



The State of New Hampshire
Department of Environmental Services



Robert R. Scott, Commissioner

VIA EMAIL ONLY

February 12, 2020

John Gay, E.I.
North Country Environmental Services, Inc.
1855 VT Route 100
Hyde Park, VT 05655
Email: john.gay@casella.com

SUBJECT: North Country Environmental Services, Inc. (NCES) Landfill, 581 Trudeau Road, Bethlehem
Permit No. DES-SW-SP-03-002

Application Review Summary

Application for Type I-A Permit Modification for Expansion (Stage VI), including Application for Waiver of Certain Design Requirements; Initial application received January 14, 2019; assigned Application Nos. 2019-36785 & 2019-44445

Dear Mr. Gay:

The New Hampshire Department of Environmental Services, Waste Management Division (NHDES) is providing the attached review summary for the above-referenced application, which has been withdrawn. NHDES understands that North Country Environmental Services, Inc. (NCES) intends to submit a new application for expansion of the NCES Landfill in Bethlehem, NH.

The attached Application Review Summary, dated February 12, 2020, documents NHDES review of the application including its findings relative to substantial public benefit as defined in RSA 149-M:11; and should assist NCES in preparing its next application for expansion.

If you have any questions regarding this correspondence, please contact Jaime M. Colby, P.E., of the Solid Waste Management Bureau at (603) 271-5185 or jaime.colby@des.nh.gov, or me.

Sincerely,

Michael J. Wimsatt, P.G., Director
Waste Management Division
Tel.: (603) 271-1997
Email: michael.wimsatt@des.nh.gov

Attachment: Application Review Summary, dated February 12, 2020

ec: Kevin Roy, NCES, email: kevin.roy@casella.com
Robert J. Grillo, P.E., CMA Engineers, Inc., email: rgrillo@cmaengineers.com
Timothy M. White, P.G., Sanborn, Head & Associates, Inc., email: twhite@sanbornhead.com
Bryan Gould, Esq., Cleveland, Waters & Bass, P.A., email: gouldb@cwbp.com
Joshua Harrison, Esq., Environmental Protection Bureau, NHDOJ, email: joshua.harrison@doj.nh.gov



**APPLICATION
REVIEW SUMMARY**

New Hampshire Department of Environmental Services
Waste Management Division, Solid Waste Management Bureau
 P.O. Box 95, 29 Hazen Drive
 Concord, NH 03302-0095
 (603) 271-2925 www.des.nh.gov

Facility	NCES Landfill	Reviewer	Jaime M. Colby, P.E.
Location	581 Trudeau Road, Bethlehem, NH	Checked by	Pamela Hoyt-Denison, P.E.
Permit No.	DES-SW-SP-03-002	Review Date	Completed February 12, 2020
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ATTACHMENT A – PUBLIC BENEFIT DETERMINATION

 I. Assessment and Determination—RSA 149-M:11,III(a)

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 IV. Overall Determination – RSA 149-M:11,III

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PROJECT DESCRIPTION

North Country Environmental Services, Inc. (NCES) owns and operates a solid waste landfill (Landfill) of the same name located at 581 Trudeau Road in Bethlehem, NH. The Landfill is a commercial facility with an unlimited service area, and is regulated under Solid Waste Permit No. DES-SW-SP-03-002. NCES submitted an application on January 14, 2019 to modify Permit No. DES-SW-SP-03-002 to authorize an expansion of the Landfill, referred to as "Stage VI". NCES requested the following modifications:

- Increase landfill footprint by 5.71 acres;
- Increase landfill approved design volume by 1.22 million cubic yards;
- Increase landfill life expectancy by about 2.3 years, based on a waste receipt rate of 400,000 tons per year and an in-place density of 0.76 tons per cubic yard (or about 526,400 cubic yards per year); and
- Addition of properties owned by NCES to the regulated Facility.

Proposed activities in the permit application required to accommodate the expansion include:

- Relocating the facility access road, certain monitoring points, and other associated infrastructure;
- Constructing earthen berms/embankments to support the waste containment system;
- Removing the final cap installed on the eastern slope and the temporary HDPE cover installed on the southern slope of the existing facility;
- Excavating areas of waste (up to approximately 28 feet deep) to allow connection of new leachate collection, liner, and landfill gas systems to existing systems;
- Constructing additional geomembrane liner systems; and
- Constructing additional stormwater, leachate and landfill gas infrastructure.

NHDES reviewed the application to determine whether the proposed activity meets all applicable criteria for issuance of a permit modification as specified in the New Hampshire Solid Waste Rules (the Rules, Env-Sw 100 et seq.), in effect on the date of the final decision on the application. The results of the review are summarized herein, on a rule by rule basis. The reader can obtain a copy of the cited rules from the NH Office of Legislative Services (see <http://gencourt.state.nh.us/rules/default.htm>).

On February 11, 2020, NCES withdrew the application; therefore, NHDES issues no decision on the application. Application documents, including the request for withdrawal and NHDES' acknowledgment of the withdrawal, are available through the NHDES One Stop Data & Information System at www.des.nh.gov or by requesting a file review through NHDES' Public Information Office.¹

Submittals

- North Country Environmental Services, Inc. (9 January 2019). *Application for a Type I-A Modification to a Solid Waste Management Facility Permit*. Received January 14, 2019. Assigned WMD Log No. 2019-36785-01.
- North Country Environmental Services, Inc. (14 February 2019). *Application for a Type I-A Modification – Notice of Filing to NHDOJ*. Received February 19, 2019. Assigned WMD Log No. 2019-36785-02.
- CMA Engineers, Inc. (22 February 2019). *Application for a Type I-A Modification – Certified Mail Receipts*. Received February 22, 2019. Assigned WMD Log No. 2019-36785-03.
- North Country Environmental Services, Inc. (21 February 2019). *Application for a Type I-A Modification – Supplement to Type I-A (Property to which the Permit Applies) and Approval of Review Time Extension Request*. Received February 28, 2019. Assigned WMD Log No. 2019-36785-04.

¹ To make file review request, please call (603) 271-2919, email filereview@des.nh.gov, or complete the online file review request form linked here: <https://www.des.nh.gov/organization/commissioner/pip/index.htm>.

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- North Country Environmental Services, Inc. (5 April 2019). *Response to NHDES Request for Additional Information*. Received April 15, 2019. Assigned WMD Log No. 2019-36785-05.
- CMA Engineers, Inc. (13 August 2019). *Response to NHDES Request for Additional Information*. Received August 13, 2019. Assigned WMD Log No. 2019-36785-06.
- North Country Environmental Services, Inc. (18 October 2019). *Application for Waiver of Certain design requirements in Env-Sw 805.07*. Received October 21, 2019. Assigned WMD Log No. 2019-44445-01.

NHDES deemed the application complete on October 21, 2019 in accordance with Env-Sw 304.03, *Application Completeness Determination*.

FACILITY DESCRIPTION

NCES owns and operates the NCES Landfill (Landfill) in Bethlehem, NH. The Landfill is located on Trudeau Road in Bethlehem, accessed from Route 3 to the south or Route 302 to the north. The Landfill is located about 800 feet from the nearest residence not owned by NCES. The Landfill is located on relatively flat ground that slopes downward to the west and Trudeau Road, and downward to the north and the Ammonoosuc River.

The existing built Landfill is approximately 47 acres, and is comprised of five stages. The Landfill is classified as a non-hazardous, municipal solid waste, double-lined landfill, with an unlimited service area (i.e., commercial landfill). Leachate is collected in sumps located on the liner system, pumped up to on-site leachate storage tanks, and trucked to wastewater treatment facilities. The Landfill has an active (i.e., mechanically operated) decomposition/landfill gas management system that directs gas to an on-site flare for destruction. Groundwater monitoring wells and decomposition gas probes are located around the landfill to monitor subsurface conditions.

FACILITY HISTORY

In 1976, state and local approval were granted for an unlined landfill located off of Muchmore Road (to the north of the current Landfill) in Bethlehem, NH. In 1987, a double-lined landfill known as Stage I was constructed on the same property. As part of a later approval for expansion into Stage II, the unlined landfill was excavated and placed within the double-lined Stage II landfill. Relocation of waste from the unlined landfill was completed in October 1993 resulting in removal of the unlined landfill. Over time, the double-lined landfill expanded to include Stages I through V. As of the date of this review, active operations are occurring in Stage V.

PERMIT HISTORY

An unlined landfill off of Muchmore Road was permitted by letter approval in 1976, and subsequently issued Solid Waste Permit No. DES-SW-TP-94-018 on April 8, 1994 for the sole purpose of tracking reclamation of the unlined landfill. When removal of the unlined landfill was completed in 1993, the temporary solid waste permit effectively terminated.

Commencing in 1987, multiple solid waste permits and permit modifications have been issued over time for the existing lined NCES landfill.

Stages I through IV of the double-lined landfill were each assigned a new permit number upon approval as follows:

- Stage I: Permit No. DES-SW-87-022
- Stage II: Permit No. DES-SW-89-009
- Stage III: Permit No. DES-SW-SP-00-003

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- Stage IV: Permit No. DES-SW-SP-03-002

On August 15, 2014, NHDES administratively merged the previously issued permit numbers with approval of Stage V, and all activities at the Landfill are now managed under Solid Waste Permit No. DES-SW-SP-03-002. Refer to the facility permit file for additional information.

COMPLIANCE STATUS

The applicant signed and submitted as part of the application, a compliance statement pursuant to Env-Sw 303.14, certifying to certain performance history criteria. . See also Env-Sw 316 review herein.

PUBLIC HEARING AND COMMENT PROCESS

In accordance with the requirements of the Solid Waste Rules, specifically Env-Sw 303, *Filing Requirements for Applications, Registrations, and Reports*, and Env-Sw 304, *Application Review*, as well as the NH Solid Waste Management Act, specifically RSA 149-M:9,VIII and RSA 149-M:11,IV(a), NHDES scheduled, noticed, and held a public hearing on the application for expansion as described below.

After NHDES deemed the application complete on October 21, 2019, NCES and NHDES coordinated the date, time, and location of the public hearing. NHDES’ regulatory obligation with regard to notification of a public hearing is described in Env-Sw 304.08, *Public Hearing*, and NHDES took the following actions to fulfill its obligation:

- NHDES prepared and NCES paid for publication of the notice of public hearing in a newspaper of general circulation in the host municipality and host solid waste management district. Specifically, notice was published in the *Caledonian Record* on October 30, 2019 and the *Littleton Courier* on October 30, 2019.
- NHDES provided in writing sent by first-class mail the notice of public hearing to the applicant, host municipality, host solid waste management district and other affected entities, excluding abutters (who received their notice from NCES).

NCES’ regulatory obligation for providing notice of the public hearing is also described in Env-Sw 304.08, *Public Hearing*. As required by that rule, NCES notified abutters to the facility of the date, time, and location of the public hearing.

Notifications by NHDES and NCES were made at least 30 days in advance of the public hearing, according to standard practice. In addition, NHDES posted the notice electronically on the NHDES website, included a link to the notice in NHDES’ Municipal EcoLink e-bulletin in October and November 2019, emailed a link to the notice directly to municipal officials via NHDES’ EcoLink listserve on November 26, 2019, and physically posted the notice on the NHDES bulletin board at 29 Hazen Dr., Concord, NH. NHDES and NCES fulfilled their notification obligations in accordance with Env-Sw 304.08.

The public hearing was held on December 3, 2019 at the Profile School in Bethlehem, NH. The public comment period closed on December 20, 2019 at 4 pm. NHDES considered all comments received during the public hearing and comment period in making its decision.

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TECHNICAL REVIEW NOTES

NHDES reviewed the information provided in the application to determine if the proposed landfill expansion met the applicable requirements of the NH Solid Waste Rules, Env-Sw 100 et seq. The notes provided in this section document the review, on a rule by rule basis. The notes identify whether the cited rule is applicable and, if applicable, whether or not information provided in the application satisfied the requirement of the rule. If a rule relates to an existing feature or activity already approved at the existing facility and for which NCES did not propose a change, NHDES did not undertake an evaluation of the application relative to the particular rule. Likewise, where the subject of a rule requires no evaluation, none was undertaken.

General note regarding construction and operating requirements: NHDES reviewed the application to determine whether the proposed measures are likely to satisfy the construction and operating requirements in the Rules. Actual compliance with construction and operating requirements can only be determined when the actual construction and operation activities are implemented. Even if NHDES has determined that the proposed measures are likely to satisfy rule requirements, additional or different measures may be necessary to maintain compliance depending on actual conditions.

Env-Sw 300 SOLID WASTE PROGRAM: PERMITS

Env-Sw 304 APPLICATION REVIEW

Env-Sw 304.07 Technical Review

- 304.07(a) – Applicable – Undertaken.
- 304.07(b) – Applicable – Undertaken.
- 304.07(c) – Not applicable

Env-Sw 315 PERMIT MODIFICATION

Env-Sw 315.01 Applicability

- 315.01(a) – Applicable – Applicant is requesting modification to an existing facility permit that does not meet the exemption criteria in Env-Sw 315.01(b); therefore, this part applies.

Env-Sw 315.02 Definitions

- 315.02(a) – Applicable – Applicant is requesting a change that is not a Type II through Type V modification.
- 315.02(b)(1) – Applicable – Applicant is requesting an increase in the approved design capacity; therefore, the request/application by definition is classified as a Type I-A permit modification. The applicant has satisfied the requirement for selecting the proper submittal type.
- 315.02(c) through (g) – Not applicable

Env-Sw 315.03 Approval Required

- 315.03(a) – Applicable – Permittee must have written approval from NHDES to implement the change.
- 315.03(b)(1) – Applicable – See review of Env-Sw 315.05 herein.
- 315.03(b)(2) through (5) – Not applicable

Env-Sw 315.04 Permit Modification Application Filing Procedures

- 315.04(a) – Applicable – Satisfies requirement.
- 315.04(b) and (c) – Not applicable

Env-Sw 315.05 Application Content and Format, Type I Modifications

- 315.05(a) – Applicable – Required information submitted.
- 315.05(b) – Applicable – Required information submitted.
- 315.05(c)(1) – Applicable – Required information submitted.
- 315.05(c)(2) – Applicable – Required information submitted.
- 315.05(c)(3) – Applicable – Required information submitted.

