FLASHPOINT

Winter 2016

Fire and water

When it all goes wrong

NZ INSTITUTE OF HAZARDOUS SUBSTANCES MANAGEMENT

USEFUL ORGANISATIONAL CONTACTS

NZ Institute of Hazardous Substances Management
(formerly the Dangerous Goods Inspectors Institute)
www.nzihsm.org.nz
The official home of professionals committed to the safe management of hazardous substances and dangerous goods. The NZIHSM is a 'not for profit' industry association whose goal is to protect people, communities, and the environment against the adverse effect of hazardous substances, while maintaining the benefit of these.

Responsible Care NZ
Box 5557 Wellington 6145
Responsible Care NZ works with industry partners to implement the Hazardous Substances legislation.

Worksafe (MBIE)
www.worksafe.govt.nz
Government agency formed to povide compliance advice and enforcement of hazardous substances. Responsible for hazardous substances certificates.

EPA
www.epa.govt.nz
The EPA administers the HSNO Act and supplies extensive information on working with hazardous substances.

Ministry for the Environment
www.mfe
The Ministry provides policy, publications, technical reports and consultation documents on HSNO legislation.

Department of Building and Housing
www.dbh.govt.nz
The Government agency that maintains the Building Act and the Building Code.

Local Government NZ
www.lgnz.co.nz/lg-sector/maps/
Local Authorities have responsibility for policing building controls. Some local authorities are contracted to Department of Labour to provide enforcement of hazardous substances legislation. Often a first response point with valuable local knowledge.

Government legislation
www.legislation.govt.nz

If you know of other agencies which could be useful to members, please let us know at office@nzihsm.org.nz.

President's column

Tēnā koutou and thank you!

Over 30 years ago as a young chemical engineer, I was given the dubious honour of cleaning up after the ICI fire where generally harmless 'swimming pool' chemicals combined to poison many of the firefighters and others who attended.

In the clean-up it became apparent that there were over 12 pieces of legislation and officials that the public needed to deal with to understand the legislation. An idea arose, that wouldn't it be nice if we had only one simple piece of legislation that we could all understand and even one visit a year by an independent knowledgeable professional to each chemical site to check that systems were in order.

In 1996 the Hazardous Substances (HSNO) Act, and its incumbent test certifiers were born to commence independent site visits. From 2006, independent test certifiers were able to visit and offer compliance advice to industry during the process of certification and, as a test certifier I noticed, that many improvements were made.

In 2008 our NZIHSM (the NZ Institute for the Management of Hazardous substances), the traditional home of test certifiers, was broke and struck-off and I was asked to assist. The following eight years have been fascinating ones, and in most cases where our test certifiers have been involved, there has been a noticeable improvement in operating procedures and safety "to protect people communities and the environment against the adverse effects of hazardous substances, while maintaining the benefits of these" as is the NZIHSM goal.

Unfortunately not all sites enjoyed the benefits of the certifier visits and in some cases sites that where left to 'self manage', such as Pike River, unfortunate incidents incurred and the legislation needed to change.

In 2016, borrowing in part from our Australian

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John Hickey
Institute president

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Flashpoint

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Greater duties and penalties under new Act

The Health and Safety at Work Act 2015 (HSAW Act) that came into effect on 4 April 2016, is part of the Government's health and safety reform package designed to help achieve a significant reduction to the high rates of workplace health and safety fatalities and serious harm injuries in New Zealand, relative to many other western countries.

Health and safety gained widespread attention through the Pike River tragedy. A Royal Commission's Report on the tragedy (Oct 2012) was condemning of Pike River's high level officials and the lack of checking of the workplace practices by some regulatory authorities.

In order to try and address this, the Government has passed the HSAW Act and is following up with a number of regulations aimed at ensuring workers receive the 'highest level of protection'.

Core concept

A core concept in the HSAW Act is that of 'a person conducting a business or undertaking' (PCBU). The PCBU will be the primary duty holder, whose duties will replace those of employers, principals and persons in control. The HSAW Act expressly provides that a PCBU will not include workers, volunteer associations or residential workers.

The HSAW Act introduces the concept of 'Officers'. Officers will include directors, people occupying a position comparable to directors in a body corporate or unincorporated body, and other persons with substantial decision making responsibilities in business.

This is essentially a catch-all category imposing a duty on any person involved in making significant decisions. Here, care must be taken to differentiate between a person who is involved in making a decision vs. a person who purely advises on a decision.

The concept of 'worker' is introduced in the HSAW Act. This is a broader concept, which includes contractors, subcontractors and others. Under the HSAW Act, PCBUs have an all-encompassing obligation to ensure that workers are safe at 'any place where the worker goes, or is likely to be, while at work'.

Duties

The core duty of a PCBU is to protect the health and safety, so far as is reasonably practicable, of: workers engaged, or caused to be engaged, by the PCBU; and workers whose activities are influenced or directed by the PCBU.

The HSAW Act defines that what is 'reasonably practicable' will depend on risk, cost and other relevant circumstances. Importantly, the costs involved in eliminating or minimising (but not isolating) the risk must be 'grossly disproportionate' to the risk for such measures not to be taken. This places an obligation on PCBUs to prioritise money for risk elimination and minimisation.

Workers and 'other persons at workplaces' are also subject to duties under the HSAW Act. The HSAW Act introduces a positive statutory obligation on workers to comply with their PCBU's instructions and co-operate with their PCBU's health and safety policies or procedures. Other persons at workplaces are presumed to provide for the health and safety of visitors and

Temporary tick for glysophate

New Zealand scientists have reviewed the evidence on the weedkiller glyphosate and announced it is unlikely to be carcinogenic, and should not be classified as a mutagen or carcinogen under the HSNO Act.

Glyphosate is the active ingredient in Monsanto's 'Roundup' and underpins much of New Zealand's – and the world's – food production. It is also widely used in parks and gardens. Last year the scientific community became divided over the issue, after one WHO agency said glyphosate was "probably carcinogenic to humans" but another said it was unlikely to pose any health risk to humans.

The Commission extended the approval for the popular weedkiller until the European Chemicals Agency issues its opinion on whether the chemical is hazardous. The extended approval will last until the end of 2017.

the HSAW Act states that such persons must take reasonable care for their own health and safety and comply with the PCBU's instructions.

These duties demonstrate the all-encompassing nature of the HSAW Act and ensure that workers, and others alike, must also take responsibility for their own health and safety. The HSAW Act requires officers to exercise a duty of due diligence to ensure the PCBU complies with its duties.

The HSAW Act also increases the category of offences with significant fines along with a range of other offending provisions.

Participation

Part 3 contains worker participation, health and safety representatives and discriminatory, coercive and misleading conduct.

Worker participation practices
The HSAW Act places a heavy emphasis on providing information and consultation. The HSAW Act allows for increased worker participation in health and safety by requiring all PCBUs to have worker participation practices.

