THE STATE OF NEW HAMPSHIRE

MERRIMACK COUNTY SUPERIOR COURT

DOCKET NO. ____

217-2021-CV-00092

CONSERVATION LAW FOUNDATION, INC.

Plaintiff

v.

ROBERT R. SCOTT, COMMISSIONER, NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES,

Defendant

EXPEDITED MOTION
FOR PRELIMINARY INJUNCTIVE RELIEF

Plaintiff Conservation Law Foundation ("CLF") hereby moves for an expedited preliminary injunction requiring Defendant Robert R. Scott, Commissioner, New Hampshire Department of Environmental Services (hereinafter "DES") to cease permitting activities related to a permit application submitted to it on February 5, 2021 for a proposed new landfill in Dalton, New Hampshire, as well as other permit activities related to new or expanded waste disposal facilities, until DES has complied with the mandatory, non-discretionary solid waste management plan requirement set forth in RSA 149-M:29. In support of this motion, CLF respectfully states:

1. On this date, CLF filed a Complaint for Declaratory Judgment, Writ of Mandamus, and Injunctive Relief ("Complaint"). The Complaint is premised on DES's failure to comply with its mandatory, non-discretionary duties to (a) develop and update, every six years, a solid waste management plan for the state, as required by RSA 149-M:29, and (b) rely on that plan in rendering determinations on whether to grant or deny permits for new or expanded waste facilities, as required by RSA 149-M:11, III and RSA 149-M:12, I(b).

2. CLF's Complaint seeks a declaratory judgment that DES is violating its statutory duties; a writ of mandamus ordering DES to comply with the state waste planning requirements; and an injunction to prevent DES from reviewing permit applications for new or expanded waste facilities, and rendering decisions on any such applications, until it has developed a state waste plan in accordance with its statutory duties.

3. As explained in further detail in the memorandum accompanying this expedited motion, on February 5, 2021, DES received an application from a private landfill company, Granite State Landfill LLC ("Granite State Landfill"), for a permit to construct and operate a new landfill in Dalton, New Hampshire. Although the permit application has not yet been made publicly available by DES, materials associated with Granite State Landfill's application for a wetlands permit indicate the proposed facility would be 180 acres in size, create disposal capacity for 23,000,000 cubic yards of waste, operate for approximately 38 years, and require the permanent filling of more than 17 acres of wetlands.

4. New Hampshire's solid waste management statute, RSA Chapter 149-M, establishes a clear, unambiguous mandate that DES develop a solid waste management plan for the state and update that plan every six years. RSA 149-M:29, I.

5. The statute further mandates that DES shall not grant a permit for a waste facility unless DES first determines that the proposed facility will assist in achieving the goals of the state's waste management plan and will be consistent with such plan. RSA 149-M:11, III; RSA 149-M:12, I(b).

6. DES has produced one state solid waste management plan – in 2003. Pursuant to RSA 149-M:29, I, it was required to update the state waste management plan in 2009 and 2015, and would be required to publish a new plan in 2021. Despite these requirements, DES has failed to produce a new or updated plan since 2003.

7. Notwithstanding its failure to produce a state solid waste management plan in accordance with the requirements of RSA 149-M:29, I, DES has continued to grant permits for expanded waste facilities in reliance on its grossly and unlawfully outdated 2003 solid waste plan, and in direct contravention of statutory permitting requirements. RSA 149-M:11, III (c); RSA 149-M:12, I(b).

8. Based on DES's past practices of reviewing permit applications, and granting permits, for new waste facilities absent a legally valid state solid waste plan, Plaintiff seeks expedited preliminary injunctive relief to prevent DES from reviewing and rendering a decision on the permit application for the Dalton landfill, and from reviewing or rendering decisions on any other waste facility permit applications or permits that may come before it, unless and until DES has complied with the statutory solid waste management plan requirement set forth in RSA 149-M:29, I.

9. A preliminary injunction is necessary to preserve the status quo and prevent the unlawful issuance of permits, including a permit for the proposed private landfill in Dalton, absent a valid solid waste management plan.

10. There is no adequate remedy at law, and a preliminary injunction is necessary to avoid the immediate danger of irreparable harm to New Hampshire's ability to properly manage solid waste, including its ability to achieve (1) its statutory waste reduction goal established in RSA 149-M:2 and (2) its statutory solid waste management hierarchy, established in RSA 149-M:3, which ranks landfilling as the least favorable method of managing waste.

11. There is no adequate remedy at law, and a preliminary injunction is necessary to avoid the immediate danger of irreparable harm to New Hampshire's solid waste facility permitting system, which specifically requires that in order for DES to grant a permit, it must determine that the proposed facility will assist in achieving the goals of the state solid waste management plan and will be consistent with such plan.

12. There is no adequate remedy at law, and a preliminary injunction is necessary to avoid the immediate danger of irreparable harm to the environment that would be caused by the proposed Dalton landfill, which is proposed in a sensitive location – near Forest Lake and Forest Lake State Park – and which is proposed to require the filling of more than 17 acres of wetlands and to accommodate 23,000,000 cubic yards of waste, with associated air, water, noise, and odor impacts.

13. CLF has a substantial likelihood of success on the merits of its claims for declaratory and mandamus relief.

14. The relief sought by CLF is in the public interest.

15. A preliminary injunction is appropriate under established principles of equity.

16. For these reasons, and for reasons more fully set forth in the accompanying memorandum, Plaintiff is entitled to preliminary injunctive relief pending a final decision on the merits from the Court.

WHEREFORE, Plaintiff respectfully requests that the Court:

A. Issue an order enjoining DES from reviewing the pending application for the proposed landfill in Dalton, and from issuing a permit for such proposed facility, until DES has complied with its mandatory, non-discretionary duty to have a state solid waste management plan in compliance with RSA 149-M:29;

B. Issue an order enjoining DES from engaging in permitting activities related to any other new or expanded solid waste facilities that may come before it, until DES has complied with the mandatory, non-discretionary duty to have a solid waste management plan in compliance with RSA 149-M:29;

C. Schedule an expedited hearing on this Motion, and

D. Grant any other relief as the Court deems just and necessary.

Respectfully submitted,

Dated: February 11, 2021

CONSERVATION LAW FOUNDATION

By its attorneys,

/s/ Heidi H. Trimarco
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CERTIFICATE OF SERVICE

I hereby certify that copies of this Memorandum have on this day, February 11, 2021, been sent via the court's electronic filing system.

CONSERVATION LAW FOUNDATION

/s/ Heidi H. Trimarco

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v.

ROBERT R. SCOTT, COMMISSIONER, NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES,

Defendant

MEMORANDUM IN SUPPORT OF PLAINTIFF'S EXPEDITED MOTION FOR PRELIMINARY INJUNCTIVE RELIEF

Plaintiff Conservation Law Foundation ("CLF") respectfully submits this memorandum in support of its expedited motion for preliminary injunctive relief in the above-captioned matter. For the reasons set forth herein, CLF is entitled to an order preliminarily enjoining Defendant Robert R. Scott, Commissioner, New Hampshire Department of Environmental Services ("DES") from reviewing and rendering a decision on a permit application received by DES on February 5, 2021 for the construction and operation of a new, 180-acre private landfill in Dalton,

New Hampshire (hereinafter "Dalton landfill"), and from reviewing and rendering decisions on any other permits for new or expanded waste facilities that may come before it, unless and until DES has complied with the mandatory, non-discretionary solid waste management plan requirement set forth in RSA 149-M:29.

INTRODUCTION

New Hampshire's solid waste management statute, RSA Chapter149-M, imposes a number of mandatory, non-discretionary duties on DES for the management and regulation of solid waste. Among those requirements, DES has a mandatory duty to have – and to update every six years – a state solid waste management plan. In addition to serving an important planning function, including planning to assist in achieving the state's statutory waste reduction goal and the state's solid waste management hierarchy (which ranks landfilling as the least preferred management option), the solid waste plan is an essential and mandatory element of DES decision-making with respect to permit applications for waste facilities. DES cannot, as a matter of law, issue permits for new or expanded waste facilities without an up-to-date, legally sufficient solid waste plan.

Despite its mandatory duty to update the state solid waste plan every six years, DES has not produced a plan since 2003. DES has acknowledged its failure to update the plan and concedes that it is "abundantly clear that New Hampshire is falling behind with regard to general waste management planning and policy."[1] Despite its failure to comply with its mandatory, non-discretionary planning obligation, and contrary to permit review requirements mandating consideration of a valid state solid waste plan, DES has nonetheless reviewed numerous permit

[1] Robert R. Scott, Commissioner, DES, to Representative Amanda Gourgue, Chair, House Environment & Agriculture Committee, Feb. 18, 2020, attached as Exhibit 1.

applications for solid waste facilities, resulting in the issuance of several permits for expanded landfills in New Hampshire.

