

Summer 2023

**F  
L  
A  
S  
H  
P  
O  
I  
N  
T**



**What lurks in Gabreille's silt ?  
Cyclones – the science  
HSNO - government update**



**NZ INSTITUTE OF  
HAZARDOUS  
SUBSTANCES  
MANAGEMENT**

## USEFUL ORGANISATIONAL CONTACTS

### NZ Institute of Hazardous Substances Management

[www.nzihsm.org.nz](http://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 specialising in improving safety, health and (site) environmental performance, particularly the safe management of hazardous substances in the community.

### 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](http://www.worksafe.govt.nz)

Government agency formed to provide compliance and enforcement of hazardous substances. Responsible for hazardous substances certificates.

### EPA

[www.epa.govt.nz](http://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.govt.nz](http://www.mfe.govt.nz)

The Ministry administers the HSNO Act, and provides policy, publications, technical reports and consultation documents.

### HAZANZ

[www.hazanz.org.nz](http://www.hazanz.org.nz)

An association of the safety organisations in New Zealand.

### Institution of Chemical Engineers

Since 1922 the multi-national IChemE has advanced chemical engineering's contribution for the benefit of society. Its offices include UK, Australia and New Zealand.

### Local Government NZ

[www.lgnz.co.nz/lg-sector/maps/](http://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 the Hazardous Substances legislation.

# President's message

## Cyclones, earthquakes and other hazards

Just when our planet was becoming predictable with a lovely four-season cycle, Mother Nature has started to move her tropics into the southern realms of Aotearoa.

But our Earth is never boring, and we humans are sharing natural experiences where we must engineer our knowledge to manage and work with the new but natural processes of our planet!

In this Summer edition of our Flashpoint, our NZIHSM team too continue in its goal of "protecting, people, communities and the environment" as we too must learn how to live with, and not against nature, commenting on our society and planet in articles as follows:

- (i) Cyclone-the science – NZ loses its cold water barrier ?
- (ii) Gabrielle – Did it break our chemical storage?
- (iii) The sacred lake – subsumed by man made sludge
- (iv) Paritutu 2,4,5 T site clean-up
- (v) A reduced need for Covid comment?
- (vi) Hazardous substance Government updates
- (vii) Archie's ramblings
- (viii) Offshore chemical incidents

### Hazardous substance certifiers required

As the hazardous substance/HSNO regime has passed 25 years, our safety workload is also growing and we are searching for additional HS Compliance certifiers. To assist with this Worksafe, NZIHSM, HSPNZ and HASANZ are investigating marketing strategies and Massey University has offered some initial training courses providing knowledge on the treatment of Hazardous substances. For more information on this see [www.hazsafe.org.nz](http://www.hazsafe.org.nz) – Certifiers – a job for you?

As we humans continue learning to live with our earthly mother, and be thankful for her gifts of instant liquid energy, it may be time where we need to share her load and processes through obtaining our own direct energy from the sun and reusing and recycling our own waste products rather than sending them all to Mum!

**John Hickey**  
President  
NZIHSM



# CONTENTS

Sacred lake subhomed by toxic sludge	2
Did Gabrielle break our chemical storage?	5
Hazardous substances government update	8
NZ loses its cold water barrier	9
Paritutu clean-up will take years	11
Evacuate or die order given	12
Uncle Archie	13

## Flashpoint

*Flashpoint* is the official journal of the NZ Institute of Hazardous Substances Management.

Editorial material does not necessarily reflect the views and opinions of the Institute.

Managing editor:  
Dave Lascelles  
[drl.sm47@gmail.com](mailto:drl.sm47@gmail.com)  
027 6918091  
President NZIHSM:  
John Hickey  
[john@abstel.com](mailto:john@abstel.com)

Editorial managers:  
Ross and Sue Miller [kotuku.media@xtra.co.nz](mailto:kotuku.media@xtra.co.nz)  
Phone: 04 233 1842

Copyright: Nothing in this publication may be reproduced by any means without the express permission of the editor.

**Illustrations are credited where we are sure of the source.**

### Institute national administration:

**President:** [john@abstel.com](mailto:john@abstel.com)  
0800 854 444  
**Secretary:** [linda@accreditation.co.nz](mailto:linda@accreditation.co.nz)

[office@nzihsm.org.nz](mailto:office@nzihsm.org.nz)

**EPA flexing muscles:**

# Sacred lake subsumed by toxic sludge

The Environmental Protection Agency has decided to use new powers to get involved in what could become a protracted and adversarial court case over the clean-up of the former Lake Rotoritipaku.

'Former' because the lake has ceased to exist, absorbed by, and then buried under 30 years of industrial sludge dumping from the Tasman Pulp and Paper at Kawerau. Locals are afraid current owners Norske Skog, being a foreign-based company, will be able to slip away without fixing the situation, or picking up the bill.

