THE AUSTRALIAN FLUORIDATION NEWS

ARTIFICIAL FLUORIDATION IS WATER POLLUTION

Aqua Pura
Established 1963

GPO Box 935, Melbourne, VIC 3001
www.fluoridationnews.com

PLEASE PASS ON WHEN READ

Vol 51
No. 4

$20 per annum posted Australia
Published Quarterly

October-December
2015

Print Post Approval
PP331.985 00013
ISSN 1445-2847

PROGRESS AND POLLUTION: Fracking, Coal Mines And Fluorides

Many industries use chemicals that include fluorides, due to the element's ability to potentiate or boost the effectiveness of other chemicals. Most fluorides are themselves extremely toxic, resulting in increased pollution and adverse health consequences.

Coal has powered the Industrial Revolution for almost three centuries. Extraction of coal seam gas (CSG) by fracking can similarly provide a power source for many industries. Other energy sources include LPG, hydro-electric and solar power generation. Disposal of contaminated waste from CSG and coalmines, and air pollution from these operations and from LPG creates a major pollution hazard.

A similar long-standing problem of air, water and food contamination is caused by fluorides, especially from the aluminium, steel and phosphate fertilizer industries. These same industries solved their toxic waste disposal problems by adding fluoride compounds, (such as sodium silico-fluoride) to domestic drinking water supplies, with no consideration of the potential adverse effects on humans, animals, aquatic life or natural ecosystems.

Data from the Australian Institute of Health and Welfare shows that air pollution results in 3,000 preventable deaths per year in Australia, at a cost of up to $24.3 billion in annual health expenses[1].

Pollution From CSG Fracking Chemicals, including Fluorides

Aromatic Hydrocarbons, particularly **BTEX** chemicals, (Benzene, Toluene, Ethyl-Benzene and Xylene) used in fracking for CSG, are also present in the air of cities and suburban areas, largely from vehicle exhausts and also smoking.

In a study published in Archives of Environmental Health a decade ago, three scientists of the Institute for Medical Research and Occupational Health, Zagreb, Croatia, showed that the gas chromatography analysis method was a convenient approach for biological monitoring of the exposure of the general population to **BTEX** chemicals[2].

They showed that smoking contributed significantly to the urine concentration of **BTEX** chemicals, *"which is not surprising given that toluene is a major constituent of gasoline and that cigarette smoke contains a larger proportion of toluene than of other monocyclic aromates"*.

Also *"the significance of lifetime exposure to low levels of **BTEX** – including the potential effects of interaction of these compounds with other substances in vivo – is unknown"*. Seventy-two residents of Zagreb from different locations with no occupational exposure to **BTEX**, half of whom were non-smokers, were studied.

When artificial fluoridation of water supplies using waste fluoride chemicals was first commenced over 50 years ago, the effects of a lifetime ingestion of fluorides was similarly unknown. Evidence of many adverse health effects became apparent after only a few years, with numerous studies subsequently adding to a large range of well-documented evidence of a wide range of damage to the health of mankind.

Due to human carcinogen concerns, national exposure limits in Australia for Benzene are 5 parts per million ($16mg/m^3$).[3]

A leaflet published by the NSW Government, *"Coal Seam Gas, Fact Sheet 10, **BTEX** & COAL SEAM GAS"*, provides some basic information about **BTEX** chemicals, including:

*"In high concentrations, **BTEX** compounds potentially have adverse effects on human health. Concentrations in the*

CONTENTS

range of 700,000 to 3,000,000 parts per billion may cause drowsiness, dizziness, rapid heart rate, headaches, tremors, confusion and unconsciousness. In particular, benzene is a known carcinogen (a cancer-causing agent), which is why it is subject to strict regulation.

*"People are often exposed to **BTEX** compounds just by going about their regular activities, as shown in Table 1. Exposure to **BTEX** compounds most commonly occurs via exposure to the atmosphere, however it may be found in water in the event of spills or proximity to natural deposits. Overall, **BTEX** exposure via water represents a very small proportion with the majority of exposure being through breathing and dietary intake.*

*"**BTEX** compounds are typically measured in micrograms per litre (µg/L), the equivalent of parts per billion (ppb)."*

In typical government double-speak, the leaflet states:

*"In March 2012, the NSW Government banned the use of **BTEX** compounds as an additive to any coal seam gas (CSG) drilling and hydraulic fracture stimulation (or fracking) activities under the Petroleum (Onshore) Act 1991 (see Policy Number TI-O-120 Ban on use of **BTEX** compounds in CSG activities, NSW Trade and Investment 2012)."*

Then:

*"This policy also stipulates that all drilling and fracking additives must be tested and demonstrated not to contain **BTEX** chemicals above the Australian Drinking Water Guidelines,* [ADWG] *which are detailed in Table 2."*

So in the same paragraph, the government policy is to ban the use of **BTEX** chemicals as an additive, then allow the use of these same chemicals up to the limit of drinking water *guidelines*.

"In other words, BTEX chemicals are NOT BANNED FOR USE IN FRACKING"

In other words, BTEX chemicals are NOT BANNED FOR USE IN FRACKING. In fact, BTEX chemicals are apparently allowed in drinking water at concentrations listed in Table 2 OR MORE, as the ADWG levels state are only GUIDELINES, not a legally enforceable upper limit!

Table 2 guidelines are from the NHMRC & NRMMC (National Resource Management Ministerial Council), which show:

Chemical	Concentration
Benzene	1 µg/L
Toluene	800 µg/L
Ethylbenzene	300 µg/L
Xylene	600 µg/L

These *guideline* concentrations, which can occur concurrently, total 1.701 µg/L, or 1.701 ppm (parts per million). The concentration is greater than the maximum 1.2 ppm of fluoride ion allowed to be added to domestic drinking water supplies in Australia, with its well-documented adverse effects.

This comparison of concentrations does not take into account the relative toxicity of these chemicals, nor the synergistic effects, when, as routinely happens, the chemicals are concurrently consumed.

Toxicity of BTEX Chemicals

Adverse effects on health of some **BTEX** chemicals were known in the 1970s. Dr Waldbott's book, *Health Effects of Environmental Pollutants* recorded some examples[4]:

"Thirty-two patients who had recovered from a blood disease (bone marrow impairment) caused by benzene poisoning had significantly increased rates of 'unstable" and "stable' chromosomes. Aberrations of chromosomes were present for several years after cessation of the exposure and after recovery from poisoning. Persistence of an increase in the stable changes was particularly remarkable."

"Smoking tobacco accounts for a reduction in weight of newborn children, but benzo[a]pyrene, a constituent of tobacco smoke and of other combusting products and a proven carcinogen in mice, has not been tested for its effects on chromosomes."

"Vapours of aromatic hydrocarbons, which include benzene, toluene, styrene, and xylene, are more irritating to the mucous membranes than equivalent concentrations of the aliphatic and alicyclic hydrocarbons.

"They constitute serious occupational problems. After long-term inhalation, abnormalities of the blood such as anemia, leukopenia (low white cell count), and leukemia have been associated with exposure to aromatic hydrocarbons, for instance, in chronic benzene poisoning."

Acute and Chronic Toxicity of Xylenes (BTEX)

Environment Canada investigated the atmospheric toxicity of xylenes on terrestrial plants and aquatic species, and noted that herbivores in particular, that eat plants exposed to atmospheric xylenes, may be amongst the organisms with the highest overall exposure.

"Dose-dependent maternal toxicity and fetal-skeletal retardation were recorded in rats exposed by inhalation to xylenes ... yields an estimated effects threshold of 2.5 mg/m^3."