NEED FOR EXPEDITED PRELIMINARY INJUNCTIVE RELIEF

On February 5, 2021, DES received an application from Granite State Landfill, LLC, a private landfill developer and subsidiary of New England Waste Services, Inc. and Casella Waste Systems, Inc., to construct and operate a massive new private landfill in Dalton, New Hampshire. Although Granite State Landfill's waste facility application has not yet been made publicly available by DES, materials on DES's website, pertaining to a wetlands permit application for the facility, indicate that the proposed Dalton landfill will be 180 acres in size, create waste disposal capacity for 23,000,000 cubic yards of waste, require the permanent filling of approximately 17 acres of wetlands, be located in close proximity to Forest Lake and Forest Lake State Park, and operate for approximately 38 years.

The proposed Dalton landfill will have significant ramifications for the management of solid waste in New Hampshire, and for nearby communities and the environment. It is imperative that DES comply with its mandatory obligation to have a valid, timely state solid waste plan, and to consider such plan as part of its permitting decision. Accordingly, CLF seeks, on an expedited basis, a preliminary injunction to stop DES from reviewing and rendering a decision on the Dalton landfill application, and any other waste facility permit determinations that may come before it, until it has developed a state solid waste plan in compliance with RSA 149-M:29, I.

STATUTORY AND REGULATORY OVERVIEW

I. The State's Solid Waste Goals, Hierarchy, and State Plan Requirement

In 1996, New Hampshire's legislature ("Legislature") revised and recodified the state's solid waste management law, RSA Chapter 149-M, declaring that it is the statute's purpose "to protect human health, to preserve the natural environment, and to conserve precious and dwindling natural resources through the proper and integrated management of solid waste." RSA 149-M:1. As part of the state's solid waste management law, and as amended in 1999, the Legislature established a waste reduction goal for the state, as follows:

> The general court declares its concern that there are environmental and economic issues pertaining to the disposal of solid waste in landfills and incinerators. It is important to reserve landfill and incinerator capacity for solid wastes which cannot be reduced, reused, recycled or composted. The general court declares that the goal of the state, by the year 2000, is to achieve a 40 percent minimum weight diversion of solid waste landfilled or incinerated on a per capita basis. Diversion shall be measured with respect to changes in waste generated and subsequently landfilled or incinerated in New Hampshire. The goal of weight diversion may be achieved through source reduction, recycling, reuse, and composting, or any combination of such methods. The general court discourages the disposal of recyclable materials in landfills or processing of recyclable materials in incinerators.
> . . . .

RSA 149-M:2, I.

To achieve the state's waste reduction goal, the Legislature established a solid waste management hierarchy, clearly identifying landfilling as the least preferred method, and favoring waste reduction and diversion methods, as follows:

> The general court supports integrated solid waste disposal solutions which are environmentally safe and economically sound. The general court endorses, in order of preference, the following waste management methods:
> I. Source reduction.
> II. Recycling and reuse.
> III. Composting.
> IV. Waste-to-energy technologies (including incineration).
> V. Incineration without resource recovery.

VI. Landfilling.

RSA 149-M:3. In describing DES's role and duties with respect to solid waste management, the statute states, *inter alia*: "In exercising any and all powers conferred upon the department under this chapter, the department shall use and consider criteria relevant to the waste reduction goal and disposal hierarchy established in RSA 149-M:2 and 149-M:3. . . ." RSA 149-M:2, II.

Importantly, recognizing the value of planning for the purposes of solid waste management, in 1999 the Legislature enacted the requirement that DES engage in statewide solid waste management planning. The Legislature required DES to prepare the state solid waste plan and specifically mandated that DES update the solid waste plan regularly: "Beginning October 1, 1998, and every 6 years thereafter, the department shall update the state's solid waste plan." RSA 149-M:6, VI; RSA 149-M:29, I. *See also* RSA 149-M:4, XXVI (defining "State plan" as meaning "the state solid waste management plan developed under RSA 149-M:29"); Admin. R. Env-Sw 104.46 (same). To comply with this mandate, in April 2003 DES published the state's solid waste plan ("2003 Plan").[2]

II. Permit Review and Decision-making for New or Expanded Waste Facilities

New Hampshire's solid waste management statute prohibits the operation of a new or expanded waste facility absent a permit. RSA 149-M:9, I. DES is authorized to approve a permit application for a new or expanded waste facility "only if it determines that the facility or activity for which the permit is sought will . . . [c]omply with [RSA Chapter 149-M] and all rules adopted under it. . . ." RSA 149-M:12, I(a).

[2] State of New Hampshire Solid Waste Plan, April, 2003, available at https://www.des.nh.gov/sites/g/files/ehbemt341/files/documents/2020-01/r-wmd-03-02.pdf, last accessed on February 11, 2021, and attached as Exhibit 2.

In determining whether to grant a permit for a new or expanded waste facility, the solid waste management statute and rules specifically require a determination by DES that the facility will provide a substantial public benefit for the citizens of New Hampshire. RSA 149-M:11, III; Admin. R. Env-Sw 315.05. "'Public benefit' means the protection of the health, economy and natural environment of the state of New Hampshire. . . ." RSA 149-M:4, XVII.

In determining whether a proposed facility will provide a substantial public benefit, DES is required to determine: (a) whether there is a capacity need for the facility, defined as a "short- and long-term need for the proposed facility to accommodate solid waste generated within the borders of New Hampshire;" (b) whether the proposed facility will assist the state in achieving the implementation of the state's statutory waste reduction goal and solid waste management hierarchy set forth in RSA 149-M:2 and RSA 149-M:3, respectively; and (c) whether the proposed facility will "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." RSA 149-M:11, III (a), (b), (c).

Absent a valid substantial-public-benefit determination based on the criteria set forth above, including the requirement that the proposed facility assist in achieving the goals of the state solid waste management plant, a permit for a new or expanded waste facility cannot lawfully issue. RSA 149-M:9, I; RSA 149-M:11, III; RSA 149-M:12, I(a).

In addition to the substantial-public-benefit requirement pertaining to the state solid waste management plan, and strongly reinforcing the importance of such plan, New Hampshire's solid waste management statute mandates that DES "shall approve an application for a permit *only* if it determines that the facility or activity for which the permit is sought will . . . [b]e

consistent with the provisions of the state, district, and local plans . . . ." RSA 149-M:12, I(b) (emphasis added).

Upon receipt of an application for a permit to construct and operate a waste facility, DES is required, within 60 days, to render a determination whether the application is complete. Admin. R. Env-Sw 304.03. "Following completion of the review procedures in Env-Sw 304 and within either 120 days following the receipt date of the complete application or 30 days following a public hearing held pursuant to Env-Sw 304.08(d) and RSA 149-M:11, IV(a), whichever occurs latest," DES is to render a determination whether to grant or deny the requested permit. Admin. R. Env-Sw 305.02(a).

STATEMENT OF FACTS

I. The State Solid Waste Plan

DES has published a single state solid waste management plan – in April 2003 (hereinafter "2003 State Plan").

As described by DES, the 2003 State Plan "contains strategic goals and objectives for management of solid waste in the State that support and uphold the provisions of the Solid Waste Management Act (RSA 149-M)."[3] Much of the 2003 State Plan's emphasis, and its goals and strategies, pertain to reducing the volume and toxicity of the waste stream and relying less on waste disposal. *See, e.g.,* 2003 State Plan (Exhibit 2) at 1 (discussing reduction of the volume and toxicity of the waste stream and diversion of recyclables and compostables); *id.* (describing the Plan's goals as addressing "the concepts that solid waste should be minimized when possible and managed as a resource rather than a waste, placing a strong emphasis on reuse, toxics

[3] DES Waste Reduction and Diversion, https://www.des.nh.gov/waste/solid-waste/waste-reduction-and-diversion, last accessed on February 11, 2021.

reduction, recycling, and composting."); *id.* at 4-9 (discussing the goals of reducing the volume and toxicity of the waste stream and maximizing diversion).[4]

Numerous elements of the 2003 State Plan relate to the time at which it was prepared and a short period of time to follow. For example, the 2003 State Plan provides target dates for goals and objectives through 2007, and not beyond, as well as a list of all the state solid waste districts in New Hampshire and their individual plans, an accounting of solid waste generation by town, a report of the then-existing waste management facilities, and an assessment of the waste stream at that time, including information regarding various forms of waste such as cardboard, paper materials, glass, metal, and plastics. All of this information is based on conditions at the time the 2003 State Plan was published.