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- 315.05(c)(4) – Applicable – Required information submitted.
- 315.05(c)(5) – Applicable – Required information submitted. Assessment to follow herein.
- 315.05(d) – Applicable – Required information submitted.
- 315.05(e) – Applicable – Required information submitted.
- 315.05(f) – Applicable – Required information submitted. Assessment to follow herein.
- 315.05(g) – Applicable – Signed compliance certification statement. Required information submitted.
- 315.05(h) – Applicable – See review of Env-Sw 316 herein. See WMD Log No. 2019-36785-02. Required information submitted.
- 315.05(i) – Applicable – Required information submitted. See evaluation in Attachment A herein.
- 315.05(j) – Applicable – Information provided for advisory purposes. No evaluation undertaken.
- 315.05(k) – Applicable – Required information submitted.
- 315.05(l) – Applicable – Required information submitted.

Env-Sw 316 PERFORMANCE HISTORY REQUIREMENTS

Env-Sw 316.01 Purpose

- 316.01 – Purpose Statement. No evaluation undertaken.

Env-Sw 316.02 Applicability

- 316.02(a) – Applicable – The Rules in Part Env-Sw 316 apply to the applicant because the application is for a Type I-A modification and the applicant is a not exempted pursuant to Env-Sw 316.02(b).
- 316.02(b) – Not applicable

Env-Sw 316.03 Disclosure Required

- 316.03 – Applicable – Applicant asserts in a letter dated February 14, 2019 (WMD Log #2019-36785-02) that it provided the required information to NHDOJ. NHDOJ confirmed receipt of required information. No further evaluation undertaken.

Env-Sw 316.04 Use of Disclosure Forms: Signatures

- 316.04 – Applicable – See notation at Env-Sw 316.0, above. NHDES has no knowledge that the applicant did not provide the necessary information in the format required, or that the applicant did not cooperate with the NHDOJ. No further evaluation undertaken.

Env-Sw 316.05 Entities and Individuals Required to Submit Information

- 316.05(a) – Not applicable
- 316.05(b)(1) – Applicable – The applicant is a corporation; therefore, background investigation forms are required for:
 - (1)a. The applicant, North Country Environmental Services, Inc.
 - (1)b.1. Not applicable
 - (1)b.2. Not applicable
 - (1)b.3. Entities holding 10% or more of applicant’s debt
 - (1)b.4. Entities holding 10% or more of applicant’s equity
 - (1)c. The applicant’s parent corporation, New England Waste Services, Inc., and its parent corporation, Casella Waste Systems, Inc.
- 316.05(b)(2) – Applicable – NH Secretary of State lists the following as principals of North Country Environmental Services, Inc.: John W. Casella, Douglas R. Casella, Edwin Johnson, and Edmond R. Coletta. NHDES has also identified Kevin Roy as a key employee with management or supervisory or substantial decision-making authority and responsibility.
- 316.05(c) – Not applicable

Env-Sw 316.06 Scope of Disclosures

- 316.06 – Applicable – NHDES has no knowledge that the information required was not disclosed. No further

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evaluation undertaken.

Env-Sw 316.07 Filing of Disclosure Forms

- 316.07 – Applicable – See notation at Env-Sw 316.03. No further evaluation undertaken.

Env-Sw 316.08 Background Investigation Fee

- 316.08 – Applicable – NHDES has no knowledge that the applicant has not, or will not, pay the required fee. No further evaluation undertaken.

Env-Sw 800 LANDFILL REQUIREMENTS

Env-Sw 801 APPLICABILITY

Env-Sw 801.01 Applicability

- 801.01 – Applicable – The landfill is subject to rules in Chapter Env-Sw 800.

Env-Sw 802 PERMITTING REQUIREMENTS

Env-Sw 802.01 Permit Required

- 802.01 – Applicable – The facility is not permit-exempt pursuant to Env-Sw 302; therefore, a permit is required.

Env-Sw 802.02 Permit Application Requirements

- 802.02 – Not applicable – The landfill is already permitted.

Env-Sw 803 FEDERAL REQUIREMENTS FOR MSW LANDFILLS

Env-Sw 803.01 Purpose

- 803.01 – Purpose Statement. No evaluation required.

Env-Sw 803.02 Applicability

- 803.02 – Applicability Statement relative to Env-Sw 803.03 and Env-Sw 803.04. No evaluation undertaken.

Env-Sw 803.03 Applicability of Federal Law

- 803.03(a) – Exemption is not applicable – Facility is currently operating.
- 803.03(b) – Exemption is not applicable – Facility is currently operating.
- 803.03(c) – Facility is currently operating and receives greater than 100 tpd of waste; therefore, the landfill is subject to all requirements of 40 CFR 258. See also notation at Env-Sw 803.04(a) and Notice of Final Determination of Full Program Adequacy for the State of New Hampshire’s Municipal Solid Waste Landfill Permitting Program, published in Federal Register Volume 60, No. 30, February 14, 1995(*).
- 803.03(d) – Exemption is not applicable – Facility is currently operating.
- 803.03(e) – Facility is currently operating and receives greater than 100 tpd of waste; therefore, the landfill is subject to all of the requirements of 40 CFR 258.
- 803.03(f) – Applicable – Definitions specified in 40 CFR 258 are applicable.

Env-Sw 803.04 Standards Specific to MSWLFs Subject to 40 CFR 258

- 803.04(a) – Applicable – 40 CFR 258 applies; as do Env-Sw 900, Env-Sw 1000, Env-Sw 1100, Env-Sw 1400, Env-Sw 1600, and this chapter.
- 803.04(b) – Applicable – Applicant has not requested a waiver to any 40 CFR 258 requirements. Satisfies requirement,

(*) In 1995, the U.S. Environmental Protection Agency (EPA) determined that all portions of New Hampshire’s Municipal Solid Waste Landfill (MSWLF) permit program are adequate to assure compliance with Federal MSWLF criteria (RCRA Subtitle D; 40 CFR 258). Thus, the technical review of the requirements in 40 CFR 258 is covered by the technical review presented below for the comparable state rules.

Env-Sw 804 SITING REQUIREMENTS

Env-Sw 804.01 Applicability

- 804.01(a) – Applicable – The proposed expansion beyond existing footprint is classified, per Env-Sw 103.48, as a

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“new facility”. The landfill siting requirements in Part Env-Sw 804 apply to the proposed “new facility” area because it is not one of the exceptions listed in Env-Sw 804.01(a)(1)-(4). Env-Sw 804.02 Groundwater Protection Standards

- 804.02(a) – Applicable – Expansion not proposed in a wellhead protection area. Satisfies requirement.
- 804.02(b) – Applicable – See groundwater permit GWP #198704033. Satisfies requirement.
- 804.02(c) – Applicable – Hydrogeological report provided. See review of Env-Sw 804.02(a) and (b) herein. Satisfies requirement.
- 804.02(d) – Applicable – See Design Report, including Figure 3, *Stage VI Separation to Groundwater*. Groundwater separation is estimated to be equal to or greater than 58 feet for Stage VI. Bedrock separation is estimated to be equal to or greater than 100 feet. Satisfies requirement.

Env-Sw 804.03 Surface Water Protection Standards

- 804.03(a) – Applicable – Alteration of Terrain permit required; application submitted; see application information submitted pursuant to Env-Sw 315.05(j). GWP #198704033 requires surface water sampling at select locations. See also RSA 485-A:15,I. Satisfies requirement.
- 804.03(b) – Applicable – Satisfies requirement.
- 804.03(c) – Applicable – Satisfies requirement.
- 804.03(d) – Applicable – Satisfies requirement.
- 804.03(e) – Applicable – Satisfies requirement.
- 804.03(f) – Applicable – Satisfies requirement.

Env-Sw 804.04 Set-back Requirements

- 804.04(a) – Applicable – Applicant proposes to meet setback requirements by expanding regulated facility boundary (see supplemental submittal WMD Log No. 2019-36785-04) to include Tax Map 419 Lots 24 and 25, now owned by NCES. Applicant did not include a survey plot plan stamped by a qualified surveyor showing proposed facility boundaries relative to proposed footprint. NHDES was unable to independently verify the boundaries of the lots using readily available public records. **Unclear if satisfies requirement.**
- 804.04(b) – Applicable – Satisfies requirement.
- 804.04(c) – Applicable – NHDES notes that the applicant has used outdated rule text in the application; however, the requirement as stated in current rule is met. Satisfies requirement.
- 804.04(d) – Not applicable – NHDES notes that the applicant has used outdated rule text in the application; however, the requirement as stated in current rule is not applicable to this expansion.
- 804.04(e) – Applicable – Satisfies requirement.

Env-Sw 804.05 Geologic Siting Limitations

- 804.05(a) – Applicable – See Design Report. Satisfies requirement.
- 804.05(b) – Applicable – See Design Report. Satisfies requirement.

Env-Sw 804.06 Other Siting Limitations

- 804.06 – Applicable – See Design Report. Satisfies requirement.

Env-Sw 805 DESIGN AND CONSTRUCTION REQUIREMENTS

Env-Sw 805.01 Applicability

- 805.01 – Applicable – The design requirements of this part apply to the landfill; Parts Env-Sw 1004, Env-Sw 1103, and Env-Sw 900 apply as a complement.

Env-Sw 805.02 General Landfill Design Requirements

- 805.02(a)(5-8) – Applicable – See review of Env-Sw 805.03, 805.05, 805.07, 805.09, 805.10, and 806.07 herein. Requirement to have a groundwater and surface water monitoring system pursuant to RSA 485-C and Env-Or 700 is satisfied by GWP #198704033. Other necessary features are incorporated in the existing built facility.
- 805.02(b) – Not applicable – Landfill is not unlined.

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Env-Sw 805.03 Landfill Subgrade and Base Grade Standards

- 805.03(a) – Applicable – See Technical Specifications, Section 02222, *Excavation*. Satisfies requirement.
- 805.03(b) – Applicable – See Technical Specifications, Section 02223, *Filling*. Satisfies requirement.
- 805.03(c), (d), and (e) – Applicable – See Application Appendix A.2, *Geotechnical Calculations: Landfill Stability Analyses*. Stamped by professional engineer (Robert J. Grillo, P.E. License No. 07565, expires 8/31/2020).

Unclear if satisfies requirement.

- Subgrade. Subgrade will consist of either natural soils or compacted fill. Pursuant to Technical Specifications (Section 02222, Part 3.03), subgrade will be proof-rolled prior to construction of liner system. In the supplemental submittal WMD Log #2019-36785-06, engineer proposes to revise the specifications to require “common borrow” to be compacted to 95% of the maximum dry density as determined by ASTM D1557 (Technical Specifications, Section 02222, Part 3.03.E), including for berms supporting the waste containment system.
- Interface with Existing Waste. Waste will be placed in accordance with current landfilling practices at the facility. A cut in existing waste of up to 28 feet high and 520 feet long at the toe of the existing waste slope in Stage IV is proposed (to allow access to connect the proposed and existing leachate collection systems), and will remove about 5,000 cy of previously entombed waste. The cut is proposed to be made at a 1H:1V angle. The length of time this cut will exist is not provided; backfilling procedures for this cut area are not provided; stability calculations for this condition are not provided. Calculations needed for assessment.
- Global Stability. Two cross-sections from Stage VI (Stage VI, Section A-A’ and Section B-B’) were included in the design evaluation, and one previously analyzed cross-section from Stage V (Stage V, Section A-A’) was referenced. The results of the analyses indicate global factors of safety against failure of 3 or greater. The supporting berms are proposed to be constructed using common borrow soil placed and compacted in accordance with the technical specifications. When new berms are proposed to support the waste mass, they must be constructed in accordance with the QA/QC Plan (see Env-Sw 805.16).
- Seismic Stability. See comments regarding “Global Stability” above. Pseudo-static stability analysis method used. The results of the seismic analyses indicate that deformation of the system during a seismic event greater than allowable tolerance is not anticipated.
- Cap Stability. Proposed design is preliminary. The stability analysis of the preliminary design resulted in a factor of safety of 1.6 in the static condition. The seismic analysis indicates a predicted deformation of about 1 inch.
- 805.03(f) – Applicable – See Technical Specifications, Section 02223, *Filling*.
 - (1) Section 02223, Parts 2.01.C and 3.02.E specify 12” thick loose lift. Satisfies requirement.
 - (2) Section 02223, Part 2.01.C specifies 100% passing the 1-inch sieve. Satisfies requirement.
 - (3) Section 02223, Part 3.02.E specifies compaction to 95% of the maximum dry density as determined by ASTM D1557 (WMD Log No. 2019-36785-06). Satisfies requirement.
- 805.03(g) – Applicable – See review of Env-Sw 805.06 and Env-Sw 806.05 herein.

Env-Sw 805.04 Liner Material and Construction Requirements

- 805.04(a) – Not applicable – No soil liners proposed.
- 805.04(b)(1) Applicable – See Design Drawings, Drawing No. D-1, Detail 5/5, and Technical Specifications, Section 02276, *High Density Polyethylene (HDPE) Liner*. Satisfies requirement.
- 805.04(b)(2) – Applicable – HDPE geomembrane liner. Satisfies requirement.
- 805.04(b)(3) – Not applicable – Seaming methods which involve the use of solvents are not proposed.
- 805.04(c) – Not applicable – No composite liners proposed.
- 805.04(d) – Applicable – See review of Env-Sw 805.16 herein.

