

Transcription | Insight Radio New Zealand 15 June 2008 A Chemical Legacy

Ref: **RNZ-15JUN2008-A-Chemical-Legacy**

### **Introduction**

People who have been exposed to the potentially deadly chemical, dioxin, in New Plymouth may have been contaminated more badly than previously thought. The Government has acknowledged that some of their illnesses are linked to dioxin exposure from the former Ivon Watkins Dow Agrichemical Plant in the suburb of Paritutu. At its launch for the new health service for those affected, the campaigner's fear the impact of the exposure is still being underestimated and say more action is needed.

### **Craig Ashworth**

From above the suburb of Paritutu the basics of New Plymouth's dioxin saga are plain to see. I'm at the summit of the steep kind of rock on the coast at the western end of the city. This is Paritutu rock a sheer sided remnant of an ancient volcanic crater which gave its name to the suburb 150m below. Immediately to the south of the grey mostly windowless buildings of the Dow Agrosociences Chemical plant known in the 60s and 70s as Ivon Watkins Dow. Far beyond reaching to Egmont National Park and south and east to the horizon are Taranaki's rich green pastures. The herbicide 2,4,5-T that Ivon Watkins Dow made here for 25 years from 1962 was enthusiastically sprayed on farms across the country to kill stubborn gorse. Between the factory and pastures lie the homes of Paritutu state built weatherboard worker houses from the 50s and 60s. But the 2,4,5-T was contaminated with dioxin and fumes from the factory spread across the homes and nearby work places.

### **Jeanette Hermon**

Depending which way the wind was blowing sometimes it was worse than others. I'd smell it on my husband's clothes; he couldn't leave his clothes in the house or in the same room because they would smell. Also if I hung his overalls or clothes out on the line the grass would die underneath it where the water would drip out.

### **Craig Ashworth**

Jeanette Hermon has the dubious honour of carrying the highest load of dioxin yet measured in anyone who lived in the streets below. Her husband worked all his life at Ivon Watkins Dow and her children were born during the peak years of dioxin contamination. She has survived two episodes of non-Hodgkins lymphoma, a cancer associated with dioxin. But that's just the start of the illness she blames on the plant.

### **Jeanette Hermon**

I lost my husband as well of cancer too. He died at 59, we were just going to retire and I got over the first lot of cancer and we were going to try and enjoy ourselves. It seems to be coming out in my grandchildren, I had one granddaughter who died that had half its heart and lot of insides missing and my latest little grandchild had a cleft lip.

### **Craig Ashworth**

Turn east on the summit of Paritutu rock laid out below is the New Plymouth Power Station less than 500 metres from the Dow factory. A few 100 metres more takes in Port Taranaki. They employed 100s and soil tests show that poison plumes drifted their way too. When Noel Scouller retired in 1990 he spent 47 years on the wharves. He also lived here in the street next to Ivon Watkins Dow for 11 years from 1974. He is now largely confined to his home with paper thin skin on his feet and crippling pains up his legs, thanks to sensory motor peripheral neuropathy.

### **Noel Scouller**

It's a nerve disease where the nerves start from the feet and gradually take years, they die out the nerves and then they go right up your body, it's an incurable disease. Two top specialists in New Zealand have said that it is a linked disease to chemical poisoning and I went to Palmerston North Hospital and they said down there that my condition was worse than any of the Vietnam Veteran's that they had with that same complaint.

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**Craig Ashworth**

Now 71, Noel Schooler struggles to accept the disease that has wrecked his life in a few short years. The nerve disease is just his latest illness.

**Noel Scouller**

Fifteen, twenty years ago I got big jelly blobs growing in my eyes and the eye surgeons had never seen anything like that before. They removed the blocks and found that I had glaucoma of both eyes and over the years of having the glaucoma slowly burnt out of my eyes I have had a cancer nose construction, cancer of the jaw reconstruction, rhythmic heart condition, I have been in hospital several times, my heart just races and goes out of control and then I go up to the ICU and they steady it down and now I am on stronger medication to control it.

**Craig Ashworth**

But if his own illnesses are hard to cope with, his children's health history is devastating. Noel Scouller lived with his four children literally over the fence from the Dow plant, a very different fence from today's two metre barbed wire topped barrier.

**Noel Scouller**

The boundary was just a one wire strand fence where myself and children would climb over that fence and just over it in those days.

**Craig Ashworth**

So it was quite common for kids to play there

**Noel Scouller**

Oh yes, the neighbourhood kids and us all played sport and rounders and that sort of thing. It was somewhere for us to play.

