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COMMENTS TO HHS AND EPA
REGARDING LEAD, ARSENIC, AND WATER FLUORIDATION
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Dear Ms. Sebelius and Ms. Jackson,

I am writing to give comments to HHS and EPA regarding their recent requests for comment on fluoridation.

To make it easier to follow links, read a web version of this letter at: http://fluoride-class-action.com/hhs. Click on http://fluoride-class-action.com/hhs/comments-re-lead.

This letter is a supplement to my Fluoride Report Card for HHS and EPA. To read that letter click on http://fluoride-class-action.com/hhs/comments-re-lead.

I conclude that the research done by HHS and EPA on fluoridation is inadequate and that neither presented sufficient evidence to come to the conclusion that fluoridation should be continued but at a reduced level, that is at .7 ppm or that a new reference does of .08 mg of fluoride per kg of body weight should be set. I also conclude that HHS and EPA have been ignoring evidence that would force the conclusion that no fluoridation at any level should continue.

One of the most important lines of evidence that has been ignored is that which connects silicofluorides with increased lead in water.

Both requests for comment look back to the 2006 NRC Report, which suggested many topics which EPA should study in connection with drinking water fluoridation. The long list of topics included the following: caries, fluorosis, and bone fractures, fertility, thyroid function, increased calcitonin activity, increased parathyroid hormone activity, secondary hyperparathyroidism, impaired glucose tolerance, and possible effects on timing of sexual maturity, endocrine effects and brain function, osteosarcoma. See 2006 NRC Report, "Research Needs", pages 11-12, which mentions "brain function" as a needed area of research, and which points to lead which causes serious neurological harm. NRC also suggested on page 52-53 under "Fluorosilicates" that EPA do further research on the connection between silicofluorides and lead uptake:

> Most fluoride in drinking water is added in the form of fluosilicic acid (fluorosilicic acid, H2SiF6) or the sodium salt (sodium fluosilicate, Na2SiF6), collectively referred to as fluorosilicates (CDC 1993). Of approximately 10,000 fluoridated water systems included in the CDC's 1992 fluoridation census, 75% of them (accounting for 90% of the people served) used fluorosilicates. This widespread use of silicofluorides has raised concerns on at least two levels. First, some authors have reported an association between the use of silicofluorides in community water and elevated blood concentrations of lead in children (Masters and Coplan 1999; Masters et al. 2000); this association is attributed to increased uptake of lead (from whatever source) due to incompletely dissociated silicofluorides remaining in the drinking water (Masters and Coplan 1999; Masters et al. 2000) or to increased leaching of lead into drinking water in systems that use chloramines (instead of chlorine as a disinfectant) and silicofluorides (Allegood 2005; Clabby 2005; Maas et al. 2005).12,13
>
> Use of more sophisticated analytical techniques such as nuclear magnetic resonance has failed to detect any silicon- and fluorine-containing species other than hexafluorosilicate ion ($SiF6^{2-}$) (Urbansky 2002; Morris 2004). In drinking water at approximately neutral pH and typical fluoride concentrations, all the silicofluoride appears to be dissociated entirely to silicic acid [Si(OH)4], fluoride ion, and HF (Urbansky 2002; Morris 2004); any intermediate species either exist at extremely low concentrations or are highly transient. $SiF6^{2-}$ would be present only under conditions of low pH (pH < 5; Urbansky 2002; Morris 2004) and high fluoride concentration (above 16 mg/L according to

> Urbansky [2002]; at least 1 g/L to reach detectable levels of $SiF6^{2-}$, according to Morris [2004]). Urbansky (2002) also stated that the silica contribution from the fluoridating agent is usually trivial compared with native silica in the water; therefore, addition of any fluoridating agent (or the presence of natural fluoride) could result in the presence of $SiF6^{2-}$ in any water if other conditions (low pH and high total fluoride concentration) are met. Both Urbansky (2002) and Morris (2004) indicate that other substances in the water, especially metal cations, might form complexes with fluoride, which, depending on pH and other factors, could influence the amount of fluoride actually present as free fluoride ion. For example, P.J. Jackson et al. (2002) have calculated that at pH 7, in the presence of aluminum, 97.46% of a total fluoride concentration of 1 mg/L is present as fluoride ion, but at pH 6, only 21.35% of the total fluoride is present as fluoride ion, the rest being present in various aluminum fluoride species (primarily AlF2+ and AlF3). Calculations were not reported for pH <6.
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> Further research should include analysis of the concentrations of fluoride and various fluoride species or complexes present in tap water, using a range of water samples (e.g., of different hardness and mineral content). In addition, given the expected presence of fluoride ion (from any fluoridation source) and silica (native to the water) in any fluoridated tap water, it would be useful to examine what happens when that tap water is used to make acidic beverages or products (commercially or in homes), especially fruit juice from concentrate, tea, and soft drinks. Although neither Urbansky (2002) nor Morris (2004) discusses such beverages, both indicate that at pH < 5, $SiF6^{2-}$ would be present, so it seems reasonable to expect that some $SiF6^{2-}$ would be present in acidic beverages but not in the tap water used to prepare the beverages. Consumption rates of these beverages are high for many people, and therefore the possibility of biological effects of $SiF6^{2-}$, as opposed to free fluoride ion, should be examined.

HHS and EPA avoided the silicofluoride and lead issue. They chose to do research only on caries, fluorosis, and brittle bones.

NRC suggested that further research be done on the silicofluoride-lead issue, however, neither HHS nor EPA did such further research. They only addressed caries, fluorosis, and bone fractures. Nevertheless, HHS and EPA had the

audacity to recommend that fluoridation be continued. HHS and EPA should immediately retract any recommendation that fluoridation be continued.

Why have HHS and EPA avoided doing broad research on all topics pertaining to fluoridation? I can only speculate. The best hypothesis I can come up with is that they do not want to find what they would find if they did broad research. Their primary commitment is not to our health or pure water but to please the chemical industry which buys seats on the boards of our regulatory agencies through political donations to our representatives and senators.

A FOCUS ON LEAD IN PAINT—LEAD IN WATER IGNORED

Federal law mandates that water districts give lead notices. A water district, as

> owner or operator of a public water system … shall identify and provide notice to persons that may be affected by lead contamination of their drinking water where such contamination results from … lead content in the construction materials of the public water distribution system [or] corrosivity of the water supply sufficient to cause leaching of lead. … Notice under this paragraph shall be provided notwithstanding the absence of a violation of any national drinking water standard.[1] [emphasis added]

State boards of health have the responsibility under federal law to make rules pertaining to protecting state citizens, particularly children, from lead.

When the Washington Board of Health, for example, works on the lead issue, it focuses on avoiding lead in old paint.[2] The Board of Health in its literature also mentions lead in brass plumbing fixtures, solder, and batteries, but goes nowhere with this aspect of lead avoidance. The "Lead Warning" card[3] distributed by the Washington Department of Health focuses almost entirely on lead in paint. The section of "A Healthy Home" brochure[4] published by the Department of Health and which deals with lead focuses entirely on lead paint. Washington is typical of other states when it comes to lead disclosure

[1] 42 USC 300g-1(b)(11)
[2] Washington Department of Ecology, September, 2009, "Reducing Toxic Threats," http://www.sboh.wa.gov/Meetings/2010/06-09/docs/Tab14d-Lead_Factsheet_StateChemicalActionPlan.pdf.
[3] Washington Department of Health, DOH Pub 334-141, December, 2007, "Lead Warning," http://www.sboh.wa.gov/Meetings/2010/06-09/docs/Tab14f-Lead_Card_Warning.pdf.
[4] Washington Department of Health, DOH Pub 300-010, September, 2009, "A Healthy Home," http://www.sboh.wa.gov/Meetings/2010/06-09/docs/Tab14g-Lead_Brochure_HealthyHomes.pdf.

requirements. Likewise, EPA efforts[5] to reduce exposure to lead focus on lead in paint. The EPA has failed to do its duty to see to it that states disclose the danger. I pointed out to the Washington Department of Health that it was failing to disclose lead problems related to water fluoridation.

On both the state and federal levels the lead that enters our bodies through drinking water is ignored. I learned this when I went to a Washington Department of Health meeting on lead. The focus was on lead in paint and not on lead in water.

