O'Rourke, James

From: Tim White <twhite@sanbornhead.com>
Sent: Wednesday, November 27, 2024 4:01 PM
To: O'Rourke, James
Cc: Jeremy Labbe; Kimberly Crosby; Russ Anderson; Samuel Nicolai; Matt Estabrooks; Gina Panik
Subject: NCES - November 2024 notification of water quality results
Attachments: Tables - Bck Eval.pdf

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Categories: Orange Category

Hi Jamie,

This email provides a comparison of groundwater results to background values for the November 2024 sampling event at the NCES Landfill – performed November 4-5, 2024. Note that PFAS results have not yet been reported by the laboratory but will be summarized in the forthcoming November Report. Surface water results are also summarized below.

We have attached the following information:

- Table 1 compares November 2024 groundwater sampling results to background concentrations.
- Table 2 includes a discussion of initial background exceedances detected in release detection wells in November 2024.

Groundwater

- 1,4-Dioxane and dichlorodifluoromethane (CFC12) were the only VOCs detected in November 2024.
  - B-304UR (located north of the landfill) indicated a 1,4-dioxane detection at a concentration of 0.34 ug/l, which is slightly above the AGQS of 0.32 ug/l. The concentration was on the lower end of the range of historical concentrations detected at this location (0.27 to 11 ug/l).
  - B-927M (downgradient of Stage V) indicated a CFC12 detection at a concentration of 14 ug/l, which is within the range of historical concentrations detected at this location (7 to 21 ug/l). The AGQS for CFC12 is 1,000 ug/l.

- As indicated on Table 2, one well (B-932U) indicated an initial background exceedance for pH. The November 2024 result for pH (6.27 s.u.) was slightly below the November 2024 Site Background range of 6.3 to 8.6 s.u. and the SMCL of 6.5 to 8.5 s.u. We note that B-932U was installed in June 2024; November 2024 represents the second sampling event at this location. Given the continued general absence of other potential leachate indicators at this location, including more soluble analytes, the data are not consistent with a new release.

- Other results were generally within the range of historical values, except four results which indicated new period of record maximum concentrations at four locations:
  - Manganese at B-926U – 8.9 mg/l, above the manganese site background concentration of 0.072 mg/l and the AGQS of 0.3 mg/l. The previous maximum concentration was 5.7 mg/l in July 2018. The November 2024

result was not a first-time exceedance of manganese site background concentration or AGQS at this location.
  - Iron at B-919M – 12 mg/l, above the iron site background concentration of 0.41 mg/l. The previous maximum concentration was 10 mg/l in June 2022. The November 2024 result was not a first-time exceedance of iron site background concentration at this location.
  - Chloride at B-918U – 65 mg/l, above the chloride site background concentration of 1.8 mg/l. The previous maximum concentration was 57 mg/l in July 2024. The November 2024 result was not a first-time exceedance of chloride site background concentration at this location.
  - Chemical Oxygen Demand (COD) at MW-803 – 100 mg/l (duplicate; 90 mg/l in the primary), above the COD site background concentration of 15 mg/l. The previous maximum concentration was 99 mg/l (duplicate sample) in November 2023. The November 2024 result was not a first-time exceedance of COD site background concentration at this location.

Other analytes at these locations were generally within the range of historical values and do not indicate a new release.

PFAS data have not yet been reported.

Surface Water

- VOCs were not detected in surface water samples collected at S-1 and SF-1 in November 2024. Results for other analytes were within the range of historical values.

