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Fluoride Action Network

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To:

Sandy City Mayor Kurt Bradburn
cc to others, see list at end

From:

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Dear Mayor Bradburn,

We are writing you concerning the recent fluoride overfeed accident in your city. At your public hearing of February 18 [<https://www.facebook.com/SandyCityUtah/videos/386395178811947>], you stated you wanted to obtain the best information available from all sources, and be transparent with the public consistent with your previously stated commitment to openness and public engagement:

[<https://sandynow.com/Home/Components/News/News/492/1302?backlist=%2fsandynow-home>]

We have seen incomplete and inaccurate information being provided by the poison control center, the county public health staff, and the public utilities director. Also, important information about the accident is not yet public.

We believe there are five key issues that are critical for you to address:

- 1. What levels of fluoride were people actually exposed to?**
- 2. In addition to the samples taken on February 7th (or 5th or 6th) before any flushing occurred, it is important to try to obtain samples of water, ice, beverages or any other samples from the time of the overfeed.**
- 3. A thorough health investigation should be initiated as soon as possible, just as with any public health disease outbreak.**
- 4. Inaccurate health information on fluoride toxicity has been given by government agencies and public officials.**
- 5. The County Public Health environmental health specialist gave inaccurate information about lead (Pb) toxicity.**

We discuss each of these in detail below:

1. What levels of fluoride were people actually exposed to? At the February 18th meeting at least three residents asked for the levels of fluoride, Pb, and copper (Cu) during the overfeed. Public Utilities Director Tom Ward only answered after the third request and said there were two samples with fluoride levels of 104 mg/L. He was not able to say what the lead (Pb) and copper (Cu) or other metal levels were for those two samples. Measurements of pH were also apparently made before flushing began, but these have also not been made public.

One news report quoted an affected resident as being told by a public works person that the level of fluoride was “150 times higher than it should be” [<https://www.ksl.com/article/46492528/sandy-city-delayed-notifying-state-public-of-contamination-water>]. The overfeed level can be calculated assuming the “should be” level is 0.7 mg/L, which is the level recommended by the CDC for community water fluoridation. Multiplying 0.7 mg/L by 150 gives 105 mg/L, consistent with what was stated at the Feb 18 public meeting. This is a very high level that would be of great concern as described in point 3 below.

We have found no official posting by government offices stating the concentration of fluoride measured in samples of water taken on February 5-7 during the fluoride overfeed event. This is in contrast to the voluminous posting of Pb and Cu results from samples taken *after* the fluoride overfeed event had been resolved.

The computer simulation of projected fluoride levels in the water system provides little useful information on the maximum or average values people may have been exposed to because in publicly available versions the simulation has an open-ended maximum category of 10 mg/L and above. It is crucial to find out how much above 10 mg/L the levels may have been. Also, computer models may not give reliable estimates so actual measured samples are important.

If the computer model was based on the two samples with 104 mg/L, then it presumably can show the levels at any other location at any other time. Some of those levels could be even higher than 104 mg/L since they may be closer to the well that was the source of the fluoride contamination. The computer model should be made public in a mode that shows maximum fluoride levels and average fluoride levels over various time periods.

2. In addition to the samples taken on February 7th (or 5th or 6th) before any flushing occurred, it is important to try to obtain samples of water, ice, beverages or any other samples from the time of the overfeed. In other fluoride overfeed accidents (which are more common than you may have been led to believe) investigations typically seek any samples of water in any form that would be from the time of the overfeed. The public must be alerted to retain such samples. If they throw them away, they discard valuable evidence.

The notice to residents on Feb 16th to discard all ice may have seriously hampered efforts to determine the levels of fluoride, Pb and other contaminants reached in homes of residents at the time of the overfeed.