Health and safety reps and work procedures
The PCBU may facilitate elections to appoint health and safety representatives. The PCBU must consult these representatives on all health and safety matters.

The HSAW Act allows workers the right to refuse work where it may expose themselves or another to a 'serious health and safety risk'.

Can this Act work?

The HSAW Act is a significant development in the health and safety law of New Zealand. The HSAW Act does provide greater duties and penalties than the previous HS&E Act, which are intended to motivate and ensure that PCBUs take health and safety seriously, specifically from the top down.

Some studies including the Pike River commission found that while the previous Health, Safety and Employment Act did have some of the concepts included in this new HSAW Act, because of a perceived lack of checking, this was often 'observed in the breach' when post-incident investigations were carried out. An example of this is the environmental air testing against allowable 'Work exposure standards (WES)', which many workplaces rarely observed in practice.

We hope that this new Health & Safety Reform HSAW Act and associated regulations should result in safer workplaces in New Zealand, provided that suitable compliance checking is maintained.

However, if this HSAW Act is as intended, then all of us should benefit from a safer workplace and hopefully also a safer community and possibly environment.

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cousins, government policy experts have combined the HSNO Act functions into at least two pieces of new legislation; the Health and Safety at Work Act (HSWA 2015) and the remains of the HSNO Act. The HSWA rightly incorporates "to protect (working) people against the adverse effects of hazardous substances" as part of its 'who goes to work comes home healthy and safe' vision.

While the protection of communities and the environment against the adverse effects of hazardous substances is still in progress under the EPA and related entities, the HSWA and Major Hazard Facilities regulations mainly passed in April 2016 with some final Hazardous substance regulations to be finalised soon.

Test certifiers are now gone from the HSNO Act, but we hope their workplace functions should be covered as compliance certifiers under the new HSWA regulations.

In 2016 the self-funding NZIHSM is 'solvent and struck-on', with a positive view to all of our futures under the new combined legislation requirements that are being finalised at present.

In many ways this beneficial view is due to the fine voluntary efforts of our administrator, *Flashpoint* and executive team, along with the regulators. We can all thank them for these efforts, so along with the regulation changes it is a good time for myself to pass on the president's mantle as I hope to do after our next AGM to another of those who has expressed interest to date.

On that note we would like to accept nominations from members for ALL positions at our upcoming AGM asap so a suitable election can be maintained. So, if you would like to be nominated to lead or assist in our continued efforts please forward your nomination to Linda at office@nzihsm.org.nz so you too can assist in ourNZIHSM goal to : "protect people, communities and the environment against the adverse effects of hazardous substances, while maintaining the benefits of these".

Tiaki Tangata and thank you to all who positively contribute to our most necessary cause!

OOOOPs! Environment Missing in Action

In 1996 the Hazardous Substances and New Organisms Act was brought into law and in many ways was a first for New Zealand and a number of other countries in that it viewed dangerous chemicals or hazardous substances under flammable, toxic and environmental (or ecotoxic) properties.

The ecotoxic properties in particular were a new development and widely haled as a positive move by NZ to protect its 'clean and green' image. Since then we have been praised by many foreign notables, including recent praise to our Prime Minister by the Chinese premier and the head of Ali Baba (the world's largest trading site) for the protection of our "clean and green" country.

Considering this is somewhat amazing that THE ENVIRONMENTAL protections under the 1996 HSNO Act have mainly been removed in the latest Major Hazard Facilities (MHF) regulations.

This also seems contrary to the latest global concerns where in December 2015, recognising the importance of the climate and the effect of humankind's use of chemicals and hazardous substances on the environment over 190 countries met in Paris to establish a new international climate change agreement under the United Nations Framework Convention on Climate Change. (UNFCCC).

An important part of the agreement will be the contributions each country makes to address climate change. Ahead of the negotiations in Paris, all countries were asked to put forward a target to reduce emissions in the period after 2020.

The purpose of this multinational agreement is to limit global warming to a 2 degrees Celsius increase by 2030.

As an indication of what this means an IPCC report estimated that to increase the earths temperature by 2°C it would require approx 2900 GT Carbon equivalent and at present we have approx 1900 GT, that is we are 65% there already. However, this will occur if we only burn approx 20% of current known reserves and at the present rate of consumption this would occur in approx 12-15 years. That is a very real threat indeed.

Why is 2°C warming important and what will happen if temperatures go up that much?
The summary to a report on climate change by the Royal Society of NZ published in April 2016 describes as follows: "New Zealand is being affected by climate change and impacts are set to increase in magnitude and extent over time. Floods, storms, droughts and fires will become more frequent unless significant action is taken to reduce global emissions of greenhouse gases, which are changing the climate. Even small changes in average climate conditions are likely to lead to large changes in the frequency of occurrence of extreme events. Our societies are not designed to cope with such rapid changes."

New Zealand's current target is to reduce greenhouse gas emissions to 5% below 1990 levels by 2020. The new post-2020 target is equivalent to 11% below 1990 levels by 2030. New Zealand will meet these responsibility targets through a mix of domestic emission reductions, the removal of carbon dioxide by forests and participation in international carbon markets.

Which NZ sectors have the greatest effect on the environment?
Probably agriculture, which was responsible for 48%of New Zealand's greenhouse emissions in 2013 but this is exempt from our emissions trading scheme while scientists find a method of minimizing animals' propensity of turning grass into milk and methane.

Also the fossil fuels for energy and transport, which made up 39% of the 2013 emissions, will be effected.

Some climate scientists believe that the UNFCCC deal provide a clear signal that fossil fuels need to be phased out in the next few decades in favour of renewable energy (ie: hydro and solar power rather than gas or coal, electric cars instead of petrol, etc).

Conversely, NZ at present has 80% of its electricity from renewable hydro, wind and geothermal electricity but then again some of the largest demand is for air-conditioning during hot, windless summers where renewables are not always available and in these cases a 'stored energy source' is a requirement.

The Government is already reviewing its emissions trading scheme, which has been in place since 2008 to meet its climate change targets. However, it's already ruled out bringing agricultural emissions into the ETS.

Many Kiwis will firstly notice the impact of the Paris deal at the petrol pump and on their electricity bills, when a likely "tightening up" of the ETS leads to a rise in carbon prices and a flow-on effect for energy costs.

However the development of new technology like 'fracking' and 'shale oil' technology to supplement the known and finite reserves of buried oil and 'cheap' international 'carbon credits' has delayed anticipated 'peak oil' price rises.

In this way the monetary effects have been blunted which may be good for the wallet but not always for the planet.

Simple science suggests that greater Carbon dioxide traps heat on the earth, which provides more energy to the atmosphere and more extreme events.

But is this observed in practice as well as in theory?

As mentioned previously it would also appear that the number of natural disasters are rising as is evidenced by the attached graph prepared at the University of Louvain, Brussels, Belguim (below)
We have created this problem and it is up to mankind to use our knowledge and technology to solve it if our current coastal lifestyle is to be maintained.

