

Landfills: A Major Source of PFAS Contamination

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Member, Advisory Committee

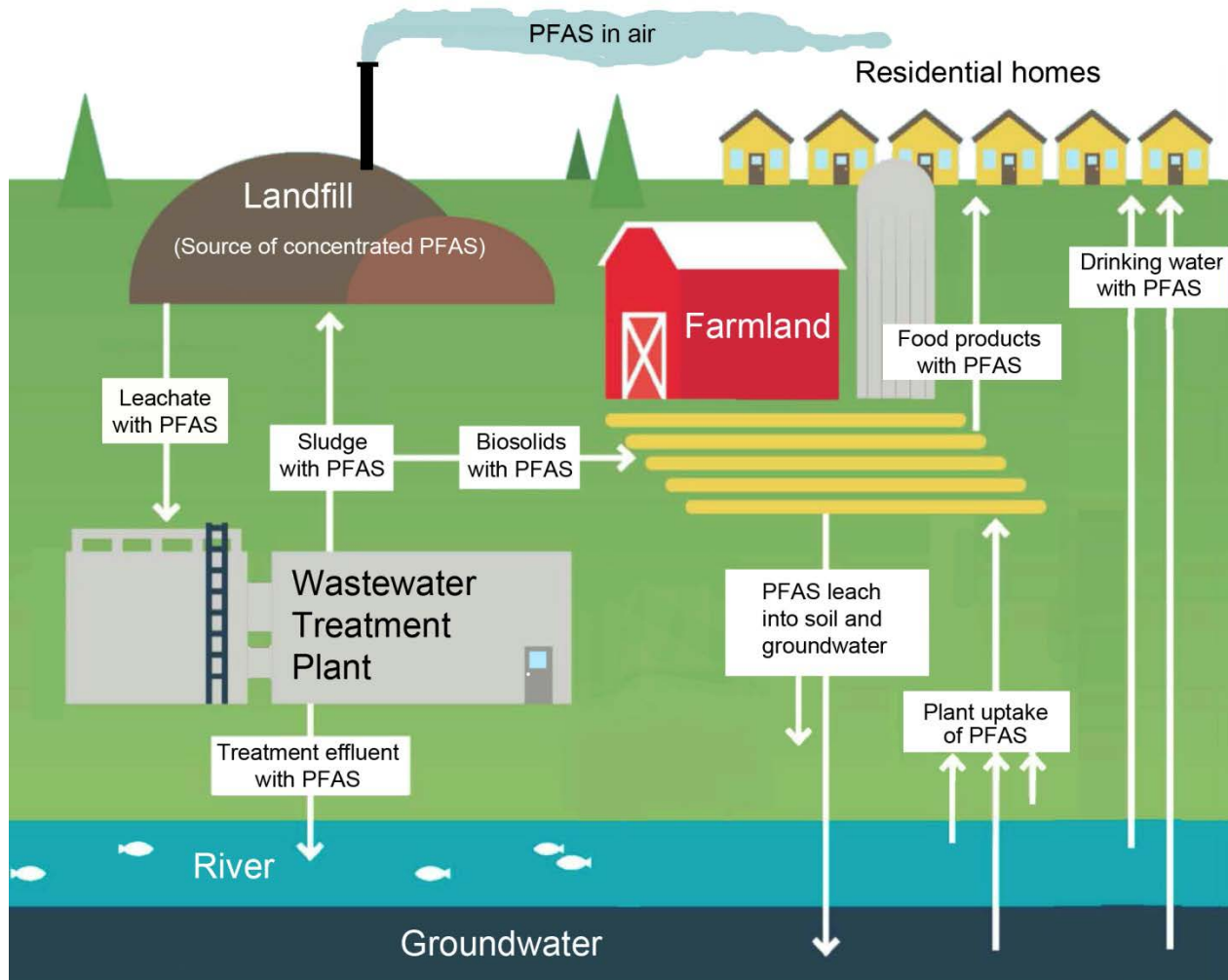