"Concentrations in ambient air are at least 1 million times less than the lowest effect threshold recorded for terrestrial plants (20 g/m^3 for barley)."

"Growth of the alga Selenastrum capricornutum was reduced by 50% after 72 hours of exposure to 3.2 to 4.9 mg/L of each of the three isomers."

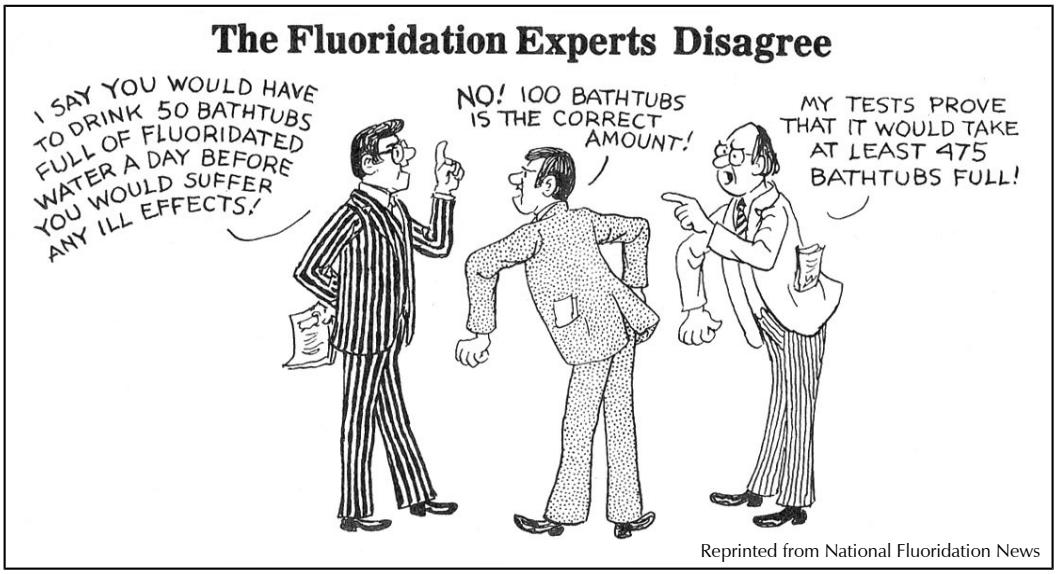
"Among marine organisms, the most sensitive species was the bay shrimp, with 96-hour LC50s of 1.1 mg/L for o-xylene, 1.7 mf/L for p-xylene, and 3.2 mg/L for m-xylene...". [That is, 50% of the shrimps died after 96 hours of exposure].

Similarly, the toxicity of m-xylene to the early life stages of the leopard frog and rainbow trout, with total continuous exposure of 9 days for the frog and 27 days for the for the trout, is reported in the study. The LC50s for continuous exposure was 3.53 mg/L for the frog and 3.77 mg/L for the trout[5].

Toxicity of Fluorides

The adverse effects of fluorides on human health have been documented in numerous studies, for example in the books by Dr Waldbott and testimony by Dr Exner, referenced

at the end of this article, but have been generally dismissed by fluoridation proponents and governments in Australia, unlike most mainland European countries, where the scheme has been continuously rejected, or stopped after a trial.



Proponents cite numerous studies (often at least partly funded by industries with a vested interest in using fluorides, such as in many toothpastes, or with difficulty in disposing of industrial hazardous fluoride by-products, such as the aluminium production industry), which purport to show that at the concentrations used in fluoridation, these chemicals only do marginal damage to a small proportion of the population, which they consider is acceptable.

For example, proponents consider it is "acceptable" for dental fluorosis, the first visible sign of body toxicity, to occur in 10% of the child population[6].

In Australia, water supplies generally have quite low proportions of elements such as calcium and magnesium compared to USA, which often have at least a 10 times greater proportions of these elements, partly nullifying any naturally-occurring fluoride contamination. Towns such as Newburgh, NY, Grand Rapids**,** Mich. And Brantford, Ont., experimentally used to promote artificial fluoridation world wide, similarly have higher concentrations of those elements, as well as high concentrations of other elements.

What the public is not told is that the chemical used in their studies is only partly similar to the more complex unrefined and dangerous chemicals most frequently used for fluoridation, Sodium Fluorosilicate and Fluorosilicic Acid.

"It's POLLUTION, Stupid!"

The following sections are reprinted from a submission to the NHMRC Open Drinking Water Guidelines in 2000 by the Freedom From Fluoridation Federation of Australia.

"Scientists can argue and bicker about the fluoride ion for eternity and beyond, but the one fact that no one can rebut is the origin of the product most used to fluoridate drinking water. The pro-fluoridationists are using captured pollution from phosphate fertilizer production: Commercial Grade Fluorosilicic Acid and Sodium Fluorosilicate. It is not 'simply the fluoride ion in water,' it is a complex recipe of toxic substances that most countries have labelled.

"Hazardous Air Pollutants (HAP)

"Rebecca Hanmer, Deputy Commissioner for Water, US EPA, 1983, wrote:

"In regard to the use of fluosilicic acid as a source of fluoride for fluoridation, this Agency regards such use as an ideal solution to a long-standing problem. By recovering by-product fluosilicic acid from fertilizer manufacturing, water and air pollution are minimized, and water utilities have a low-cost source of fluoride available to them."

"US EPA Office of Air and Radiation, 1996

"**SUMMARY**: Hazardous air pollutants (HAPs) emitted by the facilities covered by this proposed ruling include *hydrogen fluoride (**HF**),* arsenic, beryllium, cadmium, chromium, manganese, mercury, and nickel (HAP metals); and methyl isobutyl ketone (MIBK) emissions. *Human exposure to the HAP constituents in these emissions may be associated with adverse carcinogenic, respiratory, nervous system, dermal developmental, and/or reproductive health effects."*

"A Nuclear Science and Technology Report EUR 15448 En, published by the European Commission, Luxembourg 1995, states in its ABSTRACT:

"Natural phosphate ore contains radionuclides of the uranium series. In this report, calculations and evaluations of radiation doses for the public and workers from the phosphate industry are performed. From these findings, it is evaluated whether established radiation protection procedures should also apply to certain facilities, occupations and wasted management practices in the phosphate industry. Measures for improvement and remediation are discussed and evaluated, and recommendations given."

"CONCLUSIONS:

"The findings in this report are summarized with the following statements:

- *"Processing and waste handling in the phosphate industry is associated with radiation levels of concern for workers and the public. The level of protection for these groups should be more similar to the level of protection that is state of the art in other industries, particularly the nuclear industry.*
- *"Radiation protection measures for workers are necessary, especially for certain areas of the facility and for repair jobs, because potential radiation doses reach a relatively high level of concern compared to levels in other branches.*
- *"Some waste management practices still found in the phosphate industry still deliver high individual and/or collective doses to the public, that can be substantially reduced by shifting to alternative management strategies.*
- ***"The unrestricted reuse of materials from phosphate processing facilities and of waste materials creates potential hazards to man that exceed the limits for radiation protection."***

"After almost 30 years of using fluorosilicic acid and sodium fluorosilicate to fluoridate the drinking water, there has not been one study commissioned with the product. All clinical research with animal models are done using 99.97% pure sodium fluoride and double distilled or deionized water."

"While uranium and radium found in fluorosilicic acid are known carcinogens, two decay rate products of uranium are even more dangerous and carcinogenic: Radon-222 and Polonium-210.