Alerted to the situation by a recent newspaper feature, that the lake

had disappeared under half a million tonnes of industrial sludge, EPA's CEO Allan Freeth said the Agency's patience had run out with companies, some multi-national, who have been within the letter of the law, but morally, in their obligations to the community and the environment, have been less than satisfactory.

He said it was not a matter of legal consents, it was an issue of companies should not be walking away from environmental damage they have caused. So he has used new enforcement powers granted to the EPA in 2020. "This recent addition to our toolbox will give us the opportunity to go out and look at areas that perhaps council can't

get to with resourcing, or they find it very difficult to do because they've got their own internal conflicts."

"We know from strict reading of the legal perspective, we don't have a lot of ins," Freeth said. "The consents were given at a different time with different expectations. But I would hope today our expectations of companies and their social licence to work would be very different."

## Complex situation

The situation is complex in that Norske Skog may choose to hide behind the law of the time the consents were given, and has very deep pockets. Although it was Māori reservation land – and a sacred site, the burial grounds of 16th century warrior chief Tūwharetoa and his ancestors – the Crown took the lake and adjacent forest in the early 1950s, deeming it wasteland. Today, such a decision would be unthinkable.

After the mill stopped discharging solid waste into the nearby Tarawera

---

***'Once upon a time there was a lake'. Lake Rotoritipaku is now a solid mass of chemically-infused industrial waste.***





**An old aerial photo showing the lake and the Tarawera River.**

River, Rotoitipaku became the primary dump for three decades, until the lease expired in 2013. It is now a patch of dirt, overgrown with scrub; a shallow, stinking channel, and an old holding pool - no longer teeming with fat eels and trout.

**Today: a small holding pond is all that is left of the lake – the rest has been filled in, and grown over in some places.**

Norske Skog does have some obligations under law – when the lease expired (now a decade ago) the company was bound to come up with a plan to clean it up. Apparently, that is yet to happen and the trustees of the ancestral land fear ratepayers or taxpayers will end up footing the bill. Kawerau A8D Māori Reservation Trust has now sought legal advice.

Like many environmental decisions made decades ago, nobody seems to have had any real idea of what

the long-term effects would be – Tiwai Point aluminium smelter and the Ivan Watkins Dow 2-4-5-T plant are a couple of other extreme examples.

After a decade of pouring solid waste into the Tarawera River, which lies 100m from the old foreshore and became known as ‘the black drain’, new restrictions were put in place. So, from 1971, it was piped into the lake. Rotoitipaku became the primary disposal site for solid waste, and it was transformed into





**A sample of the sludge the mill produces from paper manufacture.**

a sludge pond, which crusted and hardened over time, subsuming the waters. Groundwater in the area is substantially contaminated with dangerous chemicals, including some cancer-causing toxins. Some – boron and arsenic – are already naturally occurring in the buried geothermal springs.

But dioxins, polychlorinated biphenyls (PCB), and drums of zinc hydrosulphite and sodium dichromate are buried in the lake bed. Testing has detected manganese, ammoniacal nitrogen, boron, arsenic, zinc, and chloride, which exceeded maximum concentration limits for drinking water.

“We know from strict reading of the legal perspective, we don’t have a lot of ins,” said CEO Freeth. “The consents were given at a different time with different expectations. But I would hope today our expectations of companies and their social licence to work would be very different.”

Norske Skog is selling the Kawerau business, which makes the trustees nervous. They had expected the lake and adjacent forest to be restored after the lease expired, but in retrospect, it was probably too late by then. Local Maori remember fishing, swimming, cooking beside and boating on their basically

**The culprit: the pulp and paper mill at Kawerau.**

private lake. It is fed from a sacred spring and was surrounded by hot pools and little geysers.

Local iwi have not been sitting on their hands all these years. Several attempts have been made to halt the dumping. The landowner across whose land the original dump road was made, closed the access, but the mill simply created another way in and the landowner was reportedly ‘frog-marched’ from his job. This is another complication – the mill is the area’s largest employer and many of the affected iwi work there.

At one stage MPs were petitioned, an unsuccessful Maori Land Court hearing followed and eventually the Waitangi Tribunal awarded the trust \$1m that is now being used to pay for research on the contamination and how to remove it.

The EPA’s decision to get involved may have some echoes down in Bluff where the Government, Rio Tinto and local iwi are sparring over the remediation of the aluminium smelter site. A minor complication here is that while the owners had been happy to shut down the electricity-gobbling manufacturing site, suddenly world aluminium prices clawed their way back to the point where Tiwai Point is economical again.

