CONNEAUT WWTP MERCURY REDUCTION PROJECT

Council Meeting – April 12, 2021

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Why do we need a Mercury Reduction Program?

1. The WWTP is having trouble meeting their effluent limit for mercury.

2. Pollution prevention is less expensive than end-of-pipe treatment for mercury. EPA estimates an excess $10,000,000 per pound of mercury removed.

3. Mercury does not break down. Once it enters the environment, it stays there.
Mercury in the Environment

- Mercury reaches a WWTP from many sources.
  - Industries
  - Hospitals
  - Dental Practices
  - Schools
  - Homes
  - Automotive Body Shops

- As mercury persists in the environment, it converts to methylmercury, a toxic compound that builds up in the tissues of animals and humans.

- Exposure to methylmercury can have long-lasting health effects, especially on fetal development during pregnancy.
Mercury-Containing Products

- Batteries
- Fluorescent Light Bulbs
- Thermostats
- Thermometers
- Tilt Switches
- Relay Switches
- Preservatives
- Dental Amalgam
- Pigments
- Fungicides/Pesticides
- Pharmaceuticals
- Fireworks
What are our goals?

1. Identify all sources of mercury within the collection system.
2. Reduce mercury within the community through partnerships and public education.
3. Consistently meet NPDES 3PD0002*OD mercury discharge limitation.
EPA Method 1631

- On June 22, 1999 USEPA approved new method for measuring low level concentrations on mercury.

EPA Method 245.1/245.2
0.2 ug/L (200 ng/L)

EPA Method 1631
0.2 ng/L
How much is 1 ng/L?
City of Conneaut WWTP Mercury Variance

- The WWTP **is not able** comply with the monthly average water quality based effluent limit of 1.3 ng/L.

- The WWTP **is able** to achieve an annual average mercury effluent concentration of 12 ng/L.

- WWTP NPDES discharge limitation for mercury is 3.6 ng/L.

- WWTP is required to make reasonable progress towards attaining a mercury effluent of 1.3 ng/L and is required to implement a pollutant minimization program (PMP) for mercury.
WWTP Current PMP Efforts

- Continuous collection system sampling.
- Identify and regulate sources of mercury from significant industrial users (SIUs).
- Keep and annually update an inventory of potential sources of mercury.
- Collect mercury waste at the plant for proper disposal.
- Confirmed dental offices have installed amalgam separators.
Sampling Equipment
2016-20 Conneaut WWTP Mercury Effluent Data

Mercury Concentration (ng/L)

Permit Limit = 3.6 ng/L
Current Efforts

1. Identify all sources of mercury within the collection system.

2. Reduce mercury within the community through partnerships and public education.

3. Consistently meet NPDES 3PD0002*OD mercury discharge limitation.
Identify sources of mercury within the collection system:

• Send out a mercury inventory and survey to commercial and industrial sewer users.

• Mercury Inventory:
  • List all sources and potential sources of mercury. A list of known sources of mercury will be included with the letters.

• Mercury Survey Example Questions:
  • Has your facility established a mercury policy statement that includes the reduction or virtual elimination of mercury?
  • Has your facility developed a plan to phase-out mercury containing devices?
  • Has your facility implemented a program to recycle fluorescent lamps?
What's Next?

1. Identify all sources of mercury within the collection system.

2. Reduce mercury within the community through partnerships and public education.

3. Consistently meet NPDES 3PD0002*OD mercury discharge limitation.
Q & A

WASTEWATER TREATMENT PLANT
MERCURY REDUCTION PROJECT

April 12, 2021