

What has PFAS Done to Land Application in the Northeast?

Biosolids & Paper Fiber Under Scrutiny

RESIDUALS & MICROCONSTITUENTS CONFERENCE

EMERGING CONTAMINANTS - IN-DEPTH LOOK AT PFAS AND BIOSOLIDS

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SHELAGH CONNELLY

RESOURCE MANAGEMENT, INC.



A Little History...

- RMI has been recycling biosolids and paper fiber and other residuals for 25 years.
- These programs are well-established and a successful part of agriculture and reclamation projects in the northeast.
- In the past 22 months, however, the emergence of PFAS as a concern related to biosolids and paper fiber has profoundly challenged the acceptance of land application.
- This presentation will provide an overview of the real-time impact that PFAS is having on farmer and neighbor concerns, regulatory responses, and legislative direction.

RMI recycles residuals from more than 25 different generators throughout the northeast, including

- Biosolids



Winnepesaukee River Basin Program

Bridgewater Power Company

- Paper Fiber



Monadnock Paper Mill, Inc.

Biosolids from WWTFs

Wastewater treatment plants like this one in Nashua, NH clean wastewater so that it can be discharged into water bodies. The two products of this treatment are **clean water** and treated **wastewater solids**.



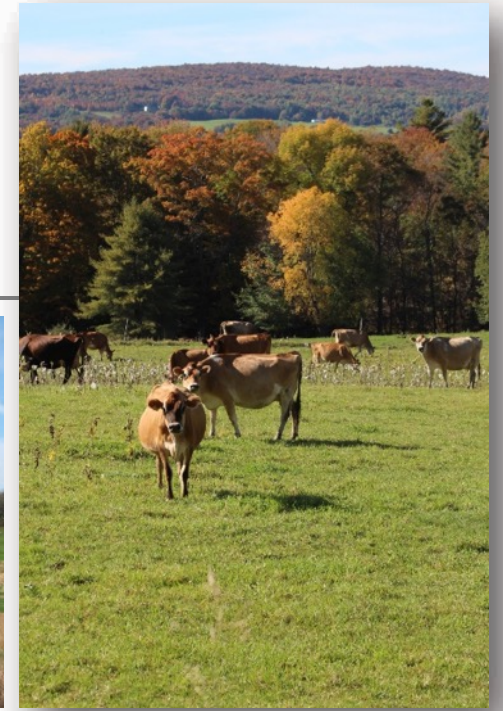
BIOSOLIDS are wastewater solids that have been treated and tested and meet strict federal and state standards for metals, reduction of pathogens, and vector attraction reduction.

Paper Fiber from Paper Mills

- Paper Mills installed WWTFs to manage the water that is used in their process
- Instead of Biosolids the mills generate a by-product called Paper Fiber
- Paper Fiber is literally the fibers that are too short to bond the make the paper
- Paper fiber also has clay filler



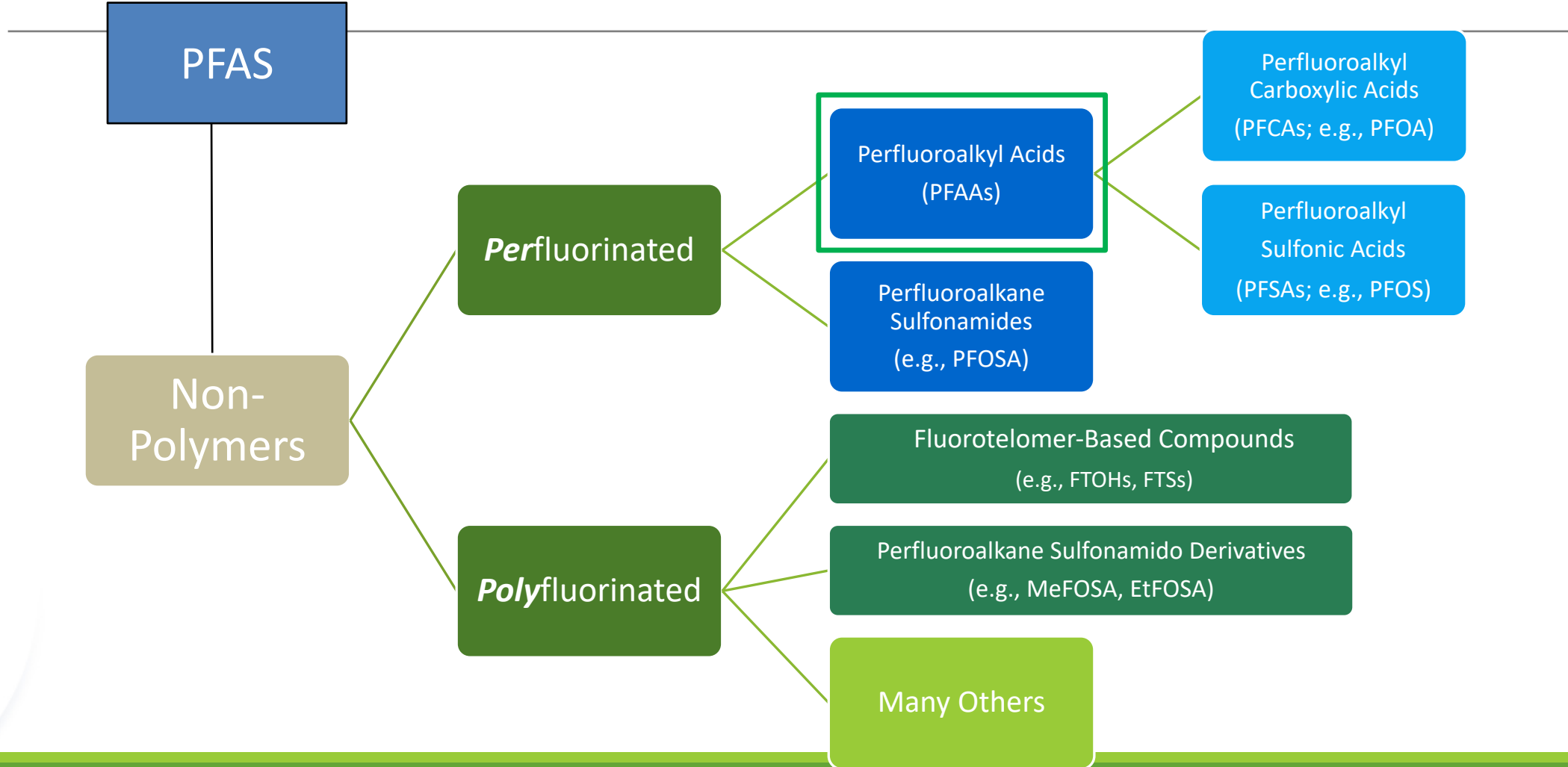
Throughout the northeast both biosolids and paper fiber have been in very successful recycling programs for the past 30+ years



