The City of Toronto

State of Ohio

"The Gem City"

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Feb 14, 2023
Train derailment
East Palestine, Ohio
Current updated impact
On Toronto Drinking water

On February 3rd, 2023 a train derailed in East Palestine, Ohio that caused chemicals such as vinyl chloride, ethylhexyl acrylate, ethylene glycol monobutyl, isobutylene, and butyl acrylate to be released into the, soil and water ways. The chemical that has been positively tested to be outside of the containment area in the Ohio River and present at the City of Toronto water intakes is butyl acrylate. The City of Toronto Water Department has been working closely with ORSANCO (Ohio River Valley Sanitation Commission) and Ohio EPA SEDO to receive and relay any information regarding this chemical spill incident. The following is a timeline of the event and actions of these authorities:

- Feb. 3, 2023 -Train derailment caused chemicals to escape containment.
- Feb. 6th, 2023-butyl Acrylate detected through sampling at Weirton, WV raw water intakes.
- Feb.7th, 2023-Toronto Water Dept. was made aware of testing results from Weirton, WV
- Feb. 8, 2023-ORSANCO collected raw water intake samples at Toronto intake.
- Feb 9, 2023-Received results from raw water river samples on 2/8/2023 and Butyl Acrylate was present.
- Feb. 10, 2023- Results were received from analysis from the City of Cincinnati of <1.0 parts per billion at the raw water intake.
- Feb 11th, 2023- City of Toronto water department received jar test results from the City of Cincinnati in regards to the removal of butyl acrylate using PAC (powder activated carbon). This test used the concentration of 50 ppb of butyl acrylate and was reduced by two different types of PAC at three different dosing concentrations of 25, 50, 100 lbs./million gallons with 30-minute contact time. Our levels are less than 1 ppb and would require a feed rate of 30 lbs. or less of carbon to remove Butyl Acrylate present. The City of Toronto normal feed rate of PAC is 60 lbs. per day and we have increased our PAC feed rate to 125 lbs. as a safe guard for removal. Additionally, the City of Cincinnati has shown through testing that 1 mg/l of Chlorine would oxidize 50 ppb of Butyl acrylate from the raw water. Toronto Water Dept currently feed Potassium Permanganate at the river raw intakes and we have a 2-hour detention time to oxidizes the Butyl Acrylate before the addition of PAC for removal, if the Butyl Acrylate is not all removed during this process our treatment plant is also equipped with (GAC) filters as its final polishing tool to remove any remaining Butyl Acylate along with a Chlorine dosage of 1.4 mg/l into the finished water that will also provide removal.

This vital information received from ORSANCO and the Ohio EPA with the assistance of the City of Cincinnati assures that the Toronto Water Department is removing the Butyl Acrylate from the raw water as it is being treated therefore not making it to the finished water going to our customers/residents.

The chemicals that escaped into the environment from the train derailment travel path of Sulphur Run stream and Leslie Run Stream which both empty into the Little Beaver Creek. Little Beaver Creek empties into the Ohio River at

ORM marker 39.6 also known as Lock 57 Park. At this location test results indicated a concentration of 12.5 ppb of the chemical know as Butyl Acrylate but once the creek joins the Ohio River which a large body those concentrations are diluted naturally. The City of Toronto water department intakes are located at mile mark 59.2 which is why the concentrations are lower at Toronto Water Intakes.

The maximum risk levels (MRL) is an estimate of the amount of a chemical a person can eat, drink or breathe each day without detectable risk to health. The MRL for butyl acrylate is 560 ppb. A print out from ATSDR is attached to this letter.

The City of Toronto will continue to work with The Oho EPA and ORSANCO to continue efforts to ensure that we are providing safe drinking water to our customers. This incident will be an ongoing issue which is why we will continue our efforts to ensure the water is safe into the foreseeable future. If you have any further questions, please contact Garry R. Daugherty at the City of Toronto Water filtration plant 740-537-2591.

Thank you,

Garry R. Daugherty

City of Toronto

Water Superintendent

torontowaterdept@brdband.com

VOC Data from Greater Cincinnati Water Works

Data provided by GCWW was done by a laboratory certified for organics analyses which used a known reference standard to generate *quantitative* results.

Today (02/09/2023) we have received 8 Samples from ORSANCO about the East Palestine Train Derailment.

Please see the following results for 8 Samples.

There are no detection for VOCs but we have found Butyl Acrylate (BA) and Tentatively identified compounds with estimated concentration.

Please feel free to contact me, Niranjan Selar (Niranjan.Selar@gcww.cincinnati-oh.gov) if you have any questions or concerns.

We would like to thank USEPA (Dr. Michael Gonzalez and Dr. Jonathan Pressman) for providing the BA Neat Standard on time.