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Env-Sw 805.05 Liner System Design Standards

- 805.05(a) – Applicable – See review of Env-Sw 805.04, Env-Sw 805.06 and Env-Sw 805.07 herein.
- 805.05(b) – Applicable – See review of Env-Sw 805.12 through 805.15 herein.
- 805.05(c) – Applicable – Satisfies requirement.
- 805.05(d) – Not applicable – Not a single-lined facility.
- 805.05(e) – Applicable – See review of Env-Sw 805.05(a) and (f) herein. Satisfies requirement.
- 805.05(f) – Applicable – Proposed geometry consists of extended sideslopes. Secondary liner to be overlain by geocomposite pursuant to Env-Sw 805.05(g). Primary liner to be overlain by 18” thick drainage layer of either select sand or drainage stone. See also review of Env-Sw 805.06 and Env-Sw 806.05 herein. Calculations showing stone will not puncture liner system are not provided relative to assessing Env-Sw 805.05(f)(2). **Unclear if satisfies requirement.**
- 805.05(g) – Applicable – See Technical Specifications, Section 02273, *Drainage Geocomposite*. Satisfies requirement.
- 805.05(h) – Applicable – Liner grades are proposed at 3H:1V (extended sideslopes). Stability calculations were provided – see review of Env-Sw 805.03. See also review of Env-Sw 805.10(p). Interface stability calculations were provided for Stage V, which the permittee’s licensed engineer asserts is the critical surface for the proposed design. Satisfies requirement.
- 805.05(i) – Applicable – See review of Env-Sw 805.16 herein.
- 805.05(j) – Applicable – No penetrations of liner systems proposed. Satisfies requirement.

Env-Sw 805.06 Leachate Collection and Removal System Design Standards

- 805.06(a) – Applicable – Primary and secondary leachate collection systems included in design. See also review of Env-Sw 806.05 herein. Satisfies requirement.
- 805.06(b) – Applicable – See Design Report, pages 3-4. Satisfies requirement.
- 805.06(c) – Applicable – Freezing conditions/frozen ground conditions not explicitly addressed. Leachate collection and removal system design is consistent with previously approved designs for this facility, for which the permittee has not reported operational issues during freezing conditions. Satisfies requirement.
- 805.06(d) – Applicable – Methodology and materials consistent with previously approved designs. Stage VI piping adequately sized (see also Env-Sw 805.06(e) and (f)); and material specified as HDPE. Satisfies requirement.
- 805.06(e) – Applicable – The time of concentration is 41 hours with 6 ft of waste in place. A 25-year, 48-hour storm event was used for rainfall intensity. Engineer concludes no storage on the Stage VI liner system during a 25-year event. Nothing marked Appendix D.8 was included/identified, but 25-year storm event HELP model results included. Calculations lack clarity regarding the “base flow” and whether the calculations include the 25-year storm event for all stages. **Unclear if satisfies requirement.**
- 805.06(f) – Applicable – See Design Report, Appendix A-1. The time of concentration is 41 hours with 6 ft of waste in place. A 100-year, 48-hour storm event was used for rainfall intensity. Appendix D.8 not included/identified, and 100-year storm event HELP model results not included. Calculations lack clarity regarding the “base flow” and whether the calculations include the 100-year storm event for all stages. **Unclear if satisfies requirement.**
- 805.06(g) – Applicable – See 805.06(f) above. **Unclear if satisfies requirement.**
- 805.06(h) – Not applicable – Leachate collection and removal systems are not directly connected to WWTF.
- 805.06(i) – Applicable
 - (1) Applicable – HDPE pipes, viton gaskets, and Type 18-8 or 304 stainless steel specified (below grade) and zinc-plated (above-grade). See Technical Specifications, Section 02619, *High Density Polyethylene Pipe and Fittings*. PVC specified on drawings inside secondary containment (See Design

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Drawings, Drawing No. D-1, Detail 12/5); technical specifications for PVC not included. **Partially satisfies requirement.**

- (2) Applicable – Flow and hydraulic head are not proposed to be separately monitored for Stage VI (which consists of two cells: South and East). Using a cutoff pipe (which has cleanout access), Stage VI-South primary leachate will be directed to sump for Stage IV Phase II, and Stage VI-East primary leachate will be directed to sump Stage II Phase II. Further, secondary leachate flows will not be directed but instead will sheet flow by gravity to Stage IV Phase II, Stage IV Phase I and Stage III secondary sumps. Design consistent with previously approved designs for this facility. Satisfies requirement.
 - (3) Applicable – Satisfies requirement.
 - (4) Applicable – See Design Report, Appendix A-1, Section 4, *Maximum Head*. Satisfies requirement.
 - (5) Applicable – See supplemental information WMD Log No. 2019-36785-06. Satisfies requirement.
 - 805.06(j) – Applicable – Solvent welding not proposed on preliminary design plans. Satisfies requirement.
 - 805.06(k) – Applicable
 - (1) Applicable – See review of Env-Sw 805.06(e) and (f) herein.
 - (2) Applicable – See Technical Specifications, Section 02234, *Select Sand*. Calcium carbonate testing not proposed for stone; not appropriate for that material type. Satisfies requirement.
 - (3) Applicable – See review of Env-Sw 805.16 herein.
 - 805.06(l) – Applicable – No recirculation proposed. Satisfies requirement.
 - 805.06(m) – Not applicable – No recirculation proposed and existing facility does not have approval to recirculate leachate.
 - 805.06(n) – Applicable – See Operating Plan, Section 6.7, *Power Outage*. Fulltime operator is present on site during normal operating hours and generators are available on-site. The availability of auxiliary pumping equipment was not addressed. **Unclear if satisfies requirement.**
 - 805.06(o) – Applicable – See (1) and (4) below. **Unclear if satisfies requirement.**
 - (1) Backup pumping capacity not addressed;
 - (2) Backup power supply available;
 - (3) Relocated pump station has high water alarm (see Design Drawings, Drawing No. D-1, Detail 12/5); and
 - (4) Efficiency during average and peak flow not addressed.
 - 805.06(p) – Applicable – No changes proposed to existing pump stations; therefore, no evaluation undertaken of existing pump stations. One relocated pump station proposed. Relocated pump station has high water alarm (see Design Drawings, Drawing No. D-1, Detail 12/5). Satisfies requirement.
- Env-Sw 805.07 Leak Detection and Location System Design Standards
- 805.07(a)
 - In the “new facility” footprint, applicable for primary liner; not applicable for secondary liner/ bottommost liner, because it is overlain by a drainage geocomposite [Env-Sw 805.07(a)(1)]. Satisfies requirement.
 - In the “vertical expansion” footprint, a drainage geocomposite or composite liner is not used in a portion of Stage I; therefore, a leak detection and location system is required below the bottommost liner in this non-conforming area; however, such a system does not exist below the bottommost liner in the non-conforming area of Stage I. **Does not satisfy requirement.** Applicant submitted a waiver request as part of this application.
 - 805.07(b) – Applicable – The secondary leachate collection system is the leak detection and location system for the primary liner; therefore, the leachate collection system in the secondary must comply with this requirement.
 - In the “new facility” footprint, see Section 2 of the Design Report. Time to convey liquids to

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observation point is less than 24 hours. Leak isolation and detection system design consistent with previously approved designs for this facility. Satisfies requirement.

- In the “vertical expansion” footprint, **unclear if satisfies requirement.** However, applicant submitted a waiver request as part of this application.

Env-Sw 805.08 Groundwater and Surface Water Monitoring System Design Standards

- 805.08 – Applicable – See groundwater permit GMP # 198704033. Satisfies requirement.

Env-Sw 805.09 Stormwater Management System Design Standards

- 805.09(a) – Applicable – Included in design. Satisfies requirement.
- 805.09(b) – Applicable – A 25-year, 24-hour design storm used. Satisfies requirement.
- 805.09(c) – Applicable – See Stormwater Report. Note that if more than 4 acres of exposed geomembrane used for intermediate cover, evaluation must be revisited. Satisfies requirement
- 805.09(d) – Applicable – Satisfies requirement.
- 805.09(e) – Applicable – Satisfies requirement.
- 805.09(f) – Applicable
 - No change proposed to stormwater ponds to accommodate Stage VI; however, only the freeboard for Pond 4 was explicitly addressed (for a 100 year/24-hour storm event). **Unclear if satisfies requirement.**
 - An additional pond (Pond 7) is proposed to accommodate runoff in the scale/office area to meet USEPA requirements. Pond 7 is located on property identified by Tax Map 419, Lot 1; therefore, it must be approved by permit modification as a change in a site feature pursuant to the Solid Waste Rules. However, because Pond 7 is not taking stormwater runoff from the landfill systems, this rule requirement is not applicable to Pond 7.
- 805.09(g) – Applicable – See Stormwater Report; AoT approval required. Satisfies requirement.
- 805.09(h) – Applicable – No leachate proposed to be managed as stormwater. Satisfies requirement.
- 805.09(i) – Applicable – Included in design. See review of Env-Sw 806.02. Satisfies requirement.
- 805.09(j) – Applicable – Included in design. Satisfies requirement
- 805.09(k) – Applicable – Included in design. Satisfies requirement
- 805.09(l) – Applicable – Included in design. Satisfies requirement
- 805.09(m) – Applicable – Included in design. Satisfies requirement
- 805.09(n) – Applicable – Closed drainage systems included in design. Provisions for inspections, monitoring and maintenance must be added to operating plan. **Does not satisfy requirement.**

Env-Sw 805.10 Landfill Capping System Design Standards

- 805.10(a) – Applicable – Plans are preliminary; final closure plans shall meet the requirements of the rules in effect at the time of final design. Preliminary plans satisfy requirement.
- 805.10(b) – Applicable – See review of Env-Sw 805.10(e) herein.
- 805.10(c) – Not applicable – Landfill is not unlined.
- 805.10(d) – Not applicable – Landfill is not unlined.
- 805.10(e) – Applicable – See Stage VI Closure Plan drawings. Typical Dropchute (Detail 3/C2) and Drainage Bench (Detail 4/C2) do not conform to these rules or the Capping System Section (Detail 5/C2). Plan is preliminary; final closure plan shall meet the requirements of the rules in effect at the time of final design approval. Following review is based on the Capping System Section (Drawing No. C-3, Detail 5/C2).
 - (1) 12” Intermediate Cover proposed. Intermediate cover is an unspecified soil. Satisfies requirement.
 - (2) 6” Gas Transmission Layer proposed; material type unspecified. **Unclear if satisfies requirement.** Plan is preliminary; final closure plan shall meet the requirements of the rules in effect at the time of

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final design approval.

- (3) 40-mil LLDPE geomembrane proposed. Satisfies requirement.
- (4) 12" Select Sand with geonet proposed. See also Technical Specifications, Section 02234, *Select Sand*. Satisfies requirement.
- (5) 6" of Screened Till overlain by 4" Topsoil proposed. Satisfies requirement.
- NOTE: The cap design for the approximately 1.5H:1V slope (shown as 2H:1V slope on the cross-sections) behind the Stage III pump station (see supplemental submittal WMD Log No. 2019-36785-06 (Attachment 3)) consists of the following layers: 12" intermediate cover, 12" gas transmission layer, 40-mil LLDPE geomembrane, geocomposite, 12" gravel layer, and 10" NHDOT "C" stone. **Does not satisfy requirements.**
- 805.10(f) – Applicable – 10" NHDOT "C" stone proposed as alternative to topsoil on approximately 1.5H:1V (shown as 2H:1V on the cross sections) slope behind Stage III pump house. Permittee's determination of need not provided. **Unclear if satisfies requirement.**
- 805.10(g) – Not applicable – No low permeability capping system existing or proposed.
- 805.10(h) – Applicable – Both swales and moisture retention (Screened Till) layer proposed. Satisfies requirement.
- 805.10(i) – Applicable
 - 3H:1V Cap Sections: Calculations from Stage V application are provided for a 3H:1V slope; permittee's engineer asserts this is representative of the proposed Stage VI design. Both static and seismic conditions analyzed. Calculation results show acceptable stability conditions. Satisfies requirement.
 - 2H:1V Cap Sections: A supplemental submittal WMD Log No. 2019-36785-06 was provided that included a cap design and stability calculations for a 2H:1V slope behind the proposed Stage III pump station. The 2H:1V cap design does not meet the requirements of Env-Sw 805.10(e); however, the calculated factor of safety for the static condition is acceptable. Calculations for the seismic condition were not provided. Further, based on the contours shown on the preliminary design plans, NHDES estimates the slope immediately behind the Stage III pump station to be between 1.3H:1V and 1.5H:1V, and not 2H:1V. **Unclear if satisfies requirement.**
- 805.10(j) – Applicable – See Stage VI Closure Plan, Drawing No. C-2. Satisfies requirement.
- 805.10(k) – Applicable – See Stage VI Closure Plan drawings. Plans are preliminary; final design shall meet requirements at time of final design approval.
- 805.10(l) – Applicable – See Stormwater Report. Satisfies requirement.
- 805.10(m) – Applicable – Existing facility has an active LFG management system and gas probes around the facility to monitor for explosive gas migration. Preliminary LFG system features at time of closure shown on Stage VI Closure Plan Drawing No. C-2, but LFG migration probes not shown. Plans are preliminary; final design shall include required features.
- 805.10(n) – Applicable – Requirements not addressed. Plans are preliminary; final design shall consider these requirements.
- 805.10(o) – Applicable – Requirement not addressed. Plans are preliminary; final design shall include required markers.
- 805.10(p) – Applicable – Final design proposes 3H:1V slopes, except near toe of slope (where the grade is 2H:1V) and proximate to the Stage III pump house. The toe of slope around the pump house is between approximately 1.3H:1V and 1.5H:1V based on the plan contours, and the average slope (weighted by the hypotenuse) is about 2.6H:1V for the pump house slopes (toe to top). The average slope of the proposed sections for Stage VI is 2.5H:1V or greater. Satisfies requirement.

