



NACAA Fall Membership Meeting
Cleveland, OH
October 16, 2018

PFAS Emissions Investigation
Saint-Gobain Performance Plastics
Merrimack, NH

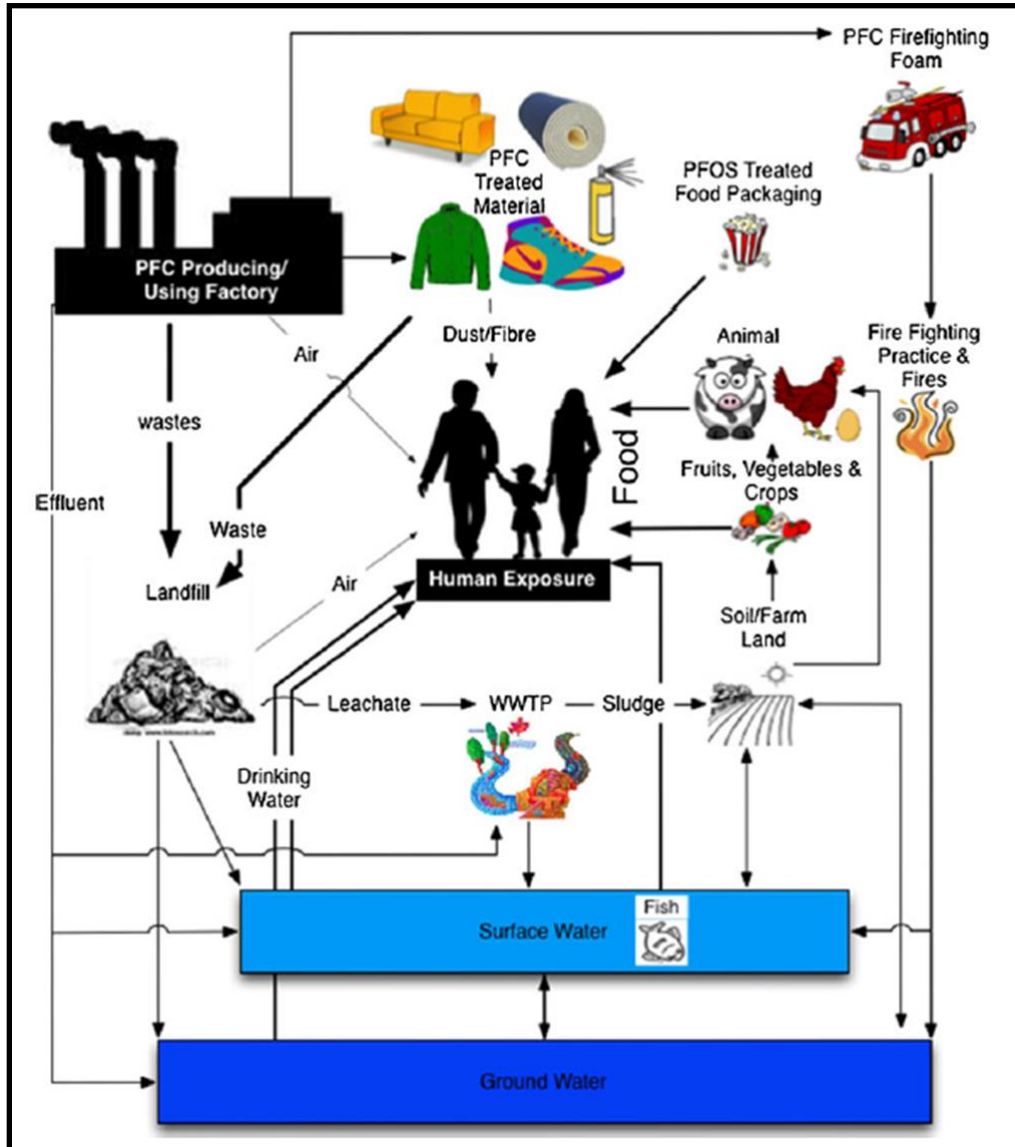
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Possible Sources of PFAS Releases