**Craig Ashworth**

Noel Scouller share picnic lunches with his children on IWD's lawn but now wishes he hadn't. He goes to the photo of his now adult children which holds pride of place over the mantelpiece.

**Noel Scouller**

That photograph was taken 27 years ago and that is my youngest daughter there aged 13, the one that had bone cancer and was off school a year, both legs in plaster, she is still not 100% with her legs. She married and has been married 18 years but they advised her not to have children because her bone cancer and cervical cancer, for which she has had two operations, the last one about a year ago but it started 1994 and she was in hospital such a lot with nose bleeds and terrible migraines. As soon as she shifted from here the migraines gradually disappeared. My next eldest is Julie, she is suffering arrhythmic heart condition and in 1996 she had an operation for cervical cancer and to this day she is most unwell. My son, the next eldest, he had a big tumour come up in his head there about 10 years ago on his forehead where they had to cut that out and he's also had nose bleeds and migraines and then my eldest daughter Karen, she played volleyball for New Zealand, she is very, very fit, she is now a physical mess, she's had a heart attack about four years ago and she is still having heart problems and she was in the New Plymouth hospital only two weeks ago.

**Craig Ashworth**

For three decades successive governments said there was no proof of the problem at Paritutu but in 2002 soil tests for the Ministry for the Environment found elevated levels of dioxin within a kilometre of the plant. In 2004 the Institute of Environmental Science and Research or ESR tested 52 residents for the Ministry of

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Health and found that people who'd lived near the plant up til 1987 carried dioxin at up to seven times the New Zealand average in their blood. Dioxin contamination of Paritutu residents had finally been proved but campaigners say the study understated the exposure by failing to establish when the pollution was at its worst. The ESR report concluded that dioxin exposure had been gradual with the risks spread evenly over the period of 2,4,5-T manufacture from 1962 to 1987. But a forensic accountant John Leonard believes that mixed up data watered down the findings obscuring a much higher contamination peak.

### **John Leonard**

The effect seems to be that the level of contamination pre-1974 is not considerably more than post-1974 whereas if we corrected it the post-1974 would be a lot lower making the pre-1974 look a lot worse which it was.

### **Craig Ashworth**

The Ministry stood by the study despite one of three additional peer reviewers also questioning the possibility of an earlier higher peak. But by the time officials came to discuss health services for exposed workers and residents last July the Ministry of Health had quietly done a U-turn and now admits Paritutu dioxin exposures peaked between 1965 and 1968. The Ministry's senior public health advisor Doug Lush denied a backflip.

### **Doug Lush**

The change has been I think that there is some suggestion that the exposure was more intense in the mid to late 60s and that's new information from a review of the data and a look at the production data.

### **Craig Ashworth**

Working out when the dioxin pollution is important when assessing how badly the people in Paritutu where contaminated. For most adults it's now believed blood dioxin levels fall by about a half every seven years. So dioxin levels today would have been twice as high seven years ago, four times as high fourteen years ago and so on. Environmental chemist Dr Mike Fitzpatrick first visited Paritutu about a decade ago testing soil for dioxin for possible legal action. The court case never eventuated but Dr Fitzpatrick maintained his interest in the issue and is closely familiar with ESRs 2004 blood tests. He says back-calculating the results to 1968 or even the early 70s can give only one result.

### **Doug Lush**

It's very, very obvious what it means, it means they were exposed too much higher levels of dioxins than what the report said. They come up with past peak exposure levels of around 225picograms/gram TCDD that's the nasty dioxin. But I think if you model it instead of back to 1987 I think if you use your modelling back to the late 60s you can easily derive numbers of double that up to 500picograms/gram even 600picograms/gram. So more than double perhaps even three times what ESR were saying. Because of that there's a much greater chance that there will be health effects.

### **Craig Ashworth**

I made some rough calculations assuming a half life of just over seven years. Dr Mike Fitzpatrick agrees they are useful working figures and two internationally preeminent dioxin scientists also say they are reasonable calculations. You will hear more from them later.

Jeanette Hermon's blood had 34.8ppt of the most poisonous dioxin TCDD when she was tested for a TV1 programme in 2004. As her dioxin level was highest when she left Paritutu in 1973 back-calculating her puts her blood dioxin then at about 650ppt. But if her dioxin level was highest when the Health Ministry now said peak pollution ended in 1968 then her dose was likely around 1200ppt. In contrast the New Zealand average today is under 2ppt. Another resident had a level of 14ppt in 2004. A middle range result from the ESR tests.

