

O'Rourke, James

From: Lilly Corenthal <lcorenthal@sanbornhead.com>
Sent: Friday, January 17, 2025 3:09 PM
To: O'Rourke, James
Cc: Marc Morgan; Samuel Nicolai; Kimberly Crosby; Bruce Grover; Tim White
Subject: NCES - Notification of SSI groundwater quality results
Attachments: Tbl 1 - Background Eval.pdf; Tbl 2 - Initial Exceedance.pdf

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Good afternoon Jamie,

We are providing notification of groundwater PFAS sampling results from SSI wells sampled in December 2024 compared to background values at the NCES Landfill.

PFAS data were reported by the laboratory on January 8th. These data represent the first sampling event from the SSI locations installed in November 2024.

The following attachments are provided:

- Table 1 compares groundwater sampling results to background concentrations and includes previous results from SSI wells in November and December 2024 for reference.
- Table 2 includes a discussion of initial PFAS background exceedances detected in SSI wells in December 2024.

A data transmittal will be prepared that provides additional information regarding the Fall 2024 SSI activities including laboratory reports and drilling logs. In addition, the data will be further assessed in the April 2025 sampling event.

Regards,
Lilly

Lilly Corenthal, PG

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TABLE 1
Evaluation of Background Exceedances - SSI Samples - Nov. and Dec. 2024
North Country Environmental Services, Inc.
Bethlehem, New Hampshire
Permit No. GWP-198704033-B-008

Sample Location	Sample Date	Sample Type	SU	uS/cm	C	mg/L							ug/L	ng/L							
			pH	Specific Conductance	Temperature	Chemical Oxygen Demand (COD)	Chloride	Total Kjeldahl Nitrogen (TKN)	Arsenic, Dissolved	Barium, Dissolved	Iron, Dissolved	Manganese, Dissolved	Dioxane (1,4-)	Perfluorobutanoic Acid (PFBA) [3]	Perfluoropentanoic Acid (PFPeA) [4]	Perfluorohexanoic Acid (PFHxA) [5]	Perfluoroheptanoic Acid (PFHpA) [6]	Perfluorooctanoic Acid (PFOA) [7]	Perfluorobutanesulfonic Acid (PFBS) [4S]	Perfluorohexanesulfonic acid (PFHxS) [6S]	Perfluorooctanesulfonic Acid (PFOS) [8S]
GW-1 (AGQS)								0.005	2		0.3	0.32					12		18	15	
SMCL			6.5-8.5				250			0.3	0.05										
Background 2024-11			6.3-8.6	125	5.6-11.9	15	1.8	0.58	0.00051	0.025	0.41	0.072	<0.25	<1.5-<2.5	<1.5-<2.5	<1.5-<2.5	<1.5-<2.5	<1.5-<2.5	<1.5-<2.5	<1.5-<2.5	
Supplemental Site Investigation																					
B-932U	11/4/2024	N	6.27	93	10.6	<10	5.7	<0.5	<0.0005	0.0094	<0.05	0.041	<0.25	2.35	<1.81	2.54	2.48	4.95	4	<1.81	1.94 JH
B-932L	11/4/2024	N	7.02	133	9.2	<10	3.3	<0.5	0.00057	0.0077	<0.05	<0.005	<0.25	<1.74	2.34	2.69	<1.74	2.54	<1.74	<1.74	<1.74
B-933U	12/10/2024	N	6.93	108	11	<10	2	<0.5	0.0098	0.02	7	3.3	<0.25	<10	<10	<10	<10	<10	<10	<10	<10
B-933L	12/10/2024	N	7.28	138	10.6	<10	3.1	<0.5	0.00067	0.02	<0.05	0.46	<0.25	<10	<10	<10	<10	<10	<10	<10	<10
B-934U	12/10/2024	N	6.18	401	15.7	34	21	0.93	0.0093	0.13	21	11	0.55	41.2	68.1	90.7	22.8	19.8	46.3	2.40	<1.71
B-934L	12/10/2024	N	6.74	162	15.2	<10	2.7	<0.5	0.04	0.055	15	2.8	<0.25	<1.77	<1.77	<1.77	<1.77	<1.77	<1.77	<1.77	<1.77
MW-802L	12/10/2024	N	7.40	205	13.1	<10	9.5	<0.5	0.0005	0.014	0.35	0.37	<0.25	<1.86	<1.86	<1.86	<1.86	<1.86	<1.86	<1.86	<1.86