East Palestine (Ohio) Train Derailment VOC Data from Greater Cincinnati Water Works on 2/9/23									Tentatively Identified Compounds (Estimated Concentrations)	
Site	State	River	Mile Point	Sample Depth	Date	Time	Butyl Acrylate (ppb)	VOCs (ppb)	2-ethyl Hexanol (ppb)	2-ethylhexyl acrylate (ppb)
Grimms Bridge	OH	Little Beaver Creek	Mile 3.0	Surface Grab	2/8/2023	1305	4.40	<0.50	2.91	2.07
Lock 57 Park	OH	Little Beaver Creek	Mile 0.2	Surface Grab	2/8/2023	1330	12.5	<0.50	3.15	1.66
East Liverpool WTP Raw	OH	Ohio River	ORM 40.2	Intake: 10 ft	2/8/2023	1345	<1.00	<0.50		
Buckeye WTP Raw	OH	Ohio River	ORM 47.1	Intake: N/A	2/8/2023	1430	2.94	<0.50		
Toronto WTP Raw	OH	Ohio River	ORM 59.2	Intake: 19 ft	2/8/2023	1515	<1.00	<0.50		
Steubenville WTP Raw	OH	Ohio River	ORM 65.3	Intake: 18 ft	2/8/2023	1550	1.23	<0.50		
Pike Island L&D	WV	Ohio River	ORM 84.2	Surface Grab	2/8/2023	1715	4.3	<0.50		
Bellaire WTP Raw	OH	Ohio River	ORM 93.9	Intake: N/A	2/8/2023	1805	<1.00	<0.50		

Minimal Risk Levels (MRLs)

The Agency for Toxic Substances and Disease Registry (ATSDR) develops health-based values to protect the health of the general population. Those charged with protecting public health, including ATSDR, as well as state and local health departments, use this information to help identify populations, communities, and individuals that could potentially develop health problems from exposures in the environment .

ATSDR serves the public by using the best science, taking responsive public health actions, and providing trusted health information to prevent harmful exposures and diseases related to toxic substances.

ATSDR and Minimal Risk Levels (MRLs)

The ATSDR, in response to congressional mandate under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), develops comparison values to help identify chemicals that may be of concern at hazardous waste sites. One type of these values is called minimal risk levels (MRLs).

An MRL is an estimate of the amount of a chemical a person can eat, drink, or breathe each day without a detectable risk to health. MRLs are developed for health effects other than cancer.

If someone is exposed to an amount above the MRLs, it does not mean that health problems will happen. When health assessors find exposures higher than the MRLs, it means that they may want to look more closely at a site. ATSDR works closely with the Environmental Protection Agency (EPA) at both a national and regional level at sites where exposures are estimated to exceed health-based values such as MRLs.

MRLs can be made for 3 different time periods [the length of time people are exposed to the chemical: acute (about 1 to 14 days), intermediate (from 15-364 days), and chronic (exposure for more than 364 days)].

How are MRLs calculated ?

Scientists review data about the chemical or substance, including:

- The ways that people could be exposed to the chemical (eating? drinking? breathing? touching?);
- How long people are exposed to the chemical;
- The concentration of the chemical and its potential health effects;
- How old the person is when they are exposed (an infant or an adult?);
- Whether the data are from animal studies or based on human exposures. Sometimes, information about the health effects in humans may not be complete. In these cases, scientists at ATSDR may use animal studies when the health effects in animals may be similar to the health effects in humans;
- The quality of the human and animal data found in the scientific literature, and if those studies consistently find similar health effects.

The way the MRL is calculated can change depending on type and quality of data available. Because the scientific data on a hazardous substance may not be complete, uncertainty factors can be applied as part of the MRL calculations.

Uncertainty factors help us account for differences between health effects in humans and animals; or when we don't know certain things about how a chemical may affect a sensitive population (for example, the very young, or people who may have other health problems); or when we do not have complete information about the chemical levels that may be associated with health effects.

What is the process for developing MRLs at ATSDR ?

There are several steps to develop MRLs.

1. ATSDR's process for developing MRLs begins with a thorough review of the relevant scientific literature to understand what organs in the body seem to be affected by the smallest dose of this chemical.
2. The findings and conclusions from Step 1 are then reviewed by an internal ATSDR Health Effects/MRL workgroup. This workgroup includes scientific experts from many disciplines (toxicologists, epidemiologists, veterinarians, clinicians, and others) who examine the studies and agree on whether or not the data are sufficient to develop MRLs.
3. After the internal ATSDR health effects MRL workgroup makes its recommendations, an Interagency MRL Workgroup meets to discuss them. Scientists from ATSDR, Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH), EPA and the National Institute of Environmental Health Sciences (NIEHS) /National Toxicology Program (NTP) are all on this workgroup. They carefully examine the data and discuss the proposed MRLs. They may accept the proposed values, revise the numbers, propose new numbers, or decide that the data are not sufficient to propose MRLs.
4. The proposed MRLs then go through an *external peer review*. The peer reviewers selected are experts in subjects related to content of Toxicological Profile. ATSDR will then respond to any comments from the peer reviewers and make any revisions that are needed. These responses to peer reviewer comments can be viewed here: https://www.atsdr.cdc.gov/sites/peer_review/index.html
5. After these revisions are made, the MRL, as part of a Draft for Public Comment Toxicological Profile is posted online for **public comment** for a set period of time, usually 90 days. Comments are submitted through regulations.gov . The announcement that these are now available for public comment is posted in the Federal Register Notice . The new or revised MRLs are now **draft MRLs**.
6. After the public comment period, all comments are addressed, and revisions are made. Once this is completed, the MRLs and the Toxicological profile they are found in are considered final and publicly posted on regulations.gov and the ATSDR website.

Helpful Links

- Infographic: How are Toxicological Profiles Made?
- Toxic Substances Portal
- Tox "FAQs"
- Minimal Risk Levels (MRLs) – For Professionals
- Minimal Risk Levels (MRLs) List

Page last reviewed: June 4, 2018

Updated ATSDR Comparison Values for Drinking Water - 02/11/23

Analyte	Screen Value, ppb	Source
n-Butyl acrylate	560	ATSDR Provisional Health Guidance Value (HGV); based off derivation worksheet
2-ethylhexyl acrylate	500	ATSDR Provisional Health Guidance Value (HGV); based off derivation worksheet