



# FLUORIDE

## Poison or panacea?

In this special five-page investigation, *The Star* gets its teeth into the controversial issue. We examine:

- The cases for and against;
- Resistance in Waitati;
- ODHB, DCC in favour;
- Upgrade motive queried;
- Fluoride and its history;
- Citizens consider debate.

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# Upgrade motive queried

By **BRUCE MUNRO**

DUNEDIN City Council rejects anti-fluoridation activist Olive McRae's suggestion fluoridation equipment upgrade at Mt Grand water treatment station is being done secretly to avoid opposition.

This year, more than \$50,000 will be spent replacing the treatment station's aged fluoridation dosing equipment.

Ms McRae, who is the Dunedin representative for the New Zealand Fluoride Action Network, said she found out about the upgrade when on a recent tour of the Brinsdon Rd, Brockville, treatment station.

She said the expenditure was not itemised in the council's annual plan and questioned why the work had not been publicly discussed.

"I don't think they would have wanted it to come out in public, because fluoridation is so controversial," Ms McRae said.

The money being spent on the fluoridation equipment should be spent instead on education about healthy diets and oral health care, she said.

"Fluoridation is just a bandage solution, and not a good one.



**Days numbered:** Mt Grand senior process technician Stewart Still with the soon-to-be-replaced fluoride feeder.

"If people were taught how to look after their teeth there would be no need for toxic waste in our water."

Ms McRae's suspicions were unfounded, council water production manager Gerard McCombie said.

"There is no suggestion of that," Mr McCombie said.

"The current council policy is to fluoridate water. Our job is to

implement that policy, which includes keeping the equipment in going order."

The 30-year-old fluoridation equipment at Mt Grand was coming to the end of its life, he said.

Discussions were being held with suppliers to determine the cost and installation time-frame.

The replacement equipment, which had been estimated at up to \$20,000, was likely to cost about \$55,000.

**FLUORIDE — POISON OR PANACEA?**

## Fluoride used in NZ a byproduct of the fertiliser industry

By **BRUCE MUNRO**  
FLUORIDE for use in New Zealand's water supply is a byproduct of the fertiliser industry, the New Zealand Institute of Chemistry (NZIC) says.

In a report prepared by the NZIC and available on its website, the extraction and production of the fluoride is explained.

An abridged version is presented below. Water fluoridation is an important preventive measure carried out in much of the western world.

This is usually done with one of three fluorine-containing chemicals (sodium fluoride, sodium fluorosilicate and hydro-

fluorosilicic acid), but this article focuses on hydrofluorosilicic acid as that is the chemical most commonly used in New Zealand for this purpose.

All manufacturers of superphosphate produce hydrofluorosilicic acid as a by-product.

Hydrofluorosilicic acid manufacture can be

viewed as a two-step process, although in reality it is carried out in four steps to ensure that the right concentration of acid is obtained. The superphosphate production process results in the evolution of carbon dioxide, steam and SiF<sub>4</sub> [tetrafluorosilane].

This SiF<sub>4</sub> is an en-

vironmental pollutant and so is removed from the gas stream and used to produce fluorosilicic acid. The SiF<sub>4</sub> is removed from the gas stream by contacting the gas with water droplets. This water hydrolyses the SiF<sub>4</sub>.

The resultant hydrofluorosilicic acid (H<sub>2</sub>SiF<sub>6</sub>) is used for

fluoridating drinking water. Hydrofluorosilicic acid has several advantages. Being a liquid, it is easy to handle and to meter accurately into the bulk water. The acid is also the cheapest source of fluorine. Its main drawback is that it is a comparatively dilute source of fluoride.

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# Most councillors would vote 'yes' to fluoride

**By BRENDA HARWOOD**

**IF** Dunedin city councillors were asked to vote today on whether to retain fluoridation of the water supply across the city, the result would be a firm "yes".