DUMP, LLC.¹



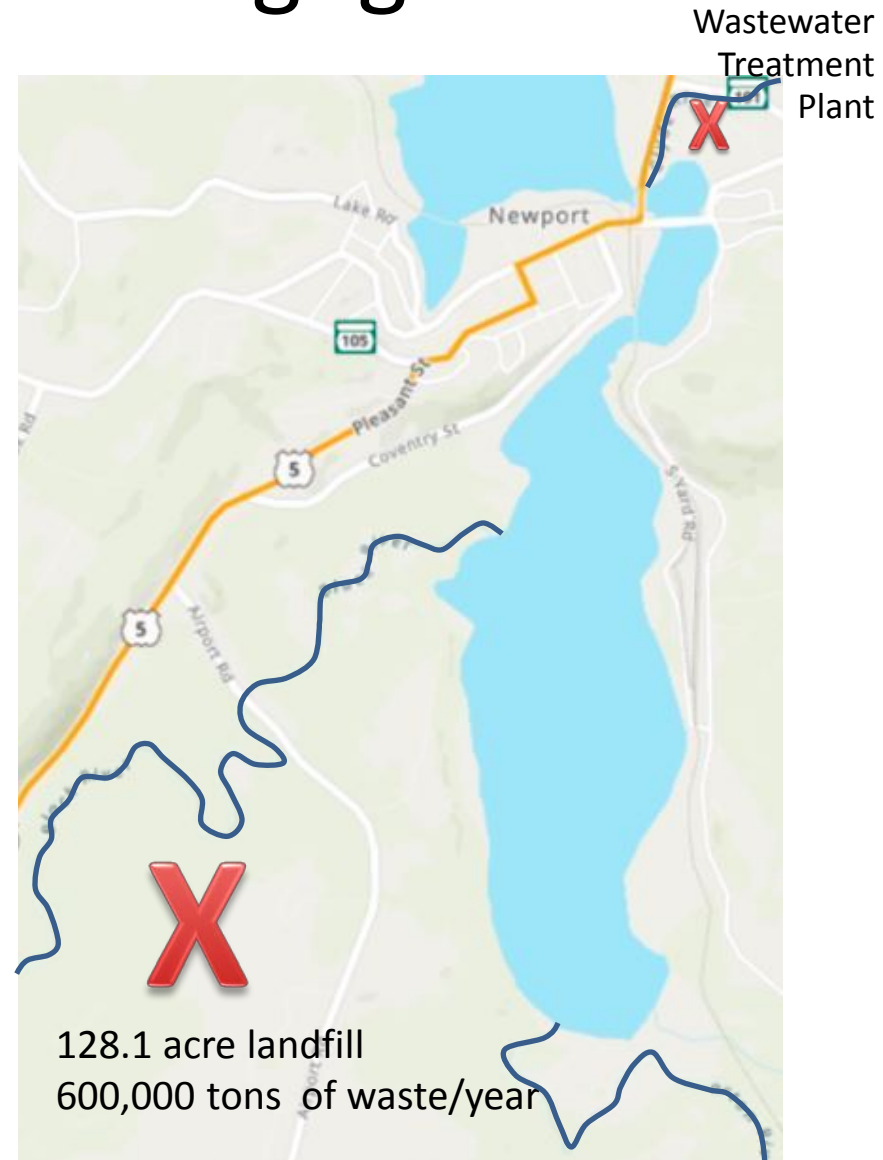
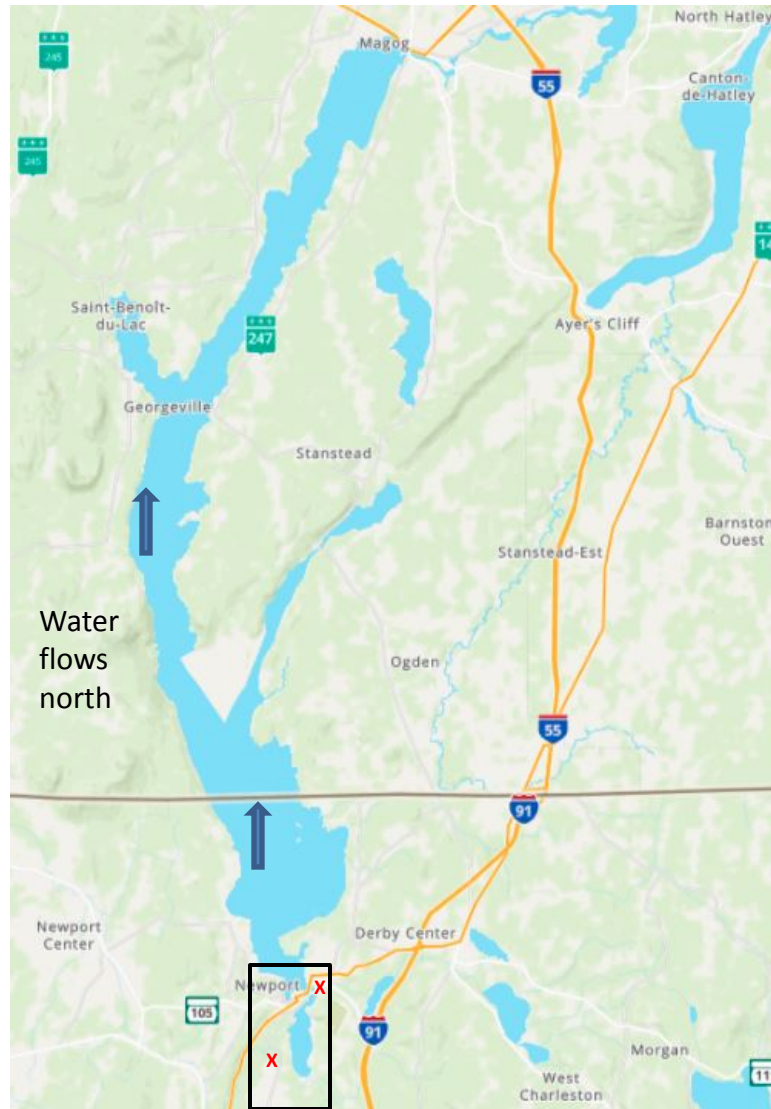
Citizen Group Fights PFAS Contamination