3. A thorough health investigation should be initiated as soon as possible, just as with any public health disease outbreak. The longer the delay in gathering information, the harder it will be to obtain sufficient and accurate information. Affected residents deserve to know more about what actually happened to them than just reassurances that the excessive fluoride and heavy metal levels are no longer present. Amongst the dozens of fluoride overfeed accidents reported from across the USA and other countries with artificial fluoridation, a good example of the type of health investigation is the one following a 1992 overfeed accident in Hooper Bay, Alaska. One man died from fluoride poisoning in that accident, several people had severe health effects and 91% of the people who drank the high fluoride water had acute health effects, such as vomiting [Gessner et al. 1992]. The fact that vomiting was reported as a symptom in Sandy City is strong evidence that the fluoride concentrations were very high. In other overfeed accidents where the fluoride concentration was below about 30 mg/L no cases of acute illness were reported. In contrast, in several overfeed accidents where illnesses like vomiting occurred, fluoride levels of 100 mg/L or more were reported. In Hooper Bay, it was estimated the fluoride level was no more than 150 mg/L.

We have attached the report from the Hooper Bay health investigation, published in the *New England Journal of Medicine*. The study interviewed several hundred people who were exposed and measured urine and blood fluoride levels. They did the same for several hundred other residents in the village who were not exposed, for use as a control comparison. The investigation also measured other clinical blood measures. They found abnormal levels in several of the clinical blood measures. Repeat measurements were made of urine and serum fluoride and of clinical blood measures about 3 weeks following the overfeed and elevated fluoride and abnormal blood measures persisted:

“Disordered mineral homeostasis and cellular damage, including abnormalities in serum magnesium, phosphorus, and lactate dehydrogenase concentrations, persisted for at least 19 days. These effects suggest that both follow-up of individual patients and studies of the long-term effects of acute fluoride poisoning may be indicated.”

The urine and blood fluoride levels decreased over the 3 weeks but stayed elevated compared to the people who had not been exposed to the overfeed water. Thus, the claims by the Utah

poison control director and your other health advisors that there are no long-term health implications from the fluoride overfeed may be incorrect.

Additional information on the Hooper Bay overfeed accident, as well as others, is available at these webpages:

<https://fluoridealert.org/content/leaks-spills>

<http://fluoridealert.org/articles/fluoridation-accidents>

<https://web.archive.org/web/20161014012543/http://fluoridefreefairbanks.org/Alaska%20Fluoridation%20Accidents%20Local%20Coverage.html>

<https://web.archive.org/web/20161014064409/http://fluoridefreefairbanks.org/Fluoridation%20Accidents%20Local%20Coverage.html>

Although nobody died in Sandy because of the fluoride overfeed, the accident appears to have had the potential to have seriously sickened or even killed people.

Recent scientific evidence suggests that fluoride even at the recommended level for water fluoridation (0.7 mg/L) may be neurotoxic to infants or to the fetus [Bashash et al 2017, Thomas et al. 2018, Bashash et al 2018, Till et al. 2018, Green et al. 2018, Valdez Jimenez et al 2017]. It is not known whether a one or two day exposure to levels 100 or more times higher, as might have occurred in Sandy, would cause additional neurotoxic harm but this possibility cannot be ruled out. Neurotoxic harm has been identified in children who have just a few hours exposure to fluorinated general anesthetics that release high levels of fluoride ion into the blood at similar levels as might be reached from drinking water with very high fluoride levels [NRC 2006].

At the February 15 news conference, Public Utilities Commissioner Tom Ward said that on Wednesday February 13 they had done a door-to-door survey of 480 homes in the affected area and that several residents reported they had been ill

[<https://www.facebook.com/KUTV2News/videos/603392876741398> at time code 11:50]. This survey of residents does not appear to have been part of a coordinated health survey.

Nevertheless, details of the results of that survey should be made public. How many people responded in that survey? How many of them reported illness at the time of the overfeed? What zones did they live in? What information on links between the illness and drinking water were determined? How much water did the ill people drink and what was the timing between water consumption and onset of illness? These are the types of information a health survey would gather, and should be made public if available.

4. Inaccurate health information on fluoride toxicity has been given by government agencies and public officials.

Public Utilities Director Ward gave inaccurate information about health effects of fluoride ingestion. At minute 13 of the February 15 press conference [<https://www.facebook.com/KUTV2News/videos/603392876741398>] he says someone would “have to drink ... like 40 gallons for it [the water] to give ... very critical illness”. This is false as shown by the man who died in Hooper Bay who drank just 10 liters (about 3 gallons) over 24 hours, in an attempt to prevent dehydration. Another critically ill resident required air evacuation and hospitalization. It is also little reassurance to residents to focus solely on the levels that might cause death, when a number of residents apparently experienced vomiting and other illnesses from drinking the water they expect to be safe.