Env-Sw 805.11 Other Landfill Design Requirements

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- 805.11(a) – Applicable – Stage VI is broken into a sequence of four filling steps (Supplemental Submittal WMD Log No. 2019-36785-06). No berms are proposed between Stage VI-East and Stage VI-South. Sequencing plans do not show or describe how waste will be contained or managed between the South and East cells, particularly while the South cell is being filled and the East cell is under construction. Further, sequencing plans do not address backfilling of waste cut at toe of Stage IV slope. Lack of specificity/detail in fill sequencing plans also hinders assessment of compatibility with operating requirements. **Does not satisfy requirement.**
- 805.11(b) – Applicable – Nomenclature predates the rule and is considered grandfathered. Nomenclature proposed is consistent with previous developments at this facility. Satisfies requirement.
- 805.11(c) – Applicable – See Env-Sw 805.11(b). Satisfies requirement.
- 805.11(d) – Applicable – See Stage VI Facility Sequencing Plans; and Operating Plan Section 3.7. Sequencing plans do not show or indicate how cells will be filled (direction) or how temporary and permanent caps will be removed in consideration of filling to limit leachate generation, and to meet other operating provisions in rule (e.g., Env-Sw 1005.01). **Unclear if satisfies requirement.**
- 805.11(e) – Applicable – See Stage VI Facility Sequencing Plans; and Operating Plan Section 3.7. Sequencing plans prepared but not made part of Operating Plan. **Does not satisfy requirement.**
- 805.11(f) – Applicable – See Stage VI Facility Sequencing Plans; and Operating Plan Section 3.7. Does not show elevations and placement of lifts, or otherwise describe filling operations. **Does not satisfy requirement.**
- 805.11(g) – Applicable – See design drawings. Satisfies requirement.
- 805.11(h) – Applicable – No changes proposed. No evaluation undertaken.
- 805.11(i) – Applicable – See review of Env-Sw 1103.04 herein.
- 805.11(j) – Applicable – Satisfies requirement.
- 805.11(k) – Applicable – No interior berms proposed. Exterior berms included in stability calculations – see review of Env-Sw 805.05. Satisfies requirement.
- 805.11(l) – Applicable – See review of Env-Sw 804.04(c). Satisfies requirement.

Env-Sw 805.12 MSW Landfill Design Standards

- 805.12(a) – Applicable – See review of Env-Sw 805.05 herein. Satisfies requirement.
- 805.12(b) – Applicable – Satisfies requirement.

Env-Sw 805.13 MSW Incinerator Ash Landfill Design Standards

- 805.13 – Applicable – See review of Env-Sw 805.05 herein. Satisfies requirement.

Env-Sw 805.14 Construction/Demolition Debris Landfill and Coal Ash Landfill Design Standards

- 805.14 – Not Applicable

Env-Sw 805.15 Design Standards for Landfills Receiving Other Solid Waste Types

- 805.15(a) – Applicable – See review of Env-Sw 805.05 herein. Satisfies requirement.
- 805.15(b) – Not Applicable

Env-Sw 805.16 Quality Assurance/Quality Control (QA/QC) Standards for Liner and Capping Systems

- 805.16 – Applicable – QA/QC plan provided in supplemental submittal WMD Log No. 2019-36785-06. Plan is preliminary and required to be submitted with the applicable Type II; not evaluated at this time.

Env-Sw 805.17 Vertical Expansion of Landfills

- 805.17(a) – Applicable – See definition of vertical expansion in Env-Sw 104.61. The majority of additional waste volume is proposed to be placed over the existing waste containment system. As such, proposed expansion must meet the requirements for a vertical expansion. See waiver request.
- 805.17(b) – Applicable – No new MSE berms proposed. No evaluation undertaken.

Env-Sw 806 OPERATING REQUIREMENTS

Env-Sw 806.01 Applicability

- 806.01(a) – Applicable – The rules in this part apply to operation of the subject landfill because it is not one of

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the listed exceptions.

- 806.01(b) – Applicable – The operating requirements of this part apply to the landfill as a complement to the operating requirements in Env-Sw 1005, Env-Sw 1105, and Env-Sw 900.

Env-Sw 806.02 Waste Placement

- 806.02(a) – Applicable – See Operating Plan, Section 3.7, *Waste Management Following Receipt (Fill Sequence Plan)*. See also review of Env-Sw 805.11. Fill sequencing plans provided with application, but not made part of the Operating Plan. **Does not satisfy requirement.**
- 806.02(b) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No waste placement proposed outside liner system. No further evaluation undertaken.
- 806.02(c) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. Controlled placement described in operating plan. No further evaluation undertaken.
- 806.02(d) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. Fill sequencing addressed in Fill Sequencing Plans and Operating Plan. No further evaluation undertaken.
- 806.02(e) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. Not addressed in Operating Plan. No further evaluation undertaken.
- 806.02(f) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See Section 3.7.2 of Operating Plan. No further evaluation undertaken.
- 806.02(g) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See Operating Plan, Section 3.7, *Waste Management Following Receipt (Fill Sequence Plan)*. No further evaluation undertaken.
- 806.02(h) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See Operating Plan, Section 3.7, *Waste Management Following Receipt (Fill Sequence Plan)*. Initial lift of 5 feet proposed. Satisfies design requirement, but noted as not consistent with leachate calculations based on 6-feet of in place MSW. No further evaluation undertaken.

Env-Sw 806.03 Landfill Cover During Operations

- 806.03(a) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See operating plan, Section 3.7.3, *Landfill Cover*. No changes proposed in operating plan. No further evaluation undertaken.
- 806.03(b) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See operating plan, Section 3.7.3, *Landfill Cover*. No changes proposed. No further evaluation undertaken.
- 806.03(c) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See operating plan, Section 3.7.3, *Landfill Cover*. No changes proposed. No further evaluation undertaken.
- 806.03(d) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See operating plan, Section 3.7.3, *Landfill Cover*, and Section 2.1, *Authorized Wastes*. No substantial changes proposed. No further evaluation undertaken.

Env-Sw 806.04 Operating Standards for Groundwater and Surface Water Monitoring – Applicable – Relocation of some monitoring wells proposed; to be managed under groundwater permit GMP # 198704033. Evaluation to be performed pursuant to the requirements of RSA 485-C, Rules Env-Or 600 and Env-Or 700, and GMP # 198704033.

Env-Sw 806.05 Leachate Management Requirements

- 806.05(a)(1) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No proposed changes to leachate disposal practices. No further evaluation undertaken.
- 806.05(a)(2) – Not Applicable – No alternative leachate management system proposed.

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- 806.05(b) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See Operating Plan, Section 4.1, *Leachate Management Plan*. No changes to operational practices proposed. No further evaluation undertaken.
- 806.05(c) – Applicable – See review of Env-Sw 805.06 herein.
- 806.05(d) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No changes proposed. No further evaluation undertaken.
- 806.05(e) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No changes proposed. No evaluation undertaken.
- 806.05(f) through (l) – Not Applicable – No alternative leachate management methods proposed.

Env-Sw 806.06 Stormwater Management Requirements – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. See also review of Env-Sw 805.09 herein. No further evaluation undertaken.

Env-Sw 806.07 Decomposition Gas Control Requirements

- 806.07(a) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. Expansion of LFG system proposed. No further evaluation undertaken.
- 806.07(b) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See Operating Plan, Section 5.3, *Gas Monitoring and Control*, and Appendix C, *Operations and Maintenance Manual, Gas Management System*. No procedural changes proposed. No further evaluation undertaken.
- 806.07(c) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See Operating Plan, Section 5.3, *Gas Monitoring and Control*, and Appendix C, *Operations and Maintenance Manual, Gas Management System*. No procedural changes proposed. No further evaluation undertaken.
- 806.07(d) – Applicable – The number and locations of gas probes is proposed to change. Number of gas probes is proposed to decrease from 12 to 6. Spacing between gas probes is proposed to increase, particularly along the southern and eastern sides, from about 300 feet to 1,000 feet. No explanation or demonstration provided that the proposed changes are based on the requirements of this rule. **Unclear if satisfies requirement.**
- 806.07(e) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See Operating Plan Section 5.3, *Gas Monitoring and Control*. No procedural changes proposed. No further evaluation undertaken.
- 806.07(f) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. Proposed gas probe layout plan must be included in operating plan: see Appendix C, sub-Appendix A: Gas Monitoring Plan. NHDES recommends including the referenced sub-liner gas wells and indoor air monitoring locations on the plan. No further evaluation undertaken.
- Env-Sw 806.07(g) through (i) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No changes proposed. See Operating Plan, Sections 5.3, *Gas Monitoring and Control*, and Appendix C, *Operations and Maintenance Manual, Gas Management System*. See also facility's air permits. No further evaluation undertaken.

Env-Sw 806.08 Inspections, Maintenance, Monitoring and Reporting Requirements – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No changes proposed. No further evaluation undertaken.

Env-Sw 806.09 Other Operating Standards – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No changes proposed. No further evaluation undertaken.

Env-Sw 806.10 Construction/Demolition Debris Landfill Operating Requirements – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No changes proposed. No further evaluation undertaken.

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Env-Sw 806.11 Asbestos Waste Landfill Operating Requirements – Not applicable – Facility is not authorized to accept asbestos waste.

Env-Sw 806.12 Prohibitions – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No changes proposed. No further evaluation undertaken.

Env-Sw 807 CLOSURE REQUIREMENTS – Applicable – Plans are preliminary. See related reviews in Env-Sw 805 and Env-Sw 1106. Changes to existing approved closure plan are limited to those required to include new Stage VI airspace and footprint; no changes are proposed relative to closure procedures. Preliminary plans provide appropriate basis for preparing final plans prior to implementing closure. No further evaluation undertaken.

Env-Sw 808 LANDFILL RECLAMATION – Not Applicable

Env-Sw 809 RESERVED

Env-Sw 810 PERMIT-EXEMPT LANDFILLS – Not Applicable

Env-Sw 900 MANAGEMENT OF CERTAIN WASTES

Env-Sw 901 ASBESTOS – Not Applicable – Asbestos waste is not proposed as a waste type authorized for disposal in Stage VI. NHDES notes that if asbestos waste previously landfilled at the facility is disturbed, this part applies.

Env-Sw 902 ASH – Applicable – No changes proposed. No evaluation undertaken.

Env-Sw 903 CONTAMINATED SOILS – Applicable – No changes proposed. No evaluation undertaken.

Env-Sw 904 INFECTIOUS WASTE – Applicable – No changes proposed. No evaluation undertaken.

Env-Sw 905 TIRES – Applicable – No changes proposed. No evaluation undertaken.

Env-Sw 1000 UNIVERSAL FACILITY REQUIREMENTS

Env-Sw 1001 PURPOSE AND APPLICABILITY

Env-Sw 1001.01 Purpose – Statement. No evaluation undertaken.

Env-Sw 1001.02 Applicability – Applicable – The rules in this chapter apply to the subject facility.

Env-Sw 1002 UNIVERSAL ENVIRONMENTAL PERFORMANCE REQUIREMENTS

Env-Sw 1002.01 Environmental Conservation and Protection – Applicable – See purpose of RSA 149-M and the Solid Waste Rules, Env-Sw 100 et seq. To the extent a facility complies therewith, satisfies requirement.

Env-Sw 1002.02 Discharge of Pollutants Prohibited – Applicable – The requirements herein apply independent of any approval granted pursuant to RSA 149-M and the Solid Waste Rules, Env-Sw 100 et seq. See Env-Sw 101.02(d) and Env-Sw 305.04(b).

Env-Sw 1002.03 Protection of Wildlife – Applicable – The requirements herein apply independent of any approval granted pursuant to RSA 149-M and the Solid Waste Rules, Env-Sw 100 et seq. See Env-Sw 101.02(d) and Env-Sw 305.04(b).

Env-Sw 1002.04 Safety

Env-Sw 1002.04(a) – Applicable – Requirement to be implemented and enforced as a condition of any approval granted. See review of Env-Sw 806.07 herein. No further evaluation undertaken.

Env-Sw 1002.04(b) – Applicable – Requirement to be implemented and enforced as a condition of any approval granted. See also operating plan. No further evaluation undertaken.

Env-Sw 1002.04(c) – Application – Requirement to be implemented and enforced as a condition of any approval granted. See operating plan. No further evaluation undertaken.

Env-Sw 1002.04(d) – Applicable – The requirements herein apply independent of any approval granted pursuant to RSA 149-M and the Solid Waste Rules, Env-Sw 100 et seq. See Env-Sw 101.02(d) and Env-Sw 305.04(b).

Env-Sw 1002.05 Dams, Flowage and Flood Requirements

Env-Sw 1002.05(a) – Applicable – The requirements herein apply independent of any approval granted pursuant to RSA 149-M and the Solid Waste Rules, Env-Sw 100 et seq. See Env-Sw 101.02(d) and Env-Sw 305.04(b).

Env-Sw 1002.05(b) – Applicable – Requirement to be implemented and enforced as a condition of any approval

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granted. See design report and operating plan. No further evaluation undertaken.

Env-Sw 1003 UNIVERSAL SITING REQUIREMENTS

Env-Sw 1003.01 Distance to Other Facilities

- 1003.01 – Applicable – See Design Report. Satisfies requirement.

Env-Sw 1003.02 Easements and Rights-of-Way

- 1003.02 – Applicable – See Design Report. Facility is located outside of easements or rights-of-way. Satisfies requirement.

Env-Sw 1003.03 Property Ownership and Access Rights

- 1003.03 – Applicable – See Design Report. Property is owned by permittee. Satisfies requirement.

Env-Sw 1003.04 Groundwater and Surface Waters

- 1003.04(a) – Applicable – See Design Report. Satisfies requirement.
- 1003.04(b) – Applicable – See Design Report. Satisfies requirement.

Env-Sw 1003.05 Wetlands

- 1003.05 – Applicable – See Design Report. No wetlands impact proposed. Satisfies requirement.

Env-Sw 1003.06 Shoreland Protection

- 1003.06 – Applicable – See Design Report. Satisfies requirement.

Env-Sw 1003.07 Designated Rivers

- 1003.07 – Applicable – See Design Report. Satisfies requirement.

Env-Sw 1004 UNIVERSAL DESIGN REQUIREMENTS

Env-Sw 1004.01 Basic Design Requirements

- 1004.01 – Applicable – Existing facility; no changes proposed relative to this requirement. See review of Env-Sw 1002 and Env-Sw 1005 herein. Satisfies requirement.

Env-Sw 1004.02 Roads and Traffic Control

- 1004.02 – Applicable – No change to facility entrance/exit proposed; therefore, no evaluation undertaken. Proposed on-site road alignment/traffic pattern changes relate only to accessing active face of landfill. Perimeter road is proposed to be similar to current perimeter road; see Drawing No. C-2, Detail 13. Satisfies requirement.

Env-Sw 1004.03 Drainage

- 1004.03 – Applicable – See application Stormwater Management Report (PDF page 686). Satisfies requirement.