SDWA § 300j–24, entitled Lead contamination in school drinking water requires as follows:

> Within 9 months after October 31, 1988, each State shall establish a program, consistent with this section, to assist local educational agencies in testing for, and remedying, lead contamination in drinking water from coolers and from other sources of lead contamination at schools under the jurisdiction of such agencies.

This is another law which the EPA enforces only half heartedly.

The health issue is this: There is sometimes a small amount of lead in raw fluoridated drinking water. Fluorosilicates are being added to drinking water which contain lead at up to .6 ppb.[6] Fluorosilicates added to drinking water break down into ions, one of which is HF, which dissolves lead in pipes. Lead goes directly into the blood stream and passes all the bodies barriers, brain barrier, placental barrier, and perhaps the mammary barrier.

Like other states, Washington is failing to notify citizens of these lead issues. It fails even to look at lead in drinking water. The Washington Department of Health – like EPA, like CDC, like FDA – ignores the issue of lead in water.

Why do they ignore the lead issue? Because to look honestly at the lead issue would mean looking at the fluoridation materials that contain lead and leaches lead from brass plumbing. Because fluoridation is a sacred cow.

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[5] Lead Lines: A Newsletter for Certified Lead Remediation Workers, Vol. 1, Issue, 1, April 2008, "Summary of EPA's Renovation, Repair and Painting Rule," http://www.sboh.wa.gov/Meetings/2010/06-09/docs/Tab14e-Lead_EPARenovationRuleSum.pdf.

[6] NSF Fact Sheet on Fluoridation Chemicals, 2008, http://fluoride-class-action.com/wp-content/uploads/NSF-fact-sheet-on-fluoride-2008.pdf.

LEAD IN PLUMBING

Lead has long been added to almost all brass water pipes and pipe fittings[7] and to the solder used to solder brass and copper pipe. Lead has long been added to brass to soften it and lower its melting point.

The Wikipedia article on Tap Water contains this discussion under Lead Leaching:

> Generally, copper tubes are soldered directly into copper or brass fittings, although compression, crimp, or flare fittings are also used. Formerly, concerns with copper supply tubes included the lead used in the solder at joints (50% tin and 50% lead). Some studies have shown significant "leaching" of the lead into the potable water stream, particularly after long periods of low usage, followed by peak demand periods. In hard water applications, shortly after installation, the interior of the pipes will be coated with the deposited minerals that had been dissolved in the water, and therefore the vast majority of exposed lead is prevented from entering the potable water. Building codes now require lead-free solder. Building Codes throughout the U.S. require the use of virtually "lead-free" (<.2% lead) solder or filler metals in plumbing fittings and appliances as well.[8]

In 1977 we made lead based paint illegal.[9] In 1986 we made lead based inks illegal.[10] Between 1976 and 1986 we phased out tetraethyl lead.[11] California has banned lead bullets[12] in areas where condors forage.

Newer water mains are lead free. However, many older water mains are cast iron[13] and are generally soldered together with lead solder poured molten into forms set up around the joins. Old cast iron water mains are common in many

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[7] Wikipedia, "Brass," http://en.wikipedia.org/wiki/Brass.
[8] Wikipedia, Tap Water, Lead Leaching, http://en.wikipedia.org/wiki/Tap_water#Lead_leaching
[9] Wikipedia, "Lead Paint," http://en.wikipedia.org/wiki/Lead_paint.
[10] Shopfloor, "Tag: Lead-Based Ink," http://www.shopfloor.org/tag/lead-based-ink/.
[11] Wikipedia, "Tetraethyllead," http://en.wikipedia.org/wiki/Tetraethyllead.
[12] California Bill Analysis, "California Condors: Non-lead Ammunition," April 10, 2007, http://info.sen.ca.gov/pub/07-08/bill/asm/ab_0801-0850/ab_821_cfa_20070409_160734_asm_comm.html.
[13] Plumbing-Basics, "Cast Iron Pipes for Plumbing," http://www.plumbing-basics.com/pipes/pipes-cast-iron.htm.

cities.[14] Concrete-asbestos water pipes[15] are used extensively, not only as sewer pipes but as drinking water mains[16]. NaF and SiF dissolve concrete[17].

Even if there is no lead in water mains, things change when water gets to homes and businesses, where water encounters brass plumbing and fittings which contain lead, and copper pipe which is soldered with lead solder. Until recently, it was standard procedure to solder copper pipes together with solder containing 50 percent lead.[18]

In 1986 as part of the Safe Drinking Water Act,[19] the EPA required that all pipes and fittings that carry water be "lead free". However, the term "lead free" allowed water pipes and fittings to contain up to 8.0% lead and allowed solder[20] for use in plumbing to contain up to 0.2% lead, a standard which Washington follows.[21] Before 1986 water pipes were sometimes up to 30% lead. This means that we should carefully check lead levels[22] in water in old buildings, including old schools.

In 2010 California limited lead content[23] in brass pipes and fittings to a maximum of 0.25%, and in solder to 0.2%.[24] It is unfortunate that the EPA did not do the same back on a nationwide basis in 1986. The 8.0% lead level provides insufficient protection; HF – released as SiFs ionize in acid conditions – leaches the lead from pipes into our drinking water.

Many thousands have been harmed by lead[25] since 1986. We would hope that the EPA would follow California's lead and reduce lead levels in water pipes.

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[14] ACIPCO International, "Cast Iron Pipe through the Ages," http://www.acipco.com/international/pipeandfittings/ductileiron/history.cfm.
[15] http://www.mesotheliomaweb.org/asbestos-news/water-pipe-risks
[16] http://www.fwr.org/pipeline/dwi0822.htm.
[17] http://www.youtube.com/watch?v=oQ7P1vkIpCk.
[18] Wikipedia, "Soldering," http://en.wikipedia.org/wiki/Soldering.
[19] 42 USC 300g-1(b)(11), http://www.law.cornell.edu/uscode/42/usc_sec_42_00000300---g006-.html.
[20] Wikipedia, "Soldering," http://en.wikipedia.org/wiki/Soldering.
[21] WAC 246-290-220, http://apps.leg.wa.gov/wac/default.aspx?cite=246-290-220.
[22] Seattle Public Utilities, "Lead," http://www.seattle.gov/util/Services/Water/Water_Quality/LEAD_200312011625223.asp.
[23] NSF, "Low Lead Plumbing Products Guide," http://www.nsf.org/business/mechanical_plumbing/annexg.asp?program=MechanicalPluSysCom.
[24] California Senate Bill AB1953, "Lead Plumbing," http://info.sen.ca.gov/pub/05-06/bill/asm/ab_1951-2000/ab_1953_cfa_20060818_134053_sen_floor.html.
[25] Roger Masters, "Silicofluorides and Higher Blood Lead: A National Problem that Particularly Harms Blacks," November 15, 2001, http://fluoride-class-action.com/wp-content/uploads/Masters-Coplan-Silicofluorides-and-higher-blood-lead-sif-PbinBlacks14-2001.doc.

Note, however, that limiting lead in new construction will not remove the already existing lead in plumbing in millions of homes, schools, apartment buildings, and businesses. Something should be done to reduce the amount of lead consumed by children through their drinking water. The way to do that is to halt fluoridation using silicofluorides.

In 2004 the Seattle Post-Intelligencer reported that lead was showing up in water fountains in old Seattle schools, at levels up to 1,600 ppb[26], far above EPA's legally enforceable maximum contaminant level[27] (MCL) in effect at that time, which was 20 ppb. The MCL was recently reduced to 15 ppb.[28]

Two studies were done that I know of which discuss this incident, both written by Karr, Sathyanarayana, and others. The authors concluded in both their 2004[29] and 2006[30] articles that the high lead levels were not a concern because children's blood lead levels were not higher than average, that the highest lead levels by far occurred in first draw water and dropped dramatically in running water, and the fact that the children only drank part of their water at school.

More important is the recommended maximum contaminant level goal[31] (MCLG) for lead, which is zero. Lead is a probable human carcinogen, so we should not do anything that adds lead to our water, causes lead to leach out of plumbing, or increases lead uptake or retention by the body.