- DUMP, LLC is an all volunteer organization formed in September of 2018 in opposition to the expansion of Vermont's only active landfill.
- Goal: To Restore and Protect the waters and watershed of the International Lake Memphremagog.
- Keeping PFAS out of the lake is our first priority. The lake is not only a recreational resource for Vermonters, it is also a drinking water reservoir for 175,000 Quebec citizens.

PFAS Pathways²



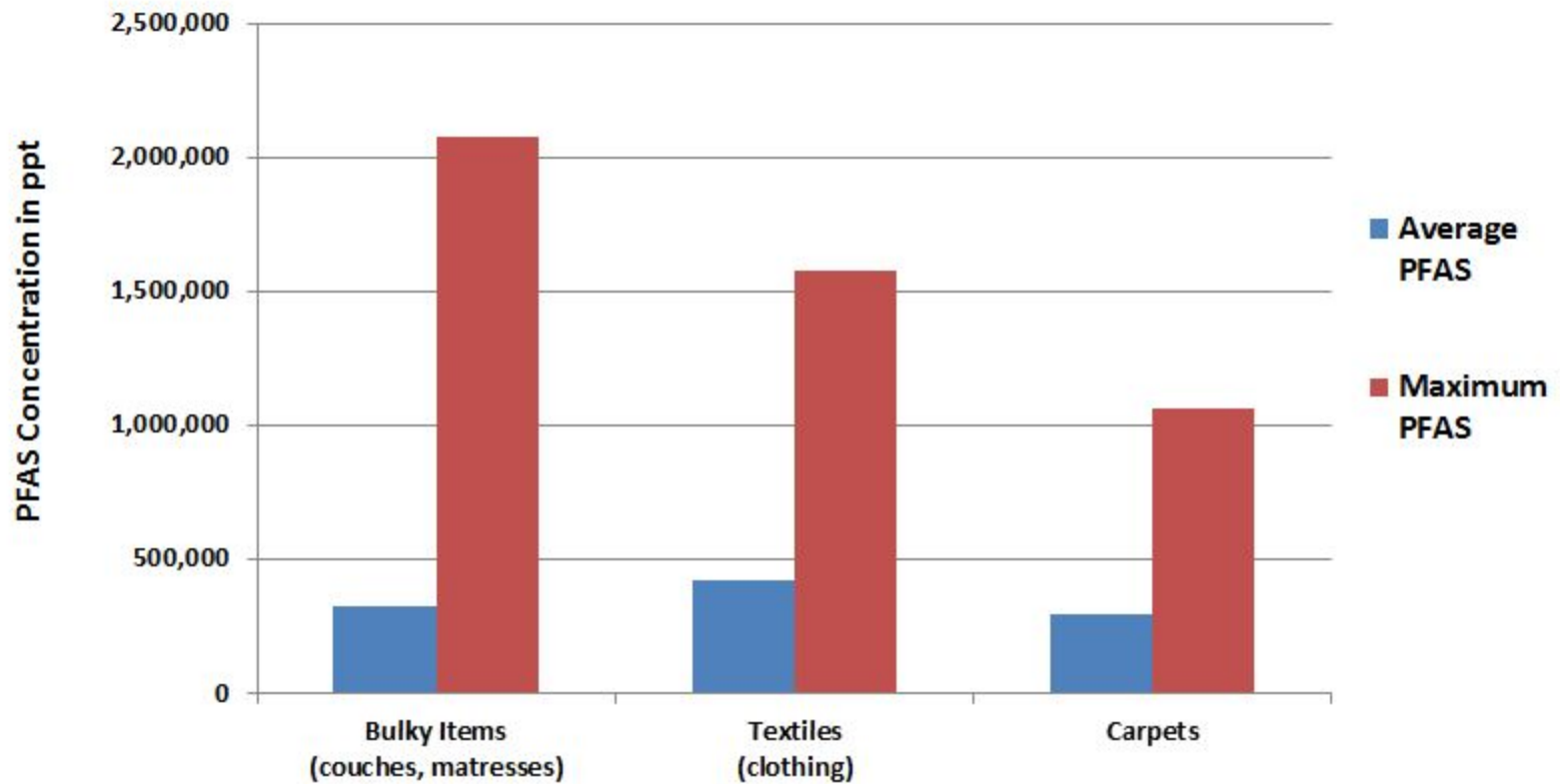
Lake Memphremagog



Don't Undermine Memphremagog's Purity
nolakedump.com

Sources of PFAS in a Landfill³

Stain Resistant, Water Repellent, Non-stick



Landfill Leachate Treatment is Inadequate

- Leachate liquid containing PFAS (25,111 ppt of 29 chemicals as sampled in 2018)⁴ is collected at the landfill
- Leachate is transported to Wastewater treatment plant
- The resulting effluent discharged into waterways contains high levels of PFAS – wastewater treatments plants do not filter out PFAS
- From 2010 – 2019, 109 million gallons of PFAS laden leachate was generated from Vermont's lone landfill, **36 million gallons** passed through the Newport wastewater treatment plant and flowed into Lake Memphremagog⁵

Residual Sludge Increases PFAS Contamination

- Residual Sludge from the treatment of wastewater has a concentration of PFAS with values as high as 215,000 ppt⁶
- Some of the sludge is applied as biosolids to agricultural fields providing paths for PFAS to contaminate crops, livestock and groundwater
- The remaining sludge goes back to the landfill to increase the concentration of PFAS in the leachate stew
- Our Vermont landfill received over 80,000 tons of sludge in the past 2 years, over 50% from out of state⁷

There is Contamination in the Lake

“Raised black lesions observed in 30 percent of the brown bullhead collected from two sites in Lake Memphremagog from 2014 through 2017 were identified microscopically as malignant melanoma. **Malignant melanoma in freshwater fishes has been reported before, but this cancer occurrence cluster is raising questions about the cause of the tumors and the implications for the long-term health of fish populations.**”⁸



“Canadian officials find PFAS traces in water from Memphremagog”⁹

Has the Food Chain been Poisoned?

- The PFAS in the water bioaccumulates in the fish
 - ***Is it safe to eat the fish? Why do some have lesions?***
