



The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**



**Robert R. Scott, Commissioner**

EMAIL ONLY

October 19, 2018

John Gay  
Casella Waste Management, Inc.  
220 Avenue B  
Williston, VT 05495

**Subject:** **Bethlehem** – North Country Environmental Services (NCES) Landfill  
581 Trudeau Road, DES Site #198704033, Project #1737

**July 2018 Tri-Annual / 2018 Annual Water Quality Monitoring Results**,  
prepared by Sanborn, Head & Associates, Inc. (SHA), dated August 31, 2018

**Monitoring Well Triplet B-918 August 2018 Groundwater Sampling Results**,  
prepared by SHA, dated September 28, 2018

Dear Mr. Gay:

Please find enclosed revised Groundwater Management and Release Detection Permit Number **GWP-198704033-B-007**, approved by the New Hampshire Department of Environmental Services (NHDES). This permit, as originally issued on April 12, 2018, is for a period of 5 years to monitor groundwater quality at the subject site and has been revised to reflect the addition of sampling and analysis for per- and polyfluoroalkyl substances (PFAS) to the site monitoring program defined in Condition No. 11 of the Permit.

All required sampling results and monitoring summaries should continue to be addressed to the NHDES Groundwater Management Permits Coordinator. Correspondence should include the appropriate [Cover Sheet for Reports](#) and completed [Cover Sheet for Groundwater Monitoring Reports](#) that clearly show the NHDES identification number for this site (DES Site #198704033, Project #1737). The submittal of documents in an electronic format through NHDES' [OneStop database](#) is preferred.

As noted above, the water quality monitoring program established by the enclosed Permit has been modified from the program specified in the previous Permit. Within the *April 2018 Water Quality Monitoring Results* submittal SHA recommended groundwater release detection monitoring wells MW-701, MW-802, B-304UR, B-304DR, B-915U&M, B-918U&M, B-919U&M, and B-927M be sampled annually in July for PFAS under the Permit. SHA also recommended monitoring wells B-918D and B-919D, B-923U, B-924U, and B-925U be sampled during July in select years. NHDES concurs with the recommended addition of PFAS testing to the Permit. At this time, release detection monitoring wells B-904U and B-914U, which are downgradient of the eastern portion of the landfill, have also been added to the Permit's yearly July sampling round. Sampling should conform to NHDES' [Laboratory Testing Guidelines for Per- and Polyfluoroalkyl Substances \(PFAS\)](#). Please note although PFAS have been added at select wells to Condition No. 11 of the Permit, additional sampling and analysis for PFAS at the site may be warranted as discussed below.

[www.des.nh.gov](http://www.des.nh.gov)

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Also, based on our review of the above-referenced documents, NHDES developed the comments that follow below. Comments requiring a response from NCES and/or SHA are indicated in **bolded italicized font**.

1. NHDES notes the detection of 1,4-dioxane at release detection monitoring well B-918M during the April 2018 Permit monitoring round and subsequent confirmation sampling event conducted by SHA in May 2018. Concentrations of perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) combined (PFOA+PFOS) were also detected at B-918M during July 9, 2018. NHDES concurs with SHA that these detections are likely the downgradient expression of an August 2006 construction-related leachate release previously documented in the area of monitoring well B-913M. As discussed by SHA, B-918M is downgradient of B-913M, which was decommissioned in 2015, prior to the construction of Stage V. PFOA+PFOS, which were not sampled for at B-913M, were detected at a concentration exceeding the Ambient Groundwater Quality Standard (AGQS) at B-918M during the July 2018 round. The April and May 2018 detections of 1,4-dioxane are above the current AGQS, as revised on September 1, 2018. These detections should be monitored closely as they represent not only first-time detections at release detection monitoring wells, but also AGQS violations. NHDES notes that the results of the August 27, 2018 follow-up sampling event indicated 1,4-dioxane and PFOA+PFOS were detected at concentrations above laboratory reporting limits but less than AGQS at B-918M. Results for B-918U and B-918D were non-detect for 1,4-dioxane and PFOA+PFOS.