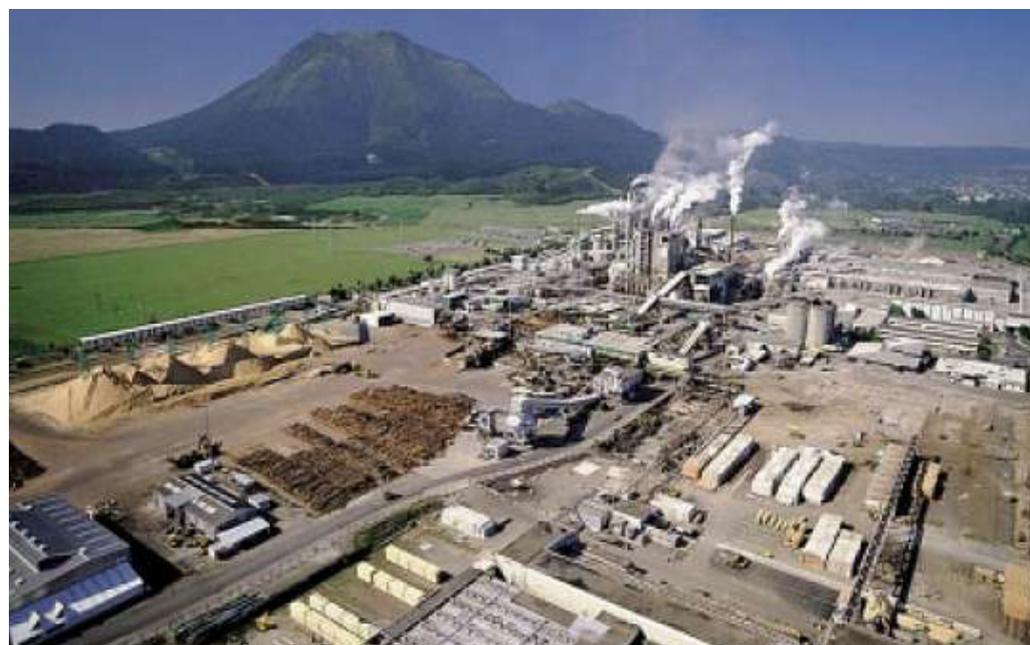
A new partnership with Ngāi Tahu has been set up to restore the whenua at the site. The agreement was signed by representatives from Murihiku Rūnaka and Te Rūnanga o Ngāi Tahu. Under the agreement, New Zealand Aluminium Smelters and Rio Tinto will work with local rūnaka to remove waste, conduct environmental monitoring, and remediate the site.

New Zealand Aluminium Smelter has increased the remediation and closure provision in its 2021 financial results to \$687 million. This is nearly double the amount allocated for clean-up in the previous accounts.

General manager Chris Blenkiron said this represents identified costs relating to site remediation activities such as the removal of waste, including spent cathode lining, demolition of site infrastructure and relocating the landfill following an eventual closure of the smelter. But there are no fixed dates attached.

The thing is that Rio Tinto will have to face up to remediation at some point, and probably sooner than later. Even if the smelter remains in production, the waste dumps in the fragile environment of the area will need to be attended to.

*Thanks to Stuff*



# Did Gabrielle break our chemical storage?

As Cyclone Gabrielle pummelled Hawkes Bay, tearing orchards to pieces through winds and massive flooding, probably the possibility of hundreds of drums of chemicals floating loose from destroyed storage sheds would not be the priority on most people's minds as they sought safety for themselves.

But it remains a distinct possibility that there is a lot of dangerous stuff out there in the environment after the storm ripped through Northland farms, Hawkes Bay's orchards and hundreds of enterprises like commercial garages that went completely under water. Even the best storage is going to be compromised when shipping containers slam into a shed with the speed of the flood floating them.

On a more minor scale, how many fridges are going to get dumped without proper decommissioning. And how much household cleaner and other domestic chemicals have escaped? It will probably be weeks

before there is any real handle on any wayward storage: hopefully it will be minor.

A lot of chemical detritus may well be trapped in rubble and slash around bridge supports, trapped in tree branches or will progressively wash up on the beaches.

## **Before the event – emergency preparedness:**

Stepping back from the personal impact of the storm, its easy to appreciate the damage to physical infrastructure may lead to hazardous materials being released from containment, posing a serious threat to public health, safety and the environment in the surrounding area. It is incumbent on all who work with hazardous substances to actively anticipate and prepare for this possibility.

Our national and local emergency response planners need accurate information about all chemical threats and hazards to

be adequately prepared. With each storm, information about all potential chemical hazards must be readily accessible to first responders in the affected areas. It can mean the difference between life and death for people living near industrial facilities or where trucks and rail systems transport chemicals.

In the USA chemical security experts work with national and local agencies to execute crucial modelling and analysis on a variety of chemical hazards, vulnerabilities, and incidents—including tropical storms, hurricanes and other severe weather conditions.

After the path of a hurricane is identified, and hazardous chemicals located at chemical plants in its path are determined, the likely health hazards resulting from a potential release are assessed. With this data in hand, scenario analysis tools are used, to determine possible impacts to the public. This work provides critical, time-sensitive

---

***Orchard and buildings almost completely submerged: the possibility of escape of stored chemicals is frightening.***



information to support emergency response efforts.