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If her contamination peaked in 1973 it would likely have exceeded 250ppt. If it peaked in 1968 she could be approaching 500ppt. Dr Fitzpatrick says these are striking results.

#### **Dr Fitzpatrick**

When you correctly look at the Paritutu data and model it correctly it's very, very comparable with some of the ranch hand veteran's, these are the people who were in Vietnam spraying in involved with Agent Orange. And so the scale you are talking about is that there are individuals and residents in Paritutu who have blood dioxin values when you adjust for age and when you adjust for the times of exposure that are on a par with some of the highest dioxin exposures and ranch hand Veteran's and so that leads me to the conclusion that some of the health effects may be similar.

#### **Craig Ashworth**

But the lead investigator of the original ESR blood study said more recent work on the test data doesn't back such fears. Dr Jeff Fowles says the Health Ministry's desire to have basic findings released quickly in 2005 meant analysis was less detailed than it could have been. Despite no further payment from ESR or the Ministry he and another study team member have continued the work and hope to submit the results for publication in a couple of months. They convinced the Ministry of the earlier peak and have back-calculated exposures as far as 1965. But all tested residents lived in the area then so not all need to be back-calculated that far. And Dr Fowles says age, gender; body mass and other variables also need to be considered.

#### **Dr Jeff Fowles**

It is not quite as simple as just saying well the years have gone back further therefore the levels have been much higher. When you go back and apply individual specific elimination half life estimates for each person which you really need to do to make it scientifically accurate then it's very unlikely that that person would have had a seven year half life.

#### **Craig Ashworth**

Dr Fowles latest calculations show exposure levels not much worse than the initial estimates.

#### **Dr Jeff Fowles**

What we are coming up with now is really quite similar to the ball park ranges that were given on the ESR report. It's almost certainly going to be between 200 and 300ppt. In the grand scheme of things that kind of a difference isn't a major difference in terms of health risk.

#### **Craig Ashworth**

However another expert in the field believes previous work could have underestimated the level of exposure. Professor Linda Birnbaum, the Director of the Experimental Toxicology Division of the US Environmental Protection Agency. She is also a Professor of Duke and North Carolina Universities, a former president of the US Society of Toxicology and current president elect of the International Union of Toxicology. She written more than 300 peer reviewed articles well over 100 of them on dioxins and PCBs. When estimating past exposures to dioxin she has helped developed physiologically based pharmacokinetic modelling of PBPK which aims to better match what really goes on in human bodies.

#### **Professor Linda Birnbaum**

We do know that the half life is dose dependent so the higher the dose the more rapidly it will be eliminated from the body.

#### **Craig Ashworth**

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Professor Birnbaum says my estimated peak dioxin levels in Paritutu residents are high so the levels would have decreased steeply in the years immediately after the peak. It means a reconstruction of dioxin levels back through three decades or more would result in much higher initial levels. Professor Birnbaum was the senior author of a pivotal study on the US Army Agent Orange sprayers, the ranch hands that Mike Fitzpatrick compared with Paritutu residents.

### **Professor Linda Birnbaum**

Our conclusion kind of was is that by the way we have done a straightforward back extrapolation we may have put people in the wrong category as to what their peak exposure was.

### **Craig Ashworth**

Using PBPK modelling produced estimates of much higher contamination of the Army sprayers. Professor Birnbaum says that wouldn't be unrealistic to expect that using PBPK modelling would double my basic calculations. By that yard stick Jeanette Hermon's blood dioxin could have approached 2,500ppt in 1968. Even the woman in the report whose blood dioxin was 14ppt in 2004 could multiply back to 1,000ppt in 1968. Again the New Zealand average today is under 2ppt. There's no agreed safe limit but the World Health Organisation recommends making every effort to reduce exposure as low as possible. The Ministry of Health says calculation past exposure levels isn't very helpful. Its Deputy Director of Public Health, Dr Fran McGrath.

### **Dr Fran McGrath**

There is another discussion about whether knowing the level dioxin exposure historically tells you very much about your health risk and the best available evidence is that it doesn't and that's the basis of part of the advice from the Ministry to Government around the health support service. Because to be absolutely frank the majority of people who are living in Paritutu or did live there or who worked there, their concern is about their health and that is actually what the Government and Ministry have been responding too.

### **Craig Ashworth**

The debate over dioxin in Paritutu has centred on just one dioxin - 2,3,7,8-TCDD but the danger doesn't end there. TCDD is the most toxic of the dioxins but Dr Fitzpatrick says that other dioxins and chemicals regarded as dioxin-like substances were also measured in the Paritutu blood samples.