Env-Sw 1004.04 Protection of Landfill Closure Systems

- 1004.04 – Applicable – Eastern Slope capping system to be removed; therefore, protection not required. West Side Slope capping system to remain; therefore, protection required. Not addressed in application. **Unclear if satisfies requirement.**

Env-Sw 1004.05 Wastewater Systems

- 1004.05 – Applicable – No changes proposed. No evaluation undertaken.

Env-Sw 1004.06 Motor Vehicle Waste Collection

- 1004.06 – Not Applicable – The applicant does not propose a change in authorized waste for any of the motor vehicle wastes to which this rule is administratively applied, i.e., the motor vehicle wastes identified in RSA 149-M:18 (residential motor oil, residential motor vehicle batteries, and tires from residential motorized vehicles).

Env-Sw 1004.07 Equipment

- 1004.07(a) – Applicable – See Technical Specifications and Design Drawings. Satisfies requirement.
- 1004.07(b) – Not Applicable

Env-Sw 1005 UNIVERSAL OPERATING REQUIREMENTS

Env-Sw 1005.01 General Operating Requirements

- 1005.01 – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. See review of Env-Sw 1105 herein.

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Env-Sw 1005.02 Unauthorized Use Prohibited

- 1005.02(a) – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. See review of Env-Sw 1105 and Env-Sw 1103.03. Lockable gates used at main entrance and southern access point (to gravel pit); and boulders used to obstruct vehicles at Muchmore Road. Fencing is installed along portions of the facility abutting Trudeau Road. Operator on duty when facility is open. No further evaluation undertaken.
- 1005.02(b) – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. See operating plan Section 3.3, specifically Sections 3.3.5 and 3.3.6. No further evaluation undertaken.
- 1005.02(c) – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. While not an access restriction, surveillance cameras are used at the main entrance to the landfill and to the transfer station. NCES should periodically evaluate measures and update as appropriate. No further evaluation undertaken.

Env-Sw 1005.03 Traffic Management

- 1005.03 – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1005.04 Reuse of Waste

- 1005.04 – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1005.05 Public Benefit

- 1005.05 – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. See Attachment A herein.

Env-Sw 1005.06 Operator Qualifications

- 1005.06 – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1005.07 Facility Staffing

- 1005.07 – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1005.08 Financial Assurance

- 1005.08 – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. See review of Env-Sw 1400 herein.

Env-Sw 1005.09 Incident Reporting

- 1005.09 – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1005.10 Out-of-State Waste Recordkeeping

- 1005.10 – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1006 UNIVERSAL CLOSURE REQUIREMENTS – Applicable – See review of Env-Sw 1106. No further evaluation undertaken.

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Env-Sw 1100 ADDITIONAL FACILITY REQUIREMENTS

Env-Sw 1101 PURPOSE AND APPLICABILITY

Env-Sw 1101.01 Purpose – Statement. No evaluation undertaken.

Env-Sw 1101.02 Applicability

- 1101.02(a) – Applicable – The rules in this chapter apply to the subject facility because it is not one of the listed exceptions.
- 1101.02(b) – Not Applicable – No alternative procedures proposed.
- 1101.02(c) – Applicable – See review of Env-Sw 800, Env-Sw 900 and Env-Sw 1000 herein.

Env-Sw 1102 ADDITIONAL SITING REQUIREMENTS

- 1102.01 General Siting Requirements – Applicable – See review of siting requirements in Env-Sw 804 and Env-Sw 1003.
- 1102.02 Co-existence with Other Activities – Applicable – No changes proposed. No further evaluation undertaken.

Env-Sw 1103 ADDITIONAL DESIGN REQUIREMENTS

Env-Sw 1103.01 General Design Requirements

- 1103.01(a) – Applicable – Satisfies requirement.
- 1103.01(b) – Applicable – Satisfies requirement.
- 1103.01(c) – Applicable – Lack of information about waste cut (see Env-Sw 805.03 and Env-Sw 805.11) hinders assessment of compatibility with operating requirements pertaining to odor control. **Unclear if satisfies requirement.**

Env-Sw 1103.02 Equipment Installation

- 1103.02 – Applicable – See design drawings and technical specifications. Satisfies requirement.

Env-Sw 1103.03 Access Control

- 1103.03(a) – Applicable – Proposed addition of Tax Map 209 Lot 27, Tax Map 419 Lots 2, 24 and 25 trigger review. Fencing is shown on the design drawings along Trudeau Road. Application did not address access restrictions along other boundaries of the proposed facility. **Unclear if satisfies requirement.**
- 1103.03(b) – Applicable – See review of Env-Sw 1103.03(a) above. **Unclear if satisfies requirement.**
- 1103.03(c) – Applicable – Proposed addition of Tax Map 209 Lot 27, Tax Map 419 Lots 2, 24 and 25 trigger review. The access point through the parcel identified as Map 419, Lot 2 has a lockable swinging gate (see Operating Plan, Section 3.2). Satisfies requirement.

Env-Sw 1103.04 Surrounding Properties

- 1103.04 – Applicable – The design necessitates the excavation of entombed waste. Lack of information about waste cut (see Env-Sw 805.03 and Env-Sw 805.11) hinders assessment of impact to surrounding properties. **Unclear if satisfies requirement.**

Env-Sw 1103.05 Design Plans and Specifications, Content and Format

- 1103.05(a) – Applicable – Satisfies requirement.
- 1103.05(b) – Applicable – Satisfies requirement.
- 1103.05(c) – Applicable – Satisfies requirement.
- 1103.05(d) – Applicable – Drawings and specifications are stamped and/or provided under cover of professional engineer: Robert J. Grillo, NH P.E. License No. 07565, expires 8/31/2020. Satisfies requirement.
- 1103.05(e) and (f) – Applicable – Horizontal datum is NAD83 NH State Plane; Vertical datum is NAVD88. Satisfies requirement.
- 1103.05(g) – Not applicable
- 1103.05(h) – Applicable – Additional calculations or clarifications to calculations required as identified

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throughout this review. No further evaluation undertaken.

Env-Sw 1104 ADDITIONAL CONSTRUCTION REQUIREMENTS

- 1104 – Applicable – Construction requirements to be implemented and enforced as a condition of any approval granted. No evaluation undertaken.

Env-Sw 1105 ADDITIONAL OPERATING REQUIREMENTS

Env-Sw 1105.01 Prerequisites for Operations – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No evaluation undertaken.

Env-Sw 1105.02 Notice of Intent to Operate – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No evaluation undertaken.

Env-Sw 1105.03 Operating Approval – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No evaluation undertaken.

Env-Sw 1105.04 Basic Operating Requirements – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No evaluation undertaken.

Env-Sw 1105.05 Signs and Postings – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed on design plans or in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1105.06 Facility Operating Records – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1105.07 Reporting Requirements – Applicable – Operating requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1105.08 Hours of Operation – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1105.09 Receipt and Management of Waste

- 1105.09(a) – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed relative to these requirements. No further evaluation undertaken.
- 1105.09(b) – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.
- 1105.09(c) – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.
- 1105.09(d) – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. Not included in operating plan. No further evaluation undertaken.
- 1105.09(e) – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1105.10 Management of Residual Waste

- 1105.10(a) – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. See operating plan Section 4.0, *Residual Waste Management*. No changes proposed. No further evaluation undertaken.
- 1105.10(b) – Applicable – Operational requirements to be implemented and enforced as a condition of any approval granted. See operating plan Section 4.0, *Residual Waste Management*. Satisfies requirement.
- 1105.10(c) – Not applicable – Facility does not produce a waste-derived product from residual waste (see

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definition of “residual waste” in Env-Sw 104.27, which includes leachate and decomposition gas).

Env-Sw 1105.11 Operating Plan Content and Format

- 1105.11(a) – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted.
- 1105.11(b) – Applicable – Satisfies requirement.
- 1105.11(c) – Applicable – Location and solid waste permit number (DES-SW-SP-03-002) are not included on each page. **Does not satisfy requirement.**
- 1105.11(d) – Applicable
 - (1) Section 1, Facility Identification
 - (1)a. – Applicable – Satisfies requirement.
 - (1)b. – Applicable – Satisfies requirement.
 - (1)c. – Applicable – Approved design capacity (see Env-Sw 102.09) is not identified. **Does not satisfy requirement.**
 - (1)d. – Applicable – Satisfies requirement.
 - (1)e. – Applicable – Satisfies requirement.
 - (1)f. – Applicable – Satisfies requirement.
 - (2) Section 2, Authorized and Prohibited Waste
 - (2)a. and b. – Applicable – No substantial changes made; minor adjustments for clarification. Satisfies requirement.
 - (3) Section 3, Routine Operations Plan
 - (3)a. – Applicable – No changes proposed. No further evaluation undertaken.
 - (3)b. – Applicable – Access controls identified, and include proposed expanded facility boundary. However, no traffic pattern plan included. No traffic patterns indicated on fill sequencing plans. Truck queuing loop (approved 8/16/19) not included on plans. **Partially satisfies requirement.**
 - (3)c. – Applicable – No substantial changes made. No further evaluation undertaken.
 - (3)d. – Applicable – No substantial changes made. No further evaluation undertaken.
 - (3)e. and (3)f. – Applicable – No changes proposed. No further evaluation undertaken.
 - (3)g. – Applicable – Fill sequencing plans provided with Application but not made part of or referenced in Operating Plan. See also review of Env-Sw 1103.05. Additional instruction added for use of synthetic tarps. **Partially satisfies requirement.**
 - (3)h. – Applicable – This facility is authorized pursuant to permit modification dated 12/27/2001 to process C&D into a waste-derived product, specifically, CWDP No. 6 - Processed C&D and Soil Mixture, Alternative Daily Cover for RCRA Subtitle D Lined Landfills. No information provided relative to these activities. **Does not satisfy requirement.**
 - (4) Section 4, Residual Waste Management Plan
 - (4)a. – Applicable – Leachate quantities identified. Decomposition gas not addressed. **Partially satisfies requirement.**
 - (4)b. – Applicable – Leachate management identified; NHDES notes that the requirement for average flow in the secondary leachate collection system is 30 days (rolling) not monthly [ref. Env-Sw 806.08(d)(4)]. Decomposition gas not addressed. **Partially satisfies requirement.**
 - (4)c. – Applicable – See review of Env-Sw 1105.10. Satisfies requirement.
 - (4)d. – Applicable – Includes leachate and landfill gas condensate sampling requirements. Satisfies requirement.
 - (5) Section 5, Facility Maintenance, Inspection and Monitoring Plan

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- (5)a. through (5)d. – Applicable – No substantial changes proposed. No further evaluation undertaken.
- (5)e. – Applicable – Operating Plan, Section 5.4, *Odor Control*, identifies measures to be taken to inhibit odors. No substantial changes proposed. No further evaluation undertaken.
- (5)f. – Applicable – Satisfies requirement.
- (5)g. – Applicable – No changes proposed. No further evaluation undertaken.
- (5)h. – Applicable – No substantial changes proposed. No further evaluation undertaken.
- (5)i. – Applicable – No changes proposed. No further evaluation undertaken.
- Additional sections are included in the plan regarding stormwater management systems, groundwater monitoring, leachate breakout management, bird control, and asbestos records and historical asbestos waste burial location plan. NHDES notes that, if asbestos waste is to be disturbed, the provisions of Env-Sw 901, Env-A 1800, RSA 141-E, 40 CFR 61, and 29 CFR 1910 should be reviewed and implemented as applicable. NHDES takes no exception to the inclusion of these additional sections.
- (6) Section 6, Contingency Plan
 - (6)a. – Applicable – Power outages added to list of contingencies. Methane or explosive gases detected above applicable LELs in Env-Sw 806.07(b) not on list. **Partially satisfies requirement.**
 - (6)b. – Applicable – Contingency procedures relative to LELs not included. See Env-Sw 806.07(e). **Partially satisfies requirement.**
 - (6)c. – Applicable – Satisfies requirement.
- (7) Section 7, Employee Training Program – Applicable – Changes made for clarification; no substantial changes made to content. No further evaluation undertaken.
- (8) Section 8, Recordkeeping and Reporting – Applicable – No substantial changes proposed. No further evaluation undertaken.

Env-Sw 1105.12 Interaction with Districts – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1105.13 Annual Report for Active Facilities, Content – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. No changes proposed in operating plan relative to these requirements. No further evaluation undertaken.

Env-Sw 1105.14 Annual Report for Inactive Facilities, Content – Not applicable

Env-Sw 1106 ADDITIONAL CLOSURE REQUIREMENTS

Evaluation of closure requirements is based on preliminary plans. Final closure plans require NHDES approval.

Env-Sw 1106.01 Commencement of Closure Activities – Applicable – Closure requirements to be implemented and enforced as a condition of any approval granted. No evaluation undertaken.

Env-Sw 1106.02 Notice of Intent to Close – Applicable – Closure requirements to be implemented and enforced. No evaluation undertaken.

Env-Sw 1106.03 Basic Facility Closure Requirements – Applicable – Closure requirements to be implemented and enforced as a condition of any approval granted. No evaluation undertaken.

Env-Sw 1106.04 Closure Plan Content and Format

NHDES notes that the closure plan was not redlined to highlight changes from the previously approved closure plan;

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therefore, the closure plan was reviewed in whole.