Lead in pipes will often stay put relatively well and not dissolve into drinking water, particularly if the water is hard and contains a lot of calcium carbonate, which binds with lead and coats the inside of pipes and thus insulates the lead from the water. Ancient Rome declined in part because Romans were lead poisoned. Most presume that this was because their water pipes were lead. Yes, in areas outside of Rome where water came from melted snow and was soft. No, in Rome where water came from springs and was hard. It was not their pipes that poisoned the Romans; it was the lead acetate they used in copious amounts as a sweetener, which was produced by cooking grapes in lead pots to produce a must.

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[26] Seattle Post-Intelligencer, "Lead-tainted Water in Seattle Schools Stuns Parents," July 2, 2004, http://www.seattlepi.com/health/180495_leadwater02.html.
[27] Wikipedia, "Maximum Contaminant Level," http://en.wikipedia.org/wiki/Maximum_contaminant_level.
[28] EPA, "Drinking Water Contaminants," http://water.epa.gov/drink/contaminants/index.cfm.
[29] http://fluoride-class-action.com/wp-content/uploads/lead-in-seattle-school-drinking-water-2004.pdf.
[30] http://fluoride-class-action.com/wp-content/uploads/Sheela-Sathanarayana-predicting-childrens-blood-lead-levels-from-exposure-toschool-drinking-water-in-seattle-ambulatory-pediatrics-2006-6-288.pdf.
[31] Wikipedia, "Safe Drinking Water Act," http://en.wikipedia.org/wiki/Safe_Drinking_Water_Act.

A problem arises when silicofluorides (SiFs) are added to water. SiFs ionize in such a way that they dissolve lead[32], as I will discuss below. Blood lead levels are higher in cities which fluoridate using SiFs.

This problem is most serious in cities such as Seattle which have soft water, snow melt water that is low in dissolved calcium and other minerals. Even the CDC admits that soft water is more prone[33] to be acidic and leach more lead because there is so little dissolved minerals in soft water to bind with the fluoride and reduce acidity. Thus, fluoride is freer to bind with lead in soft water. Seattle's snow melt water is considered very soft.

Elemental fluorine is the most electronegative of all elements, although it does not exist naturally. Elemental fluorine does not exist in nature because it reacts immediately with other substances to become fluoride, a negatively charged elemental anion.

Fluoride aggressively seeks out other elements in the body and bonds with them strongly, especially with positive charged calcium and aluminum. It interacts with positively charged lead ions. At acidic pH, hydrogen fluoride – an ionization breakdown product of SiF – dissolves lead.

Fluorine is the most powerful oxidizer, a more powerful oxidizer even than oxygen. Oxygen does not oxidize fluorine; fluorine oxidizes oxygen and forms OF_2, oxygen difluoride.

Fluoride is the most hydrogen bond disrupting of all the charged elements. Even a small amount will do damage. Fluoride can denature protein, and the extent to which it denatures protein depends on the concentration of the fluoride and on the sensitivity of the particular protein.

In people who drink water fluoridated at 1.0 ppm, blood fluoride level is around .2 ppm. Even at this low level fluoride affects the activity of many sensitive enzymes.[34] All protein, DNA, and cells need to be turned over or repaired or in

[32] Dartmouth News, "Dartmouth researcher Warns of Chemicals Added to Drinking Water," March 15, 2001, http://www.dartmouth.edu/~news/releases/2001/mar01/flouride.html.
[33] CDC, "Fluoridation of Drinking Water and Corrosion of Pipes in Distribution Systems," August 24, 2009, http://www.cdc.gov/print.do?url=http%3A%2F%2Fwww.cdc.gov%2Ffluoridation%2Ffact_sheets%2Fengineering%2Fcorrosion.htm.
[34] Yiamouyiannis, "Fluoride the Aging Factor," Health Action Press, 1963.

some cases replicated, and they do this with the assistance of enzymes. Fluoride interferes with enzymatic activity in general and can disrupt protein, DNA, and cellular turnover, repair, and replication.

Proteins have H atoms sticking off their sides. Fluoride affects the hydrogen bonds of the protein H atoms with water, thus changing the shape of proteins or at high enough concentrations denaturing them.

It is not acceptable to say that .2 ppm fluoride is only a "small amount of fluoride" because that small amount will find hydrogen bonds in proteins to disrupt. F does not disappear when it is only present at .2 ppm. It is still there doing its mischief. It can alter the 3-dimensional shape of some proteins at even the smallest dose. Those who consume synthetic fluorides are taking a chance as to which proteins will be denatured and to what extent and how much abuse from fluoride the body can take.

Fluoride “loves” to bond with calcium. It is this bonding that prevents calcium fluoride from being labeled a poison – although it is definitely sickening and can cause serious health problems over time.

Fluoride builds up in bone, which is where most of the calcium is. A person who has been drinking fluoridated water for a year may have around 2,500 ppm fluoride in his bones. After 20 years he may have from 4,000 ppm to 6,000 ppm, which will cause bone weakness or pain, or up to 10,000 ppm, which can render one an invalid. The fluoride level in bone will not much exceed 12,000 to 14,000 ppm, because at that level of fluoride, the bones are no longer able to release the normal surges of calcium necessary to supply the heart with the blood calcium ion which must be available to rush into heart cells each time the heart beats. Death by heart failure is likely to occur.

In a person quits drinking fluoridated water, the fluoride in blood and in soft tissues can be eliminated, but fluoride in bone is essentially permanent (NRC, 2006).

When lead is available, such as when fluoridated water sits in brass pipe overnight or through the weekend, and especially when calcium is not available to bind with and seal in the lead, fluoride dissolves and joins with lead, especially when the water is soft and acidic, and especially when the form of the fluoride is HF, hydrogen fluoride, which is formed when SiFs dissolve in water and ionize, as I will discuss below.

Fluoride is the supreme flux. The word "flux" itself derives from an old version of the name for fluoride. Fluxes such as fluoride make metals in general melt at lower temperatures.[35] Lead like fluoride lowers the melting point of the metals it is mixed with. Fluxes are also used in solder on the surface of metals being worked or welded to prevent surface oxidation and remove impurities.

In the past water pipes were used for electrical grounding. This accelerates lead corrosion and increases lead in drinking water.[36]

Further, silicofluorides attack PVC pipe,[37] causing the release of ammonia, which combines with chlorine to form chloramine, which is more aggressive than chlorine in dissolving lead in brass pipes, fittings, and solder. Fortunately Seattle, for example uses chlorine instead of chloramine, and we hope it will not follow the current trend of switching from chlorine to chloramine as a disinfectant.

SILICOFLUORIDES AS ACETYLCHOLINESTERASE INHIBITORS

There are many theories about how silicofluorides do us harm, and all of them may be true. HHS and EPA should explore all these theories; currently they explore none of them. This is an act of bad faith.

There is substantial evidence to support the theory that silicofluorides are acetylcholinesterase inhibitors. I paraphrase from an email sent to me by Dr. Roger D. Masters, who has done much work on silicofluorides, working as part of a team with Myron Coplan and others:

> The fundamental problem with silicofluoride water treatment is that these compounds do NOT "dissociate" completely into component elements, as was assumed when the use of silicofluorides in place of sodium fluoride began around 1950. Hydrofluosilicic acid, H_2SiF_6, does not dissociate neatly into H+ Si + F. Westendorf (4th ed.) showed that a "residual species" of chemical remains which is biologically active. The residual is an acetylcholinesterase inhibitor, a fact which has mostly been ignored or unnoticed by mainstream fluoride scientists.

[35] http://www.dklmetals.co.uk/PDF%20Files/Factorfiction.pdf

[36] Wikipedia, "Brass," http://en.wikipedia.org/wiki/Brass.

[37] Santa Clara Valley Signal, "Pipes May Leak Lead," August 29, 2009, http://www.the-signal.com/archives/17365/.