Inaccurate information on fluoride toxicity is also contained in the official health notice from the Salt Lake County health department [<https://sandy.utah.gov/home/showdocument?id=8395>]

It states:

“A brief exposure to high levels of fluoride should not cause long-term adverse health effects as fluoride does not accumulate or remain in the system.”

This is incorrect. In adults about 50% of ingested fluoride is retained in the body and accumulates. In children 70% or more of ingested fluoride is retained. Fluoride retained in the body has a very long half-life, estimated at 20 years [WHO 2002, NRC 2006]. This is a much longer retention time than most other toxins. See point 3 above for more discussion of possible long-term adverse effects of short-term fluoride poisoning.

5. The County Public Health environmental health specialist gave inaccurate information about lead (Pb) toxicity. Sam Lefevre, Program Manager of the Environmental Epidemiology Program in the Salt Lake County Health Department said only at very high levels was Pb neurotoxic [<https://fox13now.com/2019/02/19/experts-weigh-in-on-health-effects-of-tainted-water-following-sandy-contamination-incident>]. He also said the first symptoms at the lowest levels were gastrointestinal and only at extremely high levels could there be neurotoxic harm. Pb has been found to be neurotoxic down to the lowest levels investigated. The EPA has concluded there is no known lower threshold for Pb neurotoxicity [EPA 2019]. The EPA guidance level of 15 ppb for Pb in drinking water is not a maximum safe level but a practical regulatory level that supposedly balances cost and safety. It is not intended to indicate levels below 15 ppb will cause no harm. Since the Sandy City levels of Pb were many times higher than 15 ppb they would be considered unsafe and have the potential to cause reduced IQ and neurobehavioral problems when young children or pregnant mothers are exposed. It is conceivable that Pb levels were high enough that just one day of exposure might be enough to cause neurotoxicity. With Pb from peeling paint, a single ingested paint chip is considered to have the potential to cause neurotoxic Pb poisoning in children [Michigan Regional Poison Control Center 2016].

Pb neurotoxicity is considered a permanent health effect [Bellinger et al. 1992, Grandjean 2015]. The best way for Sandy City to determine whether exposures to Pb were high enough to cause permanent harm to children is to screen all potentially affected infants and children for blood Pb level as part of a thorough health investigation. Just as with the fluoride component of an investigation, children from unaffected “control” areas of Sandy City should also be tested for blood Pb to see whether there is any difference between them and those that may have been exposed to the elevated Pb caused by the fluoride overfeed.

In Flint MI, it was only when a local pediatrician took it upon herself to compare the blood Pb levels in children from contaminated areas to those from uncontaminated areas that the problem was acknowledged by government officials [Hanna-Attisha 2015, 2016]. Public officials tried to cover up the problem and failed to conduct such a health investigation, for which some were charged criminally [AP News 2019].

In the spirit of transparency and full accountability, we hope you will be able to provide a timely response to the issues raised in this letter. In particular:

- **We request that you order the immediate public release of the levels of fluoride, pH, Pb, Cu, and any other contaminants measured in all samples of water taken on February 7th or earlier. In particular, samples taken before flushing was begun.**
- **Second, we request you arrange for a health study to be initiated as soon as possible, similar to the investigation conducted in Hooper Bay, Alaska by public health agencies immediately after a similar fluoride overfeed accident. The health study for Sandy should additionally gather information on blood Pb levels of children, pregnant women, and other adults.**
- **Third, we request that you make publicly available information on illnesses reported by residents, either during the informal survey, resident initiated contact, or otherwise.**

If you are unable to meet any of these requests, we ask that you inform us and the public promptly of this inability and state the reasons.

We would be happy to discuss this issue further or provide additional details, with you or anyone else involved in this matter.

Sincerely,

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Bill Osmunson, DMD, MPH
J. William Hirzy, PhD

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News media

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