

**Information Update:****Septage Management & PFAS Concerns in E. Kingston, NH**

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About Biological Recycling Company, East Kingston, NH

Biological Recycling Company, LLC (BRC) has served a unique niche in southeast New Hampshire since the early 1980s, providing septage management – an important public health service – to the region’s expanding population. The facility occupies ~80 acres along Sanborn Road and North Road in East Kingston.¹ From approximately 1982 through 1995, the facility received residential septage – the thick liquid pumped from septic systems – at an unlined, earthen lagoon located in the middle of the property. Beginning in 1992, BRC installed an innovative, natural system that reduces pollutants in the water returned to the environment and separates out organic solids for use on soils. This specialized system was funded in part by a U. S. EPA non-point source pollution grant administered through Rockingham County Conservation District. Liquid effluent from the two 10,800-square-foot bio-filter cells flows into a man-made, unlined, vegetated receiving pond. Both the receiving ponds and the created wetlands / bio-filter cells - including cattails and reed canary grass - naturally reduce nitrate and have “provided a significant reduction in select metals, TKN, total phosphorous, and bacteria” in effluent, according to regulatory review documents.



Since it started operations, BRC has been regulated and permitted by NHDES, including:

- monthly and quarterly groundwater and surface water sample testing for water quality parameters indicative of safe operations (nitrate, metals, chloride, bacteria, etc.)
- Groundwater Discharge Permits (since 1995, with subsequent renewals through 2006)
- A Facility Permit that included all Groundwater Permit requirements and additional monitoring and testing requirements beginning in 2006 and continuing to the present day
- Permits to compost dewatered septage (permit #S98001F) and land apply septage (permit #S98001S).

BRC has never before been the subject of any NH DES enforcement action, according to a recent records review by NH DES staff.

In the wastewater and septage management profession, BRC’s innovative system has been widely recognized as a best environmental, sustainable practice for managing septage. BRC recycles septage nutrients and organic matter to build local soils and fertilizer local crops.

Why Septage?

As a vital part of protecting public health, the wastewater from our homes and businesses must be managed. About 50% of homes in NH rely on septic systems that have to be pumped every ~3 years. That pumped-out

¹ Information regarding permitting and the history of facility operations, as well as monitoring data, are included in various public documents on file with the New Hampshire Department of Environmental Services (NHDES).

septage is managed at wastewater treatment facilities, by land application, and/or in local systems like that at BRC. All of the management options are equal in terms of concerns related to trace chemicals like PFAS.

We are all surprised and concerned by PFAS, including BRC.

Now, traces of PFAS* – chemicals widely used since the 1950s – are being found in many places around NH and the world – including in the drinking-well water of neighbors to the BRC facility. NH DES assumes that septage managed at the BRC facility over the years has conveyed PFAS to the site. NH DES has asked BRC to provide bottled water and other assistance to neighbors with affected wells. BRC has willingly agreed to work with NH DES and do the right thing for neighbors, while not assuming liability. BRC, like NH DES and all of us, was not aware until just recently of any potential risks from PFAS. BRC operated a sound, permitted business in compliance, with best practices, just like similar operations around NH and around the country.

Risks have been reduced already.

PFAS are a concern, and reducing exposure is prudent. But, for PFOA and PFOS (the most-concerning PFAS chemicals today), our exposures were greater in the past. This is because PFOA and PFOS have been phased out of commerce since 2002 (through facilitation by U. S. EPA). The traces of those two chemicals at the BRC site, which are the concerns for neighbors’ wells, came to the site in the late 1900s; septage today contains far smaller traces.

BRC recognizes that the important first step is to help reduce potential health risk in the neighborhood by addressing immediate drinking water needs. BRC families live here too.

***About PFAS – Per- and polyfluoroalkyl substances**

- Water soluble, but grease & water resistant (hydrophobic, lipophobic), surfactants
- Persistent – PFOA & PFOS (C8) and shorter-chain versions do not degrade
- Transport pathways: air deposition, leaching & groundwater, surface water
- Human exposure through drinking water is the regulatory focus right now; food & food packaging, indoor dust & product exposure, use of consumer products
- PFAS are the only commonly used chemicals regulated in parts per trillion (ppt).
- 4000+ varieties, with differing properties
- Fully destroyed only at ~900 – 1000° C
- No natural counterparts
- Bind to protein



The low levels we’re talking about:
1 ppt = 1 second in 31,700 years

The two main sources of PFAS in the environment:

- Industrial facilities producing or using large amounts of PFAS (e.g. St. Gobain, Merrimack)
- Fire-fighting activities using Class B foams (AFFF) to fight fuel fires (e.g. Pease)

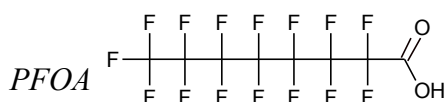
How do PFAS get into septage?

Traces of PFAS from our daily living environments wash into home septic systems and sewers as we use and clean products containing them. Some ambient background levels of PFAS are conveyed by wastewater and septic systems.

PFAS around us:

- Foundation cosmetic: up to 2,370,000 ppt PFOA (Considered safe for dermal contact.)¹
- Pork liver in Taiwan: up to 283,000 ppt PFOA²
- Dust in daycare center: 142,000 ppt PFOA median³
- Household food waste: 6,000 ppt all PFAS mean⁴
- U. S. human blood serum: 2,000 ppt PFOA mean⁵
- Control garden soil: 360 ppt PFOA median⁶

(1) Danish study, Oct. 2018 (2) Chen et al., 2018
(3) Strynar and Lindstrom, 2008 (4) Brandli et al., 2006
(5) NHANES, 2012 (6) MN Dept. of Health, 2005



More info:

- U. S. CDC health info: <https://www.atsdr.cdc.gov/pfas/index.html>
- U. S. EPA PFAS info: <https://www.epa.gov/pfas>
- ITRC PFAS fact sheets: <https://pfas-1.itrcweb.org/>
- NEBRA PFAS & residuals: <https://www.nebiosolids.org/pfas-biosolids>

What reduces risk the most: Stop using chemicals of significant concern.

The most significant action we can all take is to support removal from commerce of chemicals of high concern. That reduces the potential concerns related to wastewater, biosolids, septage, and other residuals. We support source reduction and pollution prevention in the case of the most concerning PFAS, just as we have with regards to other trace chemicals of high concern in the past. The two most prominent PFAS - PFOA and PFOS - have been phased out of commerce, and this has been the most important reduction in potential PFAS risk of any action in the past 15 years (see details at bottom of page). You can help: think about what you buy and what you use.

Recent efforts to stop or reduce producing and using PFOS and PFOA in consumer products appear to have lowered exposure to the general U.S. population. CDC's National Health and Nutrition Examination Survey (NHANES) has shown that blood concentration of PFOS, in particular and other PFAS have dropped over time. (Figure 2).

