registry. In later years, the cancers were monitored every five years by linking the cohort to the AIHW's national Australian Cancer Database (ACD).

Early Results

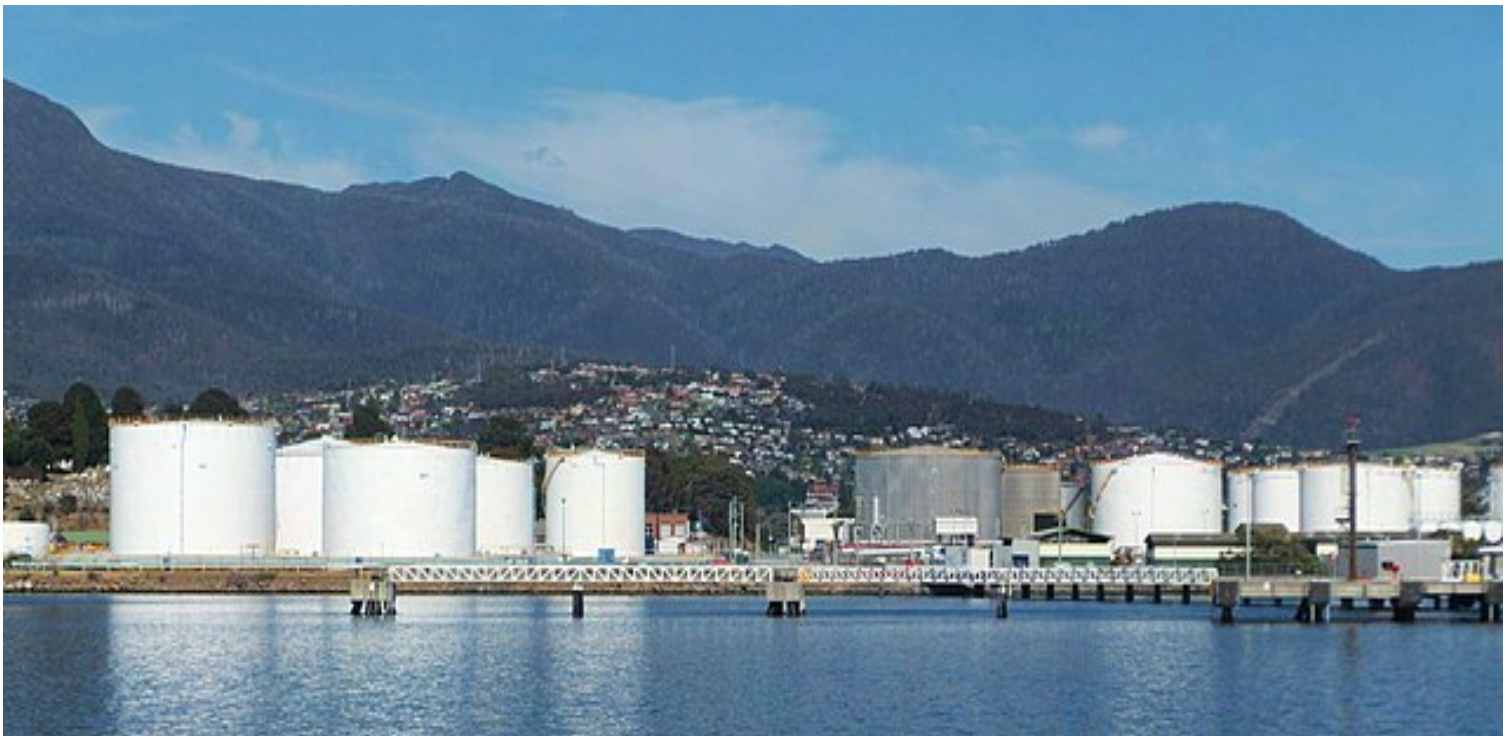
The early Health Watch Reports focused on recruitment rates, and age, sex, and geographic distribution. Rates of contact with employees were also highlighted. The research teams worked tirelessly to keep contact with all workers so that they would not miss monitoring their health.