> There are two effects of silicofluorides on brain chemistry. First, the action of acetylcholinesterase, the enzyme that breaks down acetylcholine, is blocked. Acetylcholine is a neurotransmitter which stimulates cellular activity. With acetylcholinesterase unable to do its work, activity once stimulated is hard deactivate, as in the case of ADHD. Second, silicofluoride residue has effects on the neurotransmitter dopamine (which is a central regulator of impulsiveness). Where silicofluorides are used, the combination of more activation and weaker inhibition results in statistically significant increases in behaviors where impulse control is essential: learning deficits, more substance abuse, and more violent crime.[38]
>
> We have solid findings, in peer reviewed journals, that show lower scores on nine standardized tests in Massachusetts towns where drinking water is fluoridated with silicofluorides. Findings show higher rates of violent crime. The latter has been assessed using multivariate statistical analyses of up to twelve risk factors to predict county level violent crime rates for all 3141 US counties and then replicated for violent crime. These effects are related to the neurotoxicity of silicofluoride residues as well as lead. That is, where silicofluorides are used, the neurotransmitter dopamine does not function normally. The resulting behavioral problems cost American taxpayers billions of dollars. The National Toxicology Program[39] nominated silicofluorides for testing in 2003 on the ground [that] their toxicology wasn't known, and a decade of published data on harmful effects has never been contradicted. The EPA should immediately ban use of silicofluorides until such time as their safety has been demonstrated convincingly and contrary data explained.

In 2000 Masters, Coplan, and others published an article in NeuroToxicology,[40] a peer reviewed journal.[41] This article was expanded on in a 2001 article[42] and

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[38] Roger D. Masters, personal email communication, April 17, 2011.
[39] http://ntp.niehs.nih.gov/
[40] Masters, Coplan, et al., NeuroToxicology, 2000 Dec;21(6):1091-100, "Association of silicofluoride treated water with elevated blood lead," http://www.ncbi.nlm.nih.gov/pubmed/11233755?dopt=Abstract.
[41] Elsevier, "NeuroToxicology," http://www.elsevier.com/wps/find/journaldescription.cws_home/621355/description#description.
[42] Dartmouth University, June 17, 2001, "Silicofluorides & Higher Blood Lead: Statement from Dr. Roger Masters," http://www.fluoridealert.org/sf-masters.htm.

summarized in Dartmouth News.[43] The authors of the Dartmouth News article conclude that there is

> evidence that public drinking water treated with sodium silicofluoride or fluosilicic acid, known as silicofluorides (SiFs), is linked to higher uptake of lead in children.
>
> Sodium fluoride, first added to public drinking water in 1945, is now used in less than 10% of fluoridation systems nationwide…. Instead, [silicofluorides] are now used to treat drinking water delivered to 140 million people [including Seattle, Everett, and most Washington water systems].
>
> Masters and … Coplan … studied the blood lead levels in over 400,000 children in three different samples. In each case, they found a significant link between [silicofluoride]-treated water and elevated blood lead levels. [Masters said:] 'We should stop using silicofluorides in our public water supply until we know what they do.' … The researchers found that the greatest likelihood of children having elevated blood lead levels occurs when they are exposed both to known risk factors, such as old house paint and lead in soil or water, and to [silicofluoride]-treated drinking water. [Masters said:] '[O]ur preliminary findings show correlations between SiF use and more behavior problems due to known effects of lead on brain chemistry.' Also requiring further examination is German research that shows [silicofluorides] inhibit cholinesterase, an enzyme that plays an important role in regulating neurotransmitters. [Masters said:] 'If [silicofluorides] are cholinesterase inhibitors, this means that [silicofluorides] have effects like the chemical agents linked to Gulf War Syndrome, chronic fatigue syndrome and other puzzling conditions that plague millions of Americans….' [Masters said:] '[T]his may well be the worst environmental poison since leaded gasoline.'

Masters added more detail in a letter he wrote June 17, 2001.[44]

In 2007 Masters, Coplan, and others published another article in NeuroToxicology,[45] in which they concluded:[46]

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[43] Dartmouth News, "Dartmouth researcher Warns of Chemicals Added to Drinking Water," March 15, 2001, http://www.dartmouth.edu/~news/releases/2001/mar01/flouride.html.
[44] Roger D. Masters, "Silicofluorides and Higher Blood Lead," June17, 2001, http://www.fluoridealert.org/sf-masters.htm.

> Silicofluorides … are used to fluoridate over 90% of US fluoridated municipal water supplies [including Seattle's]. Living in communities with silicofluoride treated water… is associated with two neurotoxic effects:
>
> (1) Prevalence of children with elevated blood lead … is about double that in non-fluoridated communities …. [silicofluoride treated water] is associated with serious corrosion of lead-bearing brass plumbing, producing elevated water lead … at the faucet. New data refute the long-prevailing belief that [lead in water] contributes little to children's blood lead…. [I]t it is likely to contribute 50% or more.
>
> (2) [Silicofluoride treated water] has been shown to interfere with cholinergic function. … [Silicofluoride treated water] is a more powerful inhibitor of acetylcholinesterase than [water fluoridated with sodium fluoride, which was used when fluoridation first began in the 1950s].

Authors of another study published in NeuroToxicology reported:

> This study concerns effects on water-borne lead from combinations of chlorine (CL) or chloramines (CA) with fluosilicic acid (FSA) or sodium fluoride (NaF). … Water samples were taken for lead analysis three times per week after a 16-h stagnation period. … [W]hen FSA was also included, lead concentrations spiked to over 900 ppb. Lead concentrations from the CL-based waters appeared to be decreasing over the study period, while for the CA+NH3+FSA combination, lead concentrations seemed to be increasing with time.[47]

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[45] Coplan, Masters, et al., "Confirmation of and explanations for elevated blood lead and other disorders in children exposed to water disinfection and fluoridation chemicals," NeuroToxicology, Volume 28, Issue 5, September 2007, Pages 1032-1042, http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6W81-4N5CX5D-1&_user=10&_coverDate=09%2F30%2F2007&_rdoc=1&_fmt=high&_orig=browse&_sort=d&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=30f0dafe13d27af44fac90b8a8d39b82.

[46] Ibid., complete article, http://fluoride-class-action.com/wp-content/uploads/coplan-masters-confirmation-of-and-explanations-for-elevated-blood-lead-and-other-disorders-in-children-exposed-to-water-disinfection-and-fluoride-chemicals-neurotoxicology-28-2007-1032.pdf.

[47] Maas RP, Patch SC, Christian AM, Coplan MJ. Effects of fluoridation and disinfection agent combinations on lead leaching from leaded-brass parts. Neurotoxicology. 2007 Sep;28(5):1023-31. Epub 2007 Jun 30. http://www.ncbi.nlm.nih.gov/pubmed/17697714.

THE SILICOFLUORIDE / HYDROGEN FLUORIDE LINK

Another convincing theory is that silicofluorides go through a chemical process that ends up increasing the amount of hydrogen fluoride, which in turn is especially good at dissolving lead in pipes.

Sodium fluoride, NaF, is a salt that forms alkaline or basic water. Silicofluorides such as H_2SiF_6, hexafluorosilicic acid, abbreviated here as SiF, are acids with low pH.

When SiF is used to fluoridate tap water, it breaks down into H^+, SiF_6^{2-} hexafluorosilicate anion, F-, and HF. The pH level is very low. To balance the acidity, the water company adds sodium hydroxide, NaOH, a strong base, aka Drano®. NaOH ionizes and forms Na+ and OH-. Na+ is a spectator ion and does not interact with other elements as long as it is in water. OH- combines with H+ to form water, thus reducing the H+ and neutralizing the pH. Without sodium hydroxide added, hydrogen fluoride HF will quickly dissolve water system equipment.

When a municipality fluoridates with tanker loads of silicofluorides, it must bring in tanker loads of NaOH to neutralize the low pH of the fluoride. More NaOH is needed in cities with soft, more acidic water – such as Seattle.

Workmen who handle these chemicals must wear hazardous materials suits for self-protection.

NaOH ionizes into Na+ and OH-, and the OH- can combine with metals in pipes such as iron and copper. It can also combine with aluminum, which the water district adds to precipitate dirt. As a result, there may not be sufficient OH- remaining to raise the pH of SiF fluoridated water at the time the water arrives at the point of use. Out in the street main pipe, the water pH may be neutral and low in HF. However, once the water is in the building plumbing, especially when the water sits in the pipes overnight or through the weekend, the water pH drops as OH- combines with iron, copper, and aluminum, and the HF dissolves lead and other metals. This negative pH plunge is more pronounced in soft, more acidic water because it has less calcium to bind with and

neutralize fluoride. This is how lead levels in water in old Seattle schools got up to 1,600 ppb[48].