"The US EPA is responsible for regulating radionuclide levels in the air and drinking water; consequently, they are aware that Radon-222 decays into Lead-210 in 3.86 days. "The lead isotope does not give off harmful alpha radiation for 20 years until it turns into Polonium-210. Unless someone knew to look for specific isotopes, no one would know that a transmutation to the extremely radioactive Polonium-210 occurs. Polonium-210 may be the most insidious and most significant health threat in the pollution concentrate. Polonium gives off intense alpha radiation for 138 days until it turns into regular lead and becomes stable.

"During the 138 day period, a very small amount can be very dangerous. The lead-210 isotope acts like calcium in the body. It may lay stored in the bone or body tissues for up to 20 years before it explodes like a carcinogenic, time released nuclear device as Polonium-210.

"The fluoridated water someone drinks today, may be the cause of cancer twenty years down the road. No one knows what the consequences of using the pollution concentrate because there has never been any clinical research done with the product.

"One particle of Polonium-210 gives of 5,000 time more alpha radiation that the same amount of Radium. Damage occurs in the body from complete tissue absorption of the energy of the alpha particle. Scientists say that Polonium-210 can be carcinogenic to people if exposed to more that 0.03 microcuries (6.8 trillionths of a gram).

Drinking water fluoridated with fluorosilicic acid contains radon at every sequence of its decay to polonium.

"Use of the pollution concentrate to fluoridate drinking water places one at risk continuously. Drinking water fluoridated with fluorosilicic acid contains radon at every sequence of its decay to polonium.

"The reason the contaminated fluorosilicic acid is allowed to be used for artificially fluoridating drinking water is because it is used in such small amounts. Federal regulations would not be violated. However, no clinical studies were ever performed with the product.

"While water fluoridation proponents produce thousands of clinical studies about fluoride, there is not one clinical study done with the pollution concentrate of typical tap water containing fluorides."

The above quotes on fluorosilicic acid and sodium fluorosilicate *"It's Pollution, Stupid!"*, are extracts from the submission by the Freedom From Fluoridation Federation of Australia to the *"NHMRC Australian Drinking Water Guidelines."* (9th Nov 2000).

Air Pollution becomes Water Pollution

Air pollution wastes are frequently a major source of water pollution as Dr Waldbott illustrates:

"In many instances, they constitute the contaminated wash water from air pollution control devices. Use of wet collectors enhances the total quantity of liquid waste that must be discharged into water courses[7].

"In some instances, wastes are conducted into artificially produced lagoons, where they are treated and subsequently metered into rivers or lakes. Effluent water from such an artificial lagoon at a southwest Florida fertilizer facility contains up to 21,500 ppm phosphates and 5,150 ppm fluoride. The high acidity of the water tenders it especially harmful to the environment. In summer, when the water level in these lagoons recede, dust containing the chemical wastes is blown from their edges into the air and dispersed by the wind.

"Even more serious damage occurs when there is a break in the retention dam of such dykes. For instance, in the December 3, 1971, dam break near Arcadia, Florida, about 3 billion gallons of sludge, at some places three feet high, were released from the 200-acre pond into the Peace River. It killed an estimated 1,956,000 fish and destroyed a complete crop harvest near the seafood center of Charlotte Harbor. Damage to human health was bound to ensue because of consumption of contaminated products or direct intake of fluoride."

Fluorides & Aromatic Hydrocarbons from Coal

As well as **BTEX** chemicals containing toxic Aromatic Hydrocarbons and Fluorides, it has been known for over a quarter of a century that Polynuclear Aromatic Hydrocarbons (PAH) and Polycyclic Aromatic Hydrocarbons from coal-fired power plants, gasoline-powered vehicles, combustion of wood in home fireplaces, synthetic fuels and other sources are significant air and water contaminants[8].

For example, concentrations of airborne Benzo [a] pyrene (BaP):

"Range from 0.1 to 50 ng/m^3 for rural and urban areas respectively. Concentrations are consistently higher in winter months regardless of the region sampled in most cases and are always highest for heavily coal-based industrialized regions."

"The quantities and variety of *polycyclic aromatic hydrocarbons* found in synfuel-related materials clearly indicate the existence of a cancer threat.

"Recycling hazardous waste streams... and the development of control technologies optimized to remove PAH may be required to avoid the environmental release of potential carcinogens."

Estimated annual airborne emissions of Benzo [a] pyrene in the United States was primarily from coal, 270 and 280 metric tons respectively from residential furnaces and open burning of coal refuse; 23 from wood in home fireplaces and 10 metric tons from both gasoline-powered vehicles, rubber tyre degradation and open burning in forests and agriculture.

The hydrocarbon content of fly ash taken from the stack of a Tennessee Valley Authority coal-fired power plant was analysed. The pollutants with the highest concentrations are show in the following Table:

Chemical	Concentration
1,2-Benzofluorene	36.8 ng/g
1-Methylphenanthrene	24.8 ng/g
Pyrene	19.0 ng/g
Phenanthene	17.6 ng/g
Fluoranthene	13.4 ng/g

"Cooked scallops were found to contain 9.9 ppb BaP."

In beverages, the highest BaP concentrations were found in:

Beverage	BaP Concentration
Coffee soot's (From direct & indirect roasting of coffee beans)	200 - 440 ppb
Tea leaves	3.9 - 21.3 ppb
Dark rum	1.0 ppb

The report further stated:

"Raw meat does not normally contain PAH, but smoked or cooked meat may contain varying amounts of PAH.

"The highest concentration of PAH in charcoal broiled ribs (containing more fat) than in charcoal broiled steaks tends to support the idea that the most likely source of PAH is the melted fat."

"In general, the PAH concentration is lowest during the summer months and highest during the winter, probably due to commercial and residential heating during winter."

Industrial Fluoride Emissions – Coal a Major Source

Even in the 1970s there were high volumes of fluoride emissions, including from the combustion of coal. Air-borne coal dust, particularly from open-cut coalmines, inevitably contains fluorides, resulting in contamination of surrounding vegetation and soil, as well as direct inhalation by man in areas near such mining areas. Massive volumes of fluorides have been emitted since the 1940s from the production of atomic bombs. (See *The Australian Fluoridation News, Vol. 51, No. 2, April-June 2015.)*

"In the United States the total inorganic fluoride emissions from major industrial and commercial operations are estimated to be between 120,000 and 155,000 tons per year (calculated as Hydrogen Fluoride (HF). The main sources are the combustion of coal (now greater and increasing), the processing of phosphates, and the manufacture of aluminum, steel, and ceramics (brick, tile cement, glass, etc.), with lesser amounts from such activities as welding and the production of nonferrous metals. Other sources include the manufacture of high-octane gasoline and the production of hydrogen fluoride, fluorinated hydrocarbons, and other fluorides. Even assuming 90% containment with advances in pollution control equipment, 'the estimated emissions of fluoride [worldwide] are expected to double between 1971 and 1980.'"

"Fumes from burning coal can contain up to 1,440 ppm of fluoride."

"Fluoride was the principle culprit in the two major air pollution disasters, one in the Belgian Meuse Valley in 1930, and the other in Donora, Pennsylvania, in 1948. Sixty persons lost their lives in the Meuse Valley calamity and an unknown number, perhaps several thousands, contracted upper respiratory diseases such as asthma and emphysema. In Donora, the death toll was 20 persons." [9]

CSG FRACKING: DISASTROUS RESULTS IN AMERICA

We now explore the recent book by scientist Michelle Bamberger and veterinarian Robert Oswald: ***"The Real Cost of Fracking - How America's Shale-gas Boom is Threatening our Families, Pets and Food*** [10]***."***

The authors state: "The names and other identifying characteristics of many people mentioned in this book have been changed to protect their identities". The book gives a chilling account of the impact on many aspects of the lives of farming families impacted by drilling and the operation of coal seam gas operations in large areas of America.

