



14th September 2012

Dear Deputy

I have worked as a professional environmental scientist for over twenty years specialising in environmental management, water and waste management, due diligence and sustainable development. As with the majority of individuals, prior to my undertaking an in-depth scientific review and due diligence on water fluoridation I had no reason to doubt or question the benefits of artificial fluoridation, or the health and environmental risks associated with fluoridation of water supplies.

Some time ago I was asked by a friend an engineer to investigate the subject of fluoridation of drinking water and I must admit that my response at first was one of bewilderment and scepticism. As an environmental scientist and water manager I had no reason to doubt the science behind water fluoridation and decided initially to do a brief examination of peer reviewed scientific studies from which I was certain I would conclusively prove that there was indeed no risk or concerns associated with this public health policy.

What I had intended to be a brief examination of this subject area lead to one of the most astonishing periods of my professional career, one that ultimately demanded of me to question the very beliefs that I had been indoctrinated with and to re-examine in the most detailed manner every piece of scientific information I could find on this subject area. Most of the past ten years of my career have been involved in undertaking due diligence and risk assessments, all of these have required me to investigate in detail the known and potential risks associated with contaminated industrial sites and industry. All of this work was undertaken for clients wishing to purchase sites for redevelopment or to acquire a company as a going concern. In every instance the client would have been taking on the historical and future liability associated with past activities. As you may imagine, in such circumstances attention to detail, examination of facts and protecting my client from any future unknown liability was paramount. I believe the same principles should exist for elected officials and public servants who are charged with protecting the health and wellbeing of the people they are honoured to represent.

What I have learnt in my personal journey of discovery is that the science behind water fluoridation is deeply flawed and the evidence of risk greatly outweighs the minor benefits associated with this policy. At a basic level it is commonly known that the World Health Organisation endorse water fluoridation but they do so only where health authorities have demonstrated that the dietary intake of fluoride for all sectors of society, including the most sensitive subgroups of the population, are known and quantified. It is now accepted that large sectors of the population are overexposed to fluoride from many sources including fluoridated water, foods products contaminated with fluoride residues from water fluoridation and fluoride based pesticides and fertilisers, fluoridated toothpastes, fluoridated pharmaceuticals and other dietary sources that contain high levels of fluoride such as tea. In communities that fluoridate drinking water supplies it is impossible to control the fluoride intake of individuals and ensure that they do not exceed the maximum optimal level of fluoride.



As the scientific understanding of this subject area develops what we have seen is that what was once accepted as fact, no longer applies. In the few countries that support water fluoridation the standards for fluoride continue to drop alarmingly. What we were once told was safe and effective we now know to be unsafe and dangerous. The most recent example of this is the U.S. Department of Health and Human Services, when earlier this year following the comprehensive review published by the U.S National Academy of Sciences Scientific Committee on fluoride in drinking water in 2006 they reduced the recommended optimal level of fluoride to 0.7ppm. The National Academy is sometimes referred to as the 'Supreme Court of Science', an organization that sets up unbiased (or balanced) committees to review scientific issues of concern to Americans.

I urge you to read this report which is available to download at the following website http://www.nap.edu/catalog.php?record_id=11571

A recent review was similarly undertaken in Europe by the Scientific Committee on Health and Environmental Risks (SCHER) for the European Commission. Their review ultimately determined that water fluoridation plays a relatively minor role in the improvement of dental health and that the direct topical application fluoride is the most effective way to prevent tooth decay. The review documented that systemic exposure via drinking water is unlikely to benefit people whose teeth have already grown, that there has been a consistent decline over time in tooth decay in 12 year old children from the mid-1970s, regardless of whether drinking water, milk or salt are fluoridated and that the benefits of fluoridation to adult and elderly populations in terms of reductions in coronal and root decay are limited. In particular they noted that a very narrow margin exists between achieving the maximal beneficial effects of fluoride in caries prevention and the adverse effects of fluoride overexposure and that the upper tolerable intake level (UL) was exceeded in babies and children living in areas with fluoridated drinking water (<0.8 mg/L).

They also concluded that there is equivocal evidence linking fluoride in drinking water to the development of Osteosarcoma an often fatal aggressive bone cancer that affects children and young adults; which is also the most common bone tumour in dogs. Sadly in the past few months I have met individuals who have lost a child or brother to this type of cancer and cannot understand how, where there is evidence demonstrating that fluoridation may contribute to this condition, that any politician, citizen or public health official would willingly place their own citizens and families at increased risk to this terribly painful life threatening disease.

