

Public Hearing for the Sawmill Creek P.O.T.W. Mercury Variance

December 9, 2009

Erie County is aware of the human health and environmental affects of mercury and is sympathetic to them, and is working to decrease the amount of mercury discharged in the Sawmill Creek WWTP effluent. Portions of the mercury loading to the POTW are controllable and other portions are beyond the control of the POTW. Before we cover this issue, I would first like to present some quick equivalent comparisons of one-in-one trillion, which is a part per trillion or in metric units a ng/L. They will illustrate how small a ppt is and how impressive it is that laboratory instrumentation can accurately quantify such a small concentration of a contaminant. The following are equivalent to a part-per-trillion:

- 1 drop of water in a swimming pool the size of a football field 43 feet deep
- 1 cubic foot in 6.8 cubic miles
- 1 second in 320 centuries, and finally
- if you had one trillion dollars and spent 1 million dollars a day it would take 27.4 centuries to spend it all.

Mercury is ubiquitous throughout the environment from natural sources and anthropogenic sources. Ice cores indicate that during the past 270 years volcanic events contributed 6% of total atmospheric mercury input and other natural background sources contributed 42%. The percent of total mercury inputs attributed to anthropogenic sources has increased from about 41% in the first 170 years (the majority of which was from the 19th century gold rush as mercury was used in large quantities to recover gold from mining operations throughout the western US peaking around 1860 and again in 1877) to 70 % during the last 100 years. Everyone may be saying but look at all the mercury emissions from the last 100 years, but significant decreases in total mercury observed in the last 15 to 20 years of the ice-core record indicate reduction in emissions that correspond to the time period when the Clean Air Act and other emission reduction strategies became prominent according to the USGS in 2002. The USGS documented that peaks in atmospheric deposition of mercury corresponds with significant natural and anthropogenic events in the last 270 years.

In 2006 the average concentration of total mercury in precipitation over northern Ohio was 8 to 10 ppt according to the 2006 National Atmospheric Deposition Program Network. That means that rain water has almost ten times more mercury in it than our treated wastewater effluent. Even common household cleaners contain measurable amounts of mercury.

As recently as early 2007 the State of Ohio passed into law a mercury product regulation initially from HB 583 and SB 323, establishing sales bans for certain mercury products:

- As of April 6, 2007 public and private schools through high school shall not purchase mercury, mercury compounds, or mercury-containing devices for classroom use
- Mercury thermometers and mercury-containing novelty items will not be sold in Ohio as of October 6, 2007.
- The sale of novelty items that have mercury cell button batteries are banned in 2011.
- And, mercury thermostats will not be sold or installed as of April 6, 2008.

On the local level, the Sawmill Creek P.O.T.W. is permitted to meet or be less than 1.3 ppt Hg by November of 2010 on a consistent basis in our treated wastewater, or apply for a Hg variance if that is not possible, to receive relief while pollution prevention methods and BMP's are implemented to move toward the limit and meet it on a consistent basis.

The Sawmill Creek final effluent mercury concentrations have historically been just above or below the limit of 1.3 ppt. The last 3 average quarterly results were 1.11 ppt, and our data trend analysis indicates the concentration of mercury in our final effluent is decreasing over time. Decreasing trends do not always occur with Hg controls implemented. The City of Milwaukee, even with Hg reduction efforts, the Hg level in its sludge and effluent is still trending upwards. The water pollution control officials have found the variable data and the absence of a downward trend "confounding."

The State of Washington estimates the Hg contributed to the environment each year from broken fluorescent bulbs, dental amalgam, and broken thermometers in the US is 2,500 lbs/yr or 6.84 lbs/day. By great contrast, if the Sawmill Creek P.O.T.W. discharged a constant concentration of 3 ppt Hg at present flow rates the mercury loading to the receiving stream is equivalent to 2.5 hundred-thousandths (0.000025) of a lb-Hg/day or 9.1 thousandths (0.0091) of a lb-Hg/yr.

In 2008 and 2009 ECDOES completed collection system sampling for mercury, and have identified potential discharge sources of elevated levels of mercury. In 2010 ECDOES is scheduled to meet with facilities that have elevated mercury levels and determine a plan to reduce or eliminate excessive mercury in their wastewater by implementing pollution prevention strategies and BMP's.

ECDOES has also investigated in 2008 and 2009 wastewater treatment chemicals for elevated levels of mercury. We discovered a couple of treatment chemicals with excessive amounts of Hg, and in response, located low-level Hg alternatives from other suppliers. ECDOES continues to monitor treatment chemicals and all chemicals for elevated Hg levels. Additionally, the ECDOES laboratory has eliminated the use of mercury thermometers, and chemical analyses that require mercury-containing reagents.

ECDOES is doing its part to reduce an element that is ubiquitous throughout the environment, and short of having a more environmentally sound and technically achievable permit limit; Erie County is seeking support for the Mercury Variance Request for the Sawmill Creek POTW.

Thank you.

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