The book of about 200 pages is recommended reading for not only individual families and rural and urban communities within many kilometres of possible fracking operations, but by the general Australian population, the concerns raised being a foretaste of the likely result of fracking in many Australian states. If the USA is any guide, contaminated foods, including cereal crops, grains, poultry and meat, may not be tested for contaminants and consumed by an unsuspecting public. The following extracts from the book are just a snippet of the many detailed on-the-ground personal accounts of how fracking has affected many lives and concurrently divided some communities.

Foreword author Sandra Steingraber states: *"silence is the sound of money talking"* and then lists three of the layers of scientific silence surrounding fracking.

"Silence is the sound of money talking" - Sandra Steingraber

"Here, woven among the courageous words of human witnesses, is the unimpeachable story of silence carried out in extreme and intimidating circumstances.

"It is the sound of silence breaking. It is speech to inspire our own".

- *"**...first are legal exemptions** - granted by the 2005 Energy Policy Act – to key provisions of our federal environmental statutes. These allow companies engaged in the extraction of gas and oil from shale via fracking to conceal the names of the chemicals and chemical mixtures they blast down holes in the ground. No other industry can withhold such information. Fracking companies are also unburdened by any requirement to monitor their emissions. Methane may seep out of well casings; heavy metals may slosh out of flowback pits; benzene may rise from wellheads and compression stations; radon may be pushed through pipelines; formaldehyde may flow from flare stacks. But no one is routinely measuring it and estimating its cumulative impact.*
- *"**Second is the silence emanating from state and federal agencies**, which both remain curiously uncurious about the public health effects of fracking.*

  "With more than 6,000 active gas wells and more than 3,300 documented violations, Pennsylvania is already an intensely fracked state – with much more fracking

to come. *"It was detective work by the Scranton Times-Tribune that found – buried deep in the Department of Environmental Protection's own records – 161 cases of water contamination from fracking in Pennsylvania.*

"It was an individual engineering professor, slogging through industry statistic, who discovered just how leaky cement well casings really are: operator records show that the well casings of 6 to 7 percent of new gas wells drilled in Pennsylvania fail outright or suffer from structural problems that could result in groundwater contamination.

- ***"The third layer of silence takes the form of nondisclosure agreements and the hush money that comes with them.*** *These take the form of contracts with secrecy clauses that are signed by homeowners alleging that their water has been ruined or their health damaged by nearby drilling and fracking operations. In such cases, the price of a cash settlement or property buy-out is the agreement to tell no one the story of what happened – not the neighbors, nor the newspapers, and not the public health community. Ever."*

  "In Pennsylvania, the code of enforced silence has even ensnared physicians. According to a state law called Act 13, doctors may obtain information from a gas drilling company about the specific identity of proprietary chemicals used in fracking operations. To which their patients may have been exposed. In exchange for this confidential information, however, they must give up their right to warn the public – including patients and including public health authorities – about the health dangers associated with fracking."

CSG in USA: General Problems

"We heard stories we found hard to believe: healthy cattle dying within one hour after exposure to hydraulic fracking fluid; cows failing to reproduce and herds with high rates of stillborn and stunted calves after exposure to drilling wastewater; dogs failing to reproduce after drinking contaminated well water; cats, dogs, and horses developing unexplained rashes and having difficulty breathing after living in intensively drilled areas.

"Our search for what really happened in each situation leads us to document exposures and subsequent health problems by detailed case reports – just as would be done for a new disease – in both animals and their owners. We discovered that all too often, the humans in the household also experienced health problems associated with drilling operations and that sometimes the symptoms were the same ones their pets or farm animals had experienced.

"The effects of drilling and flaring have been reported in environmental health studies. And although stillbirths and other reproductive problems in cattle in these areas have been documented in the scientific literature, and reports of stillborn human infants have also surfaced, they have not been thoroughly investigated.

"The problems do not stop with air pollution but also include water and soil pollution.

"A large horizontal well requires approximately five million gallons of water laced with silica and other chemicals (approximately 0.5 to 2 percent of the total fluid). These chemicals range from the relatively benign to the highly toxic.

"Within the first 15 years following the drilling of a well, data from the US Mineral Management Service suggests that up to 50 percent of well casings do not adequately control the migration of hydrocarbons ('sustained casing pressure') in offshore wells. ... Pennsylvania data indicates that the track record onshore thus far follows the same trend as the offshore wells. Also, channels forming outside the cement casing have been known to allow at least methane into drinking-water aquifers.

"stillbirths and other reproductive problems in cattle in these areas have been documented in the scientific literature, and reports of stillborn human infants have also surfaced..."

"The initial wastewater, referred to as flowback, contains a portion of the hydraulic fracking fluid; later, substances trapped for hundreds of millions of years in the shale layers flow to the surface along with the gas or oil a 'produced water'. Thus, wastewater can be as toxic as, or more toxic than, hydraulic fracturing fluid, as witnessed by farmers whose herds' reproductive capacity was greatly diminished after the cattle were exposed to leaky impoundments. Other witnesses include pet owners whose dogs died soon after playing in puddles of waste fluids spread on the road or after lapping fluid from unfenced impoundments."

The US Environmental Protection Agency (EPA) initially considered hydraulic fracking outside it regulatory authority. A class action lawsuit resulted in the Eleventh Circuit US Court of Appeals requiring the EPA to regulate the process. In 1999, the EPA began a study of the risks that hydraulic fracking in coal-bed methane reservoirs posed to drinking water.

"During the four years of the study, the Bush administration came into office, with the former CEO of Halliburton, Richard Cheney, serving as vice-president. Cheney's energy task force repeatedly touted the benefits of hydraulic fracking, and in 2004, the EPA study was released, concluding that hydraulic fracturing posed no serious threat to drinking water in coal-bed methane reserves. In 2005, the SDWA definition of underground injection was specified by Congress to exclude hydraulic fracturing. This act of Congress, known as the 'Halliburton Loophole,' has removed the EPA from any regulation of hydraulic fracturing, leaving regulation up to the individual states.

"The EPA has recently undertaken a study of hydraulic fracturing and its impact on drinking-water resources and may revise some of these apparently outdated regulations."

Children, Adults, and Animals; All at Risk

The book further explores the impacts on humans and animals:

"The use of animals as sentinels [similar to the previous use of canaries in underground coal mines – Editor], has been championed by Peter Rabinowitz of Yale University. 'The primary goal of an animal sentinel system is to identify harmful chemicals or chemical mixtures in the environment before they might otherwise be detected through human epidemiological studies or toxicologic studies in laboratory animals.

"In addition to animals, children are inadvertent sentinels. Because of their higher metabolic rates and

immature neurologic and detoxifying systems, children are at a higher risk of developing adverse health effects from environmental hazards, including those from nearby industrial operations. As we update our study, we are finding more cases where children are often the first in the family to become ill. Initial results on babies living near industrial gas operations in Pennsylvania have demonstrated an increased prevalence of low birth rate and a reduction of five-minute APGAR scores (assessment of appearance, pulse, grimace, activity, and respiration at birth), indicating that infants born in intensively drilled areas may suffer health impacts starting at birth.