By 1984, the first information became available on early deaths and cancers. Amongst all workers in the study, the observed number of deaths was considerably lower than that expected (only 61%). This means that the workers in the study were 39% less likely to have died at the time than an equivalent group drawn from the general population of Australia (see box right).

MALES				
Age	Observed	Expected	O:E	95% Confidence Interval
20-29	1	2.12	0.47	0.01 - 2.62
30-39	4	8.96	0.45	0.12 - 1.14
40-49	12	20.65	0.58	0.30 - 1.02
50-54	16	21.03	0.76	0.43 - 1.24
55-59	21	30.43	0.69	0.43 - 1.05
60-64	6	16.58	0.36	0.13 - 0.79
65-69	2	2.67	0.75	0.09 - 2.71
SMR	62	102.44	61	46 - 78

FEMALES				
SMR	Observed	Expected	O:E	95% Confidence Interval
SMR	2	1.92	104	13 - 377

All-cause mortality (1982 Australian rates as standard)
Table 5.1.1 from Health Watch 1984 Annual Report



In many ways, this was expected. People who have steady jobs are in general, healthier than people who don't have such jobs. In any population sample, some people will be unable to work because of poor health (this is called the "Healthy Worker Effect" by researchers). To check this, the rates of death in the petroleum workers were compared with rates of dying amongst another group of workers (Australian Government employees). Here, it was shown that rates of death were very similar amongst Government employees and the Health Watch workers.

The early reports found few cases of cancer in Health Watch, which was reassuring.



Blood and lymphatic cancer risks and benzene exposure

Health Watch results published in the 6th Annual Report (1986) for the first time showed an increased risk of a particular group of cancers affecting the parts of the body that make blood and lymph (known as lympho-haematopoietic cancers). The actual number of people affected was small (9 deaths and 20 cancers), but the research team investigated further.

	Cancer Category	Observed	Expected	SIR
7th repost 1987	Non-Hodgkin lymphoma	8	4.5	1.8
	Multiple myeloma	3	1.4	2.2
	Leukaemia	9	2.7	3.3
	Lymphatic leukaemia	3	1.1	2.9
	Myeloid leukaemia	5	1.4	3.7
	Other leukaemia	1	0.3	3.1

The SIR is the risk compared to the general population. A risk of 1 would be the same as that for the general population.

To find out more, the research team set up a different type of study called a case-control study in which people with diagnosed blood and lymphatic cancers were directly compared with other Health Watch workers (four people for every one case) who were similar in other ways (year of birth, sex and smoking history) but did not have these cancers. The research team was looking for whether those workers with the cancers were more likely to have worked with benzene. Benzene is known to cause cancer.

The study found that there were more cases of leukaemia amongst employees who had worked with the greatest amount of benzene, either over time, or the highest doses over a shorter time. This was a potentially important finding but was based on a small number of cases. This finding needed to be explored in a bigger study to ensure it was not a coincidental finding. Therefore, in 2012, the research team undertook another larger case-control study combined with research teams from overseas who were also doing studies in petroleum workers. The combined case-control study was funded by the Conservation of Clean Air and Water in Europe (CONCAWE), the American Petroleum Institute, the Aromatic Producers Association, Energy Institute, Australian Institute of Petroleum, and the Canadian Petroleum Products Institute.

With more cases, the larger study found a link between benzene and a condition called Myelodysplastic Syndrome (MDS) which is a rare blood condition. The risk of MDS increased in Health Watch, 41 cases vs 34 expected but the increase is not statistically significant.

BENZENE

In Australia, benzene levels in petrol ranged from 1-5% by volume before regulatory measures were in place. Efforts to reduce benzene in petroleum products were driven by health concerns and regulatory measures, including the Australian Fuel Quality Standards Act 2000. This act set maximum limits for benzene in fuel, reducing it to about 1% by volume. The regulation aimed to improve air quality and protect public health by ensuring fuels meet strict quality standards. For those working in industries with potential benzene exposure, Safe Work Australia now has guidelines and monitoring requirements to safeguard workers' health, including regular health checks and protective measures. There is also improved refining processes which helped to reduce benzene emissions and contamination. The combined efforts of health and safety regulations and technological advancements have significantly decreased levels in both petroleum products and in the petroleum workplace.

