



CITY OF MARION MERCURY MINIMIZATION PROGRAM

Introduction

Mercury is a naturally occurring element that is found in air, water, and soil. Mercury is an element in the earth's crust and exists in several forms: elemental or metallic mercury, inorganic mercury compounds, and organic mercury compounds. Humans cannot create or destroy mercury. Pure mercury is a liquid metal, sometimes referred to as quicksilver, that volatilizes readily. Traditionally, it was used to make products like thermometers, switches, and some light bulbs.



The North Carolina Department of Environmental Quality (DEQ) issued a statewide total maximum daily load (TMDL) for mercury. The ultimate goal of the TMDL is to ensure safe levels of mercury in fish throughout North Carolina for human consumption.

In compliance with NC DEQ requirements, The City of Marion Wastewater Treatment Plant (WWTP) has developed a Mercury Minimization Plan and will evaluate available information to assess the potential for non-domestic users of the sewer system to contribute mercury to the sewer system, thereby adding to the mercury load at the WWTP, and, eventually, Corpening Creek. In an effort to minimize mercury load, the City will survey and evaluate common sources of mercury.

Mercury's impact on the Environment



Mercury in the air may settle into water bodies and affect water quality. This airborne mercury can fall to the ground in raindrops, in dust, or simply due to gravity (known as "air deposition"). Streams, lakes, or estuaries collect the fallout. Through microbial activity, mercury is transformed into methylmercury. Methylmercury accumulates in fish at levels that may harm the fish and the other animals that eat them. The amount of methylmercury in fish differ with each source of water depending on such factors as the amount of mercury deposited from the atmosphere, local non-air releases of mercury, naturally occurring mercury in soils, the physical, biological, and chemical properties of different waterbodies and the age, size and types of food the fish eats.

Mercury's impact on your Health

Mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune system of people of all ages. Research shows that most people's fish consumption does not cause health concerns. However, it has been demonstrated that high levels of methylmercury in the bloodstream of unborn babies and young children may harm the developing nervous system, making the child less able to think and learn.

Mercury Disposal Prohibitions

The state of North Carolina prohibits the disposal of hazardous waste, even from Conditionally Exempt Small Quantity Generators into municipal solid waste landfills (15A NCAC 13B.1626). Waste amalgam caught in the traps and screens of the plumbing, as well as other scraps of amalgam from dental offices, must be properly disposed.



Amalgam in wastewater is regulated either by the Sewer Use Ordinance of the local wastewater authority for dischargers to the sewer systems or by the local health department for dischargers to a septic tank. The sewer discharge limit for all users for mercury is 0.0003 mg/l. Dischargers to a septic tank are prohibited from discharging hazardous waste and from contaminating groundwater at the compliance boundary.

Mercury in the Household

Products That May Contain Mercury

- thermometers (looks like a silvery liquid)
- thermostats
- blood-pressure cuffs
- barometers
- fluorescent and high-intensity discharge (HID) lamps
- mercurochrome
- auto switches
- float switches
- button-cell batteries
- old latex paint (pre-1990)
- some oil-based paints
- old alkaline batteries (pre-1996)
- old light-up tennis shoes (pre-1997 LA gear)
- chemistry sets
- old fungicides for seeds and turf
- dental amalgam
- some imported jewelry (glass ampules with silver liquid)
- weight/counterweight in grandfather clocks



Mercury Exposure & Treatment

Symptoms of Mercury Poisoning

- Exposure to elemental mercury can lead to mood swings, headache, irritability, nervousness, insomnia and neuromuscular changes. Higher exposure can also cause kidney failure or lung failure and eventually lead to death.
- Exposure to inorganic mercury might include profuse vomiting and diarrhea (both can be bloody), followed by hypovolemic shock, oliguria renal failure, and possibly death.
- Exposure to organic mercury, methylmercury, crosses blood/brain and placental barriers, which can damage the central nervous system and causes birth defects, neurological problems and developmental delays. Chronic exposure to methylmercury can cause an impairment in vision, speech, walking, hearing, lack of coordination and cause a "pins and needles" sensation. Extreme exposures can lead to death.

Mercury Poisoning Treatment

Identifying and removing the source of the mercury is crucial. Decontamination requires removal of clothes, washing skin with soap and water, and flushing the eyes with saline solution as needed. (*Mercury Poisoning*, https://en.wikipedia.org/wiki/Mercury_poisoning) New protocols for the treatment of poisoning such as access to new antidotes, chelating agents, combination therapy of different chelating agents and specific nano-sorbents can help in the management of mercury poisoning. (*Current approaches of the management of mercury poisoning: need of the hour*, <https://link.springer.com/article/10.1186/2008-2231-22-46>)

Mercury Spills

Cleanup Instructions

1. Put on rubber, nitrile or latex gloves.
2. If there are any broken pieces of glass or sharp objects, pick them up with care. Place all broken objects on a paper towel. Fold the paper towel and place in a zip lock bag.
3. Locate visible mercury beads. Use a squeegee or cardboard to gather mercury beads.



4. Use the eyedropper to collect or draw up the mercury beads. Slowly and carefully squeeze mercury onto a damp paper towel. Make sure to label the bag as directed by your local health or fire department.

5. After you remove larger beads, use sticky tape, such as duct tape, to pick up any remaining small glass fragments. Place the paint brush or duct tape in a zip lock bag and secure. Make sure to label the bag as directed by your local health or fire department.

6. Contact your local health department, municipal waste authority or your local fire department for proper disposal in accordance with local, state and federal laws. Remember to keep the area well ventilated to the outside (i.e., windows open and fans in exterior windows running) for at least 24 hours after your successful cleanup. Continue to keep pets and children out of cleanup area. If sickness occurs, seek medical attention immediately.



WEBSITE INFORMATION

U.S. ENVIRONMENTAL PROTECTION AGENCY www.epa.gov/mercury

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

<https://www.ncdhhs.gov/>

AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

<https://www.atsdr.cdc.gov/>

McDOWELL COUNTY DEPARTMENT OF HEALTH

<http://www.foothillshd.org/about-us-2/info-2/>



GENERAL INFORMATION

Tim Horton, Wastewater Superintendent: 828.652.8843

CONTACT INFORMATION

CDC EMERGENCY RESPONSE: 770-488-7100

TOXIC SUBSTANCE CONTROL ACT HOTLINE: Monday through Friday, from 8:30 a.m. to 5:00 p.m. Eastern time. Call (202) 554-1404.

CONSUMER PRODUCT SAFETY COMMISSION: 1 (800) 638-2772

McDOWELL COUNTY SOLID WASTE DEPARTMENT: 828-659-2521