Despite the statutory mandate in RSA 149-M:29 that DES update the state's solid waste plan every six years, DES has not published a new or updated solid waste plan since the 2003 State Plan. As DES has itself admitted: it is "abundantly clear that New Hampshire is falling behind with regard to general waste management planning and policy."[5] The state has yet to achieve its statutory waste reduction goal or its solid waste management hierarchy, which disfavors landfilling. *See* "Table 1: Summary of 2015 Waste Generation and Recycling/Diversion Data," attached as Exhibit 3 (analysis submitted to DES by Waste Management of New Hampshire, Inc. showing 32 percent waste diversion rate); Biennial Solid Waste Report, DES (Oct. 2019) ("2019 Biennial Report)"), attached as Exhibit 4, at 2 ("[S]ince

[4] The 2003 State Plan also states, as one of its guiding principles: "Whenever possible, solid waste should be reused, recycled or composted rather than disposed of by incineration or landfilling. There is a continuing need to manage waste according to what is best for the environment in the long-term. Unfortunately, decisions on managing solid waste often hinge on short-term costs rather than environmental soundness. We need to focus on innovative ways to create more options for waste diversion rather than disposal." *Id.* at 2.
[5] Exhibit 1, at 1.

the [solid waste management] hierarchy was established in 1990, waste management infrastructure in New Hampshire has not significantly shifted from disposal (landfilling and incineration) toward more preferred management methods.").

II. DES Permitting Activities Absent a Valid State Solid Waste Plan

Despite the statutory mandate that DES consider whether proposed new or expanded waste facilities will provide a substantial public benefit, including whether such facilities will assist in achieving the goals of the state's solid waste plan, DES has on numerous occasions – following expiration of the 2003 Plan – reviewed and granted permits for new waste facilities. Such facilities include but are not limited to expansion of Waste Management of New Hampshire, Inc.'s Turnkey landfill in Rochester, New Hampshire; expansion of the Mount Carberry landfill in Success, New Hampshire; and expansions of North Country Environmental Services' landfill in Bethlehem, New Hampshire.[6] The landfill capacity provided by many of these expansions has enabled a significant influx of out-of-state waste, which since at least 2015 has consumed nearly 50 percent of New Hampshire's solid waste disposal capacity. *See* 2019 Biennial Report (Exhibit 4) at 4.

III. The Dalton Landfill Proposal

On February 5, 2021, Granite State Landfill, LLC, a private landfill developer and subsidiary of New England Waste Services, Inc. and Casella Waste Systems, Inc., submitted to DES an application for a permit to construct and operate a massive new landfill in Dalton – the first proposed new landfill in New Hampshire in decades. Although the waste facility permit application has not yet been made available to the public, information associated with Granite

[6] Conservation Law Foundation has filed an appeal, currently pending before the New Hampshire Waste Management Council, of a permit granted by DES to North Country Environmental Services for Stage VI of the Bethlehem landfill. *Appeal of Conservation Law Foundation*, Docket No. 20-14 WMC.

State Landfill's application for a state wetlands permit demonstrate the intent to construct a landfill approximately 180 acres in size to accommodate 23,000,000 cubic yards of waste, to be operated for approximately 38 years. As proposed, construction of the landfill would require the permanent filling of approximately 17 acres of wetlands and would impact roughly 1,500 linear feet of streams.[7]

Since receiving the wetlands permit application, DES and others have raised numerous issues regarding the proposed landfill, including adverse impacts to wetlands, vernal pools, drinking water, and fish and wildlife habitat; risks of excessive erosion and runoff; and negative aesthetic, economic, and traffic impacts.[8] DES's Wetlands Bureau has requested additional information from Granite State Landfill, identifying multiple areas of concern. Already looking ahead to the possibility of the proposed facility's further expansion in approximately 38 years, the DES Wetlands Bureau stated in correspondence to Granite State Landfill LLC:

> As is the case with most landfill projects in the state, when they are close to reaching capacity, requests are made to expand the landfill footprint in the immediate vicinity. While 3 phases are currently proposed, please address how potential future expansions will impact surrounding wetlands and surface waters on the property, as this long-term planning is critical to determine if avoidance and minimization of wetland resources has been fully demonstrated per Rule Env-Wt 311.07 and Env-Wt 313.03.[9]

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[7] NHDES Onestop database File No. 2020-02239, Project Description, available at https://www4.des.state.nh.us/lrmonestop/LRMQueryDetails.aspx?FILE_NUMBER=2020-02239, last accessed on February 11, 2021.

[8] *See, e.g.*, NHDES to Granite State Landfill, LLC, November 18, 2020 Re: Request for More Information – Standard Dredge and Fill Wetlands Permit Application (RSA 482-A) NHDES File Number 2020-02239, referencing and attaching Dalton Conservation Commission to Craig Rennie, NHDES Wetlands Bureau, Ammonoosuc River Local Advisory Committee to Craig Rennie, NHDES Wetlands Bureau, Re: NHDES File #2020-02239, October 1, 2020, and Bethlehem Conservation Commission to NHDES Wetlands Bureau, Re: NHDES File Number 2020-02239, October 11, 2020, attached collectively as Exhibit 5.

[9] Exhibit 5, NHDES Request for More Information, at 1.

The DES Wetlands Bureau has requested additional information related to wetlands impacts, the need to consider alternative lower-impact sites, threats to drinking water supplies, visual and aesthetic effects, threats to wildlife habitat, impacts to downstream water quality, and negative effects to Forest Lake, Forest Lake State Park, and the local recreation and tourism industry. Exhibit 5, at 1-5.

ARGUMENT

I. Preliminary Injunction Standard

It is within this Court's discretion to grant an injunction after consideration of the facts and established principles of equity. *NH Dept. of Envtl. Servs. v. Mottolo*, 155 NH 57, 63 (2007). "A preliminary injunction is a provisional remedy that preserves the status quo pending a final determination on the merits." *Mottolo*, 155 NH at 63, *citing Kukene v. Genualdo*, 145 NH 1, 4 (2000). A preliminary injunction will be issued where there is "an immediate danger of irreparable harm to the party seeking injunctive relief, and there is no adequate remedy at law." *Mottolo*, 155 NH at 63, *citing Murphy v. McQuade Realty, Inc.*, 122 NH 314, 316 (1982). A party seeking an injunction must demonstrate that it would likely succeed on the merits. *Id.* at 63. As set forth below, CLF is entitled to injunctive relief to enjoin DES from reviewing and issuing permits for new or expanded solid waste facilities unless and until DES has complied with the statutory solid waste management plan requirement set forth in RSA 149-M:29.

II. A Preliminary Injunction is Necessary to Maintain the Status Quo and Prevent Unlawful Permitting Activities for the Dalton Landfill and Any Other Permit Determinations That May Come Before DES.

New Hampshire's solid waste management statute is clear: DES has mandatory duties to (1) have a state solid waste plan that is updated every six years, and (2) rely upon that solid waste plan in reviewing and rendering decisions on permit applications for new or expanded waste facilities. RSA 149-M:29, I; RSA 149-M:12(b); RSA 149-M:11, III. Despite these unambiguous

mandatory duties, DES has failed to fulfill its duty to update the state waste plan every six years, meaning that it did not update the 2003 State Plan in 2009 and 2015, and that it should be imminently publishing, in April 2021, its fourth plan. Having failed to update the state waste plan, DES has – since the 2003 State Plan expired in 2009 – unlawfully reviewed and granted permits for several proposed landfill expansions *without* a legally valid state solid waste plan.

As a result of DES's admitted and indisputable failure to engage solid waste management planning, DES has repeatedly permitted the further expansion of landfill capacity, with significant adverse ramifications for solid waste management in New Hampshire, namely: perpetuation of the state's reliance on landfilling, in direct contravention of the statutory solid waste management hierarchy's identification of landfilling as the least favorable waste management method (RSA 149-M:3); the state's continued failure to meet its statutory waste reduction goal, including the goal to reserve landfill capacity only for waste that cannot be reduced, reused, recycled, or composted (RSA 149-M:2, I); and an increasing rate of disposal from out-of-state sources. The issuance of a permit for the massively-scaled Dalton landfill – the state's first proposed *new* landfill in decades, with a proposed lifespan of 38 years – will only exacerbate these adverse ramifications.

A preliminary injunction is needed to maintain the status quo – *i.e.,* to ensure that DES engages in no further permitting activities without a legally valid solid waste plan – pending a final decision on the merits in this action. *See Mottolo*, 155 NH at 63. Without a preliminary injunction, DES will continue its practice of reviewing permit applications and issuing permits in reliance on the grossly and unlawfully outdated 2003 State Plan, violating the substantial-public-benefit requirements under RSA 149-M:11, III.

III. A Preliminary Injunction is Necessary to Avoid the Immediate Danger of Irreparable Harm and Because There is No Adequate Remedy at Law.

A. Injunctive relief is necessary to prevent irreparable harm to New Hampshire's ability to achieve its statutory solid waste management goals.

A valid, up-to-date solid waste plan is essential to New Hampshire's management of solid waste. It provides a much-needed roadmap for: (1) achieving the state's solid waste reduction goal under RSA 149-M:2, I, including the goals of achieving a minimum 40 percent diversion of waste away from disposal and reserving landfill space for wastes that cannot be reduced, reused, recycled, or composted; (2) achieving the state's solid waste management hierarchy under RSA 149-M:3, which prioritizes waste reduction, recycling, reuse, and composting over waste disposal, ranking landfilling as the least preferred waste management method; and (3) ensuring protection of the environment and communities from unnecessary waste disposal capacity, including disposal capacity that is not needed for waste generated in New Hampshire.