If you remember anything from this chemistry lesson, remember that fluoride loves calcium. It will make a bee line for wherever calcium is found in the body and be locked there permanently, in teeth, bones, pineal, and other areas.

When NaF ionizes in water, little HF is produced. But when SiF ionizes, HF is produced along with H^+, F- and $(SiF_6)^{2-}$. The lower the pH, the more HF is produced, which is especially effective at dissolving the lead out of brass plumbing.

NaOH is the line of defense. It's job is to keep pH neutral. NaOH is an unreliable defender. NaOH levels can drop if there is an NaOH underfeed. If there is a SiF overfeed, SiF will overwhelm the NaOH. Or NaOH can be lost when water reaches pipes and the OH- combines with iron in pipes to produce Fe(OH)3. It can combine with aluminum to make Al(OH)3. Aluminum is often added to water to precipitate dirt so it can be filtered out. It can combine with copper to form $CuOH_2$. With less OH- ion available to combine with H+ and form water and thus raise pH, there is more H+ available to join with F- to make HF.

As stated above, it is the HF which does the mischief in the pipes, dissolving the lead. Likewise, when SiF fluoridated water or SiF fluoridated soda pop or orange juice reconstituted with SiF fluoridated water or bread made with SiF fluoridated water reaches the stomach where the pH is low, more H+ binds to F- to form more HF, which is hard on stomach lining, especially for a person with a thin stomach lining.

HF is a small molecule which will burrow into and easily dissolve lead and other metals in pipes and easily burrow into and attack stomach lining. Some theorize that through this mechanism SiF causes stomach ulcers and stomach cancer.

At one atmosphere pressure HF has a boiling point of 19.5ºC (67.1º F). As such, it is very tissue penetrating and causes severe, deep "burns" on contact

[48] Seattle Post-Intelligencer, "Lead-tainted Water in Seattle Schools Stuns Parents," July 2, 2004, http://www.seattlepi.com/health/180495_leadwater02.html.

with the skin or respiratory system. In water it is hydrofluoric acid, which is very corrosive and is able to etch glass.[49]

SiF dissociates almost completely in water at a pH of 7.4 or above. It forms silicic acid Si(OH)4 or its silicate anions after dissociation of H^+. The lower the pH, the less that SiF dissociates. While pH may be neutral out in the water main, in the old school or apartment building, with pipes that are 30% lead, the water may have a more acidic pH, depending on injected levels of NaOH with the SiF and depending on metals such iron, aluminum, and copper that can precipitate OH^- to varying degrees. In the stomach the pH is 3.0 to 5.0. In the small intestine the pH of stomach contents gradually increases along its initial length until it becomes basic as a result of the pancreatic release of bicarbonate. In the blood stream pH is 7.4, with the pH of arterial blood slightly lower than the pH of venous blood. In the gaps between synapses the pH is 7.4. Inside the cell the pH is 6.9. As the SiF travels about the body, pH changes and so SiF forms vary.

SiF scrubber liquor is composed of dozens of different constantly changing ions and compounds, depending on pH. Read what Wikipedia has to say about hexafluorosilicic acid:

> Like several related compounds, hexafluorosilicic acid does not exist as a discrete species; that is, a material with the formula H_2SiF_6 has not been isolated. Hexafluorosilicic acid refers to an equilibrium mixture with hexafluorosilicate anion (SiF_6^{2-}) in an aqueous solution or other solvents that contain strong proton donors at low pH (acids described similarly include chloroplatinic acid, fluoroboric acid, and hexafluorophosphoric acid, and, more commonly, carbonic acid). Distillation of hexafluorosilicic acid solutions produces no molecules of H_2SiF_6; instead the vapor consists of HF, SiF_4, and water. Aqueous solutions of H_2SiF_6 contain the hexafluorosilicate anion, SiF_6^{2-} and protonated water.[50]

Workmen who handle these chemicals must wear hazardous materials suits for self protection. Spills are inevitable.

Water fluoridation plants take up acres. They are surrounded by tall electrified fences with guards who watch your every move when you approach them. They are like armed outposts. Not even local policemen are allowed inside.

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[49] Email from Albert Burgstahler, co-editor of the journal Fluoride.
[50] Wikipedia, Hexafluorosilicic Acid. http://en.wikipedia.org/wiki/Hexafluorosilicic_acid

But the worst part of fluoridation is the steady trickle of toxic waste into pretty much every river in the Lower 48 States.

The slurry liquor is dilute but there is a lot of it and it contains the most toxic wastes imaginable, including lead, arsenic, uranium, radium, polonium 210, and other radionuclides.[51]

HYPERSENSITIVES, THE FLUORIDE ALLERGIC

Being an attorney, people confess all kinds of things to me. They know I cannot tell anyone what they confess. People call me who are fluoride hypersensitives. Many of the hypersensitives went through an episode in which they were hypersensitized to fluoride. They confess these episodes to me.

The most common story is about the hypersensitive adult who as a child discovered the wonderful taste of Ipana toothpaste and would sneak into the bathroom at night and eat toothpaste. They tell how they did it for months. Or my friend who was part of the first test of sodium fluoride in Grand Rapids Michigan in 1945 and was seriously overdosed and sickened as a child, and who now has reactions when she consumes even a small amount of fluoride.

Parents of mentally disabled children tell me how fluoridated water worsens their symptoms.

People tell me how they had to move away from their fluoridated town to one not yet fluoridated. They tell me how they get sick when they return and how they get better again when they leave. They tell of the rashes they develop when they shower in fluoridated water.

Many tell how they were sensitized as children and how they can react strongly to fluoride. Perhaps their body is panicking and trying to communicate to the conscious mind that the person must stop drinking the fluoridated water.

Could the effect be psychosomatic? Not according to Dr. Bruce Spittle, co-editor of the journal Fluoride. Dr. Bruce Spittle has written about the hypersensitives, and he reports objective, double blind tests which confirm the fact that around one percent of us are very sensitive to fluoride.

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[51] George C. Glasser, Fluoride and the Phosphate Connection. http://fluoride-class-action.com/wp-content/uploads/glasser-floride-and-the-phosphate-connection.htm

In his free eBook, Spittle discusses fluoride studies done on animals, starting on page 50. Fluoride affects different species in different ways. Some species are more sensitive to fluoride. For example, rats are less sensitive. It takes more fluoride to poison a rat than to poison a human. Perhaps this is the result of selective evolutionary pressures; they are descended from the few rats that survived the NaF rat and roach poison we formerly spread around. Some species are more sensitive to it. Horses are very sensitive to fluoride. Horses drink a lot of water. A horse that always drinks from his trough will start drinking from muddy ruts in the road and eating snow. Horses get sick from fluoride and die if they are not given fluoride free water. All species are sensitive to fluoride, and different amounts of fluoride will kill all of them.

The NRC asked the EPA to study: endocrine effects of fluoride, decreased thyroid function, increased calcitonin activity, increased parathyroid hormone activity, secondary hyperparathyroidism, impaired glucose tolerance – these being possible mechanisms through which the hypersensitives are made to react. However, HHS and EPA have not done any research into these important areas. They have only studied caries, fluorosis, and bone fractures.

My sharpest criticism of those who run HHS and the EPA, is for their insensitivity to those who are fluoride allergic.

SILICOFLUORIDES CONTAIN LEAD

Silicofluorides not only produce HF which dissolves lead. Silicofluorides contain lead. NSF, the National Sanitation Foundation, puts out its analysis of silicofluorides, and admits that the liquid flurosilicic acid scrubber liquor (26% SiF and other toxins) after being diluted down to the point where the SiF level is 1 ppm, contains sometimes as much as .6 ppb lead.[52]

Lead is so nasty that we should not knowingly be adding any amount of lead to drinking water. The MCLG, maximum contaminant level goal for lead is zero. Bear in mind that flurosilicic acid is a mixture of hundreds of elements and 1ead is just one of them.