"While each story, each context, each timeline of events was different, we were alarmed by what we kept hearing over and over again from people in very different situations hundreds of miles apart.

"Water dispensers and water buffaloes [containers holding up to 2,000 gallons of water delivered to householders whose water is contaminated – Editor], have replaced our water sources."

"All of my puppies were born dead."
"I have no calves this year."
"My vet can't figure out what's happened to my animals."
"We had to leave our home to escape the bad air."
'I had no choice but to leave my goats and pigs behind."
"I leased to keep my land, but I lost my farm."
"We all have headaches, nosebleeds, and rashes."
"I'd move out, but I can't afford it."
"We are not living; we are merely existing."

Effects on Families, Pets, Farmers, Livestock

The authors give detailed examples of how fracking continues to have an ongoing effect on the lives of families and their pets, on farmers, their crops, and food-producing animals. A consistent finding was the irresponsible behaviour of drilling companies and state environmental regulatory agencies when problems arose from oil and gas drilling. All the farmers they interviewed *"found themselves financially squeezed by gas drilling"*, because of heavy losses *"due to death and reproductive failure of their herds in association with drilling-related events; in one case, losses were compounded by long quarantine holding times of the herd following wastewater exposure."*

Fracking continues to have an ongoing effect on the lives of families and their pets, on farmers, their crops, and food-producing animals.

"...farms in areas testing positive for air, soil, and water contamination are still producing meat, eggs, and dairy products for human consumption without testing the animals or their products. This situation makes it likely that some of these chemicals could appear in food products made from these animals. On the economics side, farmers not only lost animals but also lost pastureland and hayfields, depending on the placement of the access road, well pad, wastewater and freshwater impoundments, drilling mud pit, compressor station, and pipeline. Most of the farmers and other people we spoke with received no compensation from the driller for the loss of their animals, and loss of their land, or for the treatment of the animal and human health problems they encountered since drilling for oil or gas drilling came to their neighborhoods."

"After more than two years of following our cases, we have observed that health impacts significantly decreased over time for families and animals moving away from intensively drilled areas, or living in areas where the level of industrial activity has decreased; otherwise, health impacts have remained the same. We have also observed that in food animals, both respiratory problems and growth problems (stunting and failure to thrive) have increased over time."

"How can you live without water?"

"...it is not surprising that both small and large animals should experience more health problems sooner and to a greater degree than their owners because in most situations, they are exposed to the environment for longer periods than their owners.

"Because known carcinogens, mutagens, and endocrine disruptors are used in industrial gas drilling operations, and because these chemicals can cause long-term health problems to many systems in the body at very low concentrations (parts per billion or less), we expect to be following the health issues of animals and their owners for many more years.

"In some of the stories we have documented, the drilling companies have told the people, 'No more water.' These people plead and beg for water. They live on the edge of sanity, day to day, trying to get by, but how can you live without water?"

Farm Life With Fracking

"Samantha and Jesse's ten acres Rhode Island Red chickens share a space with Piglet, the potbellied pig. It is just a short distance to downtown Leroy... within ten miles of this property, there are approximately four hundred permitted gas wells, most of these are high-volume, hydraulically fractured Marcellus wells.

"We pass many unkept properties with grass overgrowth and appearing to be abandoned. Samantha pointed to three houses, part of what used to be a working farm. 'This guy had a business,' she said. 'There were cows grazing here. This all happened in the last six months. People have been displaced from their homes, and the drillers have moved in. People who were renting – they can no longer afford to rent.'

"We passed many places... many had grayish vegetation leading down one corner of the outside slope – places where chemical spills probably occurred or where wastewater may have run off the pad. Some of these areas appeared wet, others dry. Many had cornfields below them, and all were surrounded by either grazing deer or cattle, or sometimes both.

"Just a few minutes from her home, we stopped near one of the pads. 'This is the one closest to me,' Samantha explained. "There was a spill of 20 gallons of concentrated hydrochloric acid and several thousand gallons of wastewater at this well site in 2009. It contaminated a pond and killed a thirty-foot swath of vegetation less than a mile from my home. Nobody was told. I didn't know. I didn't even know what 'frack' meant at that time. Now, I know when something happens. I'll see fifty white pickup trucks flying by, blinkers on'. The water from the spill

was never tested, and although the acid was neutralized, some of it undoubtedly leaked into the bedrock.

"We drove on... soon we reached the site of one of the best-publicized gas drilling spills in Pennsylvania, where thousands of gallons of flowback blew out during an initial stage of hydraulic fracturing, flooding the well pad before surging into a cow pasture, a tributary, and, finally, Towanda Creek. *Six months later, beef cows grazed lazily below the pad, as if nothing had ever occurred here.*

"They have bought bottled water for themselves when they could afford it, because they don't like the taste of well water..."

On return to their home, Samantha filled up a five-gallon bucket with her tap water:

"It bubbled for a few seconds before turning pearly white, looking like 7-Up with milk added to it. After a few minutes, the water began to slowly clear. Later, in the house, she held a glass for me to sniff – it smelled like a sewer and caused my hand-held methane detector to buzz like a beehive. According to Samantha and Jesse, the water doesn't always smell like a sewer – some days it smells like turpentine. And some days, it will have black or brown specks, or sand. And yes, they say, they can light their water on fire.

"They have bought bottled water for themselves when they could afford it, because they don't like the taste of well water either before or after it has gone through the water softener.

Even though the dogs are their livelihood, ("Newfies", at 150 pound each, big drinkers, about a gallon of water per dog per day), they can't afford to provide the dogs with bottled water. Their well water was first tested in June, 2011, as a "complimentary" test from the drill company; a pre-drill test was never conducted.

"This test and later tests done by both the drilling company and the PADEP demonstrated high methane levels as well as levels of arsenic, manganese, and iron above the maximum contaminant levels.

"Before drilling started, Jesse never had a cucumber blown out of her hand while cleaning it under the faucet, and their water didn't look like fizzy milk, which in drilling areas is often due to the presence of fine methane bubbles. According to recent research, the average methane level in water in non-drilling areas in Pennsylvania is 1.1 milligrams per litre (1.1 ppm). According to a test the PADEP conducted in November 2011, methane levels of Samantha and Jesse's well water reached 14 ppm, which is above the level deemed to be safe by the US Department of the Interior.

"Prior to 2009, all six of the breedings by the stud Caesar had resulted in successful litters. Livia, a four-year-old female that had produced normal litters up until this time, had two stillborn puppies out of a litter six, and developed rashes on her chest and stomach, and ear infections, as did many of the other dogs. During the next two heats, she was bred but failed to become pregnant. Like Caesar, she was neutered and adopted.

"Since then, six females and five studs – three of these studs brought in from areas where no gas drilling had taken place, have had an unusual number of unsuccessful breeding attempts. It was like an epidemic of pseudocyesis, (false pregnancy, a condition that is common in bitches that are not bred after a heat cycle).

"'When I get out of this air, my nose opens up, I can breathe. I don't feel blah, tired.' Both women have had episodes of gastrointestinal cramping, vomiting, and diarrhea after drinking the water and cooking with it. Both women have suffered drastic weight loss. What is striking to Samantha is that she hasn't changed her diet – she still eats as she did before, but continues to drop pounds. 'I'm terrified, but do I continue? Do I spend another eight thousand dollars for the dogs, ...bring them here and make them sick? Do I do this, or do I just go to work for the gas company?'

