Handout for Senate Natural Resources Committee

Matt Chapman, General Counsel, Agency of Natural Resources

Bryan Redmond, Director, Drinking Water and Groundwater Protection Division

Chuck Schwer, Director, Waste Management and Prevention Division

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Act 21:

- Required sampling of public community water systems and Non-Transient Non-Community (NTNC) systems
  - NTNC includes schools and other water systems serving the same 25 people or more for 6 months per year or more.
- Follow the rule-making process to develop and adopt drinking water standards
- Issue a plan to regulate PFAS substances in surface waters
- Develop and implement a plan to investigate potential sources of PFAS
PFAS Impact Monitoring
Public Water Supply Sampling
Surface Water Sampling

PFAS in Waste Streams
Landfills
Wastewater Treatment Facilities

Industrial or Intensive Uses
Electroplating
Car Washes
Impacted Public Drinking Water Systems

**Do Not Drink Notice Required**
- Mount Holly School
- Thetford Academy
- Killington Mountain School
- Fiddlehead Condominiums

**Results between 15 - 20 ppt**
- Kids in the Country*
- Craftsbury Fire District 2
- Windy Hollow Mobile Home Park
- Mountainside Resort (Stowe)
- Snowtree Condominium (Dover)

**Elevated, but unconfirmed as of 2/13/20**
- Killington Village Inn
  (formerly Killington School of Resort Management)

* = confirmed below 20 ppt
Proposed Water Supply Rule Revisions

- Establishes:
  - Cumulative MCL at 20 ppt and MCLG at zero ppt for the 5 regulated compounds
  - Required analytical laboratory method (EPA 537.1 or alternate as approved by the Secretary)
  - On-going monitoring framework for public drinking water systems
  - Technical Standards for treatment

- Provides:
  - Health language in response to a MCL exceedance, including distribution of ‘Do Not Drink’ notices
PFAS in Waste Streams

1. PFAS detected in nearly all wastes sampled, but largest loading likely from residentially source materials. There is no ‘easy’ source of PFAS to the landfill that can be removed from the waste stream.

2. PFAS detected at all WWTFs, even those not accepting landfill or industrial discharges
   
   but...

   PFAS concentrations at WWTFs that accept significant volumes of leachate are elevated.

3. Treatment of leachate for PFAS is feasible using proven technologies
   
   but....

   it would come with a cost and still has significant challenges with the management of treatment residuals.
PFAS in Waste Streams - Reports

• Evaluation of PFAS within the waste streams disposed of at the New England Waste Services of Vermont (NEWSVT) landfill
  -Sanborn Head: PFAS Waste Source Testing Report, dated October 2019

• Statewide evaluation of PFAS within landfill leachate, wastewater treatment facility (WWTF) influent, effluent, biosolids and sludges
  -Weston and Sampson: Wastewater Facility and Landfill PFAS Sampling Summary report, dated January 2020

• Assessment of treatment options that would reduce or eliminate PFAS within landfill leachate
  -Brown and Caldwell: Conceptual Leachate Treatment Scoping Study for New England Waste Services of Vermont Landfill, dated October 2019
PFAS Going into the Landfill
Bulk analysis of materials being disposed

Sanborn Head: PFAS Waste Source Testing Report, dated October 2019
Bulky Waste and Textiles

Sample Designation Key
F = Furniture
MT = Mattresses
CL = Clothing
OF = Outdoor Furniture
T = Textiles
O = Other
Sludges: Industrial and Municipal

Fig. 1 of 2
Sludges:
Industrial and Municipal
Fig. 2 of 2

Sample Designation Key
M = Municipal Sludge
I = Industrial Sludge
P = Paper Sludge
G = Sewer Grit
Construction and Demolition (includes carpeting)
Commercial Wastes

Sample Designation Key
WP = Waterproof Coatings
SC = Surface Coatings
CM = Cosmetics Manufacturing
FP = Food Packaging
W = Wire Manufacturing
CT = Clothing & Textiles
PM = Plastics Manufacturing
CW = Carwash
CP = Coated Paper
E = Electroplating
P = Packaging
IP = Ink Printing
PFAS Loading into the Landfill

Based on:
- concentrations detected; and
- estimates of the tonnage of each waste type disposed
PFAS Coming Out of Landfills
Analysis of Leachate
PFAS in Wastewater
Analysis of Influent and Effluent at Wastewater Treatment Facilities (WWTF)
PFAS in Sludges and Biosolids
Sampling at Wastewater Treatment Facilities (WWTF)
Evaluation of Leachate Treatment Options

Request: Evaluate available leachate treatment options for PFAS and recommend two on-site and two off-site options for the NEWSVT landfill

Challenges and Assumptions:
1. No promulgated treatment or discharge standard

2. Research on PFAS treatment predominantly focused on ‘clean’ liquids and PFOA or PFOS – leachate is a complex matrix, requiring pre-filtrations

3. All commercially available treatment options for leachate either concentrate or capture PFAS – residuals must be stabilized or destroyed off-site

Brown and Caldwell: Conceptual Leachate Treatment Scoping Study for New England Waste Services of Vermont Landfill, dated October 2019
Industrial or Intensive Uses

**Carwashes**
- Evaluated 17 of 76 carwashes
- PFAS detected at 4 locations
- Exceedances at 2 locations
- No drinking water impacts

**Electroplaters**
- Evaluated 16 electroplaters
- PFAS detected at 2 of the 5 locations sampled

Further evaluation and investigation is ongoing