- Used for decades to make products that resist heat, oils, grease, stains and water
- ▶ Textiles, Upholstery, Apparel and Carpets
 - ▶ Paper, Packaging, Non Woven Fibers
 - ▶ Metal Plating (mist suppressant)
 - ▶ Semiconductor
 - ▶ Wire Coating
 - ▶ Firefighting Aqueous Film-Forming Foam

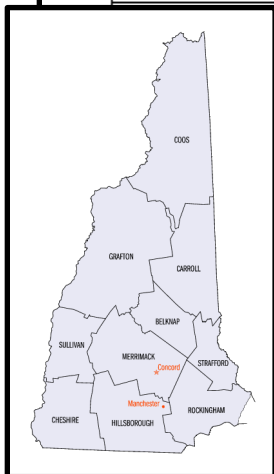
From Oliaei 2013,
Environmental Science
Pollution Research



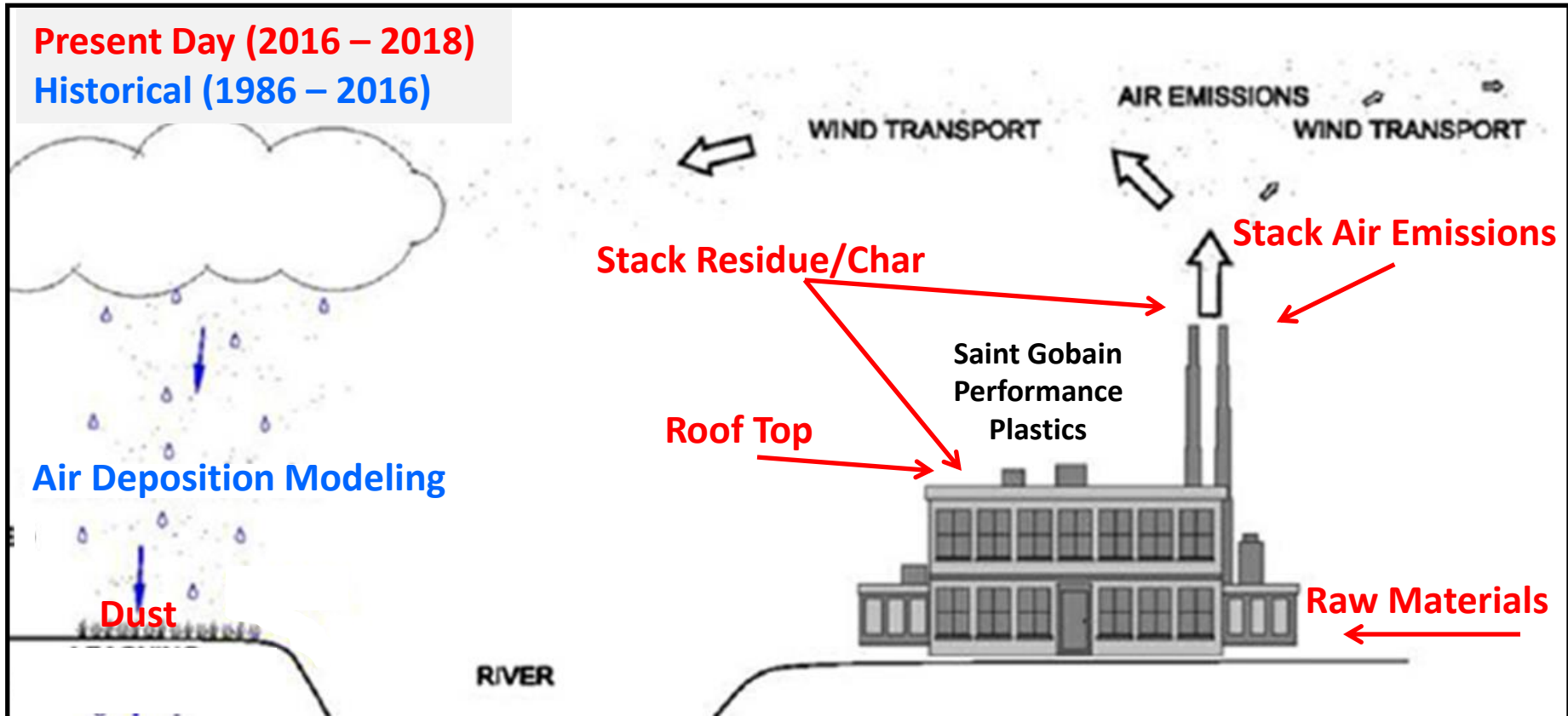
NH Investigation of Potential PFAS Sources at Industrial Facilities