Game Changer

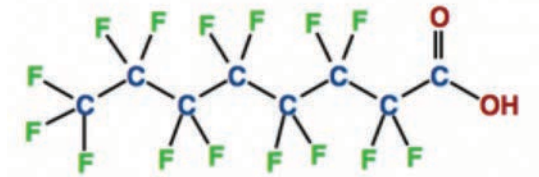
- May 2016 EPA set a guidance level of 70 PPT for PFOA and PFOS (combined) in drinking water.
- RMI did not take notice of this as it was not on our radar screen. For the past three decades we have weathered the rise and fall of various issues affecting residuals management like concerns over heavy metals, PCBs, dioxin, personal care products, odor, local bans, public hearings, and managing the different regulations in each state....to name a few.
- But nothing has been more intimidating than this new paradigm we find ourselves in...which began for RMI in January 2017 when NH-DES asked us to budget additional time in our routine annual program review meeting to meet with folks from the groundwater program....
- Sure we said. And asked “what will we be talking about?”

Per- and Polyfluoroalkyl Substances (PFAS)

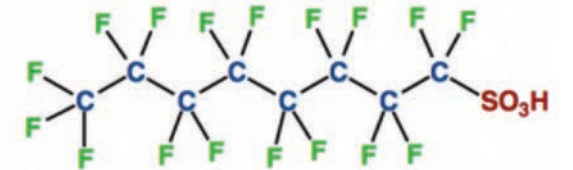


PFAS – ubiquitous and effective

- Per- and Polyfluoroalkyl Substances (PFAS) are a group of chemicals used to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water
- Can be found in products such as:
 - Water-repellent clothing
 - Furniture and rugs
 - Adhesives
 - Paint and Varnish
 - Food Packaging
 - Heat-resistant non-stick cooking surface



PFOA - perfluorooctanoic acid



PFOS - perfluorooctanesulfonic acid

So what does that have to do with RMI and biosolids???

“The PFAS, per- and polyfluoroalkyl substances, detected in the West Kennebunk well last spring originated from a farm on Curtis Road in Arundel, where sludge from both the Kennebunk and Ogunquit sewer districts and fly ash and sludge from the S.D. Warren paper mill was spread as soil enhancers in the mid-1980s, according to a local water official, state environmental officials and the farm’s attorney.

Stoneridge Farm, at 362 Curtis Road, is a small dairy farm that has been in owner Fred Stone’s family for at least 100 years.”

Lots to be concerned about from this newspaper article that chronicles the detection of PFAS at 140 ppt in a well in Spring 2016, and in dairy milk on a nearby farm at 690 ppt ~ nearly 10 x the EPA guideline of 70 ppt

And that was the beginning of the PFAS journey that brings us to today...

- RMI and other land application companies had to come up to speed very quickly to understand what PFAS is and how the residuals we manage are potentially involved with transport of these chemicals
- Municipalities too were brought into the arena through this door if they owned and operated a WWTF that may be transporting PFAS in and out of the WWTF
- Municipalities had to consider what the implications are if they recycled their biosolids through composting, or if they managed through disposal at a landfill, or if they incinerated
- And throughout the past 2 years there has not been any clear guidance from EPA about safe limits for PFAS in groundwater, surface water, soils, septage, or biosolids
- Further, there are no approved standard methods for any of those mediums except drinking water

But wait, it was not just biosolids... paper fiber is of concern to regulators also!

