



VIA EMAIL: jaime.m.colby@des.nh.gov

May 25, 2022

Project No.: 33.0083061.10

Ms. Jaime Colby
Solid Waste Management Division
New Hampshire Department of Environmental Services
P.O. Box 95
29 Hazen Drive
Concord, NH 03302-0095

RE: Incomplete Application - Second Response to NHDES (Application No. 2021-55885) - Application for Type 1-B Modification to Solid Waste Management Facility Permit, New Hampton Landfill, 4285 River Road, Solid Waste Facility Permit Number DES-SW-TP-95-014; NHDES Site#: 198704078

Dear Ms. Colby,

Emery & Garrett Groundwater Investigations (EGGI), a Division of GZA GeoEnvironmental, Inc. (GZA) has prepared this second response to the New Hampshire Department of Environmental Services (NHDES) letter dated December 23, 2021. This letter addresses the Application for a Type 1-B Modification to a Solid Waste Management Facility Permit submitted on behalf of the Town of New Hampton, New Hampshire on August 24, 2021. The Town is requesting modification of the current post-closure monitoring requirements at the New Hampton Landfill as issued by the NHDES in January 2006.

Below are the NHDES requests for additional information (1-4) from your letter dated December 23, 2021. Please reference the information provided in **Attachments A, B, and C**.

1. Pursuant to Env-SW 315.05 (c)(4) a., revised design plans must be prepared in accordance with Env-Sw 1103.05.
 - a. As required by Env-Sw 1103.05 (a), add the facility permit number to the revised design plan (**See Attachment A**).
 - b. As required by Env-Sw 1103.05 (d), add the stamp of a qualified professional engineer to the revised design plan (**See Attachment A**).
2. Pursuant to Env-Sw 315.05 (c)(4) c., a revised closure plan must be prepared in accordance with Env-Sw 1106.
 - a. Organize the closure plan as required by Env-Sw 1106.04 (e) and add all applicable content. NHDES noted the following content was missing.
 - i. Waste Identification – All known types of waste received (**See Attachment B**),
 - ii. Closure Requirements – reference to landfill closure records plans and the revised gas extraction system plan (**See Attachment B**),



- iii. *Recordkeeping and Reporting – locations and provisions for storing facility records (See Attachment B),*
 - iv. *Other Permits – identification of other permits and approvals required to implement post-closure monitoring and maintenance, and (See Attachment B).*
 - v. *Closure Cost Estimate – a closure cost estimate prepared in accordance with Env-Sw 1403.02 (See Attachment C).*
3. *Pursuant to Env-Sw 315.05 (c)(4) d., the closure cost estimate must be prepared in accordance with Env-Sw 1400. As required by Env-Sw 1403.02 (g), add the signature of a qualified professional engineer. As required by Env-Sw 303.03 (a), the closure cost estimate shall be prepared on forms provided by the department (See Attachment C).*

Upon approval of the landfill monitoring plan, EGGI will submit a final version of the Revised Post-Closure Monitoring Plan document.

Please do not hesitate to contact us, if you require any further information.

Very truly yours,

EMERY & GARRETT GROUNDWATER INVESTIGATIONS, A DIVISION OF GZA

Ryan Allen
Project Manager

Daniel J. Tinkham, P.G.
Senior Consultant/Hydrogeologist

Cc: Pemigewasset River Local Advisory
Select Board, Town of Bristol
Town Clerk, Town of Bristol
Board of Selectmen, Town of New Hampton
Town Clerk, Town of New Hampton
Theodore Rivest

RPA/DJT:bar

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Attachments:

- Attachment A GP2 and GP5 Gas Extraction System Plan and Details
Attachment B Updated Landfill Post-Closure Monitoring and Maintenance Plan – May 2022
Attachment C Post-Closure Cost Estimate Report



Attachment A – GP2 and GP5 Extraction System Plan and Details



Attachment B – Updated Landfill Post-Closure Monitoring and Maintenance Plan – May 2022

~~Emery & Garrett Groundwater, Inc.~~
Emery & Garrett Groundwater Investigations, A Division of GZA
56 Main Street • P.O. Box 1578
Meredith, New Hampshire 03253

(603) 279-4425

~~www.eggi.com~~ ~~www.gza.com~~

Fax (603) 279-8717

NEW HAMPTON LANDFILL
~~Updated~~ Revised Landfill Post-Closure Monitoring and Maintenance Plan
~~January 2006~~ May 25, 2022

~~This revised plan reflects recent changes in protocol for gas migration monitoring and mitigation at the New Hampton Landfill, as set forth by the NHDES. Replacement of the Gas Tech Safe T Net 100 methane gas alarm system with three GasAware residential methane alarms at the Rivest residence prompted the need for an up-dated plan.~~

This revised plan reflects the requested decommission of the active gas management system at the New Hampton Landfill because of the significant decreasing in methane levels in gas probes that are expected to remain low or below detection.