List of Companies for Which No Further Investigation is Deemed Necessary by NHDES
as Part of Southern NH PFOA in Drinking Water Investigation
(updated as of January 27, 2017)

Facility	City	Response Received	Determination ¹
Aero Dynamics Inc.	Seabrook	Y	No further investigation necessary
Albany Engineered Composites Inc	Rochester	Y	No further investigation necessary
Alden Broden	Nashua	NA	Inspected 05/27/16; No further investigation necessary
Amatex Corporation	Laconia	Y	Sampling conducted; Results obtained; No further investigation necessary ²
Amatex Corporation	Meredith	Y	No further investigation necessary
Chemtan Co, Inc.	Lee	Y	No further investigation necessary
Foss Manufacturing Company LLC	Hampton	Y	Sampling conducted; Results obtained; No further investigation necessary ²
Hayden Kerk Motion Products	Milford	Y	No further investigation necessary
Hayden Kerk Motion Products	Hollis	Y	No further investigation necessary
Ingeniven USA	Hampton	Y	No further investigation necessary
J & E Specialty Inc	Dover	Y	No further investigation necessary
Kluber Lubrication North America L.P.	Londonderry	Y	No further investigation necessary
nt, Inc.	Dover	Y	No further investigation necessary
ire Technologies	Lisbon	Y	Inspection 06/16/16; Sampling conducted; Results obtained; No further investigation necessary ²
Ball Bearings Inc.	Peterborough	Y	No further investigation necessary
Ball Bearings Inc.	Laconia	NA	Inspected 05/11/16; Sampling conducted; Results obtained; No further investigation necessary ²
ision CNC	Dover	Y	No further investigation necessary
	Bow	Y	No further investigation nece
	Manchester	Y	No further investigation nece



Where did PFAS come from? Is PFAS still being released? Where might it have gone?



Davis et al., 2007, *Chemosphere*

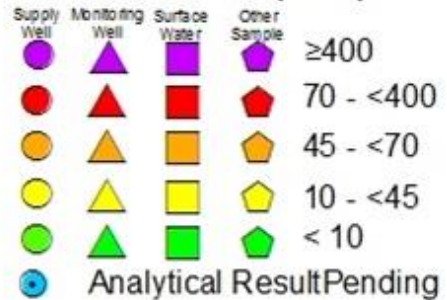
See September 26, 2018 Letter from NHDES to SGPP *Determination of BACT Applicability Pursuant to RSA 125-C:10-e, II* for in depth listing of analytical results.



SOUTHERN NH PFAS INVESTIGATION May 4, 2017



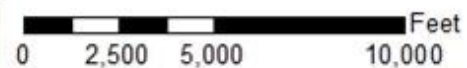
PFOA + PFOS (PPT)