The 2003 State Plan set forth goals and objectives with targeted completion dates that address a wide range of solutions for managing solid waste. Some actions are highly specific and tailored to address then-existing needs. For example, Objective 1.1.3 requires the development of "an outreach campaign to promote the purchase of products and packaging that are reusable and repairable" by July 2005. 2003 State Plan at 5. Objective 3.2.4 seeks to "[d]evelop a strategy for recycling and composting at multi-family dwellings" by January 2004. *Id.* at 9. Other objectives in the 2003 State Plan are more expansive, including the publication of guidance documents, public outreach, and the pursuit of a wide variety of beneficial waste management legislation, with targeted deadlines ranging from 2004 to 2007.

By neglecting to revisit and update the state solid waste plan every six years, DES has failed to provide any accounting for the status of its original goals, strategies, and objectives. It also has failed to update and refine those goals, strategies, and objectives, or to establish *new* goals, strategies and objectives, as conditions and needs have changed over time. Had DES complied with its planning mandate, the state's current waste management system and needs might be very different, obviating any purported necessity for additional disposal capacity. At the very least, an updated plan would ensure that further landfill capacity will not undermine the state's waste reduction goal under RSA 149-M:2 and solid waste management hierarchy under RSA 149-M:3.

Indeed, DES has itself acknowledged that it is not meeting its solid waste planning obligations, and that the state is falling behind in terms of solid waste planning and policy. In 2020, DES testified in support of HB 1702, a bill to establish a stakeholder workgroup to assist DES with solid waste management planning and policy initiatives. In support of HB 1702, DES stated:

> [T]he Recycling & Solid Waste Management Study Committee (HB 617, Chapter 265, 2019) identified a multitude of solid waste management issues in New Hampshire that deserve attention, including the need for the State to take a more proactive role in long-range solid waste management planning. Pursuant to RSA 149-M, NHDES is responsible for solid waste planning and is required to periodically update the State's Solid Waste Management Plan. However, due in part to resource deficiencies over the last two decades, the Department has been challenged to fulfill this and a number of other duties.
> . . . .
>
> The HB 617 findings of the Recycling & Solid Waste Management Study Committee made it abundantly clear that New Hampshire is falling behind with regard to general waste management planning and policy.

Exhibit 1, at 1.

The Dalton landfill proposal, if approved, would be the first new landfill in New Hampshire in decades and would create massive disposal capacity – accommodating 23,000,000 cubic yards of waste over the course of 38 years. The permitting of this disposal capacity without the benefit of statutorily required solid waste planning will greatly exacerbate New Hampshire's current solid waste management failures, causing irreparable harm to the state's ability to (1) achieve its statutory waste reduction goal, (2) finally transition to a system that conforms to the state's solid waste management hierarchy, and (3) avoid unnecessary harm to communities and the environment associated with disposal capacity not needed for New Hampshire waste. Permitting the proposed Dalton landfill before DES complies with its mandatory planning requirement also would greatly affect future solid waste management plans, effectively causing DES's future planning to assume, as a starting point, the long-term operations of the Dalton landfill and its significant disposal capacity.

Absent an injunction, DES will render a decision on the proposed Dalton landfill based on an invalid, grossly outdated state waste plan, causing irreparable harm to New Hampshire's ability to achieve important, statutorily-established waste reduction goals and solid waste management priorities. There is no adequate remedy at law, and an injunction is needed to prevent this harm from occurring.

B. Injunctive relief is necessary to prevent irreparable harm to protection of the public's interest in the waste facility permitting process.

Under New Hampshire's solid waste management statute, DES can grant a permit for a new or expanded waste facility *only* if it determines that the proposed facility will provide a substantial public benefit. RSA 149-M:11, III. In rendering a substantial-public-benefit decision, DES must determine that the proposed facility will assist in achieving the goals of the state solid waste plan mandated by RSA 149-M:29, I. *See* RSA 149-M:11, III(c).

The Legislature established a clear mandate that DES update its solid waste plan every six years. RSA 149-M:29, I. For the reasons discussed above (*see supra* 13-15), this mandate is critically important to ensure that DES is rendering permit decisions on the basis of *current* information – including goals, strategies, and objectives – that are based on *current* conditions and needs.

Having not updated its solid waste plan since it expired in 2009, DES is not in a position to render an informed, lawful determination of whether the Dalton landfill will provide a substantial public benefit. Nor will members of the public, including CLF and its members, have the benefit of a valid, up-to-date state waste plan to assess whether the proposed Dalton landfill will provide a substantial public benefit.

Without an injunction, DES will proceed with review and permitting of the Dalton landfill proposal without a lawful state solid waste plan, leading to uninformed decision-making that undermines and directly contravenes the critically important substantial-public-benefit requirement of New Hampshire's solid waste management law, causing irreparable harm to statutory public protections. There is no adequate remedy at law, and an injunction is needed to prevent this harm from occurring.

C. Injunctive relief is necessary to prevent irreparable harm to the environment.

A valid solid waste plan is an integral element of New Hampshire's solid waste management statute, the purpose of which is "to protect human health, to preserve the natural environment, and to conserve the precious and dwindling natural resources through the proper and integrated management of solid waste." RSA 149-M:1. The proposed Dalton landfill, if permitted by DES without a legally valid solid waste plan, would result in significant irreparable harm to the environment.

Environmental impacts associated with landfilling include air pollution, energy use, generation of greenhouse gases, water pollution, noise, truck traffic, loss of wetlands, odors, and consumption of disposal space. The proposed Dalton landfill will be no exception. It will require the permanent filling of approximately 17 acres of wetlands. It will affect approximately 1,500 linear feet of streams. It will be located in close proximity to Forest Lake and Forest Lake State Park. It will result in decades of truck traffic and associated energy use, air pollution, and noise. It will result in the landfilling of 23,000,000 cubic yards of solid waste that will generate toxic leachate that threatens water resources and air emissions contributing to climate change. DES's Wetlands Bureau has flagged several of these areas of concern,[10] as has the Ammonoosuc River Local Advisory Committee.[11]

Allowing DES to proceed with permitting the Dalton landfill on the basis of an invalid solid waste plan will result in uninformed decision-making, including the permitting of landfill capacity that simply may not be necessary, causing unnecessary, irreparable harm to the environment. There is no adequate remedy at law, and an injunction is needed to protect against such harm. *See Merrymeeting Lake Assoc. v. N.H. Fish & Game Dept.*, 1999 WL 34975877 at 3 (N.H.Super. Oct. 1, 1999) (finding that there is no adequate remedy at law and issuing an injunction to prevent irreversible harm to the environment). *See also Amoco Prod. Co. v. Vill. of Gambell, AK*, 480 U.S. 531, 545 (1987) ("Environmental injury, by its nature … is often permanent or at least of long duration, i.e., irreparable. If such injury is sufficiently likely, therefore, the balance of harms will usually favor the issuance of an injunction to protect the environment.").

[10] Exhibit 5, at 1-5.
[11] Exhibit 5, at attached Ammonoosuc River Local Advisory Committee to Craig Rennie, NHDES Wetlands Bureau, Re: NHDES File #2020-02239, October 1, 2020.

IV. Equity Considerations Weigh Heavily in Favor of Granting Injunctive Relief.

The balance of equities and consideration of the public interest demand that DES be preliminarily enjoined from reviewing, and rendering a decision on, Granite State Landfill's application to construct and operated its proposed Dalton landfill. New Hampshire's solid waste management statute requires that waste facilities provide a substantial public benefit. RSA 149-M:11, III. On its face, this requirement is intended to benefit the public. *See* RSA 149-M:4, XVII ("'Public benefit' means the protection of the health, economy and natural environment of the state of New Hampshire consistent with RSA 149-M:11.").

The public has a strong interest in DES having a legally valid, up-to-date solid waste management plan to guide its substantial-public-benefit determination for the proposed Dalton landfill and any other permit matters that may come before it. As described above, the proposed landfill will have a lasting effect on the state's environment and management of solid waste. If permitted, the landfill would operate for the next four decades and, as already anticipated by DES, may seek to expand its operating life even further.