Facility Identification

New Hampton Landfill (Solid Waste Facility Permit Number DES-SW-TP-95-014; NHDES Site#: 198704078)
Landfill Address: 4285 River Road in Bristol, New Hampshire
Mailing Address: Town of New Hampton, 6 Pinnacle Hill Road, New Hampton, New Hampshire 03256

The New Hampton Landfill, located on River Road in Bristol, accepted solid municipal waste until 1991¹. This facility accepted municipal solid waste, construction/demolition debris, and bulky wastes generated within New Hampton, New Hampshire. Closure of the Landfill occurred in 1996, which included the installation of a low permeability 40 mil. HDPE cap, passive gas venting stacks, monitoring wells, and gas monitoring probes (**Figure 1**). The approved closure design plans were prepared by Provan & Lorber, Inc., *Town of New Hampton New Hampshire Landfill Closure Bristol, New Hampshire Record Plans (Sheets 1 through 8)*, dated November 17, 1996, received by NHDES on March 12, 1997 (WMD Log No. 199700100).

Subsequent reports listed below were submitted to the NHDES when additional gas monitoring probes were installed, and the design and installation of the Gas Extraction System (active gas management system) was completed.

-Additional Gas Monitoring Probes – Site Plan (Sheet 1 of 1), prepared Nelson, Ward & Associates, Inc. and dated December 1997, received by NHDES on January 5, 1998 (WMD Log No. 19980004).

-GP2 and GP5 Gas Extraction System Plan Details (Sheet 1 of 1), prepared by Nelson, Ward & Associates, Inc. and dated April 1999, revised May 2022 by Emery & Garrett Groundwater Investigations, a division of GZA, Inc., as provided in the Type I-B Permit Modification Application received by NHDES on May 25, 2022 (WMD Log No. 2021-55885-06).

¹ EGGI reviewed several historic Landfill documents and was unable to determine when the Landfill began operation.

Monitoring Frequency/Inspection/Maintenance Post Closure Requirements

All gas probes (GP1 through GP 11) (**Figure 1**) will be monitored ~~once a month~~ on a quarterly basis in March, June, September, and December. Currently, the landfill gas meter is rented and calibrated by the vendor. Instructions on how to operate the landfill gas meter can be found in **Appendix A** and readings should be entered into the Landfill Gas Data Collection Form in **Appendix B**. Landfill inspections will be performed at least twice a year in accordance with the NHDES Annual Post-Closure Report for Inactive (Closed) Solid Waste Landfills (NHDES-S-05-057). The landfill cap must be mowed once a year. Two mowing events are recommended in late spring/early summer and late summer/early fall. Mowing should be done during dry periods so that tire ruts will not be a concern. ~~All gas probes (Figure 1) will be monitored once a month in January, February, and March then quarterly for the rest of the year by town employees for concentrations of methane gas, oxygen, and hydrogen sulfide per the monitoring and calibration instructions in Appendix A and B. Readings will no longer be recorded from the gas meter installed at the Rivest residence. A completed data sheet (Appendix C) shall be faxed to Emery & Garrett Groundwater, Inc. (EGGI) (or other firm chosen by the Town of New Hampton) following each landfill gas monitoring event.~~

Report Frequency Record Keeping and Recording

Emery & Garrett Groundwater Investigations (EGGI), a division of GZA GeoEnvironmental, Inc. (GZA) will submit annual post-closure summary reports in March of each year to the NHDES including the description of the methane levels in the 11 gas probes. Offsite gas probe readings equal to or greater than 50% LEL lower explosive level constitute a violation of the New Hampshire Solid Waste Rules. In the event that landfill gas levels exceed regulatory standards in GP-7, 8, 9, 10, or 11 (i.e., off-site probes), data will be reported immediately to the NHDES (**Figure 1**). Town of New Hampton contacts have been updated and can be found in **Table 1** of this document. No less than two landfill inspections will be conducted every year and a landfill inspection report will be submitted to the NHDES within 30 days of the inspection.

The New Hampton Landfill records will be kept at the New Hampton Town Hall located at 6 Pinnacle Hill Road, New Hampton, New Hampshire 03256.

The New Hampton Landfill is monitored in accordance with the Groundwater Management Permit No. GWP-198704078-B-005, which was issued on August 23, 2018. This permit expires on August 22, 2023.