- 1106.04(a) – Applicable – Closure requirements to be implemented and enforced as a condition of any approval granted.
 - 1106.04(b) – Applicable – Plan is preliminary; final plan requires approval by NHDES. Satisfies requirement.
 - 1106.04(c) – Applicable – Satisfies requirement.
 - 1106.04(d) – Applicable – Missing date of revision and facility permit number. **Does not satisfy requirement.**
 - 1106.04(e) – Applicable
 - (1) Section 1, Facility Identification – Applicable – Satisfies requirement.
 - (2) Section 2, Closure Schedule – Applicable – Preliminary closure schedule provided. However, NHDES notes that the review timeframe allotted to NHDES (4 weeks) does not match review timeframe in rule (120 days); therefore, the estimated length of time for NHDES review is incorrect. Satisfies requirement.
 - (3) Section 3, Waste Identification – Applicable – Generic waste types identified; does not match waste types approved by permit. **Does not satisfy requirement.**
 - (4) Section 4, Notifications – Applicable – Satisfies requirement.
 - (5) Section 5, Closure Requirements – Applicable
 - a. List of each major closure work task is included in Section 2.0. Satisfies requirement.
 - b. A description of procedures is provided. Satisfies requirement.
 - c. Design plans are included in Attachment A. Limited specifications are included on the drawings. Plans do not meet all requirements of Env-Sw 1103.05. Plans are preliminary. Satisfies requirement.
 - (6) Section 6, Post-Closure Requirements – Applicable – Plan is preliminary. Satisfies requirement.
 - (7) Section 7, Recordkeeping and Reporting – Applicable – Plan is preliminary. Satisfies requirement.
 - (8) Section 8, Other Permits – Applicable – Additional approvals such as local approval or Alteration of Terrain approval may be required. Plan is preliminary. Satisfies requirement.
 - (9) Section 9, Closure Cost Estimate – Applicable – See review of Env-Sw 1400 herein.
- Env-Sw 1106.05 Temporary Cessation of Facility Construction or Operations – Not applicable

Env-Sw 1400 FINANCIAL ASSURANCE

Env-Sw 1401 PURPOSE AND APPLICABILITY – Applicable – The rules in this chapter are applicable to the subject facility.

Env-Sw 1402 DEFINITIONS – Applicable – No evaluation undertaken.

Env-Sw 1403 FINANCIAL ASSURANCE REQUIREMENTS

Env-Sw 1403.01 Financial Assurance Plan Preparation and Submittal

- 1403.01(a) – Applicable – Requirements to be implemented and enforced as a condition of any approval granted. The permittee has identified changes to the facility's current closure cost estimate, which includes the post-closure care cost estimate, that would require the amount of financial assurance currently provided to be increased prior to obtaining operating approval of the expansion. Satisfies requirement.
- 1403.01(b) – Applicable – The permittee's proposed financial assurance plan includes:
 - (1) Closure cost estimate – See review of Env-Sw 1403.02 herein.
 - (2) Requirements for guaranteeing cost of closure – Continued use of its current financial assurance mechanism, comprised of two insurance policies (one for closure and one for post-closure care) issued by Evergreen National Indemnity Company, and a Standby Trust Account administered by Keybank National Association. No change proposed to mechanism type. No further evaluation undertaken.
 - (3) Identity and contact information of financial institution – Information is available in facility's financial assurance file. No change proposed to financial institution providing guarantee. No further evaluation

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undertaken.

- (4) Local government financial test – Not Applicable
- 1403.01(c) – Applicable – Requirements to be implemented and enforced as a condition of any approval granted. No change proposed except an increase in the closure and post-closure cost estimates; this will require an increase in the financial assurance mechanism amounts. Permittee is seeking preliminary approval of changes. Satisfies requirement.

Env-Sw 1403.02 Closure Cost Estimation

- 1403.02(a) – Applicable – Revised cost estimates exceed current mechanism amounts; mechanisms must be increased via the permit modification process prior to operation of Stage VI. **Does not satisfy requirement.**
- 1403.02(b) – Applicable – Satisfies requirement.
- 1403.02(c) – Applicable – Satisfies requirement.
- 1403.02(d) – Not Applicable
- 1403.02(e) – Applicable – Satisfies requirement.
- 1403.02(f) – Applicable – Satisfies requirement.
- 1403.02(g)
 - (1) Applicable – Post-closure cost estimate does not reflect rule requirement relative to semi-annual inspections for the full 30-year period (see Env-Sw 807.05(g)). **Partially satisfies requirement.**
 - (2) Applicable – Satisfies requirement.
 - (3) Not applicable
 - (4) Applicable – Satisfies requirement.
 - (5) Applicable – Filing fee does not reflect fee structure (see Env-Sw 310.08(b)). **Partially satisfies requirement.**
 - (6) Applicable – Stamped and signed by Adam J. Sandahl, NH P.E. No. 12544, exp. 1/31/2022. Satisfies requirement.
 - (7) Applicable – Satisfies requirement.

Env-Sw 1403.03 Financial Assurance Mechanism, All Facilities

- 1403.03 – Applicable – No changes proposed. No further evaluation undertaken.

Env-Sw 1403.04 Financial Assurance Mechanism, Public Facilities – Not applicable

Env-Sw 1403.05 Local Government Financial Test – Not Applicable

APPLICATION DECISION

Env-Sw 305 APPLICATION DECISIONS

- 305.01 – Applicable – Application was reviewed in accordance with Env-Sw 304.
- 305.02 through 305.06 – Not Applicable – Application was withdrawn; therefore, NHDES issues no decision.

OTHER LOCAL, STATE, AND FEDERAL REQUIREMENTS

The review and conclusions presented in this permit application review summary pertain solely to solid waste requirements of RSA 149-M and Env-Sw 100 et seq. Pursuant to Env-Sw 101.02(d) and Env-Sw 305.04(b), any approval granted relative to these solid waste requirements shall not affect the applicant's obligation to obtain all requisite federal, state or local permits, licenses or approvals, or to comply with other applicable federal, state, district or local permits, ordinances, laws or approvals or conditions pertaining to the approved activity.

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Location	581 Trudeau Road, Bethlehem, NH	Checked By	Pamela Hoyt-Denison, P.E.
Permit No.	DES-SW-SP-03-002	Review Date	Completed February 12, 2020
Application	Type I-A Modification – Landfill Expansion (Stage VI)	Activity No.	2019-36785

ATTACHMENT A – Public Benefit Determination

**Application for Landfill Expansion— Stage VI
North Country Environmental Services, Inc. (NCES)
581 Trudeau Road, Bethlehem, NH
Permit No. DES-SW-SP-03-002**

The New Hampshire Solid Waste Management Act, RSA 149-M, specifically RSA 149-M:11, requires that NHDES determine whether a proposed solid waste facility provides a substantial public benefit based on the three criteria in RSA 149-M:11,III(a) through (c), as follows.

- (a) The short- and long-term need for a solid waste facility of the proposed type, size, and location to provide capacity to accommodate solid waste generated within the borders of New Hampshire, which capacity need shall be identified as provided in paragraph V,
- (b) The ability of the proposed facility to assist the state in achieving the implementation of the hierarchy and goals under RSA 149-M:2 and RSA 149-M:3.
- (c) The ability of the proposed facility to assist in achieving the goals of the state solid waste management plan, and one or more solid waste management plans submitted to and approved by the department under RSA 149-M:24 and RSA 149-M:25.

Pursuant to RSA 149-M:11,VIII, the applicant for a permit must demonstrate in the application how the proposed facility satisfies the criteria in RSA 149-M,III(a) through (c). All three of the criteria must be satisfied for a proposed facility to receive a determination that it provides a substantial public benefit. If NHDES determines that the applicant has demonstrated that the proposed facility satisfies each of the three criteria listed under RSA 149-M:11,III, the department must state that determination in any permit issued (see RSA 149-M:11,X). If NHDES determines that the applicant has failed to demonstrate that the proposed facility satisfies the three criteria listed under RSA 149-M:11,III, the department must deny the application and provide a written explanation of the reasons for the determination (see RSA 149-M:11,IX).

For any proposed facility designed to accommodate in excess of 30 tons of solid waste per day, NHDES must hold a public hearing in the host municipality, and consider as part of the public benefit determination the concerns of citizens and governing bodies of the host municipality, county, and district, and other affected persons (see RSA 149-M:11,IV(a)). In addition, NHDES must consider the economic viability of a proposed facility, including the ability to secure financing (see RSA 149-M:11,IV(b)).

I. Assessment and Determination—RSA 149-M:11,III(a).

The assessment of whether the proposed facility (Stage VI) satisfies the criteria in RSA 149-M:11,III(a), first requires identification of the state’s solid waste capacity need pursuant to RSA 149-M:11,V, as follows:

- (a) Project, as necessary, the amount of solid waste which will be generated within the borders of New Hampshire for a 20-year planning period, assuming that all unlined landfill capacity within the state is no longer available to receive solid waste.
- (b) Identify the types of solid waste which can be managed according to each of the methods listed under RSA 149-M:3 and determine which such types will be received by the proposed facility.
- (c) Identify, according to type of solid waste received, all permitted facilities operating in the state on the date of the determination.
- (d) Identify any shortfall in the capacity of existing facilities to accommodate the type of solid waste to be received at the proposed facility for 20 years from the date a determination is made under this section. If

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such a shortfall is identified, a capacity need for the proposed type of facility shall be deemed to exist to the extent that the proposed facility satisfies that need.

Relative to the proposed NCES landfill expansion, each of the four components of RSA 149-M:11,V is addressed as follows:

- ❖ RSA 149-M:11,V(a)--- Project, as necessary, the amount of solid waste which will be generated within the borders of New Hampshire for a 20-year planning period, assuming that all unlined landfill capacity within the state is no longer available to receive solid waste.

Relative to making the projection required by RSA 149-M:11,V(a), in the Application, NCES has projected the quantity of solid waste to be generated within the borders of New Hampshire, yearly from 2020 through 2039 (referred to as the planning period) based on a per capita waste generation rate of 0.99 tons. NCES determined the per capita waste generation rate and projected the quantity of waste to be generated yearly during the planning period, based on its analysis of 2017 solid waste management data reported to NHDES by facilities operating in New Hampshire, including recycling rates, and population and growth rate estimates from the NH Office of Energy and Planning (NH-OEP). The yearly projections are shown in Table 2 in Section VII of the Application, broken out by waste type (MSW, C&D, Other Waste), the sum total of which corresponds to 27,716,000 tons of solid waste to be generated within the borders of New Hampshire during the 20 year planning period.

For the same 20 year planning period (2020 through 2039), NHDES presents alternative calculations using more recently available 2018 solid waste management data reported by New Hampshire facilities, and the methodology it applied to produce the waste disposal need projections presented in the 2019 NHDES Biennial Solid Waste Report issued in October 2019. The methodology estimates “amount of NH waste generated” based on increasing the “amount of NH waste disposed of” data reported by facilities for calendar year 2018 by 25%² to account for recycling and 14% to account for exports, both of which are assumed to have occurred between point of generation in NH to the point of disposal. Applying New Hampshire Office of Strategic Initiatives (NHOSI) sourced population data, NHDES estimates the per capita waste generation rate to be 1.4 tons per capita (or about 7.7 pounds per person per day), which is greater than the rate calculated by NCES (0.99 tons per capita). Assuming the per capita waste generation rate remains the same year to year during the 20 year planning period,³ NHDES estimates the total quantity of solid waste to be generated within the borders of New Hampshire over the 20-year planning period (2020 through 2039) to be approximately 39,249,000 tons, in contrast to the lesser amount (27,716,000 tons) projected by NCES.

In summary as to RSA 149-M:11,V(a), the following factors are potentially relevant to making a determination pursuant to RSA 149-M:11,III(a):

- **The projections by NCES in the Application may underestimate the total quantity of solid waste to be generated in New Hampshire during the 20-year planning period extending from 2020 through 2039, perhaps by as much as 11.5 million tons based on NHDES projections for the same time period using a higher (more conservative) per capita waste generation rate.**

² Using the department’s most recent recycling rate data from 2015

³ This assumption, other assumptions, uncertainties and gaps in reported data, and other factors contribute to not being able to make an exact projection. However, NHDES believes its projection does not underestimate the quantity of waste to be generated in NH during the 2020 through 2039 planning period, and likely over estimates the amount generated.

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- **This is a factor to consider when identifying any shortfall in capacity pursuant to RSA 149-M:11,V(d) and in assessing whether, pursuant to RSA 149-M:11,VIII, the Application demonstrates the proposed expansion satisfies the criteria in RSA 149-M:11,III(a).**

❖ RSA 149-M:11,V(b)--- Identify the types of solid waste which can be managed according to each of the methods listed under RSA 149-M:3 and determine which such types will be received by the proposed facility.

Relative to addressing the waste identification requirements in RSA 149-M:11,V(b):

- NCES proposes in the Application to have Stage VI receive the same types of solid waste that the existing landfill is permitted to receive, namely: MSW, C&D, and various special wastes (e.g., industrial processes waste including WWTP sludge and APC wastes, remediation wastes, contaminated soils and media, off-specification materials, incinerator ash, treated infectious waste).
- NCES does not propose in the Application to receive in Stage VI any type of solid waste that the existing landfill is prohibited from receiving, namely asbestos waste and waste that is banned or otherwise prohibited from landfilling pursuant to Env-Sw 806.12 and RSA 149-M. These wastes include untreated infectious wastes; leaf and yard waste; contained gaseous wastes; liquid wastes; wet cell batteries; video display devices, central processing units, and non-mobile video display devices; mercuric oxide batteries; and mercury added products.
- NCES does not propose in the application to manage waste received at the proposed facility by any method on the hierarchy other than landfilling.
- NHDES notes that the types of solid wastes banned from landfilling can be and are managed by one or more of the methods higher on the hierarchy identified in RSA 149-M:3.
- NHDES notes that various components of waste classified as MSW and C&D can be and are managed by one or more methods higher on the hierarchy in RSA 149-M:3.
- NHDES notes that asbestos, incinerator ash, certain contaminated soils, and certain other special wastes may not at this time be practicably managed by methods other than landfilling.

In summary as to RSA 149-M:11,V(b), the following factors are potentially relevant to making a determination pursuant to RSA 149-M:11,III(a):

- **The Application presents no proposed changes to current management practices of any type of solid waste to be received by the proposed facility.**
- **Therefore, there is nothing new or unique proposed relative to the hierarchy in RSA 149-M:3 to be factored into assessing the short and long-term need for landfill capacity in New Hampshire to accommodate solid waste generated in New Hampshire pursuant to RSA 149-M:11,III(a).**

❖ RSA 149-M:11,V(c)---Identify, according to type of solid waste received, all permitted facilities operating in the state on the date of the determination.

Relative to addressing the requirement in RSA 149-M:11,V(c), NCES identified in Section VII of the application (page 4; Part 3.3) the existence of six lined landfills, one waste-to-energy (WTE) facility, and two C&D processing facilities operating in the state. In Table 4 of Section VII of the application, NCES provided a listing of the types of solid waste each of the six lined landfills are authorized to receive.