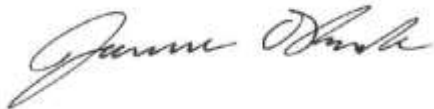
In addition to those requirements for sampling at B-918U&M under the Permit during the November 2018 sampling round, which includes analysis for 1,4-dioxane (using a 0.25 microgram per liter (µg/l) reporting limit), sampling should be completed for PFAS at B-918M during the next Permit sampling event. Results of the sampling event should be summarized and conclusions and recommendations for additional monitoring or investigation included as part of the data transmittal due in January 2018. ***Sampling at B-918U&M should be completed as outlined above as part of the November 2018 sampling event. Results shall be submitted to the NHDES with the November 2018 Data Transmittal, due in January 2019, and should include an evaluation of the results and recommendations for future monitoring or other actions.***

2. NHDES notes the detection of toluene at release detection monitoring well B-916D during the July 10, 2018 Permit monitoring round and the follow-up confirmation sampling event on July 26, 2018; at concentrations of 1.1 µg/l and 1.2 µg/l, respectively. As indicated within the Summary Report, toluene was not detected at B-916U or B-916M during the July 2018 Permit monitoring round. This first time detection at B-916D should be monitored closely; thusly, release detection monitoring well B-916D should be sampled during each scheduled Permit round for the full List VOCs, including 1,4-dioxane (using a 0.25 ug/l reporting limit), until the results indicate two consecutive rounds during which toluene is not detected (using a 1.0 ug/l reporting limit) or NHDES determines further action is necessary. We note TKN was detected at B-916D during the July 10, 2018 Permit monitoring round but not detected above lab detection limit (0.5 µg/l) during the follow-up July 26, 2018 sampling event. ***Release detection monitoring well B-916D shall be sampled triannually, during each Permit monitoring round, for VOCs until the conditions outlined above are met. Results and recommendations should be provided with the Permit Data Transmittals.***

3. As discussed within the Summary Report, detections of total iron at surface water sampling locations AR-3 and S-101 were detected at concentrations of 0.81 milligrams per liter (mg/l) and 2.1 mg/l, respectively. This marks the highest detected concentration of total iron at AR-3 since April 1997 and the highest detection at S-101 since monitoring began at that location in July 1997. Given these results, confirmation sampling at AR-3 and S-101 is warranted and should be conducted in conjunction with the November 2018 Permit monitoring round. For context, NHDES recommends all surface water monitoring locations, that are monitored under the Permit, be included as part of the confirmation sampling round. Samples should be collected for specific conductance at 25°C, pH, chemical oxygen demand (COD), chloride, nitrate, Total Kjeldahl nitrogen or (TKN), iron, and manganese. ***Please conduct sampling at surface water monitoring locations as outlined above as part of the November 2018 Permit sampling round. Results shall be submitted to the NHDES with the November 2018 Data Transmittal, due in January 2019, and should include an evaluation of the results and recommendations for future monitoring or other actions.***

Should you have any questions, please contact me at NHDES' Waste Management Division.

Sincerely,



James W. O'Rourke, P.G.  
Waste Management Division  
Tel: (603) 271-2909  
Fax: (603) 271-2181  
Email: [James.O'Rourke@des.nh.gov](mailto:James.O'Rourke@des.nh.gov)

ec: Todd Moore, P.E., SWMB/NHDES  
Paul Rydel, P.G., HWRB/NHDES  
Timothy White, P.G., Sanborn, Head & Associates, Inc.  
Board of Selectmen, Town of Bethlehem  
Attention Health Officer, Town of Bethlehem



The

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

hereby issues

GROUNDWATER MANAGEMENT AND RELEASE DETECTION PERMIT

NO. GWP-198704033-B-007

as revised

to the permittee

NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.

to monitor the groundwater quality at the

NORTH COUNTRY ENVIRONMENTAL SERVICES, INC. (NCES) LANDFILL  
(581 Trudeau Road)

in BETHLEHEM, N.H.

via the groundwater monitoring system comprised of

43 monitoring wells, 4 springs, and 4 surface water sampling stations

as depicted on the Site Plan entitled

Site Features Plan (Figure Number 1)

dated March 2018, prepared by Sanborn, Head & Associates; and

Groundwater Management Zone Plan for Lands of North Country Environmental Services, Inc.,  
dated October 2017, prepared by Horizons Engineering, Inc.