Given this recognition of the environmental effects of chemicals it is surprising that in the latest Major Hazard Facility regulations, where the GHS13 system is proposed, that the Corrosive (Class 8) and Environment (Class 9) effects are no longer included.
Can we close our eyes to this dichotomy?

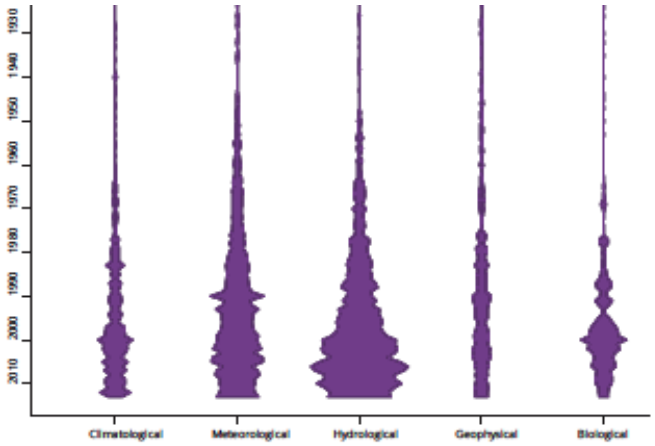


Figure 1: Number of natural disasters reported worldwide, 1900–2013. The three columns on the left represent events classed as: climatological = droughts, rising sea water, bushfires; meteorological = cyclones, storms, wave surges; hydrological = water-on-land events, such as floods and avalanches. (Source: EM-DAT[3].)

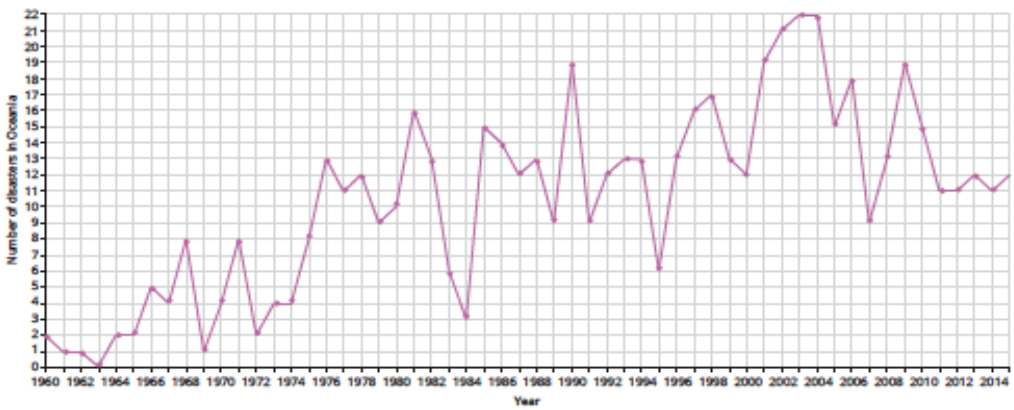


Figure 2: Number of natural disasters 1960-2015 in Oceania (number for 2015 is to September only) (Source: EM-DAT[3].)

3 EM-DAT – the International Disaster Database run by Centre for Research on the Epidemiology of Disasters (CRED) at University of Louvain, Brussels, Belgium.

Plumber turns global guru

In typical New Zealand fashion, Palmerston North plumber/ businessman Bill Dwyer said he's see if he could turn out something to help an acquaintance, and is now an international guru on the subject.

A few years ago Bill was talking with the Massey University Oiled Wildife Recovery Team and he said he's have a look at a possible mobile facility for them. Now Bill is travelling the world lecturing on the subject and manufacturing special mobile surgeries for wildlife rescued from oil spills. Rather than plumber, he is now an engineer, entrepeneur and technical guru. In recent months he has been to Amsterdam, Dubai, Southhampton, Isle of Wight, Canada and Anchorage.

DwyerTech's system went under the hammer during the Rena disaster. Bill took off with two surgeries and set up shop only to find on day four that the system was woefully inadequate for the scale of the disaster. Hastily Bill and his two techs on the job designed a system that turned out to be about 40 times bigger than what they started with, but improvised inside tents. Three months later they began to wind down the operation.

There were so many things to be conisdered on a big job like the Rena. Everything inside the secure area was designed by the Dwyer team including the washdown of PPE, provision of rest areas, gear storage, sensible stages of wildlife washdown and securing and refining waste. "We also built recovery tanks for seabirds that had increasing concentrations of Dwyer's designer artifical seawater, then aviaries with full artifcial seawater. We couldn't use real seawater because all the local stuff was polluted to some degree."

Unfortunately, mortuary facilities were also needed. "But, everyone achieved incredible results with the recovery percentage in the high 90s." People came from all over the world to see what the team was doing during the Rena disaster.

Being a practical man, he designed the mobile surgery to fit in a 20-foot shipping container for durability and ease of transport. The design has been perfected over the years and Bill holds several international patents. Everything has been designed

Bill Dwyer

The interior of the surgery looks deceptively simple, but there is a lot of technology just in the lining of the container to make it self-draining, temperature controlled, air conditioned, etc, etc. All the gear to run that is in the plant room behind the door at the far end. The heights of everything in the room are carefully thought out, including the height of the work stations; even the height of the wall taps for ease of operation. It is a sealed environment while wildlife is being worked on. The run-off from the washdown is captured, scrubbed, cleaned and recycled wherever possible.

The containers can be customised to a certain extent, and are all designed to be wheeled on site and plugged in. Unfortunately, solar power is currently not grunty enough to run the big load required.