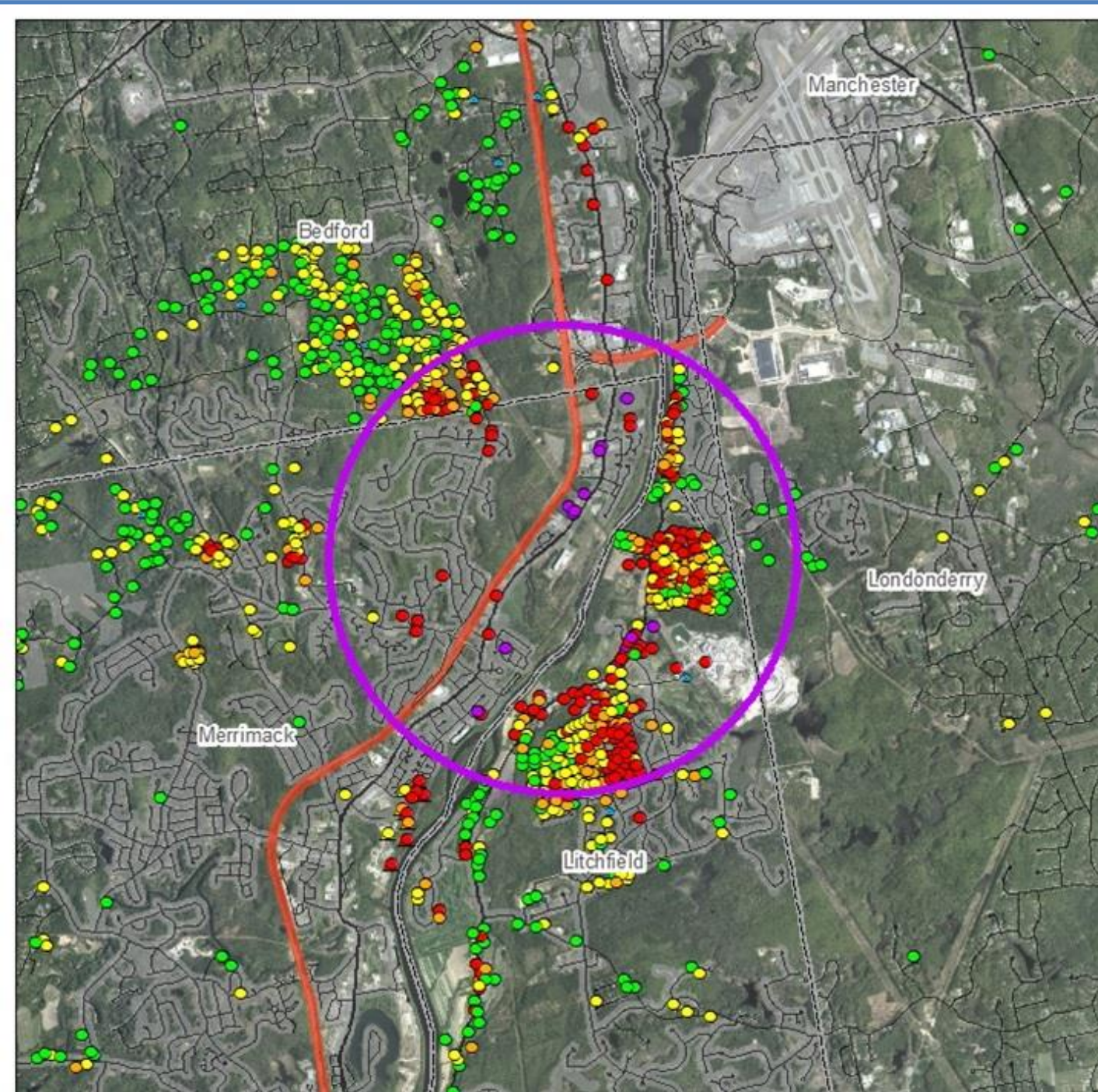
Public Water Supplies

Water Distribution

Political Boundary



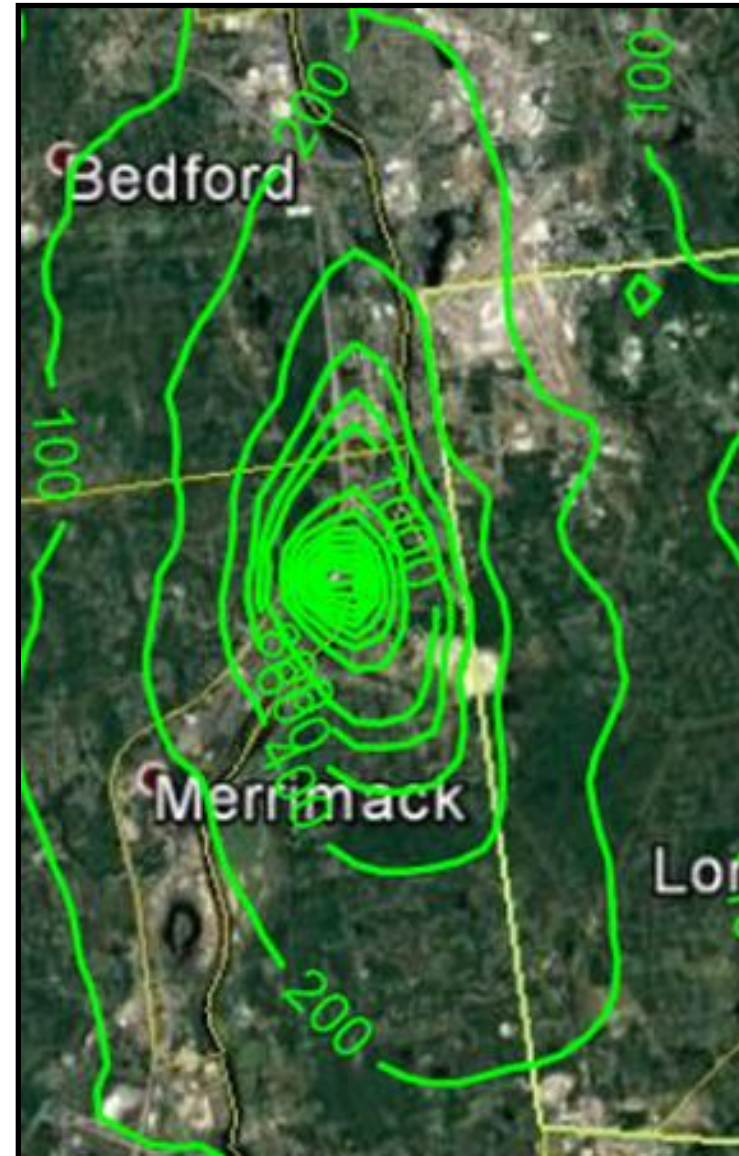
1 inch = 5,000 feet





Air Deposition Modeling

- To identify where additional private well sampling should be done
- To determine the size/shape of deposition area
- Identification places to further evaluate during the site investigation (e.g. soil or groundwater testing)



Air Emission Information

- ▶ Historical Raw Material Usages – Application Rates
- ▶ Hours of Operation
- ▶ Safety Data Sheet Information about Constituents
- ▶ Stack Test Data
- ▶ Dispersion Processor Material Balance Project Final Report (February, 2005)
 - Control Equipment
 - Recirculating Ovens
 - Uncontrolled

Complete report available at www.regulations.gov Docket: EPA-HQ-OPPT-2003-0012

Agency: Environmental Protection Agency



Air Inhalation Pathway

- ▶ NH State Air Toxics Regulation (Env-A 1400)
- ▶ AAL – Ambient Air Limits
 - APFO (1997)
 - $0.050 \mu\text{g}/\text{m}^3$ (24-hr)
 - $0.024 \mu\text{g}/\text{m}^3$ (annual)
- ▶ ACGIH developed a threshold limit value (TLV) of $0.01 \text{mg}/\text{m}^3$ (1992)