Silicofluorides come from super-phosphate fertilizer plants in Florida, Louisiana, and increasingly from China. To make super-phosphate fertilizer,

[52] NSF Fact Sheet on Fluoridation Chemicals, 2008, http://fluoride-class-action.com/wp-content/uploads/NSF-fact-sheet-on-fluoride-2008.pdf

processors cook rock phosphate with sulfuric acid. Sulfuric acid contains lead because the sulfuric acid is produced in gigantic lead pots, and part of the lead remains in the sulfuric acid, as NSF International[53] admits.

Lead is a probable human carcinogen[54]. With both known and probable carcinogens the MCLG,[55] is always zero. That means none at all should be added to drinking water.

The fact that there is an MCL for lead of 15 ppb does not mean that a water district can therefore add any amount of lead it wants to add up to 15 ppb.

There is an MCL, maximum contaminant level, which is the level at which the federal or state governments will file suit. This 15 ppb limit is the legally enforceable limit. If the MCL for lead is exceeded, then the water district must pay the cost of filtering out the lead.

The 2006 NRC Report at page 13 says the following about fluoride, and the same would apply to lead:

> EPA's drinking-water guidelines are not recommendations about adding fluoride to drinking water to protect the public from dental caries. … Instead, EPA's guidelines are maximum allowable concentrations in drinking water intended to prevent toxic or other adverse effects that could result from exposure to fluoride.

Nevertheless, we are knowingly adding lead to our drinking water. This is one more example of laws which are being broken just so we can preserve the chemical, fertilizer, and fluoride business.

HHS & EPA POLICY: DILUTION IS THE SOLUTION

We quote[56] from Fluoride and Lead by Frances Frech:

> Let us tell you a tale of two cities--Tacoma, Washington, and Thurmont, Maryland. Both of them saw significant decline in [blood] lead levels only

[53] NSF Fact Sheet on Fluoridation Chemicals, 2008, http://www.nsf.org/business/water_distribution/pdf/NSF_Fact_Sheet.pdf.
[54] **National Toxicology Program,** http://www.cancer.org/cancer/cancercauses/othercarcinogens/athome/lead.
[55] EPA, "Drinking Water Contaminants," http://water.epa.gov/drink/contaminants/index.cfm#1.
[56] Frances Frech, "Fluoride and Lead," http://sonic.net/kryptox/environ/lead/lead.htm.

> six months after fluoridation was stopped. (In Tacoma, that was due to equipment problems, in Thurmont, it was a temporary ban by the city council.) Tacoma registered a drop of nearly 50% …; in Thurmont it was 78%. To the best of our knowledge, no other explanations were offered. In Thurmont the ban is now permanent."

Unfortunately, Tacoma returned to fluoridating its drinking water and a battle continues over whether to reverse this policy.

Super-phosphate fertilizer is used to grow corn, soybeans, wheat, and other industrial food crops as rapidly as possible. To make super-phosphate fertilizer sulfuric acid is mixed with rock phosphate. Clouds of fluoride-rich[57] vapor go up the stacks. Before EPA intervention in the 1970s, the toxic smoke poisoned plants, animals, and people for miles around.

The EPA required fertilizer plants to begin using wet scrubbers to filter out the fluoride along with the lead, arsenic, and many other contaminants from the smoke. The silicofluorides are the unfiltered and unprocessed scrubber liquor from the fertilizer production process. Silicofluoride scrubber liquor goes directly into tanker trucks and is delivered to the headwaters of the Tolt and Cedar Rivers, where it is poured into Seattle drinking water. The scrubber liquor is the most filthy substance imaginable. The idea that we dilute it and drink it is amazing.

The greatest irony of all this is that the toxic smoke that was illegal to go up the smoke stacks as air pollution and was illegal to dump as a liquid into rivers and oceans, was grandfathered in as a de facto legal medical additive to drinking water. It still gets dumped into rivers and oceans but only after passing through city water systems.

LEAD NOTICE

The EPA grants primacy on a state-by-state basis to each state which qualifies to carry out the role of implementing the SDWA, and Washington has been granted primacy. See 40 CFR 42.10. In each state there is a lead agency which is empowered to administer the SDWA, and in Washington that agency is the Department of Health. RCW 70.119A.080, RCW 43.21A.445. In RCW 43.21A.445 several Washington agencies led by the Department of Health are

[57] H.F.J. Denzinger, H.J. Konig and G.E.W. Kruger, "**Fluorine recovery in the fertilizer industry - a review,"** Phosphorous & Potassium, September/October 1979, No. 103, pp. 33-39, http://www.fluoridealert.org/phosphate/denzinger.htm.

"… authorized to participate fully in and are empowered to administer …" the SDWA.

Because the SDWA requires that state "… drinking water regulations" be "no less stringent than the national primary drinking water regulations,"[58] state regulations likewise must be so limited. Therefore, the Department of Health must see to it that water districts disseminate notice regarding lead which the Safe Drinking Water Act requires water districts to give.[59]

This is what the SDWA says regarding lead notice:

> Public notice requirements
> (A) In general
> Each owner or operator of a public water system shall identify and provide notice to persons that may be affected by lead contamination of their drinking water where such contamination results from either or both of the following:
> (i) The lead content in the construction materials of the public water distribution system.
> (ii) Corrosivity of the water supply sufficient to cause leaching of lead.
> The notice shall be provided in such manner and form as may be reasonably required by the Administrator. Notice under this paragraph shall be provided notwithstanding the absence of a violation of any national drinking water standard.
>
> (B) Contents of notice
>
> Notice under this paragraph shall provide a clear and readily understandable explanation of—
> (i) the potential sources of lead in the drinking water,
> (ii) potential adverse health effects,
> (iii) reasonably available methods of mitigating known or potential lead content in drinking water,
> (iv) any steps the system is taking to mitigate lead content in drinking water, and
> (v) the necessity for seeking alternative water supplies, if any.

[58] 40 C.F.R. § 142.10 Requirements for a determination of primary enforcement responsibility, http://law.justia.com/us/cfr/title40/40-22.0.1.1.4.2.31.1.html.
[59] 42 USC 300g-1(b)(11)

The law is very clear on this point: The SDWA requires the EPA to write lead disclosures and see to it that states disseminate them. Water systems must give an honest notice to water drinkers regarding lead, and the Department of Health as the lead agency in enforcement of the SDWA[60] as set forth in RCW 70.119A.080 must pass and enforce a regulation requiring that water districts give such notice.

EPA is failing to enforce this part of the SDWA and failing to insist that municipalities send out truthful lead notices.

Silicofluorides contain more lead than does sodium fluoride. Compared with NaF, SiFs cause more lead to be leached from brass pipe and fittings and from the lead solder used to solder copper pipe and cast iron water mains. For all these reasons SiFs should be disallowed as fluoridation materials.

The lead notice section of the SDWA requires every municipality to disclose in writing to water drinkers

> the lead content in the construction materials of the public water distribution system [and] the corrosivity of the water supply sufficient to cause leaching of lead.

The EPA has not required municipalities to issue such reports, nor has it properly informed them as to how to measure their waters' corrosivity.

The EPA is falling down on its job when it comes to honestly doing what needs to be done to get lead out of peoples' diets: Get all the fluorosilicates out of the drinking water, immediately and in all municipalities throughout the country. There is sufficient evidence for the EPA right now to issue an order to take effect immediately. Hearings would be held but they should be held after and not before the order goes into effect.

[60] RCW 70.119A.080, http://apps.leg.wa.gov/rcw/default.aspx?cite=70.119A.080

LEAD – PROBABLE HUMAN CARCINOGEN

The EPA classifies lead[61] as a "probable human carcinogen" and adds:

> Health effects associated with exposure to inorganic lead and compounds include, but are not limited to, neurotoxicity, developmental delays, hypertension, impaired hearing acuity, impaired hemoglobin synthesis, and male reproductive impairment. Importantly, many of lead's health effects may occur without overt signs of toxicity. Lead has particularly significant effects in children, well before the usual term of chronic exposure can take place. Children under 6 years old have a high risk of exposure because of their more frequent hand-to-mouth behavior.