TO: NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.  
3903 BELLAIRE BOULEVARD  
HOUSTON, TX 77025

Date of Issuance: April 12, 2018  
Date of Revision: October 19, 2018  
Date of Expiration: April 11, 2023

Pursuant to authority in N.H. RSA 485-C:6-a and RSA 485-C:13, the New Hampshire Department of Environmental Services (NHDES), hereby grants this permit to monitor groundwater at the above described location for five years subject to the following conditions:

(continued)

STANDARD PERMIT CONDITIONS

1. The permittee shall not cause groundwater degradation that result in a violation of surface water quality standards (N.H. Admin. Rules Env-Wq 1700) in any surface water body.
2. The permittee shall allow any authorized staff of NHDES, or its agent, to enter the property covered by this Permit for the purpose of collecting information, examining records, collecting samples, or undertaking other action associated with this Permit.
3. The permittee shall apply for renewal of this Permit prior to its expiration date but no more than 90 days prior to expiration.
4. This Permit is transferable only upon written request to, and approval of, NHDES. Compliance with the existing Permit shall be established prior to Permit transfer. Transfer requests shall include the name and address of the person to whom the Permit transfer is requested, the signatures of the current and future permittees, and a summary of all monitoring results to date.
5. NHDES reserves the right, under N.H. Admin. Rules Env-Or 600 and Env-Or 700, to require additional hydrogeologic studies and/or remedial measures if NHDES receives information indicating the need for such work.
6. Issuance of this Permit is based on the Groundwater Management and Release Detection Permit Renewal Application dated March 19, 2018, and the historical documents found in NHDES file DES #198704033. NHDES may require additional hydrogeologic studies and/or remedial measures if invalid or inaccurate data are submitted.

STANDARD MANAGEMENT PERMIT CONDITIONS

7. The permittee shall not violate Ambient Groundwater Quality Standards adopted by NHDES (N.H. Admin. Rules Env-Or 600) in groundwater outside the boundaries of the Groundwater Management Zone, as shown on the referenced site plan.
8. Within 30 days of discovery of a violation of an ambient groundwater quality standard at or beyond the Groundwater Management Zone boundary, the permittee shall notify NHDES in writing. Within 60 days of discovery, the permittee shall submit recommendations to correct the violation. NHDES shall approve the recommendations if NHDES determines that they will correct the violation.

STANDARD RELEASE DETECTION CONDITIONS

9. The permittee shall not cause a regulated contaminant as defined in RSA 485-C to be introduced to the ground or groundwater.
10. The permittee shall notify NHDES in writing within 10 days of discovery of any constituents in the detection monitoring with a concentration above the background value in any downgradient monitor well. Following the procedures in Env-Or 703.18, Assessment Monitoring, the permittee shall initiate assessment monitoring and, if necessary, submit to NHDES a corrective action plan.

**MONITORING REQUIREMENTS**

11. The permittee shall maintain a water quality monitoring program and submit monitoring results to NHDES no later than 45 days after sampling. Samples shall be taken from the monitoring wells and surface water sampling points as shown and labeled on the referenced site plan, and other sampling points as listed in the following table, in accordance with the schedule outlined herein:

<b>Monitoring Locations</b>	<b>Sampling Frequency</b>	<b>Parameters</b>
<i>Management Wells:</i> B-102S, B-102D, B-103S and B-103D	April, July and November each year	Specific conductance @25°C, pH, COD, bromide, chloride, nitrate, TKN, iron, manganese, NHDES Waste Management Division Full List of Analytes for Volatile Organics (Full List VOCs) including 1,4-dioxane (using a 0.25 ug/l reporting limit), and static water level elevation
MW-604	July each year	Same as above
B-102S, B-102D, B-103S and B-103D	July each year	Arsenic, barium, cadmium, chromium and lead
Same as above	July 2020	Semi-volatile organic compounds (SVOCs) using the USEPA Method 8270C list of analytes
<i>Release Detection Wells:</i> MW-603, MW-701, MW-801, MW-802, MW-803, B-304UR, B-304DR, B-903U, B-904U, B-909, B-914U, B-915U&M, B-916U&M, B-917U, B-918U&M, B-919U&M, MW-926U&L and B-927U&M	April, July and November each year	Specific conductance @25°C, pH, COD, bromide, chloride, nitrate, TKN, iron, manganese, and static water level elevation
Same as above	April and November each year	Full List VOCs including 1,4- dioxane (using a 0.25 ug/l reporting limit)
Same as above, and B-924U	July 2019 and 2021	Antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, silver and thallium
Same as above, and B-923U, B-924U and B-925U	July 2020	SVOCs using the USEPA Method 8270C list of analytes
B-923U and B-925U	April, July and November 2018, 2020 and 2022	Specific conductance @25°C, pH, COD, bromide, chloride, nitrate, TKN, iron, manganese, and static water level elevation

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<b>Monitoring Locations</b>	<b>Sampling Frequency</b>	<b>Parameters</b>
B-924U	April, July, and November 2019 and 2021	Specific conductance @25°C, pH, COD, bromide, chloride, nitrate, TKN, iron, manganese, and static water level elevation
B-923U and B-925U	April and November 2018, 2020 and 2022	Full List VOCs including 1,4-dioxane (using a 0.25 ug/l reporting limit)
B-924U	April and November 2019 and 2021	Full List VOCs including 1,4-dioxane (using a 0.25 ug/l reporting limit)
B-923U and B-925U	July 2018, 2020 and 2022	Antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, silver and thallium
MW-801, MW-802, MW-803, B-914U, B-919U and B-919M	April and November each year	Arsenic
B-903L, B-904L, B-914L, B-915D, B-916D, B-917D, B-918D, B-919D, B-924L, B-925L and B-927L	April, July and November each year	Static water level elevation
Same as above	July 2020 and 2022	Specific conductance @25°C, pH, COD, bromide, chloride, nitrate, TKN, iron, manganese, and Full List VOCs including 1,4-dioxane (using a 0.25 ug/l reporting limit)
MW-701, MW-802, B-304UR, B-304DR, B-904U, B-914U, B-915U&M, B-918U&M, B-919U&M, and B-927M	July each year	Per- and polyfluoroalkyl substances (PFAS) using EPA Method 537, Rev. 1.1
B-918D and B-919D	July 2019 and 2021	Per- and polyfluoroalkyl substances (PFAS) using EPA Method 537, Rev. 1.1
B-923U	July 2022	Per- and polyfluoroalkyl substances (PFAS) using EPA Method 537, Rev. 1.1
B-924U	July 2019 and 2021	Per- and polyfluoroalkyl substances (PFAS) using EPA Method 537, Rev. 1.1
B-925U	July 2020	Per- and polyfluoroalkyl substances (PFAS) using EPA Method 537, Rev. 1.1
<i>Surface Water Samples:</i> S-1 (Main Seep) and SF-1 (surface flow from Main Seep)	April, July and November each year	Specific conductance @25°C, pH, COD, chloride, nitrate, TKN, iron, manganese, and Full List VOCs including 1,4-dioxane (using a 0.25 ug/l reporting limit)

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<b>Monitoring Locations</b>	<b>Sampling Frequency</b>	<b>Parameters</b>
Springs S-101, S-108 and S-109	July each year	Same as above
Ammonoosuc River sites AR-1, AR-2 and AR-3	July each year	Same as above
All surface water sampling locations	July 2020	Antimony, arsenic, barium, beryllium, cadmium, chromium, lead, nickel, silver and thallium