In the light of the fluoridation debate sparked by Waitati residents, *The Star* asked councillors if they would vote "yes" or "no" to fluoridation?

Only two councillors, Fliss Butcher and Paul Hudson, expressed definite opposition to water fluoridation, both citing discomfort with the concept of "mass medication" by local authorities.

"I have not given my permission to be medicated," Cr Butcher said.

In the definite "yes" camp were Dunedin Mayor Peter Chin and councillors Richard Walls, Michael Guest, Neil Collins, Colin Weatherall and John Bezett.

Mr Chin said he had "always been in favour" of fluoridation, because he believed it had worked, while Cr Collins said he was a "firm believer" in fluoride as a means of preventing tooth decay.

Cr Guest had followed the fluoridation debate since the

mid-1960s and was "happy with the evidence of health experts", and Mr Weatherall said it had a proven track record.

Cr Walls said, while it was important to keep an open mind, council would always go to its advisers rather than being "swayed by emotional argument".

Another group of councillors declared themselves to be "open minded" and "no experts" on the issue, but were inclined to stick with the status quo. This group included Chris Staynes, Syd Brown, Dave Cull, Kate Wilson, Bill Acklin and Andrew Noone.

All felt inclined to accept the current advice of medical experts.

"As non-technical people, we [councillors] need to take on board the best advice we can," Cr Cull said.

Cr Noone and Cr Hudson were supportive of a referendum to gauge the level of wider community support.

Teresa Stevenson said she would like water fluoridation to be controlled by the Otago District Health Board, because it was a "medication issue".

# ODHB active promoter

By BRUCE MUNRO

OTAGO District Health Board is an active player in the fluoridation debate in the region. During last year's local authority elections, alongside a Vote Fluoride publicity campaign, the board sponsored a fluoridation referendum in areas of Otago and Southland where the water supply was not fluoridated.

Non-fluoridated areas of Dunedin were not included because the city council had already voted on the issue.

The referendum had a mixed result.

The board would follow up with local authorities to encourage them to begin fluoridating, board chairman Richard Thomson said.

In August last year, the health board launched a website and free-phone line to promote fluoridation in non-fluoridated areas of the Waitaki, Clutha, Central Otago and Southland.

The campaign aimed to give residents of those areas "the chance to learn all about fluoride in drinking water" ahead of the October referendum on whether fluoride should be added to their water supplies, the



**Fluoridation advocates:** Otago District Health Board chief executive Brian Rousseau (left) and chairman Richard Thomson want to support local authorities seeking to extend fluoridation in their areas.

*Picture: ODT files*

Vote Fluoride press release said.

The health board suggested the referendum to the local authorities and offered to pay for it because "in some of those areas tooth decay in children is far higher than elsewhere", Mr Thomson said.

Opposition to fluoridation meant local authorities tended to be "a bit afraid" to

tackle the issue, he said.

"We thought we could help by putting a balanced view out there."

Dunedin mayor Peter Chin was approached about holding a referendum in non-fluoridated parts of Dunedin but declined, health board chief executive Brian Rousseau said.

"Dunedin City Council had recently voted on the

issue of fluoridation in March and, because of this, the mayor considered that it was not necessary [nor] appropriate to revisit this issue at that time," Mr Rousseau said.

The referendum results were: Waitaki, 6363 against, 2900 for; Southland, 4599 against, 3377 for; Clutha, 745 against, 1150 for, and; Central Otago 3157 against, 3396 for.

The board hoped that as a result of the referendum the local authorities of Central and South Otago would opt to fluoridate their water supplies.

"The matter is now in the local authorities' hands," Mr Thomson said.

"We hope they will choose to fluoridate.

"We will have follow-up conversations with the local authorities in the next few months."

Asked what plans the board had for non-fluoridated areas of Dunedin, Mr Rousseau said "It would be preferable for people in these areas to have access to fluoridated water.

"ODHB would support any initiative by the DCC to extend water fluoridation into these areas."