Apart from increasing the risk of cancer it is quite astonishing that in the 21st century the reality of water fluoridation is that nobody knows how silicofluoride chemicals that are added to water to increase fluoride levels may ultimately effect human health. It is staggering to say the least, that both the U.S National Academy of Sciences and the EU review both acknowledged that the toxicology of hexafluorosilicic acid (hydrofluorosilicic acid), the active substance used for water fluoridation, remains largely unknown. It is also worth noting that every country in mainland Europe have independently reviewed and examined the information on water fluoridation and



withdrawn support for or terminated water fluoridation programmes on public health, ethical and environmental grounds.

This is not the least surprising as no data is currently available from the manufacturer, promoters or marketers of Hexafluorosilicic acid on:

- Development toxicity
- Teratogenic effects
- Carcinogenic effects
- Mutagenic effects
- Toxicity to animals
- Chronic long term effects on humans
- Ecotoxicity
- Biodegradation

Numerous scientific reviews have found that no comprehensive scientific examination of the toxicology, human health risks or ecotoxicity have been undertaken on Hexafluorosilicic acid products used for water fluoridation. Only incomplete studies and analyses exist to test or measure the various dissociated derivative compounds that may exist in treated water and no detailed toxicological assessments exist to demonstrate their safety for human consumption or environmental toxicity.

It is of particular concern for policy makers to note that Chapter 10 of the National Academy of Sciences NRC report (NRC 2006a) which reviewed available human and animal studies of carcinogenicity, in addition to genotoxicity studies for fluoride, that the committee unanimously concluded based on available evidence that *"Fluoride appears to have the potential to initiate or promote cancers."*

Furthermore in July 2011 the California Environmental Protection Agency published a report titled "Evidence on the carcinogenicity of Fluoride and its salts" and determined that *"multiple lines of evidence from mechanistic and other relevant data appear to support several plausible hypotheses: that fluoride is incorporated into bones (especially rapidly growing bones), where it can i) stimulate cell division of osteoblasts via direct mitogenicity and indirectly via effects on thyroid function and parathyroid function; ii) induce genetic changes; iii) induce other cellular changes leading to malignant transformation, and iv) alter cellular immune response, resulting in increased inflammation and/or reduced immune surveillance, thereby increasing the risk of development of osteosarcomas."*

It is even more alarming that the National Academy of Sciences NRC report recommended further research be conducted on the effects of fluoride on the risk of bladder cancer, as well as thyroid, liver, kidney, pancreas, pineal and brain function in addition to fluoride's possible association with nutritional deficiency with particular emphasis on fluoride's impact on calcium metabolism. In total the NRC listed over 50 additional epidemiology, toxicology, clinical medicine and environmental exposure assessments required to be undertaken on fluoride. Astonishingly, not one of these studies has ever been undertaken by health authorities in countries that practice water fluoridation. Yet remarkably, in the absence of scientific study promoters of water fluoridation continue to claim that water fluoridation is safe and effective as a public health policy. Clearly a lack of evidence is not fact.



In my professional opinion, I never accept ‘beliefs’ or information that is not backed up by scientific fact based on proper scientific review.

This is even more remarkable given that three U.S. courts having reviewed all of the information by both sides promoting and opposing water fluoridation found water fluoridation to be injurious to human health, specifically that it may cause or contribute to the cause of cancer and genetic damage.¹

I urge all politicians and public health officials to consider these facts in their deliberations on this subject and consider the risks which imposing such a dangerous policy may have on the health and wellbeing of our citizens.

I will end with the findings of a recent peer reviewed study published in the official scientific Journal of the Spanish Neurology Society (*Neurología*. 2011;26(5):297—300) on the effects of fluoride on the central nervous system.

The authors found that *“Fluoride can accumulate in the body, and it has been shown that continuous exposure to it causes damaging effects on body tissues, particularly the nervous system directly without any previous physical malformations. Several clinical and experimental studies have reported that the F induces changes in cerebral morphology and biochemistry that affect the neurological development of individuals as well as cognitive processes, such as learning and memory. F can be toxic by ingesting one part per million (ppm), and the effects they are not immediate, as they can take 20 years or more to become evident.”*

Ultimately water fluoridation is a political decision enacted by government through legislation. It can easily be stopped if there is political will and social pressure.

As politicians the action you take on this policy will have long lasting consequences for our population. Continuing to support this policy in light of recent scientific evidence places our community at unnecessary risk, public office is a public trust and comes with moral responsibility.

I urge you to err on the side of caution and adhere to the ‘precautionary principle’ and support and end to this policy. Failure to do so in years to come, in light of mounting scientific evidence demonstrating harm, will only result in catastrophic liability for all concerned. Ultimately in the end as with everything, the taxpayer and consumer will pay the price.

Yours sincerely

Chartered Environmental Scientist and Water Manager

¹ Graham, J.R., and Morin, P.J. 1999. Highlights in North American litigation during the twentieth century on artificial fluoridation of public water supplies. *J. Land Use & Environmental Law* 14(2):195-24