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TABLE 1
Evaluation of Background Exceedances – Groundwater Samples – November 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	
			pH	Specific Conductance	Temperature	Bromide	Chemical Oxygen Demand (COD)	Chloride	Nitrate	Total Kjeldahl Nitrogen (TKN)	Arsenic, Dissolved	Iron, Dissolved	Manganese, Dissolved	Dichlorodifluoromethane (CFC12)	Dioxane (1,4-)
GW-1 (AGQS)									**10**		**0.005**		**0.3**	**1000**	**0.32**
SMCL			**6.5-8.5**					**250**				**0.3**	**0.05**		
Background 2024-11			**6.3-8.6**	**125**	**5.6-11.9**	**0.1, 0.4 §**	**15**	**1.8**	**3.2**	**0.58**	**0.00051**	**0.41**	**0.072**	**<2**	**<0.25**
Background Wells															
B-923U	11/5/2024	N	7.46	68	7.5	<0.1	<10	<1	<0.5	<0.5		<0.05	<0.005	<2	<0.25
B-924U	11/5/2024	N	Sampling not required as part of permit monitoring												
B-924L	11/5/2024	N	Sampling not required as part of permit monitoring												
B-925U	11/5/2024	N	7.26	62	8.1	<0.1	<10	<1	<0.5	<0.5		<0.05	<0.005	<2	<0.25
B-925L	11/5/2024	N	Sampling not required as part of permit monitoring												
B-929U	11/5/2024	N	*6.49*	80	8.2	<0.1	<10	1	2.2	<0.5		<0.05	<0.005	<2	<0.25
B-929L	11/5/2024	N	Sampling not required as part of permit monitoring												
Release Detection Wells Outside the GMZ															
B-915D	11/5/2024	N	Sampling not required as part of permit monitoring												
B-916U	11/5/2024	N	*5.93*	63	10.8	<0.1	<10	<1	<0.5	<0.5		<0.05	0.0055	<2	<0.25
B-916M	11/5/2024	N	*6.22*	229	8.7	<0.1	<10	34	0.54	<0.5		<0.05	<0.005	<2	<0.25
B-916D	11/5/2024	N	Sampling not required as part of permit monitoring												
B-917U	11/5/2024	N	6.94	46	8.2	<0.1	<10	<1	<0.5	<0.5		<0.05	<0.005	<2	<0.25
B-909	11/5/2024	N	6.81	94	8.6	<0.1	<10	<1	<0.5	<0.5		<0.05	<0.005	<2	<0.25
B-917D	11/5/2024	N	Sampling not required as part of permit monitoring												
B-918U	11/4/2024	N	*6.01*	362	9.8	0.13	<10	65	2.4	<0.5		0.067	<0.005	<2	<0.25
B-918D	11/4/2024	N	Sampling not required as part of permit monitoring												
B-926U	11/5/2024	N	*6.25*	245	9.7	0.15	24	3.7	<0.5	0.57		<0.05	***8.9***	<2	<0.25
B-926L	11/5/2024	N	*6.4*	213	8.3	<0.1	<10	29	0.63	<0.5		<0.05	<0.005	<2	<0.25
B-927U	11/4/2024	N	*6.25*	357	11.8	<0.1	<10	47	2.1	<0.5		<0.05	<0.005	<2	<0.25
B-927L	11/4/2024	N	Sampling not required as part of permit monitoring												
B-930U	11/5/2024	N	6.87	97	9.5	<0.1	<10	<1	<0.5	<0.5		<0.05	<0.005	<2	<0.25
B-930L	11/5/2024	N	Sampling not required as part of permit monitoring												
B-931U	11/5/2024	N	7.03	85	9.5	<0.1	<10	1.8	<0.5	<0.5	<0.0005	<0.05	<0.005	<2	<0.25
B-931L	11/5/2024	N	Sampling not required as part of permit monitoring												
B-927M	11/4/2024	N	6.96	142	10.9	<0.1	47	3.6	<0.5	<0.5		*4.6*	*0.28*	14	<0.25
B-918M	11/4/2024	N	6.78	164	9.9	<0.1	<10	14	1.1	<0.5		<0.05	<0.005	<2	<0.25
MW-701	11/4/2024	N	6.64	186	10.4	<0.1	<10	2.7	<0.5	<0.5		<0.05	***0.55***	<2	<0.25
B-915U	11/5/2024	N	*6.24*	184	9.9	<0.1	<10	7.8	0.59	<0.5		<0.05	<0.005	<2	<0.25
B-915M	11/5/2024	N	*6.34*	259	8.2	<0.1	<10	39	0.55	<0.5		<0.05	<0.005	<2	<0.25
Release Detection Wells Inside the GMZ – Impacts Anticipated from Former Unlined Landfill															
B-919D	11/4/2024	N	Sampling not required as part of permit monitoring												
B-928U	11/4/2024	N	*6.06*	152	8.6	<0.1	<10	7.7	0.93	<0.5		<0.05	<0.005	<2	<0.25
B-928D	11/4/2024	N	6.72	168	10.1	<0.1	<10	10	1.1	<0.5		<0.05	<0.005	<2	<0.25
MW-802	11/4/2024	N	*6.18*	332	14.5	0.14	16	24	<0.5	<0.5	**0.0085**	*7.4*	***5.3***	<2	<0.25
MW-803	11/4/2024	N	*6.37*	449	16.4	0.18	90	8.2	<0.5	2.6	**0.057**	*59*	***6.9***	<2	<0.25
MW-803	11/4/2024	FD				0.19	100	7.7	<0.5	2.8	**0.057**	*59*	***6.9***	<2	<0.25
B-919U	11/4/2024	N	6.93	224	9	<0.1	<10	4	0.68	<0.5	<0.0005	<0.05	<0.005	<2	<0.25
B-919M	11/4/2024	N	6.79	135	14.7	<0.1	<10	1.9	<0.5	<0.5	**0.056**	*12*	***4.2***	<2	<0.25
B-304UR	11/4/2024	N	6.66	486	10.7	<0.1	<10	22	8.7	<0.5		<0.05	<0.005	<2	**0.34**
B-304DR	11/4/2024	N	6.56	237	13.5	<0.1	<10	17	<0.5	<0.5		<0.05	***2.3***	<2	<0.25
B-304DR	11/4/2024	FD				<0.1	<10	11	<0.5	<0.5		<0.05	***2.2***	<2	<0.25
Groundwater Management Wells Inside the GMZ – Impacts Anticipated from Former Unlined Landfill															
B-103S	11/4/2024	N	6.85	110	12	<0.1	<10	3.1	<0.5	<0.5		*7.3*	***1.6***	<2	<0.25
B-103D	11/4/2024	N	6.84	100	12.1	<0.1	<10	2.3	<0.5	<0.5		*4*	***1.2***	<2	<0.25
MW-604	11/4/2024	N	6.78	191	10.4										
Supplemental Site Investigation															
B-932U	11/4/2024	N	*6.27*	93	10.6	<0.1	<10	5.7	<0.5	<0.5	<0.0005	<0.05	0.041	<2	<0.25
B-932L	11/4/2024	N	7.02	133	9.2	<0.1	<10	3.3	<0.5	<0.5	0.00057	<0.05	<0.005	<2	<0.25