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## FLUORIDE — POISON OR PANACEA?

# Concerns raised at Waitati meeting

By **BRENDA HARWOOD**

AS work begins on the Northern Water Scheme, which will pump fluoridated water from Dunedin's Mount Grand water treatment station to Waitati, Warrington and Seacliff, there are rumblings of discontent from residents of the seaside communities. None of the townships presently have fluoride in their water.

At a public meeting in Waitati on Monday night, attended by about 45 people, the message for Dunedin City Council was loud and clear — "No" to fluoride. Many also expressed annoyance that the water scheme would result in unwanted "mass medication" for the Blueskin Bay district.

Organised by Waitati resident and Fluoride Action Network representative Olive McRae, the meeting featured presentations by several long-standing anti-fluoride campaigners, including Dr Bruce Spittle, of Dunedin, Don Church, of Ashburton, Imelda Hitchcock, of Timaru, and Yvonne McDonald, of Christchurch. The meeting was chaired by Waikouaiti Coast Community Board chairman Alasdair Morrison in his private capacity as a resident of the area, and Dunedin City Councillor Andrew Noone arrived as the meeting was in progress.

Ms McRae told the meeting that, despite strenuous efforts, she had been unable to secure pro-fluoride speakers to attend. Because of this, the case for adding fluoride to public water supplies was outlined in a printout from the Waitaki District Council — read to the meeting by Don Church.

An anti-fluoride campaigner in Ashburton since the 1950s, Mr Church told the meeting the health effects of fluoride were cumulative in the body, and that it was difficult to filter it out of drinking water. He also disputed its effectiveness against tooth decay, saying that statistics showed the worst tooth decay in the South Island could be seen in its fluoridated areas — Otago and Southland.

Mr Church also expressed concern that the substance used to fluoridate water was silico-

fluoride, a "waste product from fertiliser production", not calcium fluoride.

Retired psychiatrist and lecturer Dr Bruce Spittle spoke of the health effects of "chronic fluoride toxicity syndrome", telling the audience it could damage the brain, cause intestinal problems, aching joints and more. He displayed a large stack of research reports to back up his opinion.

Dr Spittle concluded his presentation by playing guitar and singing an amusing song outlining the evils of fluoridation.

Imelda Hitchcock and Yvonne McDonald described successful anti-fluoride campaigns they had been involved in Timaru and Christchurch respectively. Both urged the meeting to campaign for a referendum on the issue in Blueskin Bay.

"Given the opportunity of a referendum, it is our experience that people reject fluoride nearly every time," Mrs Hitchcock said.

"As the council is about to upgrade it's fluoride feeder equipment, I believe it should be possible for them to keep it out of the pipeline water," Ms McRae said.

Asked for a show of hands to indicate whether they would agree to fluoridation, the meeting indicated "No" by an overwhelming majority. Only one person voted a definite "Yes".

Ms McRae told the meeting she planned to petition the Dunedin City Council to hold a referendum, so that "we can decide for our own area".

"The bottom line is, no-one has the right to medicate people without our consent."

In response to a question, Cr Andrew Noone said he commended Ms McRae for her efforts in raising awareness of the issue, and that he would support the idea of a referendum in the area.

Mr Morrison told the meeting that, if a petition was received by the community board, it may "have to ask some questions" on the issue.



**Campaigners:** Anti-fluoride campaigners (from left) Olive McRae, of Waitati, Don Church, of Ashburton, Imelda Hitchcock, of Timaru, Dr Bruce Spittle, of Dunedin, and Yvonne McDonald, of Christchurch, gather after Monday night's fluoridation meeting at Waitati Hall

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## AGAINST: Negative health effects

By **BRUCE MUNRO**

**FLUORIDE** in water can cause lower intelligence and chronic fatigue — so why would you want to put it in your body? asks Dr Bruce Spittle.