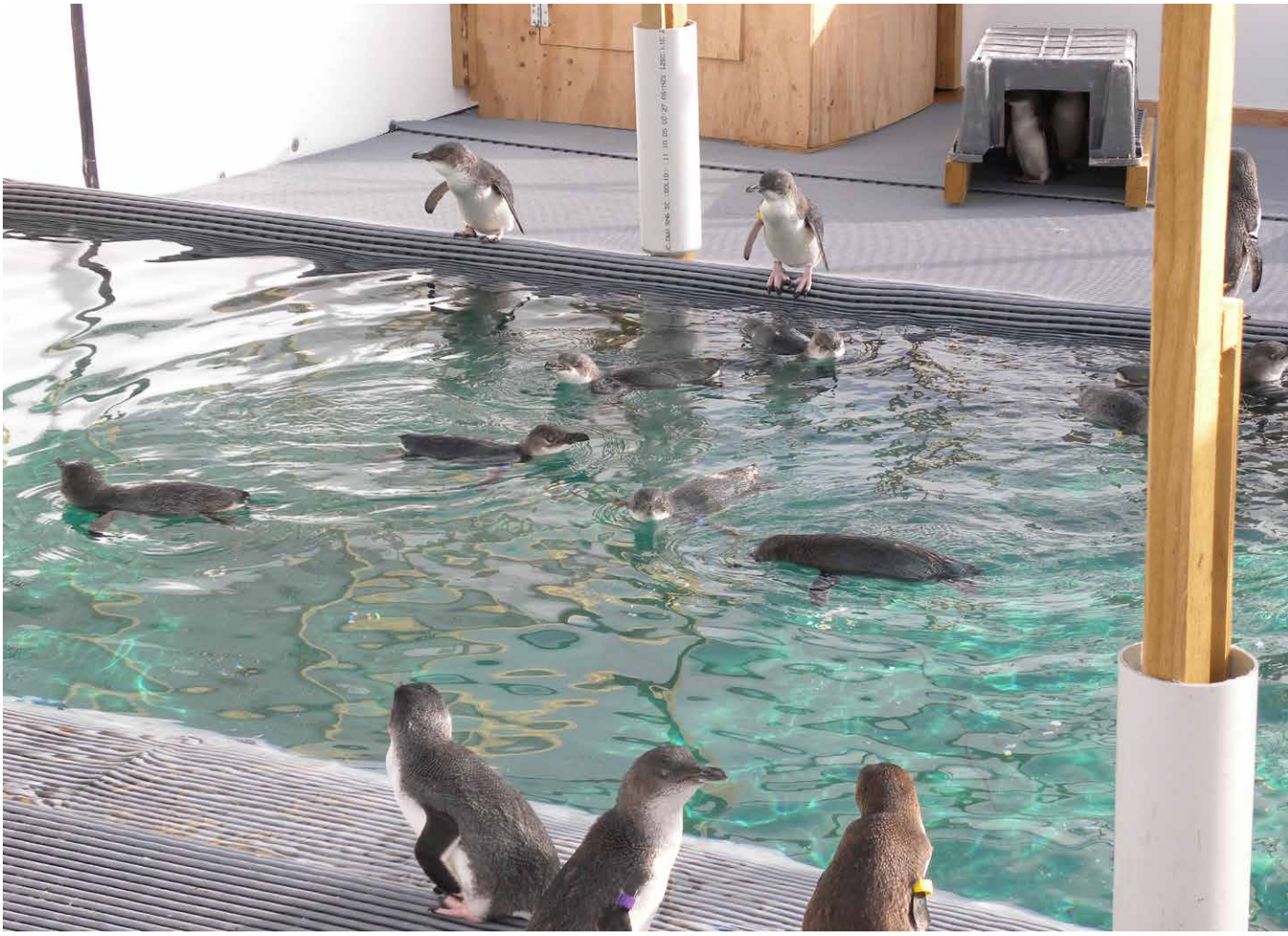
in-house, even down to special trampoline-type floors for birds cages, so sea birds don't injure their feet on hard surfaces.

DwyerTech now manufacturers and markets its recovery system. So far it has sold seven to Australian oil companies and government bodies at $100,000 plus each. Quotes for two more for Papua New Guinea are being made up.

The team at Dwyer are very much up for it when it comes to the wildlife work. The company has a contract with AMOS which means there are two teams of two technicians ready to go at the receipt of a phone call. "All the gear is packed, and the teams have their passports and personal gear packed ready to walk out the door."

The final set-up at the Papamoa sewage plant. It started with the two little blue shipping containers and blossomed about 40 times into wildlife recovery on an 'industrial scale'. DwyerTech even built special recovery tanks for the affected seals. The open tanks are recovery facilities for the penguins and next door are the aviaries. All the various tents are a step in the process from starting work at the beginning of the day through to discarding soiled PPE at day's end.

De-oiled penguins romp in their recovery tank



Asbestos ban crucial to meet target

The Government's decision to ban products containing asbestos will be crucial to meeting the target in the EPA's new 10-year workplace health plan around asbestos.

The ban on any product containing asbestos would kick in from October 2016. In exceptional circumstances here, an importation permit might be issued.

WorkSafe is aiming to halve the number of deaths from asbestos, which were 146 last year and average 170 annually, within a decade.

Three years ago the Independent Taskforce on Workplace Health and Safety said there was paralysis and a gaping data hole around how much illness and death was caused on the job. One noted scientist has previously said this country is 'unusually slack' about its controls on asbestos, and plenty of scepticism remains among unions who say fly-by-night builders will still put workers clearing out old asbestos at risk.

While asbestos accounted for almost one third of the estimated 600-900 workplace-related deaths a year, hazardous substances are thought to account for much of the other two-thirds.

As quoted in a recent survey, just 7% of construction companies, who are entering a sustained boom time, and fewer than a quarter of manufacturers said they had offered employees any health monitoring in the last 12 months.

In a recent RNZ item, WorkSafe chair Professor Gregor Coster indicated he was confident Customs would enforce the ban and WorkSafe did not need any extra inspectors to help with its push on health.

About half of its almost 200 inspectors were trained for asbestos detection, with an aim to increase that to 80%, and the number of staff working exclusively on health issues has risen from three or four to 15 or 20 in the last couple of years.

Prof Coster also said the agency did not need any more government funding. "I think the resources are already there in place to be able to firstly encourage, educate and coach organisations into being more aware of the risk.

"The costs I think will be at the margins with things like better personal protective equipment."

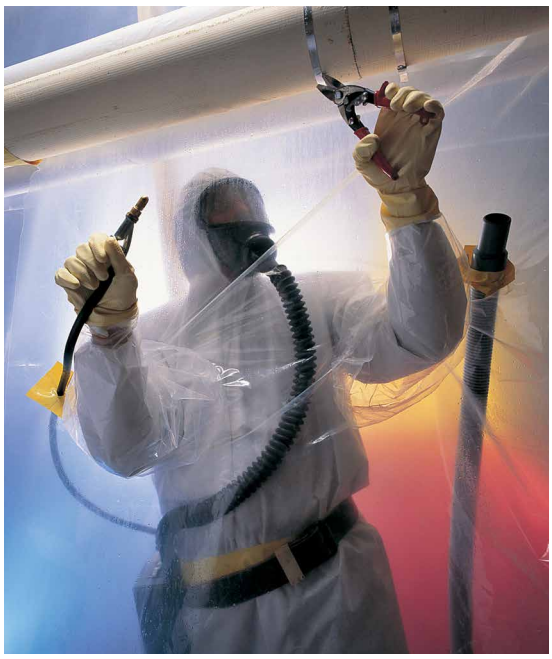


Photo: *Morecroft Contractors*

RNZ also reported that Minister Woodhouse whose own grandfather Frank, (a railway boilermaker) died due to asbestos exposure, said it was a long game.

"It's going to be years before we see the benefits of this but the action needs to start now. So we need to be patient, we need to accept that those numbers are going to stay high for a while."