The risk of leukaemia in Health Watch is now lower than that of the general population, 98 cases where 127 would be expected, based on rates in the Australian population (see box below). Acute Myeloid Leukaemia (AML) is associated with exposure to benzene. There were 24 cases of this type of leukaemia in the Health Watch cohort, less than the 32 expected cases.

	Cancer Category	Observed	Expected	SIR
16th Report 2023	Non-Hodgkin lymphoma	164	162.5	1.0
	Multiple myeloma	66	60.0	1.1
	Leukaemia	98	127.0	0.8
	Acute lymphatic leukaemia	<6	-	-
	Chronic lymphatic leukaemia	45	59.9	0.8
	Acute myeloid leukaemia	24	32.2	0.8
	Chronic myeloid leukaemia	13	11.7	1.1
	Other leukaemia	13	19.6	0.7

Final Results

Men in Health Watch remain around 20% less likely to have died than men in the general population with the same age range. Women in Health Watch are around 30% less likely to die than women in the general population.



The age-adjusted mortality rate from all cancers combined is significantly less than in the general population.

The risk of getting most types of cancer was found to be similar to, or lower than, that of other Australians of both sexes. There is a significant reduction in rates of liver and lung cancer and cancers of the lip, oral cavity and pharynx.

Cancer and mortality rates do not appear to be affected by employment duration in the industry. This suggests that neither are related to job exposures. The long running Health Watch study was designed to detect any such increased risks.

Mesothelioma was higher in Health Watch than in the general population, 63 cases compared to 40 expected cases. This cancer is strongly linked to asbestos exposure but diagnosis may occur 30–40 years after first exposure. There have been 14 new cases diagnosed after 2016. Unfortunately, asbestos is a very effective insulator, so it was used extensively in Australia in the 1950s and 1960s, including in the petroleum industry. Its use was banned in Australia in 2003. Among Health Watch members, most mesotheliomas occurred in those who worked as refinery operators or maintenance operators. They may also have worked in other industries where asbestos was used.

Melanoma (a skin cancer) rates in the early 1990s were increased in Health Watch workers compared with general Australian rates. This increased risk varies by state from 9 to 34% higher than expected. Importantly, we saw no increased risk of dying from melanoma.



Melanoma is the cancer most strongly associated with exposure to ultraviolet (UV) light from the sun.

All outdoor workers need to use sun protection and employers have such policies in place.

Prostate cancer is the most common male cancer in Australia. In the Health Watch study, we first found an increased risk of this cancer in 2005, and this finding has remained throughout the rest of the study. Importantly, the rate of dying from prostate cancer was not increased in Health Watch men.

Higher screening rates in Health Watch participants?



A possible explanation for increased numbers of melanoma and prostate cancer cases but no increased mortality, is that Health Watch members may have been more likely get their skin checked for melanoma and take a blood test for prostate cancer (the test is not part of national cancer screening program in Australia). More active screening would increase the rate of detection of early cancer (higher rates of diagnosis) which is treatable.

Summary

As we look back on the Health Watch study in 2023, more than half of participants are now over 70 years old and only about 1000 participants continue to be employed. As with all other reports, we still find that Health Watch employees in the Australian petroleum industry were healthier than the general Australian population and less likely to die from cancer, heart disease, lung disease and digestive diseases. Their chance of developing most types of cancer is similar to, or lower than, that of other Australians.

Changes in practices

In Australia, the petroleum industry has undergone major changes in health and safety practices over the years, mirroring global trends while also addressing national and regional challenges. The country's approach to workplace health and safety, particularly in the petroleum sector, has evolved to become more proactive, with a strong emphasis on risk management, environmental stewardship, and the wellbeing of workers. Here are some examples of how practices have changed in Australia for health and safety reasons:

Stricter Regulations and Standards

- Then: Regulations were often reactive, put in place after accidents or disasters.
- Now: There is a proactive approach to regulation, with strict guidelines for operations, safety measures, and environmental protection. Regulatory bodies like Safe Work Australia enforce rigorous standards, and companies often implement their own internal policies that exceed these requirements.