Dr Spittle is Dunedin's, and probably New Zealand's, leading anti-fluoride campaigner. A psychiatrist and lecturer by profession, Dr Spittle became an opponent of fluoridation after hearing Dr John Colquhoun speak in Mosgiel in 1989.

"He was the man who introduced fluoridation to Auckland and then spent the last 10 years of his life trying to get rid of it," Dr Spittle said.

Now retired to Brighton, where he has installed a reverse osmosis filter to remove the fluoride from his water supply, Dr Spittle still serves as the managing editor of *Fluoride*, the quarterly journal of the International Society for Fluoride Research.

There are no advantages to fluoridation, for those who consume it, he says.

"The only advantage is for



**No way:** Fluoride is a toxic substance and should not be in our water supply, Dr Bruce Spittle says.

the polluters who produce it — it helps them get rid of it."

And the disadvantages?

Many, Dr Spittle says.

Fluoride is implicated in medical conditions ranging from headaches and muscle weakness to memory loss and depression, he says.

Of significance, is fluoride's effect on brain development in babies.

"It is unsafe for babies because it is a toxic substance which can effect the development of the brain. It can

impair intelligence."

It also has an undesirable effect on the thyroid gland of young people and adults.

The thyroid gland produces the hormone thyroxine which is required for the proper function of all parts of the body including muscles, brain and stomach. Fluoride, which interferes with the hormone, used to be prescribed to treat hyper-thyroidism.

"It was prescribed at a dosage of 2mg to 5mg of fluoride per day.

"But, these days, people are getting that level from their diet and their water.

And it is not the concentration of fluoride in water that is important, it is the dosage, Dr Spittle says.

"The average New Zealander is getting about 4mg of fluoride per day — 3mg from food and 1mg from water — according to fluoride proponent Dr Terry Cutress in his radio interview with Kim Hill."

"But that has been shown to be enough to cause the first stage of skeletal fluorosis — a type of arthritis."

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## FOR: Best way to ensure better teeth

By **BRUCE MUNRO**

THE fluoridation issue is not complicated, Dr Dorothy Boyd says.

It is simply an opportunity for as many people as possible to have better teeth.

Our teeth are the front line of a constant war, explains the specialist dentist who is the senior public health dentist with Public Health South.

Acids in our mouth break down the minerals such as calcium and phosphate that make up our teeth, while our saliva hardens the teeth by putting back those important minerals.

“Demineralisation and remineralisation is going on a lot of the time.”

Fluoride fights for our teeth by slowing the dissolving process and speeding the hardening.

“It also strengthens the tooth’s surface enamel.

“We used to think that was the most important aspect, but now we know it is its effect on that equilibrium.”

You can get too much fluoride, but the negative effects from the levels of



**Community service:** Fluoridation is helping those who need it most, Dr Dorothy Boyd says.

fluoride people are exposed to in New Zealand are negligible, she says.

“Fluoride in toothpaste was a big advance in dental health, but you can get fluorosis by eating toothpaste.

“The best practice is to spit but not rinse, so you get rid of the excess but keep the fluoride on the teeth.”

Fluorosis was mottling of the teeth — patchy white discolouration — but it had no health implications, Dr Boyd said.

“The evidence is not there for any other effects.

“You can always find a paper that fits your theory, but if you look at 50 papers the evidence isn’t there.”

Opposition groups play an important role — “keeping us on our toes”.

“We have to keep looking at the evidence.

“But we must keep in mind that life is risky and we must compare the risks and the benefits.”

The anti-fluoridation argument to which she takes greatest exception is the one that people should have the right to not have fluoride in their water.

“It is the argument about choice. But in a functioning community, I believe we should be taking care of everyone and not say ‘I’m all right Jack, and I don’t care about what happens to disadvantaged children’.”

This is the core of Dr Boyd’s support for fluoridating drinking water — it is the best means available to get fluoride on to the teeth of as many people as possible.