Diesel spill at Pupuke

Diesel spilled into Lake Pupuke near Takapuna, at the end of June, and according to reports, emanated from the North Shore Hospital site. The Auckland Council installed a boom and worked to locate and stop the source of the diesel.

A Waitemata District Health Board spokesman said the diesel was believed to have originated from a small leak in a diesel storage tank on the North Shore Hospital site used to power hospital generators in the event of an electricity outage. The leak coincided with torrential rain which overwhelmed the hospital's stormwater filtration systems. As a result of the storm, the diesel washed straight into the lake, overwhelming the containment mechanisms.

The exact amount of diesel that entered Lake Pupuke is unknown but it was believed to be relatively small. Ongoing action included the erection of booms across the stormwater entry point to the lake to contain the spread of diesel where possible and the erection of signage.

Pictured: Auckland Council staff check to condition of resident swans. Photo: *Our Auckland*.

Progress in Paris

Oui, Oui! We humans actually did manage to achieve some agreements on how to control global warming at the Paris Dec 2015 climate change conference!

But what is the climate change deal in Paris about and what did the 192 countries agree to?
On top of the 2ºC target, the participants promised to raise $100 billion a year by 2020 to help poor countries adapt their economies, and accepted a new goal of net zero emissions by later this century.

What is so special about 2°C and what will happen if temperatures go up that much?
The current global temperature is 1°C above the pre-industrial level. A 2°C rise means more energy in the atmosphere, which in turn means extreme weather events, drought, severe storms, rising sea levels and possibly flooding of our coastal cities and islands. Most countries' scientists have now realised the reality of global warming and the Paris conference decided that humans do wish to control their environment to suit the human and planet needs.

Which sectors will feel the most pressure to help the climate?
Probably agriculture, which was responsible for 48% of New Zealand's greenhouse emissions in 2013 and is exempt from our emissions trading scheme. Also our use of fossil fuels for energy and transport, which made up 39% of our 2013 emissions, is also in the spotlight. Some Kiwi climate scientists believe that the deal implies that fossil fuels need to be phased out in the next few years in favour of renewable energy (ie: electric cars instead of petrol vehicles).

How will New Zealand businesses be affected?
Carbon gasss have been blamed for much of the 'global warming' through the 'greenhouse effect'. To limit temperature increase, it is necessary to limit carbon emmissions. To effect this it is likely to be a review of the carbon emissions trading scheme, which has been in place since 2008 to meet its climate change targets. While the ETS does provide a price for carbon, which is good, care will need to be taken that locals emissions can be balanced against local carbon savings to be meaningful rather than unprovable and occasionally ficticious 'cheap' carbon credits from abroad in order to actually encourage real carbon savings.

The Paris deal is most likely to be noticed at the fuel pump and on electricity bills, when a likely tightening up of the ETS leads to a rise in carbon prices and a flow-on effect for energy costs.

Each country has to ratify the agreement and provide its emissions reduction target by 2020, then update it every five years.

Will all these reductions succeed in limiting a global temperature increase to below 2ºC and completely reduce the effect of global warming?
Unfortunately probably not, but hopefully it will allow us humans time to adapt to a changing climate and continue our prime position while maintaining our beautiful blue planet.

'Yes, but…' to H&S Act

The NZIHSM agrees with the main purpose of the Health & Safety Act 'to provide a balanced framework to secure the health and safety of workers'. NZIHSM align this with its goal of 'Protecting people, communities and the environment against the adverse effects of hazardous substances while maintaining the benefits of these'.

From this NZIHSM, has five key issues to achieve this balance as follows:

1. Pre-incident 'compliance certification' and advice is critical for success as separate and, in addition to, post-incident enforcement.

2. Toxic and ecotoxic substances must be included in compliance certification in addition to flammable substances.

3. Strict liability and shared responsibility should be maintained by all involved parties including suppliers, workers, independent compliance inspectors (certifiers), users and enforcement.

4. Worker involvement must be supported by independent external expertise and knowledge (such as approved handler training and HS test certification system) to be effective.

5. Human life has been inextricably linked with the environment for the past 50,000 years and any consideration of human and workers should also consider environmental toxins such as regularly used Class 6, 8, and 9.

The Health & Safety at Work (Hazardous substance) Regulations 2016 is a complex piece of legislation with a significant number of items to be covered. To assist with this NZIHSM has requested members to submit individual submissions as well as the group submission to gain greater coverage of all of the items to be considered.

Comments

NZIHSM has considered the draft regulations with specific highlighted comments as follows:

(i) NZIHSM agrees that ***Class 1-5 and Class 6, 8 need to be covered but question why Class 9 Environmental hazards is missing?***

(ii) ***Hazardous substance inventories***: This is a critical requirement for risk evaluation and safety determination.

(iii) Cl 11.37-42 For flammables, in particular, ***hazardous zoning*** should be required. But need to clarify the relationship between ***HILU, LILU (now offsite) and Protected and Public places*** for determination of controlled zones. Partial cover under separation distances.

(iv) Cl 2.9 ***MSDS should cover all risks*** and not exclude ecotoxicity? All flammable, toxic and safety items should be included.

(v) Cl 4.1 NZIHSM believes that a ***minimum level of safety training is required*** by experienced practitioners ***along with a recognisable qualification*** (eg: Approved handler certificate) which ensures minimum standard and protects business and certifiers.

(vi) Cl 4.2 & 4.3 NZIHSM agree that ***compliance certificates should be maintained***.

(viii) Cl 6.2 Introducing firms as compliance certifiers is OK, but individual certifiers must still be named and appropriately qualified. ***It is important that responsibility and qualifications can be identified to individuals.***

(ix) 6.5 NZIHSM agrees that compliance certifiers should be ***Fit and Proper persons***, however for a fair assessment, stated possible infringements should be court proven and/or relevant to an inability to assess hazardous substances (ie: minor infringements (eg: traffic) over six years past should not be detrimental to compliance certification).

(x) 6.21 ***Conditional Certificate:*** NZIHSM agrees with the notion of conditional certificates for generally compliant facilities subject to 'minor and technical' non-compliances, however to work correctly, a compliance certificate should be issued for one period only but that period must be sufficient to achieve the construction time or compliance activity (eg: one year).

(xi) 6.33 ***Cost of Compliance Certifier Audits***: compliance certifiers and their professional institute, NZIHSM, have been a 'low cost resource' to the Government to date. As a 'quid pro quo' Government charged audit fees must be reasonable and be limited to a finite

amount. Audits should benefit ALL parties.

(xii) 11.7 ***Separation of Class 3*** Stationary containers: Agree with Class 3 Secondary container separation requirement to protected and public places, however if a suitably rated firewall should be allowed as mitigation

(xiii) 13.41 Part 13 ***Class 6 and 8 substances:*** Agree with a Location ***Co***mpliance Certificate for class 6 & 8, but would recommend it cover other class 6, 8 and 9 where larger quantities over 1000 litres are stored or used.