### No such approach

There appears to be no such proactive approach in New Zealand. The Worksafe register of HSNO certified sites could be a starting point for such modelling.

To support preparedness in the face of extreme weather requires a compilation of the following:

1. The quick gathering of information on chemical facility infrastructure in the storm's path; and an assessment of the danger posed by chemicals held within facilities likely to be in the storm's path to understand all hazards they pose if released.
2. An analysis of the storm's forecasted strength and characteristics which may pose a grave threat to chemical facility infrastructure and related operations and processes that ensure chemical containment and safety.
3. Tracking of the storm's predicted landfall time and assess potential on the potential impact of damaged chemical facilities.

4. Close contact arrangements with emergency response planners, to provide chemical hazard support to provide direct information to those in the field who are responding to the storm.

### After the event – emergency response

Being aware of possible chemicals in floodwater is an important first step in emergency response. Floods can cause all manner of chemicals to be flushed out from their original locations. Simple evidence of this is how slippery roads can become after a storm event, due to surface oil, car wash detergents, water off industrial sites, parking lots and construction sites, are carried off streets through city drains untreated into the nearest lake, stream, bay or ocean.

These systems can also carry pollutants such as pesticides, bacteria and chemicals through city streets and straight to our waters. Storm water pollution can include chemicals, general rubbish, sewage overflow, fertiliser run-off, and construction debris. The EPA estimates that American households

improperly dispose of about 730 million litres of used oil every year; or roughly the equivalent of 17 Exxon Valdez oil spills lost into the environment during storm floods.

Local authorities control storm water pollution at industries and construction sites by inspecting sites and enforcing the agency's requirements. However, during a significant storm event, no such protection is in place.

Cleaning up chemicals after a storm requires special precautions. Protective clothing should always be worn where chemical contamination of storm water is suspected. Displaced drums and storage tanks (as witnessed during the recent North Island cyclone) may contain hazardous materials that could cause a fire or an explosion. Flooded cars (again as witnessed during the recent cyclone) should be approached

---

***The power of Cyclone Gabrielle was unprecedented – here it makes its presence felt off Papamoa.*** Photo: Thomas Brackley



with care. Batteries can leak acid, and EVs may still be electrically live.

Household hazardous wastes can include materials such as acids and alkalis; brake fluids and coolants; car care products; cleaning products and paint. Farm lots can store pesticides; insecticides; rodenticides and herbicides. In flood conditions these chemicals and dangerous goods can spill and travel large distances from their original location.

As noted above, storms and floods may have moved, buried or damaged hazardous chemical containers including corrosives, oils, pesticides and industrial chemicals. To safely handle and dispose of hazardous chemicals, the following should be considered:

- Always wear personal protective equipment to minimise exposure to skin.
- Try to identify chemicals and their hazards using labels and markings. If water has removed

the label, seek expert advice and chemical identification from a waste management consultant.

- If a container may cause potential risk, (e.g. bulging under pressure, leaking, or in a precarious position), isolate the immediate area and call 111. The Fire Service is equipped and trained to deal with these situations.
- Isolate chemicals from general waste.
- Segregate chemicals based on the condition of the container (damaged or undamaged) and based on reactions with one another, for example oils and dry pool chlorine may cause a fire.
- Undamaged and uncontaminated chemicals discovered during a post flood clean up should be stored safely in a secure location until they can be transported to a safe disposal facility.
- Take precautions to protect the area from further damage during the clean-up, such as preventing mobile plant (e.g. earth-

moving equipment) coming into contact with containers, particularly gas cylinders.

- Monitor atmospheres in enclosed spaces using a suitable air monitoring device (e.g. gas detector) where plant and equipment exhaust is generated. Ensure exhaust gases are ventilated to prevent the build-up of contaminant exhaust gases such as carbon monoxide. Reduce this risk by operating generators and other fuel-powered equipment outdoors wherever possible. [For example, pumps used for water removal from a basement.]
- Chemical processing and handling equipment that has been flood or storm affected should be checked prior to operation, ensuring electrical installations are checked by a qualified electrician.
- Fixed tank gas supply systems should be checked out regarding their safe return to operation.
- Service station operators need to be particularly aware of the effects of flooding on underground storage tank systems.
- Ensure the appropriate decontamination of clothing and equipment after handling or coming in contact with chemicals.

The underlying message in all the above is that chemicals require specific care for their potential adverse effects when their containment is breached.

– *Dave Lascelles*



***The thousands of vehicles caught in floods or slips pose thousands of possible individual HSNO sites with on-board fuel and oils and EV batteries.***

Above: ***a car wrapped up in the remains of an uprooted tree.***

Right: ***flooded service stations – what damage to underground tanks?***



# Hazardous substances government update

Worksafe and EPA have been implementing a number of items that can affect the suppliers, users and certifiers of hazardous substances. A brief overview of current projects:

## Worksafe current hazardous substance activities

1. Consultation of certifier handler performance standard – WorkSafe is consulting on proposed changes to the Health and Safety at Work (Hazardous Substances-Certified Handler of Class 6 Substances Compliance Certification) Performance Standard 2019. Please submit any questions or feedback to [hsapplications@worksafe.govt.nz](mailto:hsapplications@worksafe.govt.nz).