"Her free-range Rhode Island Reds chickens had missing feathers and the skin appeared red and inflamed. Dirt alongside the road was hardened with a film on top, and the grass looked as if it had been misted with oil. *'The drillers just did this yesterday. They're doing it 'complimentary,' to keep the dust down. We call it fracking down – they're just fracking us. They're just spraying the fracking water everywhere.'*

"The lesions on the chickens began appearing approximately one month after the spreading began. One week after my visit, Samantha and Jesse's air was tested. Among the chemicals detected were chloromethane, trichlorofluoromethane, 2-butanone, carbon tetrachloride, trichloroethylene, and toluene. I have seen these same chemicals detected in air tests from other rural properties in intensively drilled areas in Pennsylvania. In all cases, there were no pre-drilling tests done, making it difficult to know if gas drilling is the culprit.

"The CDC National Institute for Occupational Safety and Health study says that oil and gas workers are seven times as likely to die on the job as workers in other industries."

"The CDC National Institute for Occupational Safety and Health study says that oil and gas workers are seven times as likely to die on the job as workers in other industries.

"In addition to the many types of toxic chemicals that are released from the shale during drilling and hydraulic fracturing, both drilling waste and wastewater contain radioactive compounds, mostly in the form of radium-226 and radium-228. While both are hazardous substances, radium 226 is of particular concern because it can remain in the environment for thousands of years. [As it naturally decomposes over time, Radium emits Helium and Radon].

"A particularly well-documented case of the death of two baby goats and six baby chickens on an organic goat farm illustrates the problems that can occur [from air pollution]. In this case, extensive air testing demonstrated elevated levels of a range of volatile organic compounds.

"Perhaps if cows could swim, the FDA would be monitoring our milk and meat to be sure these foods were safe for human consumption. Currently, the FDA monitors seafood after major oil spills by using specific protocols to determine food safety. One of the groups of compounds that the FDA, EPA, and NOAA (National Oceanic and Atmospheric Administration) have chosen for analysis is the PAHs (polycyclic aromatic hydrocarbons), perhaps the most studied and most persistent compounds found in petroleum mixtures.

PAHs are a human health concern because of their potential carcinogenic, mutagenic and teratogenic effects and because exposure during pregnancy is associated with adverse effects on birth and early childhood development. As PAHs are components of drilling and fracturing fluid and are also found in wastewater, they could be similarly used to monitor our crops, meat, eggs, and dairy products following contamination events on land."

A Farmer, His Farm & The Drilling Company

Farmers Wade and Sharon Davidson received a certified letter from a drilling company in 2007, informing Wade *"of the company's intent to drill gas wells on or near his property or water source."* The letter stated, *"We will, as in the past, take extended precautions to protect and preserve water sources surrounding the drilling sites."* A second well drilled on his property in 2008, resulting in a blow-out. Drill fluids erupted like a geyser. The best bull he ever had, together with the rest of the herd, were exposed to the drilling fluids. **"He had reluctantly replaced this bull, because this was the first year, in more than twenty years of raising beef cattle, in which no calves were born."**

"... this was the first year, in more than twenty years of raising beef cattle, in which no calves were born."

The original water well and the cattle spring, the main source for the cattle and farming, virtually disappeared soon after the original well water was contaminated. The drilling company was ordered by PADEP to replace or restore Wade's water supply, which the agency had determined was polluted by the drilling company's activities at the lower gas well site. "The dates and events clearly show that both iron and manganese in Wade's well water had increased above the maximum contamination levels since drilling had begun. None of the letters explained that there were five wells drilled in an effort to replace Wade's water supply, and that the fifth one produced water that while testing normal, was not being used by the Davidson's because it tasted like salt water. But as no abnormalities were detected, the drilling company was no longer obliged to provide drinking water to this family. Two years later, the same drilling company advised that they would no longer provide his family with drinking-water service."

"Sharon summarized how her life had changed since their water became contaminated. *'When we lost our well water, we had to hook up the house spring [previously used only for bathing, laundry, flushing the toilet, etc] to the tap water. We don't drink this water at all. I wash the vegetables in it, but then I rinse with bottled water too. I cook with bottled water. We drink the bottled water. We live in the country. We've never had a water bill – just the electric bill for pumping the water. We spent eight hundred dollars last year, she said, 'on bottled water alone'.*

"A nauseating odor – like turpentine or gasoline – greeted us as we approached the lower gas well, which was actively producing with a horseshoe pump (a pumping unit that lifts liquid out of the well). Wade was not surprised by the smell. I pulled out my methane detector, calibrated it, and started moving it around the base of the well. A foot away from the base, it started buzzing, along where Wade believed the pipeline was laid. At the top of the condensate tank, the odor was strong and smelt like paint. I was feeling sick by now, so we moved on.

"Beside the drilling company and the PADEP, I asked if anyone from a federal agency such as the EPA had been out to talk with him. His answer surprised me: *'Just the attorney general's office. It was a criminal investigation.'*

" '... It was a criminal investigation.' "

"'Against you?'

"Wade explained:

"A pit had been dug for residual drilling mud, fluids and cuttings. More than 200 large trucks had brought stones onto his property to make access roads, and Wade noted that little of the excess stones and brush were ever cleaned away. His topsoil was buried. He asked the drilling company to take everything, including the liner, as he didn't want his pasture to become contaminated. Despite his request, the muds and associated drill cuttings, fluids, and toxic chemicals were all eventually buried on his property, and the liner was ripped out and placed on the side of the access road we were now walking on, to be hauled away. Because the liner was not removed quickly enough, it kept blowing onto his hayfield. Frustrated, and afraid that pieces of the plastic would remain in his hayfield and eventually be eaten by his cattle, Wade placed the liner in the middle of the access road, to remind the drilling company to haul it away. For this he was arrested for blocking and dumping garbage on the access road. He never saw the liner and suspects that the entire contents of the mud pit, including the liner, are now buried in his hayfield.

"At the base of the [second] wellhead, the methane detector buzzed crazily, making the increased discovery at the first site seem small. I asked Wade if he knew about this leak – if anyone from PADEP knew about it, or if it had been reported as a violation. He explained that no one had been out to inspect the wellhead, but he was surprised there could be this much leakage as the well was only about four years old. Leaks such as this and those in pipelines throughout the country are rarely taken into consideration when comparing the greenhouse gas potential of using methane to other sources of energy, such as coal.

"During the first calving season following the drilling of the two gas wells on Wade's property, ten out of eighteen breed cows, all of which had been exposed to drilling muds for several months either through pasture runoff or at the pond on the upper pasture, gave birth to dead calves or calves that died within 24 hours. Several of the calves also had cleft palate or eyes that appeared white or blue, or both problems; one calf was born with a nosebleed. While difficult to prove, ... the only thing that did change on Wade's farm, after many years of healthy calf production, was the exposure of his cattle to the chemicals in drilling fluids.

"As we walked back along the edge of the pasture, Wade confirmed that in the second calving season postdrilling, five of nineteen cows failed to breed back (become pregnant), but those who did so produced normal calves. In the third calving season post-drilling, no calves were produced despite good health and normal behavior on the part of the bull and the cows... Before gas drilling operations moved onto his property, this sort of season would have disturbed him because it was rare to have anything go wrong. But for now, he was simply thankful for any calves to be born alive.

"Beyond these material changes, the bottom line for Wade and a number of other farmers with whom we have spoken is simply a matter of respect. If his right to farm and the integrity of his land had been respected, if his concerns for the health of his cattle and horses had been respected, if the loss of the water that supplied his house had been acknowledged and dealt with respectfully, his attitude to all the problems he encountered would have been different. Instead, he has been arrested for protesting contaminated trash in his hayfield, is forced to purchase drinking water, and has lost more money than he's gained in royalties due to the devastating drilling has brought to his land."