Once lead is consumed it pervades the entire body, passing through brain, placental, and mammary barriers.

The need to add no lead to drinking water is especially true because there are other vectors of lead exposure which are hard to eliminate such as lead paint, batteries, bullets, and many industrial uses. However, the most serious source of lead is brass plumbing, as I discus above on page 8, at levels up to 1,600 ppb.

EPA defines MCLG[62] as "the level of a contaminant in drinking water below which there is no known or expected risk to health." The MCLG for lead is zero. This means that any level of lead added to water may cause or increase risk to health. Therefore, no lead may be added to water and therefore fluoridation, which adds lead to drinking water, must cease.

The authors of the 2006 NRC Report at page 285 say:

> The EPA Office of Drinking Water establishes MCLGs of zero for contaminants that are known or probable human carcinogens. Chemicals for which cancer hazard is judged to be absent are regulated via the reference dose (RfD) method (see Chapter 11).

[61] EPA, "Lead and compounds (inorganic) (CASRN 7439-92-1)"http://www.epa.gov/iris/subst/0277.htm.
[62] http://water.epa.gov/drink/contaminants/index.cfm

The Wikipedia article[63] on "lead poisoning" says:

> No safe threshold for lead exposure has been discovered—that is, there is no known amount of lead that is too small to cause the body harm. … The US Centers for Disease Control and Prevention and the World Health Organization state that a blood lead level of 10 µg/dL or above is a cause for concern; however, lead may impair development and have harmful health effects even at lower levels, and there is no known safe exposure level.

EPA and HHS have acted in bad faith by ignoring the fact that the fluoridation materials they endorse routinely contain lead and dissolve lead from plumbing. No amount of lead should routinely be added to water, and no amount of fluoride should be added to water of the type which contains lead or dissolves the lead out of plumbing. For this reason alone EPA and FDA have grounds to terminate fluoridation with silicofluorides immediately, and they should do so.

ARSENIC - CONFIRMED CLASS A HUMAN CARCINOGEN

NSF reports that 43 percent of tanker truck loads of silicofluoride contain arsenic, and that those loads can contain levels, which after the scrubber liquor is diluted to the point where fluoride concentration goes from 26.0% to 1.0 ppm, arsenic will be present at levels of up to .6 ppb.[64]

Arsenic is a poison and a known human carcinogen.[65] The smallest amount can kill in many ways. Regarding arsenic, CDC's ATSDR[66] has this to say:

> Prolonged arsenic exposure causes skin and lung cancer and may cause other internal cancers as well. (page 2)
>
> A small molecule [sic, actually arsenic is an atom] that can easily get into cells, arsenic can cause cell injury and death by multiple mechanisms. Interference with cellular respiration explains the potent toxicity of arsenic. In addition, arsine gas may interact directly with red cell membranes. Arsenic is a known human carcinogen, but the specific

[63] http://en.wikipedia.org/wiki/Lead_poisoning.
[64] NSF Fact Sheet on Fluoridation Chemicals, 2008, http://fluoride-class-action.com/wp-content/uploads/NSF-fact-sheet-on-fluoride-2008.pdf.
[65] ATSDR, http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=3.
[66] ATSDR. Case Studies in Environmental Medicine. http://www.atsdr.cdc.gov/csem/arsenic/docs/arsenic.pdf.

> mechanisms by which it causes cancer are less well understood. (page 46)
>
> A scientific consensus has not yet been reached on the many suggested modes of arsenic carcinogenesis that exist in the literature. These include modes that are predominately genotoxic (i.e., chromosomal abnormalities, oxidative stress, and gene amplification) vs. more nongenotoxic (i.e., altered growth factors, enhanced cell proliferation and promotion of carcinogenesis, and altered DNA repair). Likewise, the dose-response relationship at low arsenic concentrations for any of these suggested modes is not known [Kitchin 2001]. (page 48)
>
> Arsenic can cause serious effects of the neurologic, respiratory, hematologic, cardiovascular, gastrointestinal, and other systems. Arsenic is a carcinogen in multiple organ systems. Interindividual and population differences in arsenic methylation and nutritional status may be factors in susceptibility to arsenic toxicity. (page 68)

Arsenic can be excreted through hair, skin, feces, or urine, but primarily through kidneys. Kidneys do not excrete all arsenic consumed, especially for those who have weak kidneys. Arsenic, whether eaten, drunk, or inhaled may be deposited throughout the body. It may wind up in the lungs where it may cause lung cancer or in the skin where it may cause skin cancer.[67]

The MCL for arsenic in water is 10 ppb. This does not mean it is acceptable for water districts to add arsenic knowingly at any level up to 10 ppb. The MCLG for arsenic is zero,[68] as it is for lead.[69] When the MCLG for an element or compound is zero,[70] none should be added at all.

The need to add no arsenic to drinking water is especially true because there are other vectors of exposure which are hard to eliminate. Until recently arsenic was used as a wood preservative. Lead arsenate was used for example, in Wisconsin in agriculture until the 1950s.[71] Once there is arsenic in the soil it does not disappear. Homes and schools are built on old farmland, and it is

[67] ATSDR. Arsenic Toxicity: What are the Physiologic Effects of Arsenic Exposure? http://www.atsdr.cdc.gov/csem/arsenic/physiologic_effects.html
[68] http://water.epa.gov/drink/contaminants/basicinformation/arsenic.cfm
[69] http://water.epa.gov/drink/contaminants/index.cfm#7
[70] http://www.epa.gov/ogwdw000/arsenic/pdfs/fs_arsenic_justthefactsforconsumers.pdf
[71] Wisconsin Department of Health Services, Lead Arsenate Pesticides. http://www.dhs.wisconsin.gov/eh/hlthhaz/fs/LeadArPest.htm.

easy for children and gardeners to be exposed to arsenic. Arsenic occurs naturally in some water sources. It is used in making lead batteries and in various industrial applications. Amazingly, it is legal in the United States to feed arsenic to non-organic chickens.[72] The body is poor at excreting arsenic, as noted above.

EPA defines MCLG[73] as "the level of a contaminant in drinking water below which there is no known or expected risk to health." The MCLG for arsenic is zero (as it is for lead). This means that any level of arsenic added to water may cause or increase risk to health. Therefore, no arsenic should be added to water and therefore fluoridation, which adds arsenic to drinking water, must cease.

EPA and HHS have acted in bad faith by ignoring the fact that the fluoridation materials they endorse routinely contain arsenic (as well as lead). No amount of arsenic should routinely be added to water. For this reason alone EPA and FDA have grounds to terminate fluoridation with silicofluorides.

FLUORIDE, LEAD, ARSENIC, ALUMINUM TOGETHER – SYNERGISTIC EFFECT

It is entirely possible that fluoride, lead, arsenic, aluminum, and several other heavy metals and strange chemicals, all of them present together in SiF, act more powerfully together then they do individually. We know of one example of a synergy involving these elements: Fluoride interferes with the body's ability to process and eliminate arsenic. So arsenic and fluoride together are more toxic than either acting alone.

When you add up the MCLGs for F, Pb, As, Al, U, and other metals and compounds found in SiF, the sum of the MCLG equivalents becomes a large number.

A WAY OUT

Today there are more contaminants in the source waters used to make drinking water, so it is time for EPA to respond to this change in the environment by drawing the logical conclusion: With all the competing heavy

[72] http://www.whattoserveagoddess.com/arsenic-fed-to-chickens/
[73] http://water.epa.gov/drink/contaminants/index.cfm

metals joining the fluoride, water fluoridation is no longer the safe way to deliver fluoride. EPA could advise people that if they want fluoride they can get it easily by brushing their teeth more frequently with fluoridated toothpaste and even swallowing some of it.

Fluoridation is dying out – just like tetraethyl lead, asbestos, cigarettes, and mercury amalgam. In most cities and towns where the issue is voted on, a majority votes to end fluoridation. Former Georgia Governor Andrew Young is pressing for a Fluoride-Gate investigation. Minorities and those who eat a less nutritious diet are more subject to being harmed by fluoride, lead, and arsenic.