(xiv) 17.1 ***Stationary Containers***: This Part should apply to every stationary container system that contains, or is intended to contain, a hazardous substance (including Class 1-9).

Other general analysis is included in the attached detailed datasheets and also in other NZIHSM member submissions regarding specific and technical aspects.

Overall comment:
In May 2013 Hon. Minister Adams stated that between 500 and 800 Kiwis died from industrial illnesses every year, many as a result of exposure to toxic substances. (Stuff 30/05/13) and Hon. Minister Michael Woodhouse further comments that the Health & Safety Reform Bill is to develop new regulations for 'general risk and workplace management; worker representation and participation; major hazard facilities; and hazardous substances'.

NZIHSM recognises and agrees with these goals.

The NZIHSM believe that five critical items for hazardous substances and the other items as detailed should be included in the H&S Hazardous substance) Regulations 2016 for reasons as outlined in this and member submissions.

Some submissions adopted

It has now been over five years since the Pike River mine incident killed 28 miners and sparked unprecedented interest in the actual performance of health and safety systems in New Zealand.

An explosive incident resulted in multiple fatalities and the findings from the resulting enquiry in 2012 found issues with the operation, compliance checking and HS enforcement of the facility. In part as a reaction to this, it meant that a full review of health & safety legislation was to be enacted over the next five years.

Part of the changes that were to be made to the Health, Safety and Employment Act following this enquiry was a new department – Worksafe – and the independent compliance or test certifiers under the HSNO Act, and other HS professionals, were to be included under the Worksafe inspectorate. As part of this, NZIHSM volunteers have been reviewing and submitting on the various proposed Acts and regulations to provide our actual 'coal-face' input to try and assist the regulators with their formidable task.

At present, most of the preliminary analysis on the Act and proposed regulations is completed with the Health Safety at Work Act becoming law in late 2015 and most of the regulations becoming law in April 2016. There is one exception to this – while the Major Hazard Facilities regulations were enacted in April 2014, the workplace hazardous substances regulations proved to be particularly complex and are still being processed at present.

NZIHSM made submission, suggesting five issues mentioned that should be included for the H&S Reform to work:

Substances MUST BE in the Purpose for the Act
NZIHSM believes that if the HSAW Act is to certify compliance and enforcement of hazardous substances, then the word Substances should be included in the purpose.
(1) The main purpose of this Act is to provide for a balanced framework to secure the health and safety of workers and workplaces by —
(a) protecting workers and other persons against harm to their health, safety, and welfare by eliminating or minimising risks arising from work or from prescribed high-risk plant and substances.

Unfortunately policymakers did not agree and decided to

limit the risks to 'workplace' and 'high risk plant' only. *However, it has been strongly indicated that the replacement hazardous substance legislation would be strongly covered in the HSAW regulations.*

Independent Public-Private compliance assistance/ certification is required.
Regular compliance assistance is required to maintain worker and public safety. This must be separate to enforcement and/or salary-dependent workers (eg: Pike River where profit motive superceded safety).

To date the government has agreed with this as is outlined in a Cabinet note.

1. **All hazards should be included** (including toxic & ecotoxic).
This has had mixed results with the proposed adoption of the Global Harmonisation Standard (GHS 13) actually leaving out the categories of corrosives (acid/bases) and ecotoxics. The latter could have significant effects on the environment if care and compliance checks do not need to take account of possible environmental effects.

However, the category of approved handlers (or a minimum recognised HS-trained worker in each workplace) has been revisited from an early position of removing these through to a recognisation that these are useful to certifiers and industry alike as some proof that the HS Act controls are being followed.

There has been some movement in this area with a proposal to include acute toxics (Class 6 and 8's) in the requirements for location certificates.

2. **Shared responsibility amongst ALL parties.**
This has been agreed in general with a new definition of PCBU being introduced to ensure that all relevant parties have some responsibility for the hazardous substances and health and safety of all workers.

Shared responsibility has been recognised through the PCBU category which should mean that all involved parties are included to ensure that actual authority is linked to responsibility for all involved parties.

3. **Business and Workers must be supported by external expertise, training and certification.**
A minimum of one annual compliance visit and general assistance has been useful to industry, and along with HS approved handler training, has been recognised as a useful tool to encourage workplace safety and provide some independent checking and 'peace of mind' to industry.

Under HSNO there were three types of certificate:
Approved Handler - someone on-site was trained in handling hazardous substances;
Location Cert – in any place with a critical volume of HS;
Stationary Container Cert: for large containers of hazardous substances.

Often workers are dependent on the employer and profit motive (eg: Pike River) and welcome independent compliance advice and mandatory certification.

A recognition of the independent nature of compliance checking and certification as distinct to enforcement has been partially recognised in a Cabinet paper notice maintaining independent certification and the formal formation of worker groups at sites with hazardous substances.

Overall, NZIHSM submissions have been received and considered.

While not all recommendations have been adopted, as is expected in a democracy, a suitable number of these have been, so that assuming strong HS regulations are enacted incorporating scientific principles, then a good working model to protect the safety of New Zealand workers (and hopefully surrounding communities and the environment) should be achieved.

Fukushima 5 years on

In the aftermath of the disaster and what has been widely considered an ineffective response, a Japanese ministry that was authorised as both a nuclear watchdog and promoter of nuclear power has been replaced by an independent body – the Nuclear Regulation Authority.

About 150 tonnes of contaminated groundwater per day continues to leak out of the plant despite the installation of gargantuan water containers and some of the world's most sophisticated purification systems. Those operating the plant say contaminants will continue to stream out until at least 2020.

A wall to be built around the reactor buildings from frozen soil, which has been touted as a solution for the past three years, has been repeatedly delayed due to safety concerns.

Uncle Archie

Kia ora HS PRACTITIONERS!

Health & Safety Reform Bill progress

The 'new' Health & Safety at Work Act is now being implemented in the workplace. Early results are positive although there has been some initial confusion over the Person in Charge of Business Unit (PCBU) which seems to include everyone. But then again, perhaps that was the idea in "Safety for All"!!!

Well done pyrotechnics!!

We understand that the NZIHSM certifiers and other individual Class 2-9 certifiers put submissions into the proposed HSAW Hazardous substance regulations. We were told that perhaps the best submission was from a large group of firework experts and a Class 1 certifier who submitted a particularly detailed and knowledgeable submission.

Super certifiers?

On 3 August, 2016, Archie understands that an ardent email was received by all certifiers: "the meeting for Wellington is Tuesday 9th of July repeat Tuesday 9th of July not Mon 8th as shown".

Now for most of us July comes before August, so have these efficient certifiers developed time travel? Amazing!

Archie decided to query these meetings further and was told that they did occur with a small select group of certifiers in multiple destinations, but my source was coy as to exactly how many? Perhaps those that missed out got the wrong year?

Time Traveller training?