Energy Sources and The Money Trail

"The fact is that all energy sources receive government subsidies. When considering all the externalities (the cost of pollution direct subsidies, etc), the International Monetary Fund estimates that the sum of worldwide government subsidies to the oil and gas industries on the order of "2.3 trillion for just the year 2011. In the years between 1950 and 2010, the oil, gas, and coal industries have received 70 percent of the energy subsidies provided by the US government, with most of the remainder going to the nuclear and hydropower industries.

"Nancy Pfund and Ben Healey, in their paper *'What Would Jefferson Do? The Historic role of Federal Subsidies in Shaping America's Energy Future,'* estimate that for the first fifteen years of subsidies (considering direct subsidies corrected for inflation) the nuclear industry received an average 8-fold larger subsidy and the oil and gas industry a 4.5-fold greater subsidy than renewable energies. They concluded that Thomas Jefferson would have done *'what our country has always done – support emerging energy technologies – to drive innovation, create jobs, protect our environment, enhance out national security in a time of rapid change, and to further a distinctly American way of life in which resources one thought to be endless are replaced by ones that actually are.'*

"It is actually the injection wells that have been the cause of earthquakes rather than wells used to extract oil and gas."

"Finally, wastewater is often injected deep into the ground. This method of disposal has been widely used, it has, in some cases, resulted in earthquakes. The events are not of the magnitude of the 2011 earthquake in Japan, but have measured 3 or 4 on the Richter Scale. Earthquakes of this magnitude are rarely deadly but can cause damage. However, a magnitude 5.7 quake in Prague, Oklahoma in November 2011 destroyed fourteen homes and has been linked to wastewater injection wells.

"In 2012, scientists from the US Geological Survey found that the frequency of magnitude 3 or greater earthquakes in the mid-continent of the United States in the decade starting in 2001 was six times greater than the frequency during all of the twentieth century and that this was almost certainly due to human causes... **It is actually the injection wells that have been the cause of earthquakes rather than wells used to extract oil and gas."**

Federal Australian Government Waters-Down Pollution Control Laws to Assist Coalminers

"Numerous large Australian coalmines have had their environmental regulations relaxed, in changes the federal government hopes will make life easier for the struggling industry." *(Reported in The Sydney Morning Herald, [SMH] January 23-24, 2016).*

Many of the changes were initiated by the Environment Department, not requested by mining companies. The approvals follow federal government threats to change environmental laws to stop green groups using the courts to challenge approvals.

The article cites two Glencore coalmines, Bulga and Liddell; BHP's Caval Ridge, Mt Arthur Hunter valley mine; and Whitehaven's Tarawonga and Werris Creek coalmines, which received favourable changes. A spokesman for the Federal Environment Department said that 34 project approvals had been changed over the last nine months, with the environmental conditions loosened in 21 of those cases.

"Australian Conservation Foundation spokesman Paul Sinclair said it was not appropriate for the government to be running from Australia's environmental law.

"Environment law is not red tape, it is a safeguard for Australia's clean water, air and good health, Dr Sinclair said.

"The federal government has a duty to ensure major resources companies comply with the law."

As in America, federal government so-called "environment" departments, seem to be a plaything of the government, a de-facto arm of major polluting corporations, rather than an organization supporting the short and long-term health of the people and the environment, in which we all must live.

Possible Hope For The Environment in NSW

Premier Mike Baird's government is considering approvals to mine 1.2 billion tonnes of coal, on top of the 1.8 billion tonnes approved in the last two years. *(Also reported in the SMH, January 23-4, 2016).*

"Premier's department officers... spent two days last week hearing from farmers, winemakers and other groups opposed to coal mine expansion.

"The tour adds to signs that the push to develop coal mines is stalling, and may even face tough new regulation. Poor market conditions are likely to force companies to scale back plans or sell assets.

"The tour, organized by environmental campaigners Lock the Gate, included Newcastle, Bulga, and the Liverpool Plains before ending in the Pilliga, where coal seam gas is also a contested issue.

"NSW Greens mining spokesman Jeremy Buckingham said it was urgent the government recognized "coal is in inexorable decline" and it drafts "a strategy for a managed transition, rather than allow a chaotic collapse."

"The Minerals Council... pointed to a report by the International Energy Agency last year that projected continued growth for the industry, with Australia set to overtake Indonesia as the world's biggest coal exporter."

Progress and Pollution: Comments & References:

Quotes cited in the above texts included numerous references in support of the statements made by the authors. Those references have not been included in this article due to the huge number of such references. It is recommended that readers obtain their own copies, particularly of the recent book by Michelle Bamberger and Robert Oswald. It is a very readable "on the ground" account of the typical life that many residents and farmers continue to face once fracking for coal seam gas commenced.

Books by George L Waldbott, MD; FB Exner, MD; Christopher Bryson (not quoted in this article); and many others, are recommended reading for an insight into an almost identical story to the promotion of fracking; on how fluoridation was implemented; and the many adverse effects of that measure.

Only by public opposition to the extremes of fracking, coal mines, (particularly open-cut mines); polluting dust from rail and road transport of coal; mass dredging and associated water pollution associated with coal exporting infrastructure; etc, that the current and future living conditions of humans and animals can be given top priority when mining of major energy–producing resources are proposed.

1. The 2015 National Air Pollution Summit held in Melbourne on 13 & 14th November, 2015, reported in *The Sydney Morning Herald*, November 14/15 November, 2015.
2. *Urine Analysis for the Evaluation of Environmental Exposures to Aromatic Hydrocarbons*: Skender, Ljiljana; Brcic, Irena; Karacic Visnja, Archives of Environmental Health; May 2004; 59, 5; ProQuest Research Library, p 237)
3. Government of Canada, Environment Canada, Health and Welfare, Canada, NQ 363.728/52 NSW Public Library, Sydney.
4. Waldbott, George L., *Health Effects of Environmental Pollutants*, Second Edition, Saint Louis, pp. 229, 256: The C.V. Mosby Company, 1978, ISBN 0 8016 5331 2)
5. Government of Canada, Environment Canada, Public Library of NSW, Ref. NQ 363.7384/45.
6. *The Moral Aspects and Implications of the Fluoridation of Public Water supplies and of the Methods Used to Promote Its Acceptance*; FB Exner, MD, FACR; Testimony Presented to the Ontario Fluoridation Investigating Committee at the Public Hearing in Toronto, Ontario, on 11th May, 1960; *The Australian Fluoridation News*, Vol.44, No. 4, July-August 2008, and Vol. 44, No. 5, Sept–Oct 2008.
7. Waldbott, George L., *Health Effects of Environmental Pollutants*, Second Edition, Saint Louis, p. 284: The CV Mosby Company, 1978, ISBN 0 8016 5331 2.
8. *Health Impact of Polynuclear Aromatic Hydrocarbons*, 1981: Noyes Data Corporation, Park Ridge, New Jersey, 07656, USA; ISBN 0-8155-0840-9.
9. Waldbott, GL., *Fluoridation The Great Dilemma*, pp 29-32, 94, 95; Coronado Press, Inc., Lawrence, Kansas, 1978, ISBN 0-9 87291-097-0.
10. Michelle Bamberger and Robert Oswald, *The real cost of fracking: how America's shale-gas boom in threatening our families, pets and food* 2014; Beacon Press Books, ISBN 978 0 8070 8493 9 (hardcover); ISBN 978 0 8070 8494-6 (ebook).