The possibility that people and corporations are going to be sued is becoming clearer. I discuss mass toxic tort actions with fellow attorneys. There are tens of thousands of people now dead who would still be alive if National Kidney Foundation, EPA, and state boards of health had disclosed what they knew, that those with weak kidneys especially should not drink fluoridated water. The suits will come, so those who are pushing fluoridation had better switch sides and try to mitigate the damages caused.

The administrators at HHS and EPA who support fluoridation – in conflict with the scientists who oppose it – should get off the sinking fluoride ship while the getting is good. If losing face is a concern, there is a way to change positions on fluoridation without losing face or admitting liability. That is to rely on a reason which has just become clear: the synergistic effects of many contaminants acting together.

There is not only more artificial fluoride in water, there is also more artificial fluoride in foods and beverages. There is also more lead and arsenic in the environment. Arsenic was spread in tens of thousands of agricultural sites around the country over the last century, and arsenic never goes away. F-Pb-Al-As – all work together synergistically and constitute a new group of troublesome chemicals. EPA should create an MCL and an MCLG for F-Pb-Al-As combined.

If HHS and EPA rely on the synergistic effect to change their position on fluoridation, they will be able to take credit for deciding that fluoridation has to stop without ever admitting they were wrong about fluoride in the first place.

HHS and EPA could declare that drinking water is no longer a safe vehicle for delivering fluoride. They can say that the chemical ecology of water has

changed and so HHS and EPA is having to change. People will not have to give up their fluoride: They can just brush more frequently and swallow a little toothpaste if they want to.

There's your open door. Go through it while you can.

NOTICES WHICH WATER DISTRICTS SHOULD GIVE

If the EPA were to allow the continued use of silicofluorides, it should require that municipalities give notices which include the following warnings:

> Those who drink tap water and eat food made with tap water should be aware of the following: Tap water in this water district is fluoridated with silicofluorides. Silicofluorides contain lead and arsenic. Silicofluorides leach lead from brass pipe, from brass fittings, and from the lead based solder used to solder together brass and copper pipe. Silicofluorides leach lead from the lead solder used to solder cast iron water main pipes. The lead content of your drinking water may vary from zero to .6 ppb from the silicofluoride added, and the level may be more as a result of lead leached from pipes as a result of silicofluorides added. The federal MCL, maximum contaminant level for lead, is 15 ppb. The federal MCLG, maximum contaminant level goal, is zero, meaning that any and all amounts of fluoride intake should be avoided where ever possible.
>
> Homes, apartments, schools, and other buildings built before 1986 generally utilize brass pipes containing up to 30.0% lead, and lead levels in such buildings, have been known to be as high as 1,600 ppb, especially when water sits in lines for long periods of time. Brass pipes in buildings built after 1986 generally use brass containing up to 8.0% lead [except in California where limits are lower].
>
> Those who wish to avoid consuming lead and who wish to avoid having their children consume lead should not drink tap water or use it to cook food and instead should use a source of water known not to contain lead such as spring water, distilled water, or water filtered with a reverse osmosis filter. Lead is known to cause brain damage.

A better solution than requiring disclosure would be for EPA to ban the use of silicofluorides as fluoridation materials, a power which the EPA has, given the

harm that silicofluorides are causing, particularly in connection with lead poisoning, under SDFA § 300 g-1 (b)(1)(d):

> Urgent threats to public health.— The Administrator may promulgate an interim national primary drinking water regulation for a contaminant without making a determination for the contaminant under paragraph (4)(C), or completing the analysis under paragraph (3)(C), to address an urgent threat to public health as determined by the Administrator after consultation with and written response to any comments provided by the Secretary of Health and Human Services, acting through the director of the Centers for Disease Control and Prevention or the director of the National Institutes of Health.

CONCLUSION: BAD FAITH

HHS and EPA are not monolithic entities. There are people of all different persuasions in those agencies. Some therein – such as the EPA union – even agree with me. So when I hurl accusations of bad faith against HHS and EPA, try not to take it personally because I am only addressing the stubborn defenders of fluoride among you.

HHS and EPA have acted in bad faith by failing to study all the research areas listed in the 1993 and 2006 NRC Reports, including the connection between silicofluorides, lead, and arsenic.

Given the fact that HHS and EPA have recommended continued fluoridation at .7 ppm and have done so without studying all the issues NRC identified, including issues pertaining to the connection between silicofluorides, lead, and arsenic, HHS and EPA have acted in bad faith

HHS and EPA have acted in bad faith by implying that they have done sufficient research to be confident that all may drink all the tap water they want at .7 ppm and not suffer any harm, particularly in light of the increase in lead uptake resulting from silicofluorides.

HHS and EPA have acted in bad faith by failing to give clear and correct notice to those who would have benefitted most from receiving it: infants and children, those with kidney disease (who drink large quantities of water), diabetics (who drink large quantities of water), to the effect that they should avoid drinking fluoridated water.

Fluoridation is a fraud. It should be stopped.

ACTION PROPOSED

HHS (including the CDC) and the EPA should retract their endorsement of water fluoridation.

The EPA should commission the NRC to write a report dealing with artificial water fluoridation of drinking water. The new report should ask whether it is safe to fluoridate and if so how water fluoridation should be conducted and at what level and with which type of fluoride. The report should be due in one year.

The EPA should exercise its authority under the Safe Drinking Water Act to order an immediate ban on artificial water fluoridation throughout the United States. This ban should remain in place until the new report has been received from the NRC.

HHS and EPA should commit themselves to airing all sides of the fluoridation debate, particularly as it applies to the link between SiFs and lead poisoning. They should post the debate on their web sites. They should correct all the many errors on their websites pertaining to fluoridation, including those relating to the link between SiFs and lead. This policy of openness should apply to all health and environmental issues.

CDC should deal forthrightly with the serious ethics charges laid against it.

The EPA should retract its support of the NSF, including its financial support and its "imprimatur" on NSF publications. The EPA should instruct the NSF to cease making any statements which would imply that the EPA agrees with NSF's certification of SiFs as acceptable fluoridation materials.

The EPA should obtain rights to the NSF 60 book, which says almost nothing and sells for only $325, and make it available on its website so that water districts and everyone else can see what a fraud the NSF 60 certification is.

The EPA should declare in plain and simple English that an MCL is not an authorization to add any level of a particular contaminant, including fluoride,

but is to the contrary a requirement to remove that contaminant if its level exceeds the MCL.

The EPA should declare in plain and simple English that an MCLG is a rule against adding any amount of a particular contaminant above the MCLG level. Thus, if the MCLG for lead and arsenic are zero, a water district may not add any lead or arsenic to drinking water whatsoever, including the tiny amount of mercury and lead found in SiF fluoridation materials.

The FDA should ban fluoridation if the EPA does not do it first.

The FDA should require that all bottled water containing fluoride be labeled to disclose the fluoride level and the type of fluoride in the water. It should be presumed that bottled water which says nothing on the label about fluoride contain no NaF or SiF or a minimal amount of CaF_2.

Likewise, all reconstituted juices, all beer, all bread, all foods made using fluoridated water should disclose the fluoride level of the water used to make the product. It shall be presumed that all reconstituted juices, all beer, all bread whose label says nothing about fluoride contains no fluoride.

The FDA should ban fluoridated toothpaste. The risk of children eating it is too great for such a product – one which does nothing to protect teeth against decay – to be found in millions of bathrooms in easy reach of children.

If the FDA should allow continued sale of fluoridated toothpaste, it should require big print warnings that fluoridated toothpaste be kept out of the hands of and not used by children under eight years of age.

If the FDA should allow continued sale of fluoridated toothpaste, the FDA should require that fluoridated toothpaste have a taste that children dislike in order to discourage children from eating it.

EPA, HHS, CDC, and FDA should recommend to the Attorney General of the United States that he appoint special counsel to investigate "Fluoride-Gate".

CLOSING

This letter is also intended to be read by all those who are forced to drink highly dilute toxic waste and want to see this crude practice ended. For that reason I have gone into detail explaining the relevant legal and scientific issues. Fluoridation should be a political issue in the 2012 campaign and if Andrew Young of Atlanta has his way, it will be.

I want to express appreciation to Dr. Richard Sauerheber for tutoring me in basic chemistry.

Sincerely,

James Robert Deal, Attorney
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