- The crops that are grown in fields where PFAS laden biosolids are applied can contain PFAS that bioaccumulate in the livestock
 - ***Is it safe to consume locally grown vegetables, milk and meat?***
- PFAS vapors are emitted from the landfill and spread by the wind, traveling into homes, landing on lawns and gardens
 - ***Are my personal space and dwelling contaminated?***

What is the PFAS exposure generated by landfills?

- 2,600 active landfills in US as of 2020¹⁰
 - Average landfill size 600 acres¹¹
- Vermont's Landfill Statistics¹²
 - 128 acres
 - 600,000 tons waste landfilled annually
 - 14 million gallons of leachate generated in 2019, dumped with PFAS into waterways
 - 44,000 tons of sludge received in 2019 adding a high concentration of PFAS to the landfilled waste



What can we do to protect the public?

- Establish accepted guidelines for screening PFAS levels like we have for cholesterol and glucose. Include PFAS screening as part of annual routine blood tests.
- Test the fish and livestock for PFAS concentrations. Discontinue the application of biosolids that contain PFAS.
- Require all operating landfills and wastewater treatment facilities to remove PFAS prior to any discharge of water or sludge.
- Develop disposal options for PFAS laden items so they do not end up in a landfill. Learn the sources of PFAS and boycott all purchases. Reduce, Reuse, Repurpose, Recycle

Sources

1- photo by Jeff Gerade

2- adapted from MI DEQ report, 2019

3,6 - PFAS WASTE SOURCE TESTING REPORT, Sanborn, Head & Associates, Inc Oct, 2019

4 - Wastewater Treatment Facility and Landfill Leachate PFAS Sampling
Various Locations, Northern Vermont, Weston & Sampson, May 2018

5,7, 12 - Data from QUARTERLY DISPOSAL, RECYCLING AND COMPOSTING
FACILITY REPORTS 2010-2019

8 - Prevalence of Malignant Melanoma in Brown Bullhead from Lake
Memphremagog Greater than Expected—Linkages to Contaminant Exposure and
Implications for Fish Population Health are Currently Unknown, USGS, 2020

9 - VTDigger, Justin Trombly, Feb 26, 2021, photo by Photo by Kevstan/Wikimedia
Commons

10 – EPA.gov, Interim Guidance on the Destruction and Disposal of Perfluoroalkyl
and Polyfluoroalkyl Substances and Materials Containing Perfluoroalkyl and
Polyfluoroalkyl Substances, December 2020

11 - Waste360.com, Mapping Landfill Space NASA Style
Kevin P. Corbley, Jan 01, 2001

Thank you!