NY Department of Environmental Conservation finds PFOA, PFOS and PFC contamination at compost facility

“The state announced Monday that it had found PFOA, PFOS and PFC contamination at a compost facility near Hoosick, NY. This is in same area as the St. Gobain’s Performance Plastics manufacturing facility in nearby Hoosick Falls.

The compost facility received paper mill sludge that was contaminated, according to the state. Then the company spread the contamination through the area with its compost. The facility has been ordered to stop distributing compost.”

The Post Star March 2017

Hoosick, NY was a hot spot for PFAS

HOOSICK FALLS - Residents were shocked Monday when the testing of sites contaminated with a toxic manufacturing chemical revealed levels significantly higher than originally reported.

Saint Gobain's Performance Plastics manufacturing plant on McCaffery Street in the village had at least one groundwater sampling that recorded PFOA, or perfluorooctanoic acid, levels at 130,000 parts per trillion, seven times higher than reported nearly three years ago at 18,000 parts per trillion.

Times Union By [Amanda Fries](#)

Updated 10:26 pm EDT, Monday, June 19, 2017

January - June 2017 Seriously Scared

- Took action to figure out how these residuals fit in all of this new PFAS landscape
- Asked for all of our generators to voluntarily test their biosolids/paper fiber
- Got data back and shared with NEBRA and NH-DES
- Met with stakeholders coordinated by NEBRA to discuss research and data
- Began talking with farmers about PFAS – especially those who rent fields

Farmers Began Asking Questions...

- Several farmers called and asked about the Seacoast Online article and the milk testing
- Another Dairy Coop tested milk from 4 NH farms that had used biosolids for many years
- While the results on the milk were non-detect, the scare that this incited caused 1 of those farms to stop using biosolids
- Another farm was approached by NH-DES to sample their well near their land application and this caused the farmer to stop taking biosolids
- These 2 farms represent 45 acres of land application that has been interrupted due to concerns about PFAS

Future Problems

- RMI works with 3 other large farm operations that have been using biosolids for almost 30 years.
- All 3 have indicated that the milk testing and the public perception over PFAS may force them to stop participating in the program.
- These farms represent **765 acres of spreadable land**.
- If even 1 of these farms backs out of the program due to perceived risk of PFAS in biosolids, then RMI will no longer be able to provide biosolids recycling for the Winnepesaukee River Basin Program - Franklin WWTF effective immediately.



“In total that is 763.1 acres of land application ground that has already been / has potential to be lost due to PFAs testing on wells and milk. If pending regulations are too strict we will lose all of our acreage.

We need at least 250 acres of crop ground, and split across multiple sites with year-round accessible stockpile areas to responsibly manage the Franklin plant. We need them to be close to the Franklin plant since they often produce two loads a day. We would be unable to continue recycling WRB biosolids if we lost just one of our farm customers in Concord.”

Michael Potash, CCA
RMI Agronomist



Legislative Hearings began in January 2018 to address PFAS



HB 463/485 PFAS lowering limit from 70 ppt to 20 ppt

BIA was not alone in its opposition to HB 463. We were joined by the New Hampshire Municipal Association, New Hampshire Water Works Association, New Hampshire Water Pollution Control Association, North East Residuals & Biosolids Association, Granite State Rural Water, the town of Merrimack, and Emery & Garrett Groundwater Investigations. Like BIA, these groups and the highly qualified water quality scientists, engineers, and professionals they represent, recognized this legislation was premature, overreaching, and would result in an indeterminate financial burden to NHDES, municipalities, and NH businesses without a documentable corresponding benefit.

Quote from Jim Roche, President Business and Industry Association (BIA) In 7/10/17 Seacoast Online.

<http://www.seacoastonline.com/news/20170710/caution-grounded-in-common-sense-should-guide-pfc-regulations>

Landfills saying no...

- Over past 10 years RMI has worked with 2 Massachusetts landfills who have used paper fiber and biosolids to manufacture topsoil for capping their closed portions and growing a grass layer.
 - In July 2018 RMI was turned away from both of these landfills due to “the PFAS issue”
- In August 2018 RMI was slated to provide paper fiber and biosolids for a superfund site in Vermont to finalize closure on a steep grade.
 - All was moving forward until a regulator in the VT-DEC heard about the paper fiber and biosolids and decided they would not be approved due to “the PFAS issue.”

All of these materials had been tested for PFAS and have very low levels.



Where do we go from here?

There is cause for concern when long term successful recycling programs are suddenly in jeopardy.

There is not science in place to support that these materials are a problem to public health or the environment due to the presence of PFAS.

There is lots of science to support that these materials are beneficial for soils and crop growth due to the presence of nutrients and organic matter.



If the limits for PFAS are so conservative and unattainable, society will need to come up with some way to manage our biosolids and paper fiber.

If landfills will not take it, then we may need to build incinerators and destroy the PFAS through combustion. Then build lined monofills for the incinerator ash.



Thank you for your time

Discussion?

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