2. Independent Reviews – on 31 March 2022 WorkSafe publicly released the findings of two independent reviews on the certifier process.

Outcomes of the Consultation will be communicated to certifiers early in 2023.

WorkSafe emphasised that it will be monitoring the volume of notifications of refusal issued through the audit process and when certifiers applications are processed for authorisation.

3. Retail shops – referring to big box retail shops where regulation 11.33 could apply. Regulation 11.33 provides for certain situations where big box stores can reduce the separation distance for class 3.1 substances to zero. There is external interest around this regulation and how it can be applied and if it is being applied correctly.

WorkSafe issued a position statement on regulation 11.33 clarifying how the two sub clauses

of 11.33 related to each other. Further discussions are required to consider how the regulation applies to a protected place, adjacent place or an onsite protected place.

Worksafe will publish a technical position on this matter to all certifiers and PCBUs within the first quarter of 2023.

4. New hazardous substance certifiers are being sought by Worksafe and this effort is being assisted by NZIHSM, HSPNZ and HASANZ along with some preliminary courses on Hazardous substance certification that are being offered by Massey University. If interested please contact us at [office@nzihsm.org.nz](mailto:office@nzihsm.org.nz)

## EPA current hazardous substance activities

1. Ban on methyl bromide use in ships' holds.

Since 1 January 2023, methyl

bromide fumigation in ships' holds has been banned and 80% of methyl bromide must be recaptured from every container fumigation. The container recapture amount will increase to 90% in 2027 and 99 percent in 2031.

Following a reassessment decision on the substance in August 2021, a comprehensive set of new rules were imposed. EDN (ethanedinitrile) is an alternative to methyl bromide for fumigating logs and was approved in July 2022.

2. Requirement for business details from importers and manufacturers. Importers and manufacturers of hazardous substances must provide business contact information to the EPA. They must also update the EPA when any changes occur.

Not complying with the requirements of the Importers and Manufacturers Notice may be an offence under the HSNO Act.

*Please note that people who re-label and re-package hazardous substances are also defined as manufacturers.*

## Acid spill fells worker

A person injured after a chemical spill at a Christchurch workplace after slipping on sulphuric acid. He was taken to Christchurch Hospital, understood to have suffered injuries.

Assistant fire commander Dave Key said he understood a 1000-litre drum of sulphuric acid was being moved on a forklift when the spill happened, then started to fume. A member of the public found the spill and alerted the only person at the Maunsell St, Woolston, site. That person slipped on the acid while trying to get a hose.

"It went through his overalls and underneath," Key said. "The local brigade did a snap rescue, took him out of the incident and hosed him down."



**Cyclones – the science:**

# NZ loses its cold sea barrier

New Zealand has lost its colder sea barrier that has, in the past, turned approaching tropical cyclones into far more innocuous weather events.

In a recent RNZ report, Niwa's Dr Daithi Stone points out that tropical cyclones feed off of the energy provided by hot ocean waters, and recent summers – including the one we are in now – have seen unusually warm water in the Tasman Sea and around Aotearoa.

"This warm water is partly an effect of the warm La Niña waters spanning the western tropical Pacific and partly some local ocean

activities happening in the Tasman Sea, but the ongoing warming trend from human-induced climate change is playing a big role too." La Niña is an atmospheric phenomenon that usually happens every few years, when winds blow warm surface water from the eastern Pacific Ocean towards Indonesia.

In New Zealand, this can lead to moist, rainy conditions in the north and east of the country and warmer-than-average sea and air temperatures.

Climate change cannot solely be

blamed for Gabrielle's existence, as recent studies have suggested the globe's warming is actually reducing the frequency of tropical storms in the Pacific – but the extra energy it affords systems could be making those cyclones that do form stronger.

Not many cyclones make it this far south intact, but the combined effects of climate change and La Niña are helping there too. A MBIE-funded project indicated that "the waters in the Tasman Sea and around New Zealand have been unusually warm," and "the rate of warming has been above the global average since 2012-2013, with the last two years presenting record-breaking ocean temperatures leading to unprecedented marine heat waves around Aotearoa."

The current La Niña has been 'protracted' after three Southern Hemisphere summers – the longest this century. As a result, Dr Stone said extreme weather systems like Gabrielle "can maintain themselves much closer to us than before and are not disrupted so much by our cooler seas that are no longer there".

La Niña events also change the winds, bringing more hot and wet air from the tropics our way.