Enhanced Personal Protective Equipment (PPE)

- Then: Basic personal protective equipment (PPE) like hard hats and steel-toe boots were the norm, with limited attention to specific hazards.
- Now: Comprehensive PPE protocols include flame-resistant clothing; advanced respiratory protection; hearing protection; and equipment designed for specific hazards like Hydrogen Sulfide (H₂S) gas.



Improved Health Monitoring for Workers

- Then: Health monitoring primarily focused on immediate risks and injuries.
- Now: There is a holistic approach to worker health, including regular health check-ups, mental health support, and monitoring for long-term occupational illnesses. Companies are more proactive in identifying and mitigating health risks, including those related to exposure to hazardous substances.

Adoption of Advanced Technologies (see box below)

- Then: Manual processes and direct human intervention were more common in operational tasks.
- Now: The industry has embraced digital technologies, automation, and remote operation capabilities.



Top loading (left) refers to the process where the product is loaded into the tanker through openings at the top. This method was used for many years and involved. During top loading, the tank is open to the atmosphere which can lead to the release of vapours, especially with volatile substances like gasoline. Top loading can pose higher risks of overfilling and spillage. Operators need to be vigilant, and safety mechanisms like overfill protection devices are

Bottom loading (right) on the other hand, involves filling the tanker through connections located at the bottom. Bottom loading is generally considered more environmentally friendly due to reduced vapour emissions and the ability to capture and control those emissions more effectively. Bottom loading is safer for operators, reducing the risk of falls and exposure to harmful chemicals. The risk of overfills and spills is also lower. Bottom loading can be more efficient, with faster loading times and the ability to load multiple compartments at once.

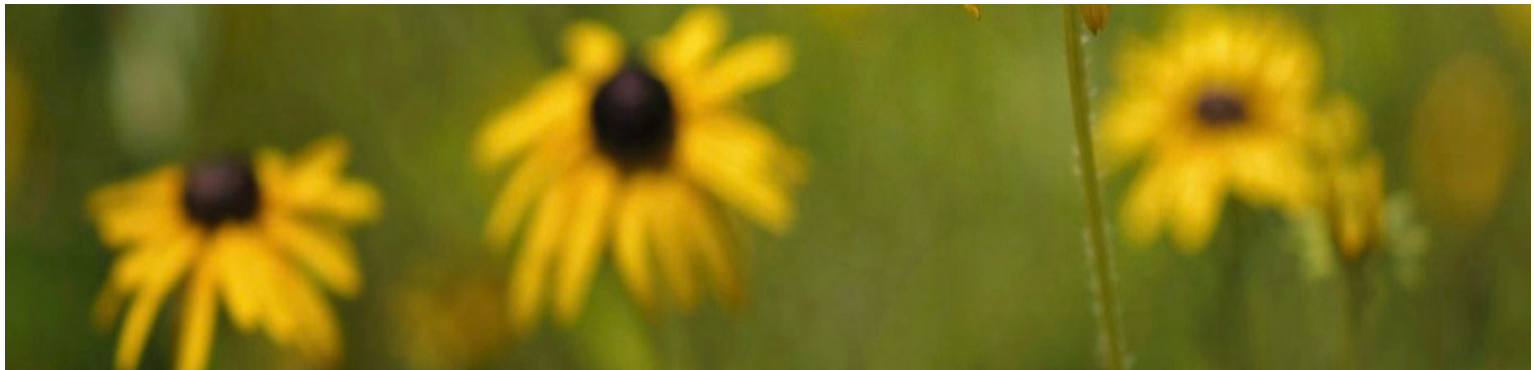


Pictures kindly provided by Noel Tresider (historyofavgas.com)

Stringent Environmental Regulations

- Then: Environmental regulations existed but were not necessarily strictly enforced and there were less strict limits on emissions and discharges.