Importantly, the public interest will not be adversely affected by an injunction because DES has determined that New Hampshire has sufficient waste disposal capacity for approximately the next five years.[12] Granite State Landfill does not intend to begin construction on the proposed Dalton landfill until 2023.[13] In contrast, there is an immediate need for waste management planning, before DES issues a permit decision on the Dalton landfill. Considering that a permit decision for Dalton will affect waste management for decades, the balance of

[12] Permit No. DES-SW-SP-03-002 Application Review Summary, October 9, 2020, at 43-44, attached as Exhibit 6.
[13] CMA Engineers, February 4, 2021 Re: Granite State Landfill, LLC Phase I Development, attached as Exhibit 7, at 1.

equities clearly favors enjoining permitting activities until an up-to-date solid waste plan has been developed. DES itself has acknowledged "the need for the State to take a more proactive role in long-range solid waste management planning" as a "solid waste management issue[] in New Hampshire that deserve[s] attention."[14]

Because of the strong public interest in the proper and lawful implementation of the state's solid waste management laws, including explicit requirements intended to ensure that waste facilities provide substantial public benefit, equity considerations heavily favor the issuance of a preliminary injunction to prevent DES from reviewing and rendering a determination on the Dalton landfill application until the state has a legally valid solid waste plan. *See Merrymeeting Lake*, 1999 WL 34975877, 4 (holding that injunction would not adversely affect the public interest and stating: "Moreover, arguably, the plaintiffs themselves represent the interests of the public to the extent they are attempting to preserve the integrity of the natural environment … which the public benefits from.").

V. CLF is Likely to Prevail on the Merits of Its Claims, Warranting a Preliminary Injunction.

A. CLF is likely to succeed on the merits of its declaratory judgment claim.

CLF is likely to succeed in its declaratory judgment claim. New Hampshire's solid waste management statute establishes a clear mandatory duty: "Beginning October 1, 1998, and every 6 years thereafter, the department *shall* update the state's solid waste plan." RSA 149-M:29, I (emphasis added). It further establishes the clear mandate that DES rely on a valid state solid waste plan when making permitting decisions: "The Department *shall* determine whether a proposed solid waste facility provides a substantial public benefit based upon the following

[14] Exhibit 1, at 1.

criteria: … (c) [t]he ability of the proposed facility to assist in achieving the goals of the state solid waste management plan." RSA 149-M:11, III(c) (emphasis added). "[DES] *shall* approve an application for a permit *only* if it determines that the facility or activity for which the permit is sought will…[b]e consistent with the provisions of the state… plan[]. RSA 149-M:12, I(b) (emphasis added).

As demonstrated by the Legislature's repeated use of the word "shall," the requirement that DES update the solid waste plan every six years, and issue permitting decisions explicitly in accordance with that plan, is a mandatory, non-discretionary duty. *See City of Rochester v. Corpening*, 153 N.H. 571, 574 (2006) ("The intention of the Legislature as to the mandatory or directory nature of a particular statutory provision is determined primarily from the language thereof. The general rule of statutory construction is that the word 'may' makes enforcement of a statute permissive and that the word 'shall' requires mandatory enforcement.") (internal citations and quotations omitted).

DES has not published an updated solid waste plan since 2003 and, accordingly, is in violation of the statutory mandate in RSA 149-M:29, I. Moreover, DES cannot lawfully render a substantial-public-benefit determination under RSA 149-M:11, III absent a legally valid state solid waste plan. CLF is likely to prevail on the merits of its declaratory judgment claim, as it is entitled to a judgment declaring that DES is violating RSA 149-M:29, I and declaring that DES cannot lawfully review and render determinations on permit applications for waste facilities until it has a legally valid solid waste plan.

B. <u>CLF is likely to succeed on the merits of its claim for a writ of mandamus</u>.

CLF also is likely to prevail on its mandamus claim to compel DES to perform its statutory duty to update the solid waste management plan. "A writ of mandamus is used to

compel a public official to perform a ministerial act that the official has refused to perform." *In re CIGNA Healthcare, Inc.*, 146 N.H. 683, 687 (2001); *see also Guy J. v. Comm'r, New Hampshire Dep't. of Educ.*, 131 N.H. 742, 747 (1989) (recognizing that "a writ of mandamus is the proper remedy for a public officer's refusal to perform a ministerial act"). Mandamus is appropriate "where the petitioner has an apparent right to the requested relief and no other remedy will fully and adequately afford relief." *CIGNA Healthcare*, 146 N.H. at 687.

In *Goodell v. Woodbury* the New Hampshire Supreme Court upheld a writ of mandamus compelling the Manchester chief of police to perform official duties. *Goodell v. Woodbury*, 71 N.H. 378 (1902). Noting that the relevant laws and regulations "plainly defined" the duties of the police chief, the court found that he could not defend his "nonperformance through the exercise of the discretion with which to some extent he is necessarily clothed, but which nevertheless he cannot purposely and deliberately abuse, or exercise in an arbitrary or capricious manner, or so as to effect a failure of justice." *Id.* Where an official duty is clearly defined, but there is "a willful evasion of positive duty, scores of authorities hold that mandamus will lie." *Id.* (citations omitted). *See also City of Nashua v. Gardner*, 2014 WL 10122880, at *1 (N.H.Super. Sep. 25, 2014) (finding statutory language to be unambiguous and granting mandamus ordering the Secretary of State to place a question on the state ballot).

The Legislature has made plain that solid waste management planning is a necessary and required element of the management and regulation of solid waste in New Hampshire, establishing mandatory duties for DES to publish a state solid waste plan every six years and to use that plan to guide its review of permit applications and its permit decision-making. The solid waste plan requirements of RSA 149-M:29 are unequivocal, and a writ of mandamus compelling DES to perform its duty under the statute is likely. *See Goodell*, 71 N.H. at 378; *City of Nashua*,

2014 WL 10122880, at *1. A writ of mandamus will serve the interest of justice, and no other remedy will fully and adequately afford relief. Accordingly, CLF is likely to prevail on its claim for a writ of mandamus.

CONCLUSION

For the reasons stated above, CLF respectfully requests that the court grant CLF's expedited motion for preliminary injunctive relief.

Respectfully submitted,

CONSERVATION LAW FOUNDATION

By its attorneys,

/s/ Heidi H. Trimarco_____
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Dated: February 11, 2021

CERTIFICATE OF SERVICE

I hereby certify that copies of this Memorandum have on this day, February 11, 2021, been sent via the court's electronic filing system.

CONSERVATION LAW FOUNDATION

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Exhibit 1

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

February 18, 2020

The Honorable Amanda Gourgue
Chair, House Environment & Agriculture Committee
Legislative Office Building, Room 303
Concord, NH 03301

RE: HB 1702, An Act establishing a working group on solid waste management planning

Dear Chair Gourgue and Members of the Committee:

Thank you for the opportunity to testify on HB 1702. This bill would establish a stakeholder workgroup for a period of three years to assist the New Hampshire Department of Environmental Services (NHDES) with planning and policy initiatives related to solid waste management. NHDES supports this bill.

As members of the Committee are likely aware, the Recycling & Solid Waste Management Study Committee (HB 617, Chapter 265, 2019) identified a multitude of solid waste management issues in New Hampshire that deserve attention, including the need for the State to take a more proactive role in long-range solid waste management planning. Pursuant to RSA 149-M, NHDES is responsible for solid waste planning and is required to periodically update the State's Solid Waste Management Plan. However, due in part to resource deficiencies over the last two decades, the Department has been challenged to fulfill this and a number of other duties. NHDES notes that this bill would not address the Department's need for additional resources to accomplish its various solid waste management responsibilities. However, NHDES believes the workgroup established by this bill could play an important role in aiding and advising the Department as it prepares an updated Solid Waste Management Plan and develops policies and goals to address the State's solid waste management challenges.

Other state environmental agencies commonly engage with solid waste advisory groups to help guide policy development and identify priorities for action. The HB 617 findings of the Recycling & Solid Waste Management Study Committee made it abundantly clear that New Hampshire is falling behind with regard to general waste management planning and policy. While NHDES does not believe a stakeholder workgroup by itself would be a panacea, establishing such a group would certainly be important piece in helping the State to address these issues.

Thank you again for the opportunity to comment on HB 1702. Should you have further questions or need additional information, please feel free to contact either Michael Nork, Solid Waste

Management Bureau (michael.nork@des.nh.gov, 271-2936) or Michael Wimsatt, Waste Management Division Director (michael.wimsatt@des.nh.gov, 271-1997).

Sincerely,

Robert R. Scott
Commissioner

cc: Sponsors of HB 1702: Representatives Ebel, O'Connor, M. Murray, Sykes, Porter, Ford, Martin, Hennessey, Merner, Moffet; Senators Watters, Bradley, Dietsch

Exhibit 2

STATE OF NEW HAMPSHIRE
SOLID WASTE PLAN

April 2003

NEW HAMPSHIRE
DEPARTMENT OF
Environmental
Services

R-WMD-03-2

Craig Benson
Governor

Executive Council
Raymond S. Burton
Ruth L. Griffin
Peter J. Spaulding
David K. Wheeler
Raymond J. Wieczorek

New Hampshire Department of Environmental Services

Robert Monaco
Acting Commissioner

Philip J. O'Brien, Ph.D., P.G.
Director, Waste Management Division

cover photos: Concord Landfill; before and after undergoing closure

Preface

This planning document is intended to provide the reader with an overview of the courses of action that will be pursued by the Department of Environmental Services (DES) in solid waste management over the next several years. The Plan, as such, is constantly evolving. It is an ambitious Plan and one that includes the recommendations of the 1999 Governor's Solid Waste Task Force delivered in 2001, the elements of the 2001 Solid Waste Report to the Legislature and the DES Strategic Objectives. The statutory requirement for DES to prepare the Solid Waste Plan is found at RSA 149-M:29.