- Notes:
- Samples were collected by Sanborn Head on the dates indicated. Samples were analyzed by Eastern Analytical, Inc. (EAI) of Concord, New Hampshire. PFAS samples were analyzed by Pace Analytical (formerly Alpha) of Mansfield, Massachusetts by USEPA Method 537 (modified) with isotope dilution.
 - Only detected analytes which exceed background in one or more sample in the current rounds are presented herein. Refer to the analytical laboratory reports for the complete list of parameters analyzed. Results are compared to their respective background values from time of sampling.
 - pH is presented in standard units (s.u.), specific conductance is presented in microSiemens per centimeter (µS/cm), and temperature is presented in degrees Celsius (C). Indicator parameter and metals results are presented in milligrams per liter (mg/L) which is equivalent to parts per million. Volatile organic compound (VOC) results are presented in micrograms per liter (µg/L) which is equivalent to parts per billion (ppb). Per- and polyfluoroalkyl substances (PFAS) results are presented in nanograms per liter (ng/L) which is equivalent to parts per trillion (ppt).
 - "<" indicates the analyte was not detected above the listed laboratory reporting limit.
"JH" indicates the ion transition ratio is outside of acceptance criteria and the concentration should be considered estimated with a potential high bias.
[3] = number of carbons in the alkyl chain for perfluorinated carboxylic acids (PFCAs). The carbon included in the carboxylic functional group is non-fluorinated and the remaining carbons (i.e., alkyl chain) are fluorinated.
[4S] = number of carbons in the alkyl chain for perfluorinated sulfonic acids (PFSAs). All of the carbons are fluorinated.
 - "GW-1" Groundwater Standards are from the New Hampshire Department of Environmental Services (NHDES) Contaminated Sites Risk Characterization and Management Policy (RCMP) (January 1998, with 2000 through 2018 revisions/addenda). GW-1 Groundwater Standards are intended to be equivalent to the AGQSs promulgated in Env-Or 600 (June 2015 with October 2016, September 2018, September 2019, May 2020, January 2021, and July 2021 amendments). For analytes where GW-1 and AGQS values differ, the values presented in this table reflect the AGQSs in the latest Env-Or 600 update. The AGQS/GW-1 Groundwater Standards are intended to be protective of groundwater as a source of drinking water.

"SMCL" refers to the USEPA Secondary Maximum Contaminant Levels as presented in the National Primary Drinking Water Standards (May 2009). The SMCLs are established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These analytes are not considered to present a risk to human health at the SMCL.
 - Bold values exceed the GW-1/AGQS.
Italic values exceed the SMCL.
Green shading indicates a concentration exceeds current background.
Yellow shading indicates a concentration exceeds background for the first time.
 - Refer to the November 2024 Report text for further information about calculation and selection of background concentrations.

TABLE 2
Initial Background Exceedances - SSI Samples - PFAS - Dec. 2024
North Country Environmental Services, Inc.
Bethlehem, New Hampshire
Permit No. GWP-198704033-B-008

Location	Analyte	Concentration / Value	Previous Max/Min	November 2024 Site Background (refer to Table 1)	GW-1 (AGQS)	SMCL	# of sampling events for analyte
B-934U	pH	6.18 SU	--	6.3 - 8.6 SU	NS	6.5 - 8.5 SU	1
	Specific Conductance	401 μ S/cm	--	125 μ S/cm	NS	NS	1
	Temperature	15.7 C	--	5.6 - 11.9 C	NS	NS	1
	Perfluorobutanoic Acid (PFBA) [3]	41.2	--	<1.5-<2.5 ng/L	NS	NS	1
	Perfluoropentanoic Acid (PFPeA) [4]	68.1	--	<1.5-<2.5 ng/L	NS	NS	1
	Perfluorohexanoic Acid (PFHxA) [5]	90.7	--	<1.5-<2.5 ng/L	NS	NS	1
	Perfluoroheptanoic Acid (PFHpA) [6]	22.8	--	<1.5-<2.5 ng/L	NS	NS	1
	Perfluorooctanoic Acid (PFOA) [7]	19.8	--	<1.5-<2.5 ng/L	12 ng/L	NS	1
	Perfluorobutanesulfonic Acid (PFBS) [4S]	46.3	--	<1.5-<2.5 ng/L	NS	NS	1
	Perfluorohexanesulfonic acid (PFHxS) [6S]	2.40	--	<1.5-<2.5 ng/L	18 ng/L	NS	1
Comments: B-934U was installed in November 2024; December 2024 represents the first sampling event at this location. PFAS detections at this well are similar to those historically recorded at nearby monitoring well MW-803 and are consistent with residual impacts from the former unlined landfill. For example, the PFOA detection at B-934U in November 2024 was within the range of recent concentrations detected at MW-803 (64 ng/l in July 2024). Comparison to background concentrations will be further assessed in the second sampling event at this location in April 2025.							

Notes:

1. The number of sampling events for an analyte includes primary samples and re-samples collected inclusive of the current monitoring period, but does not include field duplicates, if collected.
2. Refer to Appendix A of the November 2024 monitoring report for a discussion of methods used to develop background concentrations.
3. "GW-1" Groundwater Standards are from the New Hampshire Department of Environmental Services (NHDES) Contaminated Sites Risk Characterization and Management Policy (RCMP) (January 1998, with 2000 through 2018 revisions/addenda). GW-1 Groundwater Standards are intended to be equivalent to the AGQSs promulgated in Env-Or 600 (June 2015 with October 2016, September 2018, September 2019, May 2020, January 2021, and July 2021 amendments). For analytes where GW-1 and AGQS values differ, the values presented in this table reflect the AGQSs in the latest Env-Or 600 update. The AGQS/GW-1 Groundwater Standards are intended to be protective of groundwater as a source of drinking water.
 "SMCL" refers to the USEPA Secondary Maximum Contaminant Levels as presented in the National Primary Drinking Water Standards (May 2009). The SMCLs are established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These analytes are not considered to present a risk to human health at the SMCL.
4. ng/l = nanograms per liter, which are equivalent to parts per trillion (ppt)