### **Dr Mike Fitzpatrick**

It's a reality that there are many other compounds that are associated with emissions at the IWD plant that combined could be much, much more dangerous. But not only do these compounds cause cumulative effects but they can act synergistically. What that means is that some of the effects of PCBs and dioxins together seem to be able to multiply in terms of health effects.

### **Craig Ashworth**

Marilyn Halvorson lived in Paritutu from 1966 - 1968 and for another two years from 1971. After blood tests by ESR for the Ministry of Health she was assured she was in the normal range for TCDD but her PCB exposure could change all that. Some PCBs act like dioxins in the body although they are weaker so have to be weighted together toxicity measure comparable to that of TCDD. For example it takes 10 parts of the PCB 126 in Marilyn Halvorson's blood to equal the toxicity of 1 part of TCDD. According to my rough calculations backdating her test results 30 years suggest she had less than 120ppt of TCDD in her blood when she left Paritutu. But weighting her backdating PCB 126 and adding it to the TCDD gives a toxic equivalent approaching 800ppt. Take her back to 1968 and she almost reaches 2000ppt. She's not happy when I take her through the sums.

### **Marilyn Halvorson**

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I didn't realise that I had all that poison in me, they've never ever said anything about PCB and that it would be a lot higher and I am a bit upset about that and I don't know what really have any idea really what effect it will do to me.

### **Craig Ashworth**

The PCB may already have left its mark. In the late 1990s Marilyn Halvorson noticed herself slowing down. She was losing vision on her left side and stumbling so much she tore her Achilles tendon and had to quit work. Doctors removed a brain tumour they said had been growing for 20 years or more. Her former husband who worked at IWD had a tumour removed from his spine and the couple had problems creating a family.

### **Marilyn Halvorson**

In 1970 I lost the baby - placenta previa, it was fully formed and he died a day old and in 1972 my daughter was born with a cleft palate and a hair lip which was quite horrific.

### **Craig Ashworth**

Environmental chemist Dr Mike Fitzpatrick says PCBs could have been formed during incineration of liquid waste from herbicide production. But the blood serum study leader Dr Jeff Fowles says any PCB contamination is likely to have come from a source other than Ivon Watkins Dow. He says PCBs from incineration would be accompanied by other telltale dioxin-like compounds and they weren't found.

### **Dr Mike Fitzpatrick**

You would expect not only PCBs to be present in the blood and elevated but also some of the chlorinated fluorans and other dioxins besides TCDD and we specifically scanned for those in the soil samples and also in the serum and we didn't find any evidence for that.

### **Craig Ashworth**

Apart from the dispute over backdating and over the effects of multiple dioxin-like compounds there are also concerns that officials recognise too narrow a range of ill effects related to dioxins and similar substances. The Ministry of Health uses a list compiled by the US Institute of Medicine of the National Academies.

The conditions that have been accepted as having sufficient evidence of an association with dioxin exposure are:

- Hodgkin's disease
- Non-Hodgkin's lymphoma
- Soft tissue sarcoma
- Chronic lymphocytic leukaemia and
- Chloracne

There is limited or suggestive evidence that dioxins may help to cause respiratory cancers, prostate cancer, multiple myeloma, acute and sub-acute transient peripheral neuropathy, porphyria cutanea tarda, a condition that cause skin damage, Type 2 diabetes and spina bifida in offspring.

### **Craig Ashworth**

One of the world's leading experts on dioxins and health Professor Arnold Schecter says that the list of likely illnesses is much longer.

### **Professor Arnold Schecter**

They can cause so many illnesses including cancer, birth defects, brain damage, reproductive problems, developmental effects where a child might be born with a deformity, disruption of the endocrine system,

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thyroid and diabetes especially. They can decrease the resistance to infection by damaging the immune system, they can cause skin reactions, liver damage and in extremely high amounts death from heart attacks.

### **Craig Ashworth**

Dr Schechter is a Professor of Environmental and Occupational Health Science of the University of Texas. He has been researching dioxin internationally since 1982 including work with US Vietnam Veteran's. Like Professor Birnbaum he's written more than 300 peer reviewed articles, well over 100 of them on dioxins and he co-edited the standard reference text in the field "Dioxins and Health". Professor Schechter says the Institute of Medicine was established by politicians to advise on compensation for Vietnam Veteran's and isn't reliable as a benchmark of dioxin harm.