While the Plan specifies the *Guiding Principles, Goals, Sub-goals and Objectives* for DES, it is also apparent that many other parties, including the Legislature, municipalities, the Waste Management Council, the business community, non-governmental organizations and the public at large all substantially influence the outcomes and that no single entity can achieve the lowest cost, least environmental impact goal. The combined effort of all the above entities is needed to produce a successful outcome over the next few years.

As a means to keeping the Plan succinct while making detailed information quickly available, DES has placed on its web site (www.des.state.nh.us) supporting documentation describing:

- Solid Waste Generation,
- Solid Waste Facilities And Services,
- Solid Waste Disposal Capacity,
- Waste Stream Analysis, And
- Related Reports.

As a result of this approach, DES's objective is to make the solid waste plan more easily accessible and useful to everyone; more efficient to update and modify as conditions change; and functionally consistent with and supportive of DES's overall Strategic Objectives.

I. Introduction

The Department of Environmental Services (DES) administers a solid waste program that must achieve a balance between the critical need to protect the environment and the realities of a culture whose people generate more solid waste per person than any other country in the world. This Solid Waste Plan strikes that balance by promoting reduction of the volume and toxicity of the waste stream and diversion of recyclables and compostables, and also by providing objectives to secure sufficient disposal capacity and safe handling and management of solid waste.

The Plan addresses the following goals:

1. Reduce the volume of the solid waste stream;
2. Reduce the toxicity of the solid waste stream;
3. Maximize diversion of residential and commercial/industrial solid wastes;
4. Assure disposal capacity for New Hampshire; and
5. Assure that solid waste management activities are conducted in a manner protective of human health and the environment.

The first three goals address the concepts that solid waste should be minimized when possible and managed as a resource rather than a waste, placing a strong emphasis on reuse, toxics reduction, recycling and composting. For example, when the toxics are removed from the waste, there is more likelihood that it will be composted, because the resulting product will be cleaner and more in demand. The last two goals are directed at the need for solid waste facilities and services available that are protective of public health and the environment. These goals are not entirely independent of one another. When toxic constituents are removed from the waste stream, there is less concern about the safety of incineration, the ash resulting from incineration and the leachate from landfills, offering more protection to human health and the environment. Similarly, reducing the volume of the waste stream means there is less demand for disposal capacity.

The State of New Hampshire has reached a crossroad in its efforts to expand recycling and to reduce the solid waste stream. Diligent efforts over the last decade have resulted in a 24% diversion rate in 2001 despite a legislative goal of 40% by the year 2000. DES and the Governor's Recycling Program, and other organizations have worked extensively with New Hampshire communities to provide support and assistance in efforts to reduce, reuse and recycle; and many municipalities and businesses have made important progress. But this progress is not enough if we are to take real strides forward. Additional, bold steps are needed by the Legislature, business community, municipalities and individuals to improve solid waste management in our state.

II. Guiding Principles

In carrying out its objectives, DES adheres to the seven principles listed below. These statements are consistent with the *Proper Waste Management & Effective Site Remediation* goal of DES's Strategic Objectives, and the findings of the Governor's Solid Waste Task Force, which published its report in 2001.

1. ***The responsibility for solid waste management is shared between state government, local government and industry.***

   The burden of environmental protection is not left to the regulators alone. Certainly, government plays a leadership role in ensuring that the environment and human health are not threatened by the ways that citizens work and play, but it is incumbent upon all sectors to do their part.

2. ***Manufacturers must subscribe to product stewardship and take responsibility for their role in source reduction, altering the manufacturing process to avoid using toxic materials to produce a product and minimizing the volume of packaging.***

   If the manufacturer can not or will not use source reduction to address the problem, they should be obligated to take responsibility for the waste through collection programs. All too often, the burden of paying for the disposal of toxic products, excess packaging and bulky items falls to the local government that provides its residents with waste management services. This end-of-the-pipe approach is the least effective way to approach the problem of toxics and waste reduction.

3. ***Whenever possible, solid waste should be reused, recycled or composted rather than disposed of by incineration or landfilling.***

   There is a continuing need to manage waste according to what is best for the environment in the long-term. Unfortunately, decisions on managing solid waste often hinge on short-term costs rather than environmental soundness. We need to focus on innovative ways to create more options for waste diversion rather than disposal.

4. ***The public and private sectors should have access to solid waste management options at a competitive cost.***

   New Hampshire's primary reliance on the private sector to provide disposal capacity has not allowed the State much influence on the amount of capacity available and the cost of that capacity. Further, increased diversion of wastes in New Hampshire will not necessarily contribute to reservation of NH capacity for NH wastes.

5. ***Planning for the future of solid waste management is critical to our ability to meet our needs.***

In order to determine the needs for solid waste management in the future, we must review past and current trends, then project that data for years to come. The most important element for success of this exercise is a baseline of data.

6. ***Education, compliance assistance and enforcement actions are necessary to promote compliance.***

   The Department of Environmental Services is committed to a consistent, predictable and appropriate compliance assurance program which is protective of public health and the environment while creating a credible deterrent against future violations. DES believes that compliance with environmental laws is best ensured by using a multi-tiered, multi-media approach that includes education and outreach, compliance assistance, compliance monitoring, and where appropriate, formal enforcement.

7. ***Proper closure and post-closure care of solid waste landfills are critical to protection of the State's waters.***

   Proper closure of landfills is necessary to protect public health and the environment. To ensure the proper performance of a closed landfill, it is necessary to monitor groundwater quality; maintain and monitor a gas control system; monitor settling, slope stability, and erosion; maintain groundwater and surface water management systems; maintain and repair the final cover system; provide financial assurance; and in certain instances, monitor the leachate control systems (lined landfills). All of the data must be summarized in a formal report provided to the DES on an annual basis for a minimum of 30 years or until the facility stops generating leachate, ceases generating decomposition gasses, achieves maximum settlement, has no adverse impacts on air, groundwater or surface water, and does not otherwise pose a risk to human health or the environment.

III. Goals and Objectives

Goal 1: Reduce the volume of the solid waste stream.

Basis for Goal

Reducing the quantity of solid waste helps prolong the availability of existing landfill capacity and lessens the need to develop replacement capacity. Further, because volume source reduction involves a redesign of products to result in less waste at the end of the product's use, it slows the depletion of environmental resources and decreases costs of transportation and waste management. Source reduction does *not* rely on post-waste activities, such as recycling and composting, to remove items from the solid waste stream; these *diversion* activities are addressed in Goal 3.

The U.S. Environmental Protection Agency has established a voluntary partnership program (Design for the Environment) that works directly with industry to integrate health and environmental considerations into business decisions. These partnerships inform businesses in the design or redesign of products and processes that are cleaner, more cost-effective, and safer for workers and the public. The Design for the Environment process promotes voluntary environmental improvement by addressing industries' need for key information on how to incorporate environmental concerns into business decisions. These environmental concerns are critical if reserving landfill capacity remains a high priority in the future.

Source reduction of solid waste is also accomplished when a product is reused or repaired, rather than replaced. Reuse makes the most of a product before it is ultimately disposed. This happens everyday when common household items and "hand-me-down" clothes are given second lives, when restaurants forgo the use of disposable utensils, and when office workers use both sides of a piece of paper. On a larger scale, the Solid Waste Rules encourage beneficial re-use of waste materials that can serve a useful life as a component of some other product. The process allows for certification of these waste-derived products; once certified, they are no longer regulated as solid waste. A waste-derived product certification is not like a permit for a solid waste facility; it is a certification for a particular product made from a particular waste. Simply, the product is not a waste until it is discarded. There is an initial application process, but once certified, anyone can use the product, as long as the terms of the certification are met. Examples of typical products that have met this certification include: a 50/50 mixture of processed construction/ demolition debris and soil used as an alternate daily cover at lined landfills; and crushed glass used for purposes of pipe bedding, road sub-base and foundation backfill.

In its 2001 Report, the Governor's Solid Waste Task Force emphasized source reduction along with recycling and composting as key components in the efforts to extend disposal capacity and lower the costs of solid waste disposal. The recommendation to increase these activities in order to achieve these two goals was directed to both "public and private entities" to stress that the burden does not lie with either side, but with a combination of the two, since cost and capacity are affected by activities in both sectors.

Sub-goal 1.1: Work with the commercial and residential sector to increase reuse of products and by-products.

Objectives (Target completion dates are noted in parentheses.)