To augment the information provided by NCES, NHDES provides in the table below similar information for five of the state's operating lined landfills (not including NCES) with additional information in the last column showing waste types NCES is authorized to receive but the designated facility cannot receive.

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Landfill	Location	Service Type	Authorized Waste Types	NCES Authorized Waste Prohibited at Subject Landfill
Lower Mount Washington Valley Secure Solid Waste Landfill	Conway, NH	Limited	Solid waste, ⁴ WWTP sludge from N. Conway Water Precinct, ⁵ MSW, C&D ⁶	Treated infectious waste, Incinerator ash, Other sludge, Contaminated soils and media
Lebanon Regional Solid Waste Facility	Lebanon, NH	Limited	MSW, C&D, Bulky waste, ⁷ WWTP sludge from Lebanon, ⁸ WWTP grit/grease/screenings, ⁹ Treated infectious waste ¹⁰	Other sludge, Contaminated soils and media, ash
Four Hills Secure Landfill Expansion	Nashua, NH	Limited	MSW, C&D, asbestos, ¹¹ bulky waste, street sweepings, WWTP sludge/grit/grease ^{12,13}	Contaminated soils and media, ash
TLR-III Refuse Disposal Facility	Rochester, NH	Unlimited	MSW, C&D, bulky wastes, incinerator ash, asbestos, special wastes (e.g., sludge, industrial process waste, pollution control processes waste, remediation waste, contaminated soils and media, off-specification materials, treated infectious waste, bulked liquid waste)	None
Mount Carberry Secure Landfill	Success, NH	Unlimited	MSW, C&D, asbestos, incinerator ash, contaminated soils and media, ¹⁴ mill wastes (i.e., MSW, ash, grit, lime, WWTP sludge) ¹⁵	None

In addition, NHDES notes that the Wheelabrator-Concord WTE facility named in the NCES application provides disposal capacity for MSW, but not C&D, which is banned by state law from combustion.

In summary as to RSA 149-M:11,V(c), the following factors are potentially relevant to making a determination pursuant to RSA 149-M:11,III(a):

- **The Application presents no proposed changes to the above noted existing disposal options for solid waste generated within the borders of New Hampshire, and all of the waste types received at the NCES landfill can also be received by other operating landfills in New Hampshire.**
 - **Therefore, there is nothing new or unique proposed relative to waste types managed at the facility to be factored into assessing the short and long-term need for landfill capacity in New Hampshire to accommodate solid waste generated in New Hampshire pursuant to RSA 149-M:11,III(a).**
- ❖ RSA 149-M:11,V(d)---Identify any shortfall in the capacity of existing facilities to accommodate the type of solid waste to be received at the proposed facility for 20 years from the date a determination is made under this section. If such a shortfall is identified, a capacity need for the proposed type of facility shall be deemed to exist to the extent that the proposed facility satisfies that need.

⁴ NHDES. *Authorization to Manage Solid Waste, Permit No. DES-SW-90-028*. Approved October 22, 1990.

⁵ NHDES. *Record of Modification to Solid Waste Management Facility Permit*. Approved July 12, 1995.

⁶ CMA Engineers, Inc. *Lower Mount Washington Valley Secure Solid Waste Landfill: Facility Operating Plan*. Dated November 2012.

⁷ NHDES. *Solid Waste Management Facility Standard Permit*. Approved March 19, 1999.

⁸ NHDES. *Record of Modification to Solid Waste Management Facility Permit*. Approved August 9, 2000.

⁹ NHDES. *Record of Modification to Solid Waste Management Facility Permit*. Approved December 20, 1999.

¹⁰ City of Lebanon. *Operating Plan: Phase II Secure Expansion*. Revised April 2013.

¹¹ NHDES. *Solid Waste Management Facility Standard Permit*. Approved June 26, 1995.

¹² City of Nashua. *Operating Plan: Phase II Secure Landfill Expansion*. Revised June 2013.

¹³ NHDES. *Record of Modification to Solid Waste Management Facility Permit*. Approved February 7, 2003.

¹⁴ NHDES. *Record of Modification to Solid Waste Management Facility Permit*. Approved March 7, 2003.

¹⁵ NHDES. *Record of Modification to Solid Waste Management Facility Permit*. Approved August 12, 2002.

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Relative to addressing the requirement in RSA 149-M:11,V(d), NCES asserts in Part 3.4 of Section VII of the application, the existence of a lump sum shortfall in disposal capacity ranging from 3,800,000 tons to 21,000,000 tons during the 20-year planning period (2020 through 2039). The range depends on whether the state's existing disposal capacity is figured on the basis of "operating disposal capacity" or "permitted disposal capacity." NCES identifies "operating disposal capacity" as that capacity currently in operation, and "permitted disposal capacity" as that capacity which has received a permit from NHDES but may not yet have final approval to construct or operate. Table 3 in Section VII of the Application presents the disposal capacity numbers used to make the shortfall calculations, with related notes documenting the underlying methods and assumptions used by NCES to produce the numbers. The capacity shortfall calculated by NCES is figured by subtracting the total quantity of solid waste NCES projected to be generated within the borders of New Hampshire during the 20-year planning period (i.e., 27,716,000 tons, as provided in Table 2 of Section VII of the Application) from, first, the state's "operating disposal capacity" and, second, the state's "permitted disposal capacity" for the same time period. This produces the estimated shortfall of 3,800,000 tons to 21,000,000 tons, in aggregate during the 20 year planning period.

NHDES made alternative calculations and estimated the state's lump sum permitted disposal capacity at incinerators and landfills to be about 23,159,000 tons for the entire 20 year planning period, which is about 2.16 million tons more than NCES has estimated.¹⁶

While NCES did not provide projections or an analysis of capacity shortfall as a function of time over the 20 year planning period, NHDES independently evaluated the state's permitted disposal capacity as a function of time, to identify any resultant shortfalls as a function of time over the 20-year planning period. Examining capacity need as a function of time is important because RSA 149-M:11,III(a) requires NHDES to examine both "the short- and long-term need for a solid waste facility...which capacity need shall be identified as provided in paragraph V" and the provisions of paragraph V, specifically RSA 149-M:11,V(d), state that if a shortfall in capacity is identified, a capacity need for the proposed type of facility shall be deemed to exist "... to the extent that the proposed facility satisfies that need." (Emphasis added)

To project permitted disposal capacity as a function of time, NHDES used the allowable capacity depletion rates specified in the permits issued for the landfills, and other operational information for each of the state's existing disposal facilities, as summarized below.¹⁷

- Wheelabrator Concord Co. (Concord) – Disposal capacity of the WTE is the facility's effective disposal capacity, based on the permitted throughput capacity (575 tpd, 365 days per year) reduced by the quantity of ash requiring final disposal (approx. 31.5% ash disposal rate). Its assumed operating life expectancy includes the entire 20 year planning period.

¹⁶ NHDES notes that additional capacity was approved at the Mt. Carberry Landfill after submittal of this application, adding about 515,500 tons of permitted disposal capacity during the 20 year planning period. NHDES also notes that the estimates made by NHDES and NCES appear to rely on different compaction density factors and allowable capacity depletion rates, resulting in different permitted capacity projections.

¹⁷ NHDES notes that its analysis does not include the effective capacity for permitted processing/treatment facilities, other than Wheelabrator-Concord Co., which results in under estimating permitted capacity for some waste types such as C&D and contaminated soils, and therefore over estimating capacity shortfall to some degree.

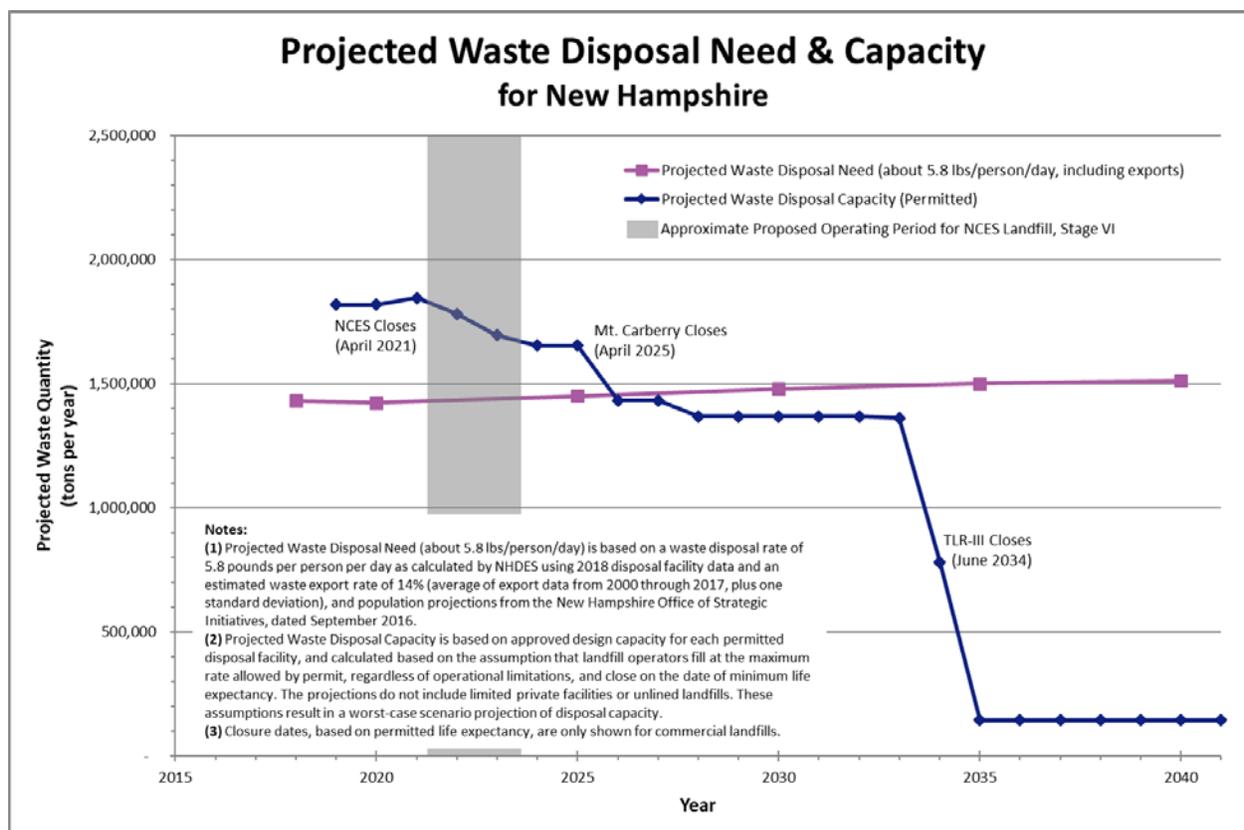
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- NCES Landfill (Bethlehem) – Life expectancy is through April 16, 2021 (Permit modification dated 8/15/14 requires 5.3 years of operation; operations started December 28, 2015 pursuant to the December 2015 monthly report). Annual tonnage is based on the estimated remaining permitted capacity reported to NHDES by NCES in the facility’s 2018 Annual Facility Report, the permitted minimum life expectancy, and a facility-specific compaction rate of 1,520 lbs/cy as provided in the public benefit determination included in the Application.
- Lower Mount Washington Valley Secure Solid Waste Landfill (Conway) – Permit contains neither an annual tonnage limit nor a minimum life expectancy. The application for a permit included a projected disposal rate of 10,000 tpy. Life expectancy is estimated based on filling at a rate of 10,000 tpy, and an assumed compaction rate of 1,200 lbs/cy.
- Lebanon Regional Solid Waste Facility (Lebanon) – Permit contains no annual tonnage limit or minimum life expectancy. Annual tonnage is estimated based on the remaining capacity and life expectancy identified in the 2018 annual facility report, and a compaction rate of 1,400 lbs/cy (rounded) as stated in the facility’s capacity report dated June 1, 2017.
- Four Hills Landfill Expansion (Nashua) – Permit contains no annual tonnage limit but does set a life expectancy of 20 years, or until April 2023 (Permit dated 6/26/95 requires 20 years of operation; operations began April 15, 2003). Annual tonnage is based on the estimated remaining permitted capacity in the 2018 annual facility report, the minimum permitted life expectancy, and a facility-specific compaction rate of 1,360 lbs/cy as provided in the remaining waste capacity evaluation dated August 25, 2017.
- TLR-III Refuse Disposal Facility (Rochester) – Permitted life expectancy is through June 30, 2034 (Permit modification issued 6/11/2018). Annual tonnage is based on the permitted capacity through Phase 17, and a facility-specific compaction rate of 1,620 lbs/cy (rounded) reported in the 2018 annual facility report.
- Mt. Carberry Secure Landfill (Success/Berlin) – Permitted life expectancy is through April 2025 (Permit modification dated 2/25/2019). Annual tonnage is based on the permitted capacity through Stage 12, and a compaction rate of 1,450 lbs/cy (rounded) as stated in the capacity report dated December 19, 2018.

Based on the above, NHDES’ projections of disposal need and disposal capacity at incinerators and landfills over time is shown in the following graph. During the proposed operating life of Stage VI, the graph shows that the state has excess disposal capacity at existing facilities. Stage VI would add to that excess capacity.

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NCES does not provide in the Application an evaluation of the state’s disposal capacity and capacity need as a function of time during the 20-year planning period, including specifically during the 2.3-year time period that Stage VI is proposed to be operational. NCES states on page 8 of Section VII of the Application its belief that operation of Stage VI “will avoid the stepped-up depletion of the state’s disposal capacity....” NCES seemingly implies that the short-term capacity to be provided by the proposed facility will have the effect of conserving disposal capacity at other landfills for later use. This assumption would only be valid if the state’s other permitted landfills decreased their rate of filling during the 20-year planning period proportional to the excess capacity provided by the proposed facility. Solid waste facilities in New Hampshire are not permitted or operated in this manner, and thus, NHDES concludes that this argument does not form a basis for finding that the proposed facility satisfies a capacity need.