Now: Australia has implemented stricter environmental regulations and oversight, particularly for operations in sensitive locations. This includes tighter controls on emissions and requirements for comprehensive environmental impact assessments before new projects are approved.



These changes in practices within the Australian petroleum industry reflect a broader global shift towards sustainability, safety, and social responsibility. They underscore the industry's response to evolving societal expectations, regulatory requirements, and the imperative to protect both human and environmental health. The petroleum industry continues to evolve, with ongoing research and development aimed at further reducing risks and enhancing safety for workers and the environment.

Health Watch Reflections



Professor Deborah Glass (Researcher)



I worked on Health Watch from 1995 to 1997 carrying out the benzene exposure assessments for the nested case control study. I job shared with Dick Manuell who had been the occupational hygienist at Esso. His knowledge of the industry over time was invaluable; he had joined Atlantic Union Oil in 1947. He is a true gentleman, still going strong in his nineties and was a pleasure to work with. I based my PhD on this work. I joined Monash University in 1998 and extended the nested case control study. In 2006 I collaborated with Rob Schnatter of Exxon-Mobil Biomedical sciences Inc, and Lesley Rushton of Imperial College London to pool the Australian data with the Canadian and British studies. This work has been used to set internal exposure limits for benzene and is cited in the IARC monograph on benzene. In 2005 the Health Watch cohort came to Monash University and I led the study with Malcom Sim. It has been a pleasure being involved with Health Watch for nearly 30 years. The participants have been a pleasure to work with and I put this down, in part, to the initial Health Watch team and the sterling work of those first interviewers who recruited workers to the cohort and the site nurses and other contacts who marshalled the participants.

Nathan Dickens (Australian Institute of Petroleum)

For over 40 years, the Australian Institute of Petroleum (AIP) sponsored the development and operation of the independent Health Watch study. For almost half that time I was responsible for maintaining the Study's independence, governance and funding, via my Executive roles at AIP and as the Secretary of the Health Watch Advisory Committee.

Health Watch always enjoyed very strong support from industry employees, unions and participating companies,



and is so highly regarded and respected internationally, including in the scientific, academic and occupational hygiene communities. It has been well recognised for enhancing scientific, workplace and community understanding and helping to provide healthier and safer working environments for current and future industry employees.

I am proud to have been associated with Health Watch. It was a major career highlight being involved with such quality professionals and people supporting Health Watch at every level and over such a long period. This includes the highly respected Universities and research teams which have directed the Study, the numerous hygienists and medical practitioners who have contributed their expertise, and the thousands of enthusiastic employees who have volunteered their time to this important research. All these parties contributed to the strong success and reputation of the Study and share the deep appreciation of myself, the AIP and its member companies.

Lorna Botham (Health Watch Survey Supervisor)



The Health Watch survey team – (left to right) Lorna Botham, Arelene Baarde, Geoff Adams and Dr John Bisby

From 1991 to 2000, I served as the main recruiter for Health Watch through the University of Melbourne and later with Adelaide University. My time with Health Watch is filled with fond memories, as it gave me the opportunity to travel extensively across Australia. From Cairns down the east coast to Tasmania, across to Western Australia, and up to Port Hedland and through the middle, I experienced a variety of locations.

I travelled using a range of transportation methods, from large planes to company Chinook helicopters and ferries. One memorable experience was flying back from the rigs in Western Australia in a Chinook helicopter, looking down at the sea and feeling incredibly fortunate.

Working for Health Watch was a deeply fulfilling experience because of the people I worked with and the high participation rates we achieved. This success was due to our efforts to impress the site, give comprehensive briefings to employees, and be available whenever

needed. This included being on site at 5am or midnight. I was also ferried out to ships for interviews, had lunch on the rigs, and even stayed overnight to cover two shifts. I was more than willing to work these unusual hours and in diverse locations because I believed strongly in the study. Despite mainly working alone, I never felt threatened or faced any negative behaviour.