1.1.1 Determine whether the waste exchange program coordinated by WasteCapReCon can be enhanced by assistance from or involvement with the State and/or the Department of Environmental Services. (January, 2004)

1.1.2 Develop a strategy for increasing construction & demolition waste processing. (January, 2005)

1.1.3 Develop an outreach campaign to promote the purchase of products and packaging that are reusable and repairable. (July, 2005)

Sub-goal 1.2: Increase source reduction at the manufacturing level.

Objectives

1.2.1 Pursue legislation to establish a state-wide tipping fee on the disposal of solid waste in New Hampshire as a disincentive to disposal and as a mechanism to raise funds to support diversion activities. (July, 2005)

1.2.2 Develop a strategy in conjunction with national and regional organizations to encourage and require manufacturers to accomplish more volume source reduction in products and packaging. (January, 2006)

1.2.3 Partner with WasteCap ReCon to offer technical assistance to a minimum of 10 NH manufacturers on how to use source reduction within their companies. (July, 2006)

Goal 2: Reduce the toxicity of the solid waste stream.

Basis for Goal

The toxicity of the waste stream is just as important as the focus on the volume of material, the costs, or the use of virgin materials in manufacturing. Twenty years ago, the emphasis was on toxic wastes in open lagoons and 55-gallon drums found in fields. The fact that the toxicity of everyday items, such as fluorescent lamps, electronic devices and components, are now of concern is an indicator of how much progress has been made. Today, there is a much better understanding that the potential to harm human health and the environment comes from many sources, common and otherwise. From the perspective of waste management, a proliferation of toxic components in the waste stream significantly increases the potential for groundwater contamination from landfills and air emissions from incinerators.

There are many chemical elements or compounds that have environmental and public health implications. In addition to categories of toxic substances, such as pesticides and organic solvents, there are specific substances of concern, like mercury and lead. The focus should be on practicing *source reduction* during manufacturing products to remove or minimize toxics in waste, and to require *separation and special handling* of wastes when toxic constituents have not been removed. Solid wastes should have management options that are consumer-friendly and highly protective of the environment and public health. This means the components of the waste should be safely handled or disposed of without fear of environmental or health repercussions due to toxic compounds.

Sometimes, this change comes about as a result of legislation and regulation. For example, in 1990, New Hampshire passed the toxics in packaging law to curb the amount of toxic metals entering the municipal solid waste stream, and ultimately, landfills and incinerators. The law prohibits manufacturers from intentionally introducing lead, mercury, cadmium and hexavalent chromium in packaging and packaging components that are distributed in New Hampshire. Eighteen states have adopted the same model as New Hampshire and 10 of these states work together to ensure consistent application of the law through the Toxics in Packaging Clearinghouse. This law has resulted in changes at companies that distribute a large volume of products and packaging to consumers throughout the country.

Recently, there has been a paradigm shift in industry that shows real promise. *Product stewardship* means that manufacturers accept responsibility for the end-of-life problems associated with their toxic products. For example, several organizations, including the Product Stewardship Institute, the Northeast Waste Management Officials Association and the Northeast Recycling Council, are participating in a national dialogue with manufacturers to address disposal of electronic products. The *National Electronic Product Stewardship Initiative* (NEPSI) is looking at strategies like "take back" programs to collect the used products and "design for the environment," which would incorporate source reduction concepts at the manufacturing stage.

Sub-goal 2.1: Reduce waste toxicity in products and packaging through pollution prevention concepts.

Objectives

2.1.1 Work with national and regional initiatives to develop industry standards for production, identification of material substitutes and the reduction of volume, targeting consumer items that are responsible for contributing to the toxicity of the waste stream. (ongoing)

2.1.2 In coordination with the Toxics in Packaging Clearinghouse, develop model legislation to reduce or eliminate the presence of dioxin precursors in packaging. (October, 2004)

2.1.3 Pursue legislation requiring toxic consumer items to be labeled to educate consumers about the availability and use of alternatives to toxic products. (July, 2006)

Sub-goal 2.2: Minimize the release of hazardous materials into the solid waste stream.

Objectives

2.2.1 Continue to implement DES's Mercury Reduction Strategy and provisions of Chapter 278, Laws of 2000 *(An Act Relative to Mercury-Containing Products).* (ongoing)

2.2.2 Pursue legislation to require car manufacturers to pay for the removal of mercury switches and to phase out the use of mercury in motor vehicles. (July, 2006)

2.2.3 Finalize a strategy on reuse and recycling and proper disposal of electronic equipment. (December, 2003)

2.2.4 Review the implementation of the universal waste rule to determine if it is keeping these wastes out of landfills and incinerators. (October, 2005)

2.2.5 Increase by at least 10% the cost effectiveness (cost per pound) and management efficiency of household hazardous waste collection through education and promotion of permanent collection centers. (July, 2004)

2.2.6 Research legislation to require manufacturer product collection programs with a phased-in Advanced Disposal Fee (ADF) on products for which manufacturers do not demonstrate product responsibility. (July, 2005)

2.2.7 Ensure that 95% of New Hampshire's political subdivisions have access to a do-it-yourself (DIY) used oil collection center. (October, 2005)

Goal 3: "Maximize" diversion of residential and commercial/industrial solid wastes.

Basis for Goal

After waste is generated, it should be diverted from disposal in landfills and incinerators by recycling or composting whenever possible. The more waste that is managed through alternatives to disposal, the less concern there is about the public health and environmental impacts of disposal. When wastes are incinerated, there is concern about the release of harmful air emissions and the quality of the ash. Landfilling wastes causes concerns about groundwater contamination and leachate, and the release of gases that contribute to climate change. Wasteful practices must be replaced with a more responsible attitude of resource management.

People often look at recycling as a way to reduce dependence on landfills and incinerators, but this is only one in a list of benefits. First, there is an economic benefit to recycling. Sometimes, this includes revenue from the sale of the recyclable materials, but more often, the economic benefit is derived from savings that result from *cost avoidance*. Cost avoidance refers to the fact that, even when the cost of handling recyclables is factored in, there are still savings from avoiding the "per ton" tipping fee at the landfill or incinerator. Using recycled feedstock saves energy, conserves natural resources, and reduces greenhouse gases and is often more economical than using virgin material. Finally, more jobs are created in the processing and marketing of recyclables and in the use of recycled feedstock than there are created by the disposal of waste.

Composting is nature's way of returning resources to the earth. Over 50% of municipal solid waste is organic (food waste, paper and paperboard, and leaf and yard waste) and, therefore, compostable. Like recycling, composting reduces waste disposal costs and conserves natural resources. In addition, composting produces a valuable soil amendment, reduces the need for chemical fertilizers and protects soils from erosion. With even a little space in the back yard, most residents can compost kitchen wastes in addition to their leaf and yard waste. Many towns operate a leaf and yard waste compost pile and there are several commercial facilities as well.

New Hampshire's legislative goal from 1990 was to reach 40% diversion by the year 2000. The solid waste facility reports for calendar year 2001 indicate that our percentage of diversion was about 24%. DES believes that it is possible to achieve higher levels of diversion, but not without the full participation of towns, businesses, manufacturers and the State.

New Hampshire has access to a variety of organizations that share the goal to divert as much waste as possible. In addition to state government, there are organizations such as the NH Business & Industry Association's WasteCap Resource Conservation Program that work in the business community to reduce wastes. The Northeast Resource Recovery Association has provided technical, educational and marketing support to municipal recycling programs since 1981. The Northeast Recycling Coalition and the Northeast Waste Management Officials' Association are multi-state organizations involved in promoting recycling.

Sub-goal 3.1: Develop and promote markets for recyclable commodities.

Objectives

3.1.1 Work with appropriate partners to identify where new markets are needed and prepare strategies to develop the markets. (ongoing)

3.1.3 Pursue legislation that provides tax incentives for NH manufacturers that use recycled feedstock. (July, 2005)

Sub-goal 3.2: Assist municipalities and businesses in diverting more recyclables and compostables from the waste stream.

Objectives

3.2.1 Pursue legislation to provide DES with the resources to award grants to maximize recycling and composting activities. (December, 2005)

3.2.2 Focus technical assistance on communities in NH with the highest population and the lowest diversion rate. (ongoing)

3.2.3 Publish a guidance document for recycling and composting at short-term events, such as fairs and conferences. (October, 2003)

3.2.4 Develop a strategy for recycling and composting at multiple-family dwellings. (January, 2004)

3.2.5 Develop a strategy to increase diversion of commercially generated solid waste. (July, 2004)

3.2.6 Pursue legislation imposing a ban on the disposal of certain recyclables. (July, 2005)

3.2.7 Encourage the composting of food waste from institutional buildings by developing and publishing a guidebook, and by sponsoring workshops. (July, 2005)

3.2.8 Increase by 30% the composting and other diversion of food wastes. (October, 2005)

Goal 4: Assure disposal capacity for New Hampshire

Basis for Goal

With the life span of existing landfill capacity estimated to last until 2012, concerns have been raised as to whether there will be enough capacity for New Hampshire's waste in a long-term manner that is cost effective. Without sufficient disposal facilities, haulers will need to transport waste long distances. This would be unacceptable for the long term considering the costs of hauling, the potential for liability and environmental impact, and the strategies devised by states to curb imports. While DES does not subscribe to the concept of "crisis" for our capacity outlook, there is a need for new initiatives now to address the demand for long-term capacity within the borders of New Hampshire. New Hampshire should maintain a constant future disposal capacity of 7-10 years for solid waste generated in the state that is cost effective and environmentally safe.