### **Professor Arnold Schechter**

The Institute accepted a contract from the Veteran's administration or by Congress told them what they were allowed to look for and say and they were not allowed to go beyond the words that Congress used so it's a very narrow cautious approach and one which probably underestimates the potential health effects of dioxins on humans.

### **Craig Ashworth**

Professor Schechter recommends the Health Ministry seek wider information from the World Health Organisation's international agency on research and cancer, the US Environmental Protection Agency draft dioxin reassessment, the US Centre for Disease Control, the original scientific literature on the chemicals and his own book. He also says officials should convene an international advisory panel of independent scientists. The Health Ministry's Dr Fran McGrath says there are no plans for any of that.

### **Dr Fran McGrath**

The Ministry of Medicine is a reputable group and it's seen as the experts in this field. They do a thorough review of the evidence on a two yearly basis and it's going to be extremely useful for continuing to monitor whether there is any development in terms of evidence about exposure and health impacts.

### **Craig Ashworth**

Neil Herdson worked at IWD from 1977-1986 and isn't sure which chemical to blame for the thyroid condition that's left him on medication for life.

### **Neil Herdson**

There was a lot of manual work actually loading chemicals and drumming off chemicals and so the chemicals were always in the air so we would come out of an eight hour shift completely white - I used to think we looked like snowmen.

### **Craig Ashworth**

Neil Herdson says quite apart from dioxins and PCBs the plant processed tonnes and tonnes of solvents, cyanurochloride, amines, herbicides like 2,4,5-T and Atrazine and many other chemicals. He says not only workers bore the risks.

### **Neil Herdson**

We had extraction running so that air was sucked outside to commercial premises around the area or blown down the road and onto a residential area. There's an untold story of the general emissions from the plant rather than just the emissions of dioxin.

### **Craig Ashworth**

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Exposed workers still await conclusive findings on their health prospects. Four years ago the Massey University study found a 30% excess risk of cancer rising to 60% increased risk for those working in the most dangerous area of the factory. But this year a Dow funded Otago University study found that while workers who may 2,4,5-T have elevated dioxin in their blood it's not enough to cause harm. That study's data remains unreleased and has yet to be fully written up for peer review or publishing. In a year's time Massey University is due to complete a major update of its worker study covering cancer incidence and death and whether dioxin levels are associated with chronic health and reproductive problems. Meanwhile the government is offering annual health checks to those who lived, worked or went to school within 1200m east and south of the plant. From July GPs will carry out the hour long health checks for free sending patients on to specialists if needed. Counselling for stress and anxiety is available along with nutrition and exercise advice to reduce cancer risk. But the children and grandchildren of people exposed don't qualify for help. The government says there's simply no proof they could be at risk. A decade of dedicated research by Paritutu campaigner Andrew Gibbs has fuelled much of the questioning of official reassurances about pollution from the chemical plant. He continues to call for a study on the exposures and health histories of up to 300 people exposed during the worst pollution saying that should establish proof of what happened to them.

### **Andrew Gibbs**

Let's find out how serious the exposures were before they implement the health plan at the moment we are just looking at one chemical with downplayed levels and it really forty years after the event isn't going to be a lot of help to these people.

### **Craig Ashworth**

Andrew Gibbs says people want help to cope with the impact of illness whether it be home help or a contribution to funeral costs. The health service deal for Paritutu people is in sharp contrast with the Crown's recent olive branch to Vietnam War Veteran's. The Prime Minister apologised for the failure of successive governments to acknowledge that soldiers were exposed to dioxin contaminated herbicides and other chemicals. Payments of up to \$40,000 are available for Veteran's and family members killed or made ill by exposure to toxic environments. As Noel Scouller deals with his increasing pain and failing health he says he'd settle for a lot less bit of home health and the truth.

### **Noel Scouller**

My last wishes because of my health is for them to turn around and say well look we are sorry, this did happen instead of denying it all these years and I would feel better in myself when they have the balls to turn around and say look we are sorry this did happen in Paritutu and effected people like myself and my children and hundreds of others and that's all I am hoping to keep alive for that day is all I want, I don't want their stinking money I just want an acknowledgement.

### **Craig Ashworth**

In a letter to the Paritutu community in April this year, the Ministry of Health says the government has delivered its responsibilities appropriately, lawfully and with an adequate understanding of the science, a formal apology to the Paritutu community is not expected. A Ministry of Health study into birth defects in Paritutu is due out in October.

That programme was written and presented by Craig Ashworth.  
Insight Programme.