So the effect of global warming is contributing to a significant extent as the warmer air of a warming world can hold more moisture until carried by a cyclone like Gabrielle it meets the mountains of Aotearoa where the higher water loading is dropped like a waterfall, leading to dramatic land flooding below!

But what has caused this massive warming changes!

Somewhat amazingly a little mammal called humans, in a geological 'blink of an eye', found

**Where the silt comes from.  
Aerospread pix near Tutira.**



that past sun's energy was stored and could be released and used from ancient fuel sources called wood, coal and hydrocarbons. This 'free heat' and chemical uses was wonderful and allowed these little humans to become 'masters of their giant Earth planet'. Unfortunately, the burning in air of these to release the energy creates carbon dioxide and water plus the energy as the products of combustion.

In this case the vast quantities of carbon released from Earth's stocks have caused the world's atmosphere to heat significantly through the greenhouse effect as a larger atmospheric carbon-layer is allowing the Sun's energy shorter ultraviolet rays to pass through, but trapping the longer 'infra-red' heat rays as the earth heats up within the atmosphere.

This trapping of heat or energy is now causing more energy in storms, more kg water/kg of air and so larger rain when storms do arrive and melting of Earth's existing ice-caps, which will significantly raise the water level alongside humans' beach-based cities and cultures.

Some facts about global warming:

- most of the increase in global temperatures since 1950 has been caused by human activity.
- the average temperature of the Earth is determined by the

greenhouse effect...

- global temperatures have increased by about 1° Celsius in the past century.
- within the next two decades, global temperatures are likely to rise 1.5 degrees Celsius...
- the last seven years have been the warmest on record...
- more than one million species are at risk of extinction by climate change.

These items would indicate that there is a serious risk that excessive carbon fuel use without a suitable recycling mechanism could do serious harm to our Earth and, unfortunately also, to the human species and other life on our beautiful blue planet.

As a result, we are just starting to see extreme planet events caused by our overload of carbon and energy in such quantities that it has unbalanced our perfect world!

We humans have started this, and now we do need to 'balance the process' through recycling and control of excessive carbon and other poisons before excessive



***Digging deep in the Esk Valley!***

droughts, floods and other almost Biblical plagues destroy our very existence.

The Esk Valley should be a message to us ALL! To truly manage our world, we humans must learn to WORK WITH NATURE and BALANCE our EARTH's PROCESSES to stabilise our beautiful Earth so she can still act as Mother to us all!

***- John Hickey***



***A \$28.1 million apartment building in Auckland's Herne Bay is perilously close to the edge of a cliff. The building contains 12 luxury apartments.***

***A heritage boat shed and another were crushed beneath a mass of earth and tree trunk. (Stuff)***

# Paritutu clean-up will take years

Paritutu residents face years of clean-up work around their suburb once remediation of the controversial Corteva /IWD plant begins.

Not that there is any indication of that happening in the immediate future.

The Taranaki Regional Council has been told remediation of the area would take several years. From the 1960s through to 1987, Ivon Watkins (later Ivon Watkins-Dow) made the herbicide 2,4, 5-T - that contained the toxic dioxin TCDD at Paritutu. The herbicide was an infamous key component of Agent Orange - the defoliant used by the United States military in the Vietnam War, and has been linked to cancers and birth defects. Perhaps not surprisingly, elevated levels of TCDD have

been found in the soil on the site's boundaries with reserve land and a residential street.

Dow Chemical is due to take back ownership of the plant, which has been demolished, from global agrichemical giant Corteva in the first quarter of 2023. Tonkin+Taylor has created a draft remediation road map for the 16 ha site, which has been presented to the regional council.

"Early work involving planning and site investigations is likely to take between two and four years to complete. Site remediation will be guided by the findings of the earlier investigations and will likely take a further two to four years to complete," the report says.