Notes:
1. Samples were collected by Sanborn Head on the dates indicated. Samples were analyzed by Eastern Analytical, Inc. (EAI) of Concord, New Hampshire.
Field duplicate samples are indicated by "FD" in the Sample Type column.

2. Only detected analytes which exceed background in one or more sample in the current rounds are presented herein. Blank cells for an analyte indicate not analyzed. 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.

3. 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).

4. "§" indicates background value for bromide is 0.4 mg/L for wells within the groundwater management zone (GMZ) established for the site, and 0.1 mg/L for wells outside the GMZ.
"<" indicates the analyte was not detected above the listed laboratory reporting limit.
Blank cells indicate the sample was not analyzed for that analyte.

5. "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.

6. Bold values exceed the GW-1/AGQS.
Italic values exceed the SMCL.
Green shading indicates a concentration exceeds background.
Yellow shading indicates a concentration exceeds background for the first time.

7. Refer to the report text and the text of Appendix A for further information about calculation and selection of background concentrations.

Table 2
Initial Background Exceedances – November 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
Background Wells							
No initial exceedances of background							
Release Detection Wells Outside the GMZ							
No initial exceedances of background							
Release Detection Wells Inside the GMZ – Impacts Anticipated from Former Unlined Landfill							
No initial exceedances of background							
Groundwater Management Wells Inside the GMZ – Impacts Anticipated from Former Unlined Landfill							
No initial exceedances of background							
Supplemental Site Investigation							
B-932U	pH	6.27 s.u.	6.72 s.u.	6.3-8.6 s.u.	NS	6.5-8.5 s.u.	2
	Comments: B-932U was installed in June 2024; November 2024 represents the second sampling event at this location. Given the general absence of other potential leachate indicators, the data are not consistent with a new release.						

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 Annual 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. pH is presented in standard units (s.u.).