I would follow up with those initially uninterested, often having one-on-one conversations, and even providing a roast lamb lunch to persuade them. We had instances of people who weren't supposed to be on site participating after the roast lunch! Our persistence paid off. Generally, participants were keen to join due to concerns about illnesses from benzene exposure. There was a strong sense of camaraderie in the refineries and other large sites, as work life was central to their lifestyles, often spanning their entire careers. The support of the union and health and safety officers also played a crucial role.

After my time with Health Watch, I took a break to care for my family. For the last 20 years, I have been involved in voluntary work through Anglesea Community House, serving as an assessor and treasurer. This non-profit organisation assists families struggling to feed themselves. I've had a full and happy life and continue to find joy in my voluntary work.



Edmund Fletcher (Health Watch participant)

I first heard from Ms. Kaye Robinson Executive Director of Health Watch in January 1991 advising me that, although I worked on other oil and gas sites (I was the OIM on the Jack-up Production Platform, the Vicksburg, also located on the North West Shelf of WA), I would be considered a part of the study population and would be contacted regularly to ensure the success of the study.

In early 1992, the WAPET Perth based Safety Co. Ordinator, Mr. Ian Jamieson, was contacted by Ms. Lorna Botham (Survey Supervisor from the University of Melbourne) regarding carrying out a survey of WAPET personnel on Barrow Island

and Thevenard Islands in the North-West shelf of Western Australia. I was the Safety Coordinator on Barrow Island at the time, and I was given the role and responsibility of looking after Lorna during her visit to BWI to introduce and present the proposed Health Watch Survey to all the WAPET employees on site. This was in early August 1992, which from memory, was well received by all.

The next contact I had with Health Watch was from David Christie who was the Project Director and Reader at the University of Melbourne who advised that between 1981 and 1983, some 11,500 people were interviewed representing 92% of the workforce. He also asked for full work force participation, which I consistently passed onto our WAPET personnel at our weekly Safety Meetings. I had numerous letters from David who communicated annually, and who asked the same standard questions: have I had any health problems or a change of address?

I received a letter from Health Watch in June 1999 advising of the relocation of Health Watch to the University of Adelaide. Even though I had left WAPET by this time (I was in Qatar as the offshore OIM on the Al Shaheen Oil and Gas (O&G) Field in the Arabian Gulf for Maersk Oil Qatar), I was still employed in the O&G industry. I was then receiving mail from Professor Malcolm Sim, Chief Investigator from 2018, when Health Watch moved to Monash Centre for Occupational and Environmental Health.

I retired in 2016 after working in Indonesia, India, Spain, UK, Norway, USA, China and Bass Strait on FSO, FPSO - O&G projects. I am currently 76 years of age and I have always enjoyed really good health. I can see the reason for you wanting to wind “Health Watch” up, as all the personnel on Barrow Island from 1981 and 1992, when Lorna and I gave the Health Watch presentations, would be all retired by now and unfortunately some are sadly deceased.

It has been a pleasure to have been a part of the Health Watch study and I always looked forward to reading the reports.

Why is Health Watch concluding?

Health Watch has followed the health of petroleum industry workers for over 40 years (since 1980) and there has been little in the way of major change in the findings over the past five years since the last report. Health Watch is therefore no longer providing new scientific information for the industry and its employees. However, the longstanding and independent conduct of the study and its strong international reputation provides confidence in its clear published analysis and findings over this extensive study and investigation period.

Acknowledgements

We are deeply appreciative of the liaison officers from each participating company, whose collaboration has been invaluable. Health Watch relied on them for follow-up information. We extend our gratitude to the occupational hygienists in the petroleum industry for categorising job titles by exposure to total hydrocarbons and assessing job histories in the case-control study for exposure to benzene.

We acknowledge the State Cancer Registries and Death Registries and the Australian Bureau of Statistics for verifying death certificates. Additionally, we are thankful for the assistance provided by the AIHW, which facilitated cohort linkages with the Australian Cancer Database and the National Death Index in the later years.

Our thanks also go to the numerous general practitioners and medical specialists who contributed information within the ethical and confidentiality guidelines of the program.