Sampling shall be performed in accordance with the documents listed in Env-Or 610.02 (e). Samples shall be analyzed by a laboratory certified by the U.S. Environmental Protection Agency, or the New Hampshire Department of Environmental Services pursuant to Env-C 300. All overburden groundwater samples collected for metals analyses shall be analyzed for dissolved metals; and thus must be field filtered (with a 0.45-micron filter) and acidified after filtration in the field. Surface water samples, and groundwater samples collected from bedrock or water supply wells, shall be analyzed for total metals, and shall not be filtered.

Summaries of water quality shall be submitted annually to NHDES' Waste Management Division, in the month of **September**, using a format acceptable to NHDES. The Summary Report shall include the information listed in Env-Or 607.04 (a), as applicable.

The Annual Summary Report shall be prepared and stamped by a professional engineer or professional geologist licensed in the State of New Hampshire.

- All monitoring wells at the site shall be properly maintained and secured from unauthorized access or surface water infiltration.

**ADDITIONAL CONDITION FOR LANDFILLS**

- The permittee shall construct and maintain a capping system at the facility that meets the standards set forth in Env-Sw 805.10.

**SPECIAL CONDITIONS FOR THIS PERMIT**

- Recorded property within the Groundwater Management Zone is indicated on the "Groundwater Management Zone Plan for Lands of North Country Environmental Services, Inc.", dated October 2017 and prepared by Horizons Engineering, Inc., and includes the lots as listed and described in the following table:

<b>Tax Map / Lot No.</b>	<b>Property Address</b>	<b>Owner Name and Address</b>	<b>Deed Reference (Book / Page)</b>
419 / 20	395 Laurel Lane Bethlehem, NH 03574	North Country Environmental Services (NCES) PO Box 9 Bethlehem, NH 03574	2239 / 862 1971 / 460



<b>Tax Map / Lot No.</b>	<b>Property Address</b>	<b>Owner Name and Address</b>	<b>Deed Reference (Book / Page)</b>
419 / 21	581 Trudeau Road Bethlehem, NH 03574	NCES PO Box 9 Bethlehem, NH 03574	3920 / 308 2239 / 862 1971 / 460
419 / 22	581 Trudeau Road Bethlehem, NH 03574	NCES PO Box 9 Bethlehem, NH 03574	2239 / 862 1971 / 460
419 / 25	Muchmore Road Bethlehem, NH 03574	NCES PO Box 9 Bethlehem, NH 03574	4180 / 125
419 / 26.1	285 Muchmore Road Bethlehem, NH 03574	Forest Acquisitions, Inc. 3903 Bellaire Boulevard Houston, TX 77025	2177 / 345
419 / 26.2	317 Muchmore Road Bethlehem, NH 03574	Forest Acquisitions, Inc. 3903 Bellaire Boulevard Houston, TX 77025	2177 / 345

15. The permittee shall update the ownership information required by Env-Or 607.03(a)(20) for all properties within the Groundwater Management Zone prior to renewal of the Permit, or upon a recommendation for site closure.



Karlee A. Kenison, P.G., Administrator  
Hazardous Waste Remediation Bureau  
Waste Management Division

Any person aggrieved by any terms or conditions of this Permit may appeal to the N.H. Waste Management Council ("Council") by filing an appeal that meets the requirements specified in RSA 21-O:14 and the rules adopted by the Council, Env-WMC 200. The appeal must be filed **directly with the Council within 30 days** of the date of this decision and must set forth fully **every ground** upon which it is claimed that the decision complained of is unlawful or unreasonable. Only those grounds set forth in the notice of appeal can be considered by the Council.

Information about the Council, including a link to the Council's rules, is available at <https://nhec.nh.gov/> (or more directly at <https://nhec.nh.gov/waste/index.htm>). Copies of the rules also are available from NHDES' Public Information Center at (603) 271-2975.

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