Two hapu and two iwi have an

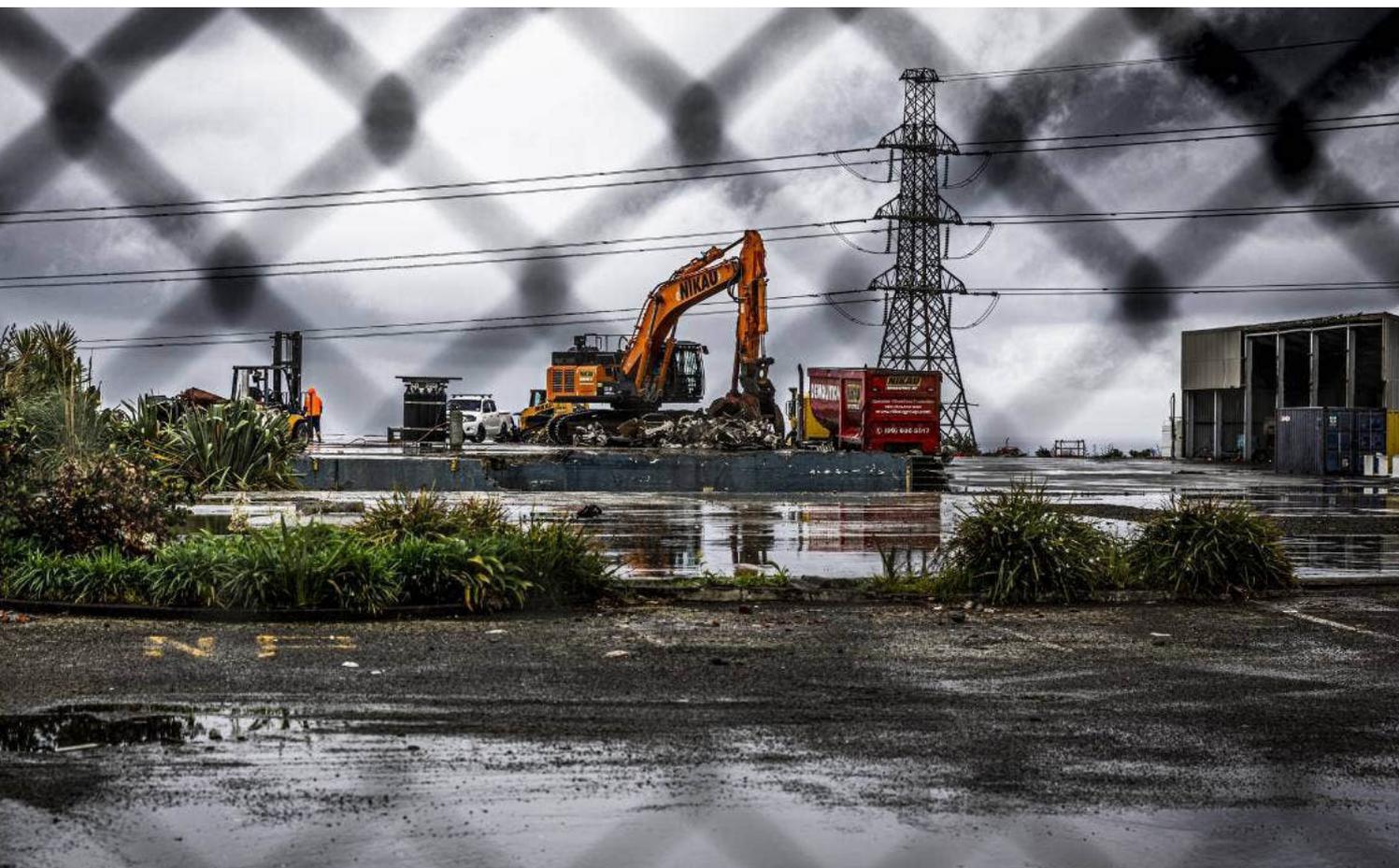
association with Paritutu, and it is understood urupu are located on the property, which was also a papakainga and a battle ground. Iwi representative Anaru White said iwi were consulted during the preparation of the draft roadmap and it is important that continues.

The report outlined the demolition and monitoring work done so far. That includes the levelling of all above-ground structures except the hazardous substance storage area and the stormwater retention systems. All underground pipework was sealed, and on-site sumps filled with concrete.

The regional council continues to monitor odour from the site and discharges to the Herekawe Stream.

Pictured is part of the Paritutu site with many of the buildings now demolished.

Photo: *Vanessa Laurie*



# Evacuate or die order given

American specialists performed a controlled release of vinyl chloride from a derailed train in north-eastern Ohio, hours after ordering residents to evacuate the area, or risk death.

Five derailed rail cars were at risk of exploding. The original evacuation order was for 1.6km, but this later expanded into the neighbouring state

Huge plumes of black smoke rose into the air shortly after the controlled release began. Governor Mike DeWine said a drastic temperature change has taken place in a rail car, and there was the potential of a catastrophic tanker failure which could cause an explosion with the potential of deadly shrapnel travelling up to a mile. He asked those who had not yet left to immediately evacuate.

Sheriffs went door-to-door to count the remaining residents and urged people within the evacuation area to leave.

Officials from the National Transportation Safety Board said there were 20 rail cars carrying hazardous material on the train. Ten of them derailed about 15 miles south of Youngstown, Ohio. Five of the derailed cars were carrying the chemical vinyl chloride, a type of gas.

Exposure to vinyl chloride has been associated with heightened risks of certain forms of cancer, according to the National Cancer Institute - but state environmental officials said harmful levels had not been detected in the community.

It was not immediately known why the Norfolk Southern train, carrying 100-plus cars, derailed.



*The poisonous fire cloud ascends above East Palestine, Ohio.*

## Japan delays nuclear dumping

Japan has delayed a planned release of more than one million tonnes of nuclear wastewater into the Pacific Ocean.