~~Methane Concentrations Exceeding Regulatory Standards~~

~~Offsite gas probe readings equal to or greater than 50% LEL lower explosive level) constitute a violation of the New Hampshire Solid Waste Rules. Landfill gas concentrations equal to 25% LEL within an off-site building exceed regulatory standards and present a serious safety issue. The following paragraphs outline what actions are necessary to mitigate/prevent gas concentrations from reaching regulatory threshold levels.~~

~~To prevent gas levels from violating regulatory standards, active venting measures shall be taken in the event that gas levels reach 25% LEL in any of the off-site gas probes. (The procedure for actively~~

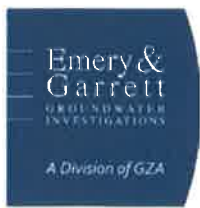
~~venting the landfill is documented in Appendix D.) If methane gas equals or exceeds 25% LEL for any of the following wells: GP-9, GP-10 and GP-11, then the GP-2 venting system should be activated (Appendix D—page 2—Emergency Operation). If methane equals or exceeds 25% LEL for gas monitoring probes GP-7 or GP-8, then the GP-5 venting system should be activated (Appendix D—page 2—Emergency Operation).~~

~~EGGI installed three residential methane gas alarms at the Rivest Residence to replace the Gas Tech Safe T Net 100 alarm system. These alarms (CCI GasAware Model 7550) were installed on July 20, 2005 as follows: 1) one in the basement; 2) one on the first floor (living area); and 3) one on the second floor/attic area. These units use a standard 120 volt A/C outlet and have a built-in battery back up that can power the unit for up to 10 hours during interruption of electrical service. An 85-decibel alarm sounds at a concentration of methane of approximately 17% of the LEL. Calibration is not necessary for the GasAware alarms to properly function. EGGI recommends that these GasAware alarms be replaced at the end of the 5-year warranty period (July 2010). A guide to the use of the GasAware alarm was provided to Mr. Rivest and is included in Appendix E.~~

~~In the event of alarm activation, 911 should be immediately contacted. Both New Hampton and Bristol Fire departments will be dispatched to the Rivest home and the Emergency Action Plan For Methane Alarm (Appendix F) will be implemented. The New Hampton Police will follow SOP #98-1 (Appendix F), which includes notifying a Town official. The Town official will then notify the Town's engineer or Jeff Marts (of Emery & Garrett Groundwater, Inc. at 603-279-4425) to schedule a site inspection. Alarm activation with confirmed methane will also necessitate immediate active venting of landfill gas monitoring probe GP-5 once the Incident Commander (IC—Fire Officer in charge) terminates command or if the IC agrees to actively vent during the fire emergency.~~

~~Inspection and Maintenance of Active Venting System~~

~~EGGI will inspect and test the active venting system twice annually, once in May and once in August, during routine landfill inspections. The test will involve operating the blower to see that suction is generated at both gas monitoring probes GP-2 and GP-5. The town employees shall immediately repair any leaks, blockages, loose fittings, or other problems.~~



Attachment C – Post-Closure Cost Estimate Report



Cost Estimate Form for Post-Closure of a Landfill

(lined or unlined)

Submit to:

Waste Management Division, SWMB

PO Box 95, Concord, NH 03302-0095

(603) 271-2925 or solidwasteinfo@des.nh.gov<https://www.des.nh.gov>

RSA 149-M/Env-Sw 1400

Facility Name: New Hampton Landfill	
Facility Address: 4825 River Road, Bristol, New Hampshire	
NHDES Permit #: 198704078	NHDES Solid Waste Facility Permit#: DES-SW-TP-95-014
Owner: Town of New Hampton	
Phase: Post-Closure	Acreage: 2.3

Task	Unit	Unit Cost	Quantity	Total Cost
I Water Monitoring				
Surface Water Sampling & Analysis				
Other (Permit Requirement)				
Ground Water Sampling & Analysis	1	\$1,640.00	1	\$1,640.00
Other (Permit Requirement) Groundwater Monitoring Report	1	\$1,000.00	1	\$1,000.00
Other				
II Gas Monitoring				
Landfill Gas Migration Monitoring	1	\$230.00	4	\$920.00
Replacing 20% of the Active Gas Collection System				
Other				
III Settlement Monitoring				
Field Survey				
Data Tabulation				
Other				
IV Leachate Collection/Monitoring				
Sewer Charges				
Electricity				
Maintenance of Collection System				
Sampling & Analysis				
Other				
V Clean Air Act Requirements				
Monitoring & Analysis				
Emissions Fees				
VI Repair & Site Maintenance Costs				
Snow Removal				
Roadway Maintenance				
Mowing				
Soil Cover Maintenance and Planting				
Maintenance of Gas Venting System				
Subsidence Repair				
Stormwater Maintenance				
Other: General Maintenance including mowing	1	\$500.00	1	\$500.00
VII Inspections				
Annual Report	1	\$460.00	1	\$460.00
Annual Site Inspections	1	\$460.00	2	\$920.00
Other				
VIII Other				
Qualified Professional Oversight of all Activities				
Sub-total				\$5,440.00
Contingency (10 % minimum)				\$544.00
Total Yearly Cost				\$5,984.00
Total 30-Year Cost				\$179,520.00

Signature of Preparer:

(Must be a Professional Engineer)

Date: May 26, 2022

This form provides a basis for estimating post-closure costs for a lined or unlined landfill. This form is not inclusive of all costs that may be associated with the landfill's post-closure monitoring and maintenance requirements. The cost estimate must include all expenses associated with compliance of all NHDES permits. Please use the spaces provided above

noted as "Other" or attach additional sheets if necessary.