

Fluoride in the Water – Jay Sellers, BGJWSC 1/5/17

Did you know that the Brunswick-Glynn County Joint Water & Sewer Commission stopped adding fluoride to the drinking water system in 2013? Why was fluoride added to the drinking water in the first place? What was the cause of the policy change and what does this change to our drinking water production mean to our health as consumers of this precious resource?

Consumers of the water produced by the JWSC may be surprised to discover that very little is done to change the water from the point where it is drawn from the deep wells served by the Upper Floridan aquifer to their point of use at home. The pure water that we drink is tens of thousands of years old. Chlorine has to be added to minimize bacterial growth when the water sits stagnant in the distribution system, but very little processing or filtering is done, otherwise. Going to the source of this process, W.O. (Billy) Simmons, Jr., the Superintendent of the Water Production Division of the JWSC, offered his perspective of an experience that he has been involved in for most of his adult life, having started at the City of Brunswick Water Department in 1983. “Over thirty years ago, the City of Brunswick was adding fluoride. The GA EPD provided grants for the purchase of equipment to start injecting fluoride. We had five stations at the time and the equipment was added at once in the early 1980s,” Simmons said (2016). The Glynn County water system had gone through a similar process and had already discontinued injection at their seven stations before the merger of the two respective systems in 2008. We’ll soon look at why the Georgia Environmental Protective Division of the Department of Natural Resources would be taking such an active role in the fluoridation process, but it may first be helpful to understand what fluoridation is, exactly, and what benefits it provides.

As is often the case with advances in science and medicine, the promotion of adding fluoride to the water was initially the result of observations by practitioners in the real world, not within a private for-profit research institution or government study. Two independent dentists working in private practice in the early 1900s, Dr. Frederick S. McKay of Colorado Springs, Colorado and Dr. F. L. Robinson of Bauxite, Arkansas, both concluded through field investigation that an agent in the municipal water system not only caused mottled teeth, in which the enamel becomes excessively stained, but, at the same time, those with mottled teeth were considerably less likely to be susceptible to dental caries (tooth decay) (Achievements in Public Health, 1999). As the CDC notes, the formal government research towards the benefits of fluoridation did not begin until 1931 with the establishment of the Dental Hygiene Unit at the National Institute of Health. By 1942, the results of that study including a scale of classification between levels of naturally occurring fluoride in drinking water and occurrence of tooth decay. The CDC reports, “The effectiveness of community water fluoridation in preventing dental caries prompted rapid adoption of this public health measure in cities throughout the United States. As a result, dental caries declined precipitously during the second half of the 20th century.” In fact, the CDC considers fluoridation one of their Ten Great Public Health Achievements (1999) of the 20th century, along with vaccination, motor-vehicle safety, control of infectious disease and recognition of tobacco use as a health hazard. Clearly, fluoride was of benefit to us all, but how widespread was the news to the rest of the world?

The World Health Organization recognized the fluoride mineral as naturally occurring in deposits within the earth’s crust all over the world (WHO, 2011, p. 370.) The WHO recommends fluoride be measured at a peak guideline of 1.5 mg/L of water but that “there is suggestive evidence of an increased risk of effects on the skeleton at total fluoride intakes above about 6 mg/day (p. 372).” At the recommended peak concentration of 1.5 mg/L, that would require personal consumption on average of 4 liters per day, over a gallon, before any adverse effects would be noticeable over time. Our public municipal water utilities measure this level in parts per million gallons of water (ppm), but the numbers

are equal in mathematical relationship. As Billy Simmons stated, “Our permits to operate a public utility and accept some of the grant funding required us to meet a particular level, which changed over time. For instance, in the early 1980s, it was 1.0 to 1.5 ppm, went down to .9 to 1.0 in the 1990s until the late 1990s when it was changed to 0.8. At that point, the requirement dropped to the point where we are today, where the naturally occurring fluoride is within the range of the standard.” Therefore, the Water Quality Report issued annually by the JWSC reflects a naturally occurring amount of fluoride that falls in line as being safe to drink by the World Health Organization, a group formed as an international delegate of health professionals by the diplomats of the United Nations in April, 1948.

Aside from the benefit touted by the standards created by the international community of health professionals that make up the WHO, the fluoridation standard is also one reinforced by both the Clean Water Act and Safe Drinking Water Act of the United States Environmental Protection Agency (Drinking Water Contaminants – Standards and Regulations). The US EPA delegates the responsibility to enforce these standards to each respective state health or environmental protection agency, the GA EPD in our case (GA EPD regulations on fluoride levels. Rule 391-3-5-.18.). Further bolstering the policy, the US Department of Health & Human Services independently supported the 0.7 ppm guideline in their public statement from April 27, 2015. There is clear policy support in the United States to keep fluoride on the list of minerals monitored and added, where necessary.

But what about accusations that governments requiring fluoride are operating under misguided science or aiming to harm the public for some unknown nefarious purpose? “During a particularly busy time within the last ten years, potentially caused by misinformation being spread on the internet, it was common to get complaints from citizens requesting that we stop adding fluoride,” Billy stated. “Also, the hydrofluorosilicic acid (the JWSC source-form for the mineral) became harder to purchase, making it a convenient time for us to phase it out.” Research performed by McLaren and Singhal concluded that communities that ceased fluoridation for fear of the unknown risks found a much known conclusion: reversing fluoridation policy to eliminate it or drop it below the recommended minimum resulted in an increase in tooth decay in most cases (McLaren, 2016). “In the US, those opposed to water fluoridation have been described as a heterogeneous group and range from well-intentioned and concerned citizens to professional activists to extremists,” stated Jason Armfield in identifying trends among those critical of fluoridation (2007). The foundations for the scientific controversy had been resolved in decades past, Armfield details, yet some still pursued the argument with very little evidence to find fault in the process.

So, why did the JWSC stop adding fluoride? As mentioned above, Billy and his staff were able to determine that the naturally occurring fluoride levels were adequate to maintain prevention of dental caries. Discontinuance of fluoridation was not a decision that was taken lightly. “When it was being phased out, we had to submit a request to the EPD office in Atlanta to discontinue use, a process that started in early 2012, was approved in late 2012, and our supply was all used up in the first quarter of 2013,” Billy stated. “We tend to drink more water in warmer climates, so the optimum level would have been less in our water than in colder climates. Some utilities in areas up north have to reduce naturally occurring fluoride. Therefore, we had to defend our decision with the EPD as to what would make the most sense here in the Golden Isles.” Asked if it were possible that the JWSC would resume the practice, Billy added “It’s unlikely that we would add it again because the naturally occurring level is adequate. We’d then have to modify the permit with EPD, if we did. As long as the permit modification process takes, it wouldn’t be something that would be done in a hurry, anyway. We still regularly get calls from people, especially those that move in from other locations, that are curious about our fluoridation policy and are happy to hear to that we don’t add any.”

Consumers of the water produced by the Brunswick-Glynn County Joint Water & Sewer Commission can rest assured that the quality of their drinking water “meets or exceeds” government standards and is safe to drink (Simmons, Water Quality Report). With well-established standards recognized world-wide and with tangible benefits related to a reduction in tooth decay, we can remain confident that scientific and medical community have found fluoride to be of benefit when its level is monitored appropriately. For that monitoring, we have Billy Simmons and his staff in the Water Production Division of the JWSC to thank.

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