While Archie was pleased to learn of NZIHSM certifiers supporting each other, we were intrigued to see if the NZIHSM office was offering Time Traveler training? Sadly we received a rather abrupt response to attend their next seminar on 13 October, 2016, to find out! Watch this space!

More super certifiers?

Archie was proud to learn that a Scottish scientist, Prof. Jim Baird, the Professor of Waste and Resource Management at Glasgow Caledonian University has adopted a novel approach of investigating illegal waste dumping. As part of their study, the Scottish scientists have put 'GPS tracking on seagulls' to lead them straight to the source of waste dumping. How canny is this – a squawking certifier, capable of flying to find the waste offenders and all for the price of a free lunch. A wonderful concept for the future?

Ali Baba

It was interesting to hear Jack Mah, the founder of Ali Baba, commenting on the wonders of New Zealand's clean and green image and how we protect the environment! It is interesting to see what others perceive as important about New Zealand!

Robots

Sometime in the next 20 years there is an even chance that a robot will steal your job. A report by Accountants Australia and NZEI has determined that while blue collar jobs like driving and labouring are likely to be the first to go, white collar tasks like accountants may go as well. What about humanity?

Environmental protection?

Our Environmental Protection Agency's proposal for a new GHS chemical classification system for compliance checking, which includes for many things EXCEPT Class 9 toxics for the environment, has been deferred till next year for further consideration. A planetary reprieve perhaps?

Wind power

A senior NZ politician was recently heard describing a colleague's utterances as "opening her mouth to allow the wind to blow her tongue around!" An environmental compliment perhaps? The older among us may recognise that was originally a Muldoonism!

Brexit

Some Britons have voted for leaving! Some mixed feelings on this one!

Olympics

Faster, higher, stronger was once the catch cry! We have all enjoyed the pure human endeavour, with lack of scientific intervention, to be a great plus on this occasion!

If you want to send your comment, you can send it to archie@NZIHSM.org.nz
The ideas expressed in this column are not necessarily the views of the NZIHSM or *Flashpoint,* and in some cases the NZIHSM frankly does not approve!

Gastro rampant in Havelock Nth

Civilisation has been built on clean water, the Romans knew this, but Havelock forgot!

In mid-August 2016 the lessons of 3000 years seem to have slipped past us and over 3000 people, almost half the population suffered food poisoning and some to a chronic extent. What is possibly worse is that the 'clean water' that is often the cure for standard food poisoning, turned out to be the cause! Not only was the town water the cause of the poisoning but also it was continued to be drunk by young and old alike for some days before the word was announced NOT to TRUST the WATER!

So, what happened?

The jury is still out at the time of this article but the informed opinion seems to be blaming a little bug called campylobacter.

"But if it is campylobacter, based on previous experiences, it is most likely to have come from cattle and sheep and run-off of effluent/faeces," said a Professor of the Infectious Diseases Research Centre at Massey University in a *NZ Herald* report. There was a similar outbreak in Darfield in 2012.

"I think this outbreak demonstrates that even secure groundwater can become contaminated and therefore testing and treatment is advised to ensure the best public health outcomes, particularly if there has been a high-risk event, such as heavy rainfall."

But how?

How could this happen and surely this would be sorted by water treatment, would it not? Well, one would have hoped so, but it appears that contrary to a major belief not all drinking water is treated in New Zealand. In fact, may of the sources of bore water from aquifers in New Zealand rely solely on porous rock bases for sterilisation?

How does an aquifer work?

Typically, rainwater seeps slowly through soil and natural gaps between the grains of sedimentary gravels or fractures in rocks. When this groundwater exists in sufficient quantities to be useful, it constitutes an aquifer. An aquifier is typically a natural underground water reservoir.

A distinction is made between water in the soil layer, and true groundwater, which occurs in the saturated zone below the water table (see diagram below c/o Malborough DC).

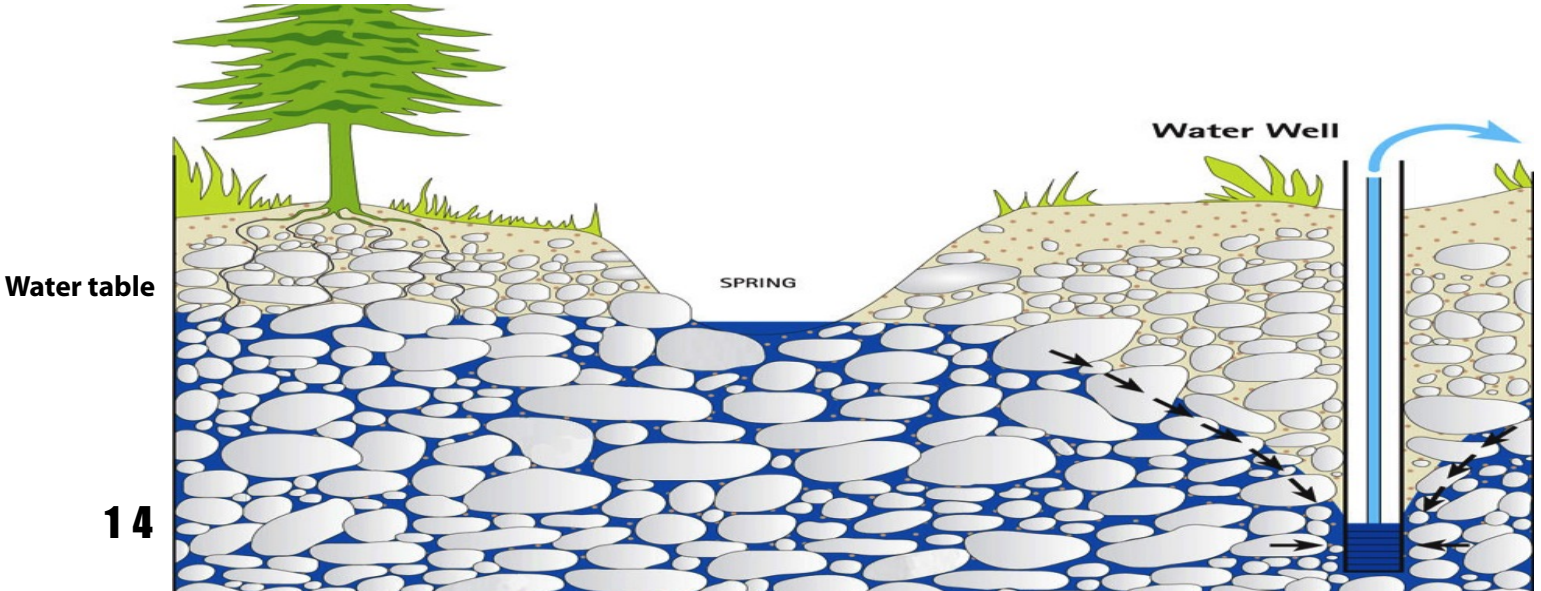
Aquifers perform two very important functions. Firstly, they store water, and secondly, they transmit water. If there aren't enough gaps or pore spaces in the geological formation of an area, or if they aren't linked up, then it is not likely to be a good aquifer.