It is now adopting a revised action plan on the discharge of treated, but still radioactive, wastewater from the Fukushima nuclear power plant this year and will delay the release until experts have verified it is safe. The decision follows a visit by Pacific Forum requesting a deferral of Japan's plans to discharge the wastewater, scheduled for spring 2023.

But lawyer Duncan Currie said it

was a lacklustre outcome

*Post-fire wreckage of the derailed train.*

with Pacific nations stuck between a rock and a hard place. He believes the outcome was a bit vague and seems like Japan is passing the risk onto Pacific leaders. "It's very soft and it is not going to be effective because Japan is going to continue to say it is safe even in the face of evidence that it's not!

When a magnitude 9.1 earthquake and tsunami hit off the coast of Japan in 2011, it caused a meltdown at the Fukushima plant. Since then, water has been used to cool the damaged reactors. Now, tonnes of radionuclide-contaminated water – collected on site – continue to accumulate, from the rains and groundwater that have managed to seep through. Consequently, storage space has become a major issue.

Japan is also facing widespread opposition from local fishermen, international environmentalists and other governments including China, South Korea and Taiwan.



# Uncle Archie

*Kia ora HS professionals!*

## The plagues

Earthquakes, Covid plagues, cyclones, what next? We don't want to see the locusts!

## Cyclone zone

Summer 2023 is with us but so has been the extremes of drought and rain! Just when the dry season has set droughts in the south and only a little water is craved, the wet season arrives for the north along with a previously rare cyclone to over-deliver with record high rainfall, earth collapse and flooding till one just wishes for a bit of sunshine!

Is this the new normal, a sign that our weather, or possibly the world, is changing?

## Horticulture

Huge swathes of berries, kiwifruit, apples and other fruit have been bathed in silt and sewerage during the cyclone floods from Northland and Bay of Plenty through to the Hawkes Bay. One estimate put half of the NZ kumara crop now un-harvestable, and other fruit trees and crops aren't much better taking with it the annual livelihoods of the growers. One grower had just one word for it - "Shat"!

## Quake life

Our earth often moves as surface plates knock against each other causing earthquakes. This is planet life, and Mars too had continental plates which apparently stopped moving about the same time as it's atmosphere disappeared. We don't want that!

## Earthquakes

Recent 'Canterbury-sized' earthquakes, along the Turkey-

Syria border have demolished large swathes of their buildings and killed tens of thousands to add to the horrors of their wars. The poor people!

We in NZ were 'comparatively lucky', that our scientists had used science to design our Canterbury buildings to protect humans in case of 'those unexpected' earthquakes and we lost some but far fewer. Perhaps we should do the same for our Planet?

## Political quakes

The western world seems to have had rapid political changes since the two-year hiatus with Covid. In the UK Boris departed, but this potential disruption was rapidly overshadowed with the departure of the Queen. Their new PM seems quieter?



In New Zealand the unthinkable happened at year-start when our Covid PM Jacinda, expressing fatigue, abruptly resigned and a new PM Chris Hipkins was appointed, only to be 'baptised' by

Cyclone Gabrielle delivering havoc to the nation.

Wow, how fast our world can change, even for our leaders!

## Oil refinery closure affects beer supply!

Unexpected effects from the closure of New Zealand's only oil refining capability at Marsden Point is now occurring with not just increased costs for fuel but running out of NZ CO<sub>2</sub> gas is hurting our 'Beer suppliers'! What, No beer for Kiwis ???

However, this removal of local cheap carbon-based fuel may

unexpectedly lead us to look at other 'renewable' options and force us to more earth friendly systems! Renewable Energy storage Sources of alternate renewable energy include the production of electricity through wind, waves, water or the sun.

A major issue is how to store the created energy for later use when the energy source may not be available. Oil-based fuels had an energy advantage in that fuel stored its own energy. The safe and cheap storage of energy, such as batteries, dams, etc will be an issue with all fuel alternatives.

## Hazsub certificates statistics

Since 2006 there have been Hazardous substance compliance certificates to ensure an annual safety check of sites where hazardous substances may be stored. It would appear from an EPA review of the process that this annual site safe review at least once per year has led to a corresponding reduction in chemical safety incidents. Thank goodness for that!

## Hazardous substance progress

Recent cyclones, floods and Covid bug extremes have shown us that "for every action there can arise an opposite re-action".

Our increased understanding of science is also showing us that for every benefit that we derive from chemicals, there may also be a negative effect when we over-use or mis-use the same substances.

That is why we must understand the natural process and use science to minimise the hazardous effects of nature and substances!

If you want to send your comment, you can send it to [archie@NZIHSM.org.nz](mailto: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!



# 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:  
.....  
.....  
.....

3. **Preferred mailing address:** .....

Telephone Contacts: (Bus) .....

Residential: .....

Mobile: .....

Email: ..... Web: .....

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: PO Box 10-385, The Terrace, Wellington  
Email: [office@nzihsm.org.nz](mailto:office@nzihsm.org.nz)

How did you find out about us? .....  
.....