In addition to the above evaluation of a statewide capacity need as a function of time, NHDES also considered whether there might be a shortfall of disposal capacity for solid waste generated in the geographic region of the proposed expansion during its life expectancy. NHDES evaluated this by estimating the combined waste disposal need for Coos, Grafton and Carroll Counties, using the same general methodology as used for the evaluation of the statewide disposal need, and comparing that figure (about 182,900 tons based on 2018 population estimates) to the available solid waste disposal capacity of permitted facilities in those counties (about 338,600 tons annually). Based on this analysis, NHDES found no regional disposal need during the proposed operating life of the expansion.

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In summary as to RSA 149-M:11,V(d), the following factors are potentially relevant to making a determination pursuant to RSA 149-M:11,III(a):

- During the 20-year planning period, there is a projected shortfall in existing permitted disposal capacity to accommodate the total quantity of New Hampshire waste projected to be generated statewide during that time period (2020 through 2039). In this analysis, the projected magnitude of the shortfall differs depending on whether NCES or NHDES waste generation projections are used to make the calculation. NHDES projections produce a more conservative outcome, i.e., a greater shortfall than projected by NCES in the Application.
- A statewide shortfall in existing permitted disposal capacity is conservatively projected by NHDES to not occur until after 2025. NCES did not make a time based projection in the Application.
- The proposed facility would provide disposal capacity for NH generated waste during a time period that the data show the state as a whole, as well as the region of Coos, Carroll and Grafton Counties, has excess disposal capacity.
- The proposed facility, operating at the proposed rate of 400,000 tons per year, would roughly double the state’s excess disposal capacity during the time period it would operate.
- The proposed facility would not provide disposal capacity during a time period that the data show the state has a disposal capacity shortfall.
- To the extent that NCES implies it, the supposition in the Application that the proposed facility will have the effect of saving capacity at other facilities, making that capacity available for use during the 20-year planning period after Stage VI is closed, does not have merit, in part because the permits for those facilities allow them to operate at their maximum disposal rate. If the supposition had merit, the state’s existing unlimited service area landfills, including the existing NCES landfill, would be operating well below the maximum rate allowed in their permits, which is not the case. Further, if the supposition were valid, NCES would not be proposing in its Application to operate the expansion at the proposed rate of 400,000 tons per year, which is more than the current disposal rate for the existing facility, during a time when the state is projected to have excess landfill capacity.

Therefore, in conclusion pursuant to RSA 149-M:11,V(d), no capacity need is deemed to exist for the proposed type of facility (i.e., landfill), because such need shall be deemed to exist “...to the extent the proposed facility satisfies that need.” The proposed facility cannot satisfy a need for disposal capacity when that need does not exist during the time the proposed facility would be accepting solid waste for landfilling.

Returning, then, to the assessment and determination required of NHDES pursuant to RSA 149-M:11,III(a), the department must determine whether there is a “...short- and long-term need for a solid waste facility of the proposed type, size, and location to provide capacity to accommodate solid waste generated within the borders of New Hampshire, which capacity need shall be identified as provided in paragraph V.”

The type, size, and location of the facility for which this determination is made, is as follows:

- Facility Type: Lined solid waste landfill, with an unlimited service area;
- Size: New Footprint = Approximately 5.71 acres;
Capacity = 1,220,000 cubic yards or roughly 915,000 tons;
Fill rate = 400,000 tons per year; providing 2.3 years of disposal capacity, commencing in 2021.
- Location: Bethlehem, NH

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Following the method in RSA 149-M:11,V for determining capacity need, no such need is deemed to exist, as explained in the related narrative above. Therefore, based solely on the capacity need analysis undertaken pursuant to RSA 149-M:11,V, NHDES is unable to determine that the proposed facility – a landfill in Bethlehem, NH operating at a rate of 400,000 tons per year for 2.3 years, providing about 915,000 tons of capacity during a time period that the state is conservatively projected to have between 250,000 to 400,000 tons per year of excess disposal capacity – meets the public benefit criterion specified in RSA 149-M:11,III(a).

While not determinative as to capacity need, NHDES did give consideration to the fact that a number of NH municipalities and other NH generators dispose of their solid waste at the NCES Landfill. NCES provided information in Section VII of the Application showing historical waste receipts from NH generators, with maps, figures, and lists intended to show the facility’s customer base. The department examined the information provided in the figures, tables and lists provided by NCES and other available information to consider the needs of particular NH communities and the state’s reliance on the NCES landfill. In that regard, NHDES notes that during 2018, roughly 66% of the waste received by the facility was sourced from New Hampshire generators, either directly from NH municipalities or via affiliated and non-affiliated haulers. For context, this represents approximately 18% of all NH generated waste disposed of in NH during 2018. According to information provided in Table 8 of Section VII of the Application, there are 18 out of 234 NH municipalities¹⁸ that both disposed of waste at NCES in 2017 and have been doing so consistently each year for the prior ten years, going back to 2008.¹⁹ The 18 municipalities are mainly located in northern Grafton County near NCES and along the I-93 corridor, many of which are members of the Pemi-Baker Solid Waste District that commented in support of approving the Application. Table 8 also shows that in 2017, a total of 27 municipalities used the facility, including the aforementioned 18, accounting for about 11% of all NH generated waste disposed of at NCES or about 2% of all NH generated waste sent for disposal in 2017. The 27 municipalities are wider spread geographically, with the four most distant being Charlestown and Sunapee in Sullivan County, and Goffstown and Nashua (which also operates its own landfill) in Hillsborough County.²⁰

For the time period that Stage VI would be operational, at a receipt rate of 400,000 tons per year as proposed, NHDES estimates the 18 aforementioned communities would need about 4% to 6 % of the facility’s proposed permitted capacity, if they were to dispose of the same amount of waste at the facility as they did in 2017. Making a similar analysis for all of the 27 communities (including the aforementioned 18) shown in Table 8 as using the facility in 2017, their contribution during the Stage VI operating period is estimated to be about 6% to 8% of the facility’s proposed permitted capacity.

NHDES acknowledges that a significant number of communities use NCES for disposal services. However, NHDES notes that adequate capacity is available at other NH disposal facilities to meet the needs of these communities during the proposed period of operation. NHDES also acknowledges that at least 18 NH communities would have to make a change in long-standing solid waste management practices if landfill capacity at NCES is not available. However, the capacity needs of these communities do not represent a substantial amount of the capacity of the proposed facility

¹⁸ Ashland, Bethlehem, Carroll, Charlestown, Dalton, Franconia (with Sugar Hill and Easton), Groton, Lisbon, Littleton, Plymouth, Rumney, Sanbornton, Thornton (with Campton), Waterville Valley, and Wentworth

¹⁹Based on the information provided by NCES in the Application, in 2017, these 18 municipalities disposed of about 14,970 tons of solid waste at the facility, accounting for about 6.8% of NH-generated waste disposed of at the facility or about 1% of all NH-generated waste sent for disposal in 2017.

²⁰Based on the information provided by NCES in the Application, in 2017, Charlestown, Sunapee, Goffstown and Nashua collectively disposed of about 9,300 tons at NCES, accounting for about 4.2% of all NH-generated waste disposed of at NCES or about 0.7% of all NH-generated waste sent for disposal in 2017.

Application Review Summary			
Facility	NCES Landfill	Reviewer	Jaime M. Colby, P.E
Location	581 Trudeau Road, Bethlehem, NH	Checked By	Pamela Hoyt-Denison, P.E.
Permit No.	DES-SW-SP-03-002	Review Date	Completed February 12, 2020
Application	Type I-A Modification – Landfill Expansion (Stage VI)	Activity No.	2019-36785

To summarize, NCES seeks a permit for new landfill capacity to be operated and closed during a period of time that the state has excess permitted disposal capacity, statewide and regionally. NCES proposes to do so at an increased disposal rate (400,000 tons per year) compared to the facility’s current waste disposal rate in Stage V. In addition to not showing in the Application how the capacity of the expansion would in fact accommodate the state’s projected long-term capacity need during the years following closure of the expansion, the Application does not show how the proposed increase in the disposal rate during a period of excess capacity satisfies that same longer term capacity need.

NHDES acknowledges that its disposal capacity estimates are based solely on final disposal facilities consisting of the municipal solid waste incinerator in Concord and the six publicly-accessible operating lined landfills. This likely underestimates the solid waste disposal capacity available in NH because such capacity is also provided by diversion and volume reduction facilities including construction and demolition debris processors, composting facilities, and recycling facilities, as well as limited private facilities (that is, solid waste facilities that are generator-owned and serve only the disposal needs of the generator-owner).

Determination re—RSA 149-M:11,III(a): NHDES finds that the proposed facility – a landfill in Bethlehem, NH operating at a rate of 400,000 tons per year for 2.3 years, providing about 915,000 tons of capacity during a time period that the state is projected to have excess disposal capacity and no regional or statewide capacity need – does not meet the criterion in RSA 149-M:11,III(a) for providing a substantial public benefit.

II. Assessment and Determination---RSA 149-M:11, III(b):

RSA 149-M:11,III(b) specifies the second of the three public benefit criterion, namely the “*Ability of the proposed facility to assist the State in achieving the implementation of the hierarchy and goals under RSA 149-M:2 and RSA 149-M:3.*”

In its demonstration of public benefit in Section VII of the Application, NCES states that the 40% waste reduction goal in RSA 149-M:2 has lapsed, as it was set to occur by 2000; therefore, NCES asserts that there is nothing it can do to assist in achieving the goal. Instead, NCES states that it will demonstrate that the landfill is part of an integrated waste management system, and plays an important role in the hierarchy established by RSA 149-M:3.

NCES states that the landfill is part of the company’s (that is, Casella Waste Systems, Inc.’s) integrated system, which includes:

- Implementing resource management auditing and planning services offered to commercial, institutional, and industrial entities, with the goal to reduce waste destined for disposal;
- Offering Zero-Sort® single-stream recycling programs, with the goal to make recycling easier for customers and support Casella’s efforts to divert waste from disposal;
- Offering curbside trash and recyclables collection in the host community (Bethlehem);
- Providing separately permitted, affiliated transfer station services throughout NH;
- Offering recycling options for items prohibited from landfilling such as used oil, CFC-containing appliances, antifreeze, certain batteries, CRTs, fluorescent lamps, and mercury-containing devices;
- Hosting a household hazardous waste collection day for Bethlehem residents, and the Pemi-Baker Solid Waste District; and
- Offering disposal services for communities and businesses at the NCES Landfill.

Further, NCES states that the company uses alternative daily cover at the landfill, and redirects wood ash and biosolids to beneficial reuse instead of disposal.

Application Review Summary			
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The Application does not propose any change in current landfilling practices at the facility that would specifically advance the hierarchy or diversion of waste from landfilling.

Landfilling is the least preferred method of solid waste management in the hierarchy described in RSA 149-M:3, and landfilling does not, by itself, support waste diversion as identified in RSA 149-M:2. Because the proposed expansion would increase the amount of excess landfill disposal capacity projected to exist during its proposed operating life, it may in fact deter diversion and the development of non-landfilling waste management alternatives that could include more preferred waste management methods under RSA 149-M:3.

Determination re- RSA 149-M:11,III(b): NHDES finds that the expansion as proposed does not support the goals and hierarchy under RSA 149-M:2 and RSA 149-M:3.

III. Assessment and Determination---RSA 149-M:11,III(c):

RSA 149-M:11,III(c) establishes the third and last criterion for providing a substantial public benefit, namely the *“Ability of the proposed facility to assist in achieving the goals of the State solid waste management plan, and one or more solid waste management plans submitted to and approved by the department under RSA 149-M:24 and RSA 149-M:25.”*

In the Application, NCES states that the proposed facility assists in achieving the five below stated goals of the State of New Hampshire Solid Waste Plan, dated April 2003, as follows:

1. Reduce the volume of the solid waste stream – NCES uses alternative daily cover (C&D chips mixed with soil), and provides an outlet for C&D processing residual wastes. Casella affiliates support pay-as-you-throw programs, and Casella Organics creates waste-derived products from wood ash for agricultural and animal bedding purposes.
2. Reduce the toxicity of the solid waste stream – NCES and its affiliates operate transfer stations that provide alternative options for managing universal waste and other wastes prohibited from landfilling. Additionally, NCES and Casella host household hazardous waste collection days.
3. Maximize diversion of residential and commercial/industrial solid wastes – NCES and its affiliates offer recycling services, and convert biosolids to beneficial use (in composting and/or for land application).
4. Assure disposal capacity for New Hampshire – NCES states that the proposed Stage VI will mitigate a shortfall in disposal capacity over the 20-year planning period.
5. Assure that solid waste management activities are conducted in a manner protective of human health and the environment – NCES asserts that proposed Stage VI is designed to meet or exceed regulatory requirements, will be operated by trained personnel, and will be monitored in accordance with relevant regulations.

With regard to District plans, NCES states that it provides disposal services to New Hampshire municipalities and solid waste districts. NCES did not identify a particular goal of any one plan that the proposed expansion would assist in achieving, but did identify that the NCES landfill is explicitly identified as a disposal facility in solid waste management planning documents for multiple single and multi-town solid waste districts.

The Application does not propose any change in current landfilling practices at the facility, that might change current solid waste management practices in New Hampshire relative to achieving state and district solid waste management planning goals.

Application Review Summary			
Facility	NCES Landfill	Reviewer	Jaime M. Colby, P.E
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NHDES believes that permitting excess landfill capacity to be used during a time that excess capacity will already exist, and maintaining the status quo relative to landfilling practices except for an increase in the disposal rate, as proposed in the Application, does not incentivize a reduction in the volume of the solid waste stream (Goal 1) and may, in fact, encourage additional landfill disposal and discourage diversion (Goal 3) due to the availability of significant excess landfill disposal capacity.

Determination re- RSA 149-M:11,III(c):

- ***NHDES finds that the proposed expansion does not assist the state in achieving the goals of the State solid waste management plan, specifically, goals number 1 and 3.***
- ***NHDES finds that the NCES Landfill likely assists New Hampshire municipalities and districts with meeting the requirements of their solid waste management planning programs; however, such requirements were not addressed in the Application beyond the ability of NCES to provide a final disposal facility.***

IV. Overall Determination – RSA 149-M:11,III

In consideration of the above assessments and determinations, NHDES finds that the application fails to demonstrate that the proposed expansion satisfies each of the criterion specified in RSA 149-M:11(a), (b) and (c) for providing a substantial public benefit.