Also because an aquifer is usually well below the ground, and water is extracted through a sealed hole, called a bore, the water should be clean and, in many cases, it is believed that it does not need to be treated.

Unfortunately in this case, the water was not clean and in an unusual event for first world countries, almost a whole township was poisoned by 'something in the water'!

This happened in the heartland of the famous horticultural district of the Hawkes Bay – Havelock North. The area is renowned for its fine wines, apples and wood products, an area where New Zealand's renowned purity is a stable within this environment.

Havelock North is the third largest population base in the Hawkes Bay area but being in a relatively flat area, it relies



on local bores from the plains below for the town supply water from the traditionally clean aquifers below.

But in this case the results were far from pure and in an event reminiscent of the plagues of the middle ages, at least half a town became sick.

How can we prevent this?

Human beings and, indeed, most of Earth's lifeforms need water to survive; we are the blue planet! Unfortunately, not all our blue is pure and many other lifeforms are competing with humans for their space on our perfect sphere.

But we on the human team want to survive and ensure that our water is pure.

To do this in much of the western world and, in particular our large cities, we follow a similar method to our HS compliance system; namely we inspect our water systems, test our water systems and use chemicals to treat our water systems against the microscopic invaders that can cause us most sickness.

Discovery of chlorine

The treatment and distribution of water for safe use is one of the greatest achievements of the twentieth century.

Before cities began routinely treating drinking water with chlorine, cholera, typhoid fever, dysentery and hepatitis A killed thousands of residents annually. In 1894 a scientific paper formally proposed to add chlorine to water to render it 'germ-free'. Two other authorities endorsed this proposal and published it in many other papers in 1895.

Early attempts at implementing water chlorination at a water treatment plant were made in 1893 in Hamburg, Germany, and in 1897 the town of Maidstone, England was the first to have its entire water supply treated with chlorine. Drinking water chlorination and filtration have helped to virtually eliminate these diseases in western developed countries.

Meeting the goal of clean, safe drinking water requires a multi-barrier approach that includes: protecting source water from contamination, appropriately treating raw water, and ensuring safe distribution of treated water to consumers' taps. During the treatment process, in New Zealand, chlorine is typically added to drinking water as sodium hypochlorite solution or dry calcium hypochlorite. When applied to water (>0.2ppm), each of these forms free chlorine, which destroys pathogenic (disease-causing) organisms.
Where adequate water treatment is not readily available, the impact on public health can be devastating. Worldwide, about 1.2 billion people lack access to safe drinking water, and twice that many lack adequate sanitation. As a result, the World Health Organisation estimates that 3.4 million people, mostly children, die every year from water-related diseases.

Of course, there are still a small number of our fellow lifeforms, namely bacteria, that can resist chlorination as well as we can, and where these risks are significant, boiling of water (pasteurisation) or UV systems may be employed. But perhaps the most important is regular checking so that the bugs don't beat us to it.

Where to from here?

The recent event in Havelock, and earlier similar events, show that we can never be complacent and no matter what the cause, good testing systems must be practiced with all public water supplies and contrary to some purist philosophies, it could be argued that wherever there is a possibility of contaminated water being present the lesser evil is to ensure that all drinking water is suitably tested and treated.

Pictured (left) are Civil Defence and Red Cross volunteers doing a house-to-house check.
Photo: *Stuff*

NZ Institute of Hazardous Substances Management (Inc)

NZIHSM Annual Hazardous Substances Seminar 2016

THURSDAY 13 OCTOBER 2016, Tasman Room, Abel-Tasman Hotel, 169 Willis Street, Wellington

This Forum is for:

- Users of Haz. Substances
- Compliance officers
- Government agencies
- Industry representatives
- Local Councils
- Compliance officials
- Manufacturers
- Compliance certifiers

Programme

9.30 am	Welcome and Introduction **Linda Amitrano** (NZIHSM Administrator)
9.40am	**What Use are Hazardous Substances Anyway??** **John Hickey** (CEO Abstel-Glyde, *Certifier & Chemical engineer.)*
10.10am	Morning Tea
10.30am	**The Health & Safety at Work Act and Hazardous substances** **Minister Hon Michael Woodhouse** *(Minister for Workplace relations & safety, Immigration and Revenue)*
11.00pm	**The Future of Fuel Users in New Zealand** **George Royal (Morrison & Co, Infratil)** *(**Founders of Z** (formerly Shell NZ), One of the Largest **Organisers of Airports, Buses and NZ Utilities**)*
11.30am	**Implementing the H&S and Major Hazard Facilities** **Dr Gayle Smith or Geoff Mayes, Worksafe** MHF team
12.00pm	Lunch
1.20pm	**Future of Waste Systems: Biowaste (to energy) Technologies** **Peter Keller** *Manager Solid Wastes, Local authority*
2pm	• **NZIHSM Forum and AGM** • Current affairs and Issues: HSAW & H&S Reform Update
3.30pm	Summary and Closing Comments

NZ Institute of Hazardous Substances Management (Inc)

NZIHSM Annual Hazardous Substances Seminar 2016

Registration Form – NZIHSM Forum and AGM 2016

Tax Invoice GST Registration Number: 83-496-193

Name of attendees:

_____

_____

Organisation: _____

Postal Address: _____

Phone: _____ **Fax:** _____

Mobile: _____

Email: _____

Special Requirements:_____

Fees:
NZIHSM members: Free of Charge
Non-members welcome: *(Appreciate $40pp Koha to help for lunch)*

Direct Credit
NZ Institute of Hazardous Substances Management Inc
ANZ Bank
Featherston Street, Welllington
01 1158 0107566 00

How to register
Complete registration form and email, fax or send to:
New Zealand Institute of Hazardous Substances Management Inc.
PO Box 10-385, The Terrace, Wellington Email: office@nzihsm.org,nz

Confirmation Policy
All registrations will be confirmed by email..

NZ Institute of Hazardous Substances Management (Inc)

MEMBERSHIP APPLICATION FORM

1. Name: ……..

First Name *Surname*

2. **Employment**

Business/Employer's Name: ……

***Position and Contact Details**:*

Position Held: ……..

Qualifications: ……

Experience in HS:

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3. Preferred mailing address:

……

……

……

Telephone Contacts (Bus.) (0) ……

(Res.) (0) ……

(Mob.) (02) ……...

(Facsimile) (0) ……

E-Mail: ……

Website: ……..

4. I have previously been a member of the Institute ❒Yes ❒No

If NO: I am applying to be a ❒Member ❒Associate member

5. **Return to**: P O Box 10-385, The Terrace, Wellington
Email: office@nzihsm.org.nz

How did you find out about us?

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