



CITY OF KINGS MOUNTAIN WWTP

MERCURY REDUCTION

Introduction

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

The North Carolina Department of Environment and Natural Resources, Division of Water Quality (DENR), has 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. The City of Kings Mountain 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 system. In an effort to minimize mercury 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"). After the mercury falls, it can end up in streams, lakes, or estuaries, where it can be transferred to methylmercury through microbial activity.

Methylmercury accumulates in fish at levels that may harm the fish and the other animals that eat them.



The amount of methylmercury in fish in different waterbodies is a function of a number of factors, including 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 CESQGS 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 the dental office, must be shipped to a properly permitted facility.



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 recommended in the N.C. Sewer Use Ordinance template is 0.0003 mg/l. Local limits may differ. 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



Mercury in the Household

- 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 methylmercury can result in impairment of peripheral vision, lack of coordination in movement, speech impairment and muscle weakness.
- 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 can cause skin rashes, loss of memory, mental disturbances, dermatitis and muscle weakness. Exposure to organic mercury can also lead to same effects, but organic mercury is more readily absorbed by the body, and hence the ill effects are relatively less.

Mercury Poisoning Treatment

If the person has inhaled mercury in significant amount, he should be put on emergency respiratory support to avoid further damage to the lungs. In case of ingestion of caustic inorganic mercury, making the individual vomit will only lead to further exposure of the tissues to the caustic toxin and hence should be strictly avoided. The right method to treat this case would be to remove the source of poisoning. This should be only executed by an experienced medical professional. In case of acute organic forms of mercury the treatment need not be as aggressive as in case of inorganic forms. It can be treated by using a charcoal or laxative to remove the source. If the person has ingested elemental mercury, a laxative can be used to remove the elemental mercury. A more aggressive method has to be chosen if the intestinal tract is damaged.

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, put shaving cream on top of small paint brush and gently "dot" the affected area to pick up smaller hard-to-see beads. Alternatively, 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
www.nchhs.gov

AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY
www.atsdr.cdc.gov

CLEVELAND COUNTY DEPARTMENT OF HEALTH
www.clevelandcounty.com



GENERAL INFORMATION

Richelle Meek, Pretreatment Coordinator: 704-739-7131

CONTACT INFORMATION

AGENCY FOR TOXIC SUBSTANCE AND DISEASE REGISTRY INFORMATION: 800-232-4636

CENTERS FOR DISEASE CONTROL (CDC) EMERGENCY RESPONSE: 770-488-7100

TOXIC SUBSTANCE CONTROL ACT HOTLINE: 202-554-1404

CONSUMER PRODUCT SAFETY COMMISSION: 301-504-7923

CONSUMER HOTLINE: 800-638-2772

CLEVELAND COUNTY HEALTH DEPARTMENT: 704-484-5100