Lastly, and most importantly, we are grateful to the many petroleum employees whose participation and support have been crucial to the success of this study. This study belongs to them.





List of Health Watch Study Teams from All Reports

First Health Watch Report, 1981

David Christie, Ian Rocket, Kaye Robinson, Mary Bourke, Sally Ratcliffe, Kathy Fahey, Jenny Sadler, Niels Becker

Advisory Committee

J Bisby, S Altman, W Alexander, R Bestre, R A'Court, J Donovan, S Leeder, W Nelson, P Payne, H Saint, R Webster

Second Health Watch Report, 1982

David Christie, Ian Rocket, Kaye Robinson, Mary Bourke, Sally Ratcliffe, Kathy Fahey, Jenny Sadler, Niels Becker

Advisory Committee

J Bisby, S Altman, W Alexander, R Bestre, R A'Court, J Donovan, S Leeder, W Nelson, P Payne, H Saint, R Webster

Third Health Watch Report, 1983

David Christie, Ian Rocket, Kaye Robinson, Mary Bourke, Kathy Fahey, Jenny Sadler, Kate Gibbons, Jane Willcox, Penny O'Donnell, Niels Becker

Advisory Committee

J Bisby, R A'Court, I Aird, W Alexander, R Bestre, J Donovan, S Leeder, W Nelson, W O'Driscoll, P Parkin, P Payne, R Webster, S Altman

Fourth Health Watch Report, 1984

David Christie, Kaye Robinson, Ian Gordon, Carole Webley, Meredith Temple-Smith, Anna Fearne, Arlene Baade

Advisory Committee

J Bisby, W Nelson, R Bestre, P Clark, N Holmes, G Kelman, A McMichael, A McNair, P Parkin, A Sann, P Wakefield, R Webster, P Gregory

Fifth Health Watch Report, 1985

David Christie, Kaye Robinson, Ian Gordon, Carole Webley, Anne Potter, Meredith Temple-Smith, Anna Fearne, Annette Smith, Arlene Baade

Advisory Committee

J Bisby, W Nelson, R Bestre, P Clark, N Holmes, G Kelman, A McMichael, A McNair, R Nicholson, P Parkin, A Sann, P Wakefield, R Webster, P Gregory

Sixth Health Watch Report, 1986

David Christie, Kaye Robinson, Ian Gordon, Carole Webley, Anne Potter, Arlene Baade, Annette Smith,

Advisory Committee

J Bisby, W Nelson, W Alexander, G Berry, R Bestre, P Clark, N Holmes, G Kelman, A McMichael, A McNair, T Nichols, R Nicholson, A Sann, P Wakefield, R Webster, P Gregory

Seventh Health Watch Report, 1987

David Christie, Kaye Robinson, Ian Gordon, Carole Webley, Anne Potter, Arlene Baade, Annette Smith, Jason Grossman, Rosario Soriano

Advisory Committee

J Bisby, W Nelson, W Alexander, G Berry, S Bertone, A McMichael, T Nichols, R Nicholson, K Pakenham, P Wakefield, R Webster, P Gregory

Eighth Health Watch Report, 1988-89

David Christie, Kaye Robinson, Ian Gordon, Anne Potter, Michael Roberts, Arlene Baade, Rosario Soriano

Advisory Committee

J Bisby, W Nelson, G Berry, N Burke, R Corinaldi, A McMichael, M Rogers, R Nicholson, T Nichols, P Wakefield, R Webster, N Whittington

Ninth Health Watch Report, 1992

John Bisby, Geoffrey Adams, Michael Roberts, Lorna Botham, Arlene Baade, Rose Soriano, Andrew Madden, Kevin Jones, Genevieve Loughnan

Advisory Committee

N Burke, R Corinaldi, G Want, J Starkey, K Johnson, D Vallance, M Rogers, T Nichols, N Whittington, J McNeill, H Peach, P Wakefield, R Webster

Tenth Health Watch Report, 1998

John Bisby, Geoffrey Adams, Lorna Botham, Arlene Baade

Advisory Committee

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