 - NHDES, EHP reviewed literature and set a Toxicity Factor and a Time Adjustment Factor based on high reproductive and development effects in rats and acute toxicity.









Air Emission Stack Testing



Complexity of Sample Train and Number of Samples

4 --> 7 fractions per sample train

3 --> 6 runs per tower

1 --> 3 towers



Air Emission Stack Testing

SUMMA Canister Sampling

Collect volatile compounds with boiling points less than 100°C.

EPA, ORD





Air Emission Stack Testing



Date

April/May 2018

Stack Testing Company

Barr Engineering Co.

Observations from 2018 stack tests*:

- At least one fraction of the sample train had detections of PFAS compounds including:

PFBA	PFPeA	PFHxA	PFHpA
PFOA	PFNA	PFBS	PFHxS
PFOS	GenX		
- Pilot-scale pollution control device was not effective for all PFAS.

* SGPP Stack Test report received September 27, 2018 and is under technical review by NHDES, ARD. EPA, ORD report for entire analysis has not been received. EPA, ORD report on SUMMA Canister analysis received October 5, 2018 and is under review by NHDES, ARD.



Pilot Scale Control Device: Coalescing Fiberbed Filter Mist Collector System





Current Status

September 26, 2018

NHDES letter to SGPP

March 26, 2019

Statutory deadline for SGPP to submit BACT analysis & permit application