Massive Fluoride Overfeed: Faulty Valve and Human Error, Pupils and Teachers Suddenly Ill – Maine, USA, Oct 1981

As reported in the July-October issue of *NFN*, pupils and teachers at the Jonesborough Elementary School, Maine, became suddenly ill on the morning of Tuesday, October 6, 1981, from a massive fluoride overfeed in the school's water system.

On October 22, Christine Torraca, director of the Fluoridation Program for the State of Maine Department of Human Services (DHS), released an official statement concerning the incident.

In her report, Torraca relates that not only was the fluoride flow switch not operating properly, but also that the anti-siphon valve was defective. When DHS technician Dennis Phillips went to the school on October 5 he replaced the flow switch but *"did not have a spare anti-siphon valve with him so he isolated the fluoridation system by closing the gate valves and opening the by-pass gate valve."*

Then, according to Torraca, *"by the time all this took place the concentrated fluoride solution had already siphoned into the school storage tanks."*

When he left the school, Phillips *"informed Adrian Smith (the custodian) that he needn't test the water the following morning, as the fluoridation equipment was turned off. Had he (Phillips) not left those instructions, Adrian would have tested the water and the high concentration of fluoride would have been detected."*

On the following morning, pupils and teachers began drinking and using the water, and between 8.00 and 9.00 am they began to experience toxic effects *"consisting chiefly of nausea, vomiting, cramps and headache."* Mr George Alley, the principal, *"suspected excess fluoride in the drinking water and called the Maine Poison Control Center for advice, and notified DHS Office of Dental Health."*

The report continues: ***"Fifty-seven individuals were transported to Down East Community Hospital (in nearby Macias). Thirty-eight were treated for suspected fluoride overdose. Treatment consisted of syrup of Ipecac (an extremely bitter-tasting alkaloid) to induce vomiting, then milk and quiet observation. Two individuals were admitted to the hospital briefly for observation of rapid heart rate, excitement and anxiety, and released several hours later."***

(In another part of her report Torraca states that *"the over-fluoridation caused symptoms in 31 persons in the JES" [Jonesboro Elementary School])*.

In regard to the amount of fluoride involved: *"The concentration of fluoride in the water during the time of ingestion can only be estimated. Subsequent analysis of four samples at the State Laboratory gave these results:*

Mr Smith's sample	14.5 ppm
Water fountain	25.3 ppm
Coffeepot	84 ppm
Leftover cup of coffee	236 ppm

Even with 236 ppm of fluoride in the water, according to Torraca, *"all the individuals were well removed from serious illness."* In her view, *"at this concentration, a child would have to ingest a gallon or more of water and an adult over two gallons (assuming no vomiting) in order to experience serious or life-threatening illness."*

From the Conclusions of the report: *"The overfeed was due to the combination of a faulty valve and human error"* and *"We believe that the illness was acute and self-limiting (average duration 8 hours) and that no chronic effects should occur."*

Torraca's closing *Recommendations* stressed that the concentration of fluoride should be checked prior to each school day, "**regardless of whether that equipment is thought to be operating or not."** [*Emphasis in original report*]

continued over...

Massive Fluoride Overfeed (continued from p11)

Comment by NFN Editor

Since water containing 236 ppm fluoride has 236 milligrams of fluoride ion per litre of water or approximately 900 milligrams per gallon, Torraca's contention that the ingestion of at least one gallon of such water by a child would be required for "serious or life-threatening illness' is more than open to challenge. This amount of fluoride has frequently proved to be more than sufficient for a lethal dose in small children, and at the very least would be expected to induce extremely toxic acute toxic reactions even in a healthy adult. If Ms Torraca thinks she can ingest this amount of fluoride at one sitting without becoming violently ill, she is sure to find that she is sadly mistaken! (*NFN* Vol. XXVII, No. 4, Nov.-Dec. 1981. The above account is based on press reports that appeared between October 7 and 19, 1981, in the *Portland Press Herald*, the *Bangor Daily News*, the (Portland) *Evening Express*, the *Maine Sunday Telegram,* and *The Maine Paper*).

Brief News

Discuss and Agree on Dental Treatments First

Some patients going to the dentist have found that particularly toxic treatments, i.e. fluoride varnishes, have been meted out to them without either their knowledge or permission, only finding out when they got the bill!

A nice little earner if you can get away with it and many dentists have.

Some patients, however, are not prepared to pay for this nasty piece of dishonesty and they also will be choosing to go to other dentists who are less arrogant and respect them as patients.

Our advice is before you park yourself in a dentist's chair, be clear and agree with the dentist about what is going to happen and what you're prepared to pay for.

Be wary of treatments of toxic mercury amalgams and "glass ionomer" fillings (by design, leaking fluoride, aluminium, lead and arsenic). See *The Australian Fluoridation News*, Nov-Dec 2003.

Also be aware that the dental industry puts the fluoride 'wonder drug' into an ever-increasing number of products, so be sure to ask a responsible and knowledgeable dentist if they have proof that the materials intended for you don't contain a nasty payload. Competent and caring dentists will be prepared to respond appropriately to your concerns.

The Truth About Cancer DVD Series

We could assert that everyone in the western world has lost friends and/or family members to cancer. As we investigate the subject, we come across self-interest, greed and corruption, and beyond those, various ways of healing that are proving effective. If only our doctors knew of them!

In October 2015 a nine part DVD series was released, *"The Truth About Cancer,"* a global quest to interview doctors, scientists and practitioners of various modalities, as well as plenty of good news from remarkable survivors.

What's remarkable is that we don't hear good news like this on TV, only the regular announcement of another breakthrough that will take yet another 10 years to become available and rarely ever arrives. But we don't have to consent to absorbing TV programming, or watching any TV without a critical eye.

Host Ty Bollinger is aware of toxins in water, including fluorides, and while this series covers some interesting aspects of water and healing, it's hearing the diversity and range of other perspectives and approaches that is most rewarding.

The series is an expanded follow-up to "The Quest for The Cures", which is also worth a look. There are also many extras, interviews and clips available on Youtube. For details, please see www.thetruthaboutcancer.com

Can you imagine?

We see a lot of information about fluorides and other toxins, and there are many good reasons to be mindful and minimise our intake of them. We hear about the perpetrators, their schemes and the effects of fluorides on humans, animals and the environment. It's important to be aware and acknowledge all of this to the extent of our capability.

It's also important to look where we're going. The future doesn't exist, we get to co-create it, to imagine what our future could be like and build it that way. Can you imagine what a world without artificial water fluoridation would be like? For a start we'd be able to use our showers again! We're happy to receive your ideas. It's worth taking some time to imagine, and also working with others to create those ideas in reality.

Quotes:

Tohru Murakami, DDS, PhD. Vice-president, Japanese Society for Fluoride Research, Japan:

"I just shudder to think how many cases of fluoride poisoning have been covered up by false science."

Philip R N Sutton, DDSc, FRACDS, former senior lecturer in dental science, University of Melbourne:

"The scientific basis of fluoridation is very unsatisfactory. It is promoted, in the main, by emotion-based 'endorsements' rather than by scientifically acceptable evidence."

Ralph Waldo Emerson:

"Every violation of truth is not only a sort of suicide in the liar, but is a stab at the health of human society."

Zen Gardner:

"The time to activate is now. Let anything that hinders this fall away from your life, whatever the cost. The call for our inner warriors to rise could not be any clearer."