A concern regarding adequate capacity was expressed by the Waste Management Council to Governor Shaheen in its annual report for 1998. In response to this and other concerns about industry concentration and increasing costs of solid waste disposal, the Governor issued Executive Order 99-6, which created a 27 member Solid Waste Task Force to investigate these issues. The Task Force found that there are two sides to assuring adequate capacity: using existing capacity wisely; and encouraging new capacity. The Task Force recommended increasing source reduction, recycling and composting, as well as limiting imported solid waste, to extend the use of existing capacity. Because most of New Hampshire currently relies on privately owned capacity, the Task Force recommended facilitation of collaborative host community agreements and regional municipal agreements to encourage public development of new capacity.

Imports of solid waste can have more than just a physical and environmental effect on a state or community. Imported trash creates a feeling of resentment among people in the receiving location. People do not think it is fair to suffer the increased truck traffic and noise or that they should have to be the "dumping ground" for waste from another state. Further, there is a demoralizing effect on recycling efforts when people wonder why they are working so hard to save disposal capacity that is only used up by waste from another location or another state. Finally, there is an additional cost to the host state for permitting and regulating landfills and incinerators that is borne by the citizens of that state, unless there is a fee that reimburses the State for its costs. New Hampshire does not have such a fee.

Not surprisingly, the Department of Environmental Services places a high priority on extending capacity for the disposal of solid waste. Goal 4.1 of DES's Strategic Objectives (*Effective Waste Management and Site Remediation*) is "Continue efforts to minimize waste volumes and toxicity through programs, policies and rules which extend waste management capacity and minimize exposure to persistent, bioaccumulative and toxic (PBT) chemicals." This is the basis for DES's ongoing source reduction, recycling and composting program and for a new emphasis on diverting commercially generated solid wastes from disposal.

Sub-goal 4.1: Obtain more thorough data regarding solid waste generation, diversion activities and disposal and assist in assuring solid waste disposal capacity at a reasonable cost to NH municipalities and businesses.

Objectives

4.1.1 Report on the benefits of a state solid waste disposal contract designed for state as well as municipal use in order to obtain a less expensive tipping fee. (July, 2004)

4.1.2 Pursue legislation for registration of and reporting by solid waste haulers operating in New Hampshire. (July, 2005)

4.1.3 Report on the benefits of publicly owned solid waste disposal facilities, including one or more owned and/or operated by the State. (July, 2006)

Goal 5: Assure that solid waste management activities are conducted in a manner protective of human health and the environment.

Basis for Goal

As authorized by state law (RSA 149-M), the *New Hampshire Solid Waste Rules* (Rules) set forth the requirements for solid waste management. Permittees and operators are obligated by law to comply with those requirements. Whether the solid waste is recycled or composted, or disposed of in an incinerator or landfill, it must be done in accordance with standards designed to protect human health and the environment.

DES believes that compliance with environmental laws is best ensured by using a multi-tiered, multi-media approach that includes education and outreach, compliance assistance, compliance monitoring, and where appropriate, formal enforcement. Goal 10 – *Compliance Assurance* – of DES's Strategic Objectives states, "To foster full compliance with the laws it is responsible for administering, DES provides education and outreach to the public, provides assistance to the regulated community, monitors compliance on an on-going basis, and maintains a fair and effective enforcement process."

Many of DES's activities are geared toward helping the regulated community to comply with regulations and all of the solid waste programs in the Waste Management Division have education and outreach components. One of the main functions of the Solid Waste Technical Assistance Section is to offer technical assistance on source reduction, recycling and composting to businesses and towns. Since 1990, more than 2,200 operators have been certified through the Solid Waste Operator Training program. Staff members make regular visits to solid waste facilities, publish a quarterly newsletter and sponsor an annual conference to help operators and local officials. Also, the Pollution Prevention & Education Program offers free non-regulatory assistance to industry and communities and the Household Hazardous Waste (HHW) Coordinator runs a grant program and is available for technical assistance with HHW issues. A new initiative to establish Best Management Practices for Motor Vehicle Salvage Yards has education at the center of activities.

Although the regulated community is required to comply with the Rules, there are errors, intentional and not. For this reason, DES is obligated by law to undertake an inspection and compliance assurance program. Permitted facilities are subject to inspections for monitoring compliance activities of the operations. Facilities not in compliance with the Rules may be subject to enforcement actions ranging from a report of initial compliance inspection, letter of deficiencies, administrative orders, administrative fines and civil or criminal actions.

New Hampshire's solid waste regulations are performance-based, which means that the regulated community has some flexibility in achieving the desired standards. For situations where more flexibility is warranted, there is a waiver provision available if the applicant can demonstrate that an alternative method can still deliver the same degree of protection to human health and the environment.

Sub-goal 5.1: Minimize the release of contaminants to the environment and risk to public health and safety from the improper management of solid waste through education, outreach, well-reasoned regulations and compliance assurance activities.

Objectives

5.1.1 Revise and recertify the *Solid Waste Rules* to retain regulatory oversight and to ensure they reflect current and changing technology. Schedule:

July, 2005	Main body of rules
May, 2009	Landfill closure and incinerators grant rules
April, 2010	Asbestos disposal site rules
July, 2010	Automotive Recycling Facility rules

5.1.2 Regulate asbestos disposal sites (ADS) to prevent the release of asbestos fibers to the environment. (July, 2004)

5.1.3 Maintain a 95% rate of appropriate level certified operators at solid waste facilities. (ongoing)

5.1.4 Decrease the average screening time for complaints from 21 days to 14 days. (July, 2005)

5.1.5 Ensure all approved outdoor asbestos remediation projects are performed in a manner that is environmentally safe and protects public health. (July, 2006)

5.1.6 Register automotive recycling facilities. (January, 2007)

5.1.7 Provide annual payments from the grant program for closure of unlined landfills and small municipal incinerators by including awards to all eligible facilities that properly proceed with the closure process. (July, 2007)

5.1.8 Inspect all 216 operating permitted solid waste facilities. (September, 2007)

5.1.9 Ensure 30 of the remaining uncapped, post-1981 unlined landfills are properly capped. (December, 2007)

NEW HAMPSHIRE SOLID WASTE DISTRICTS

May 2002

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Alexandria Solid Waste Management District	Alexandria	Single town status granted 7-10-90	Plan approved 5-21-92.	Board of Selectmen Town of Alexandria 45 Washburn Road Alexandria, NH 03222 744-3220	
Alton Solid Waste District	Alton	Single town status granted 8-29-89	Plan approved 1-24-91	Town Administrator P.O. Box 659 Alton, NH 03809	
Ammonoosuc Solid Waste District	Bath Benton Haverhill Monroe	Memorandum of Understanding 7-7-83	Plan approved 1-7-92.	Chairman Ammonoosuc Solid Waste District Municipal Building RR #1 Box 23A North Haverhill, NH 03774	
Androscoggin Valley Regional Refuse Disposal District	Berlin Dummer Errol Gorham Jefferson Milan Northumberland Randolph Stark	RSA 53-B (1990) AVSWD deactivated when AVRRDD formed 4-25-91. RSA 53-B agreement	Plan approved 08-29-94.	AVRRDD P.O. Box 336 Berlin, NH 03570 752-3342	
B.C.E.P. Solid Waste Planning District	Barnstead Chichester Epsom Pittsfield	RSA 53-B agreement	Agreed to submit plan by 6-30-93.	Earl Weir P.O. Box 426 Pittsfield, NH 03263 Office - 435-6237	District approved on 2-20-90.
Bear Camp and Ossipee Rivers District	Effingham Freedom	RSA 149-M By-laws	County-wide plan submitted 1-2-90.	Board of Selectman P.O. Box 25	

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
	Madison Ossipee Tamworth		Specific district plan was due by 2-11-91.	So. Effingham, NH 03882 539-7770	
Chatham, NH-Fryeburg, ME Solid Waste District	Chatham	No By-laws Single town district	County-wide plan submitted 1-2-90. Specific district plan was due by 2-11-91.	Chatham Board of Selectmen HCR 68 Box 233 Center Conway, NH 03813 694-3426	Has annual service contract with Fryeburg, ME. for use of LF.
City of Concord	Concord	Single town district	Agreed to comply with district plan.	City of Concord 41 Green Street Concord, NH 03301	Former member of Central NH Solid Waste District
City of Franklin	Franklin	Single town district	Agreed to comply with district plan.	City of Franklin 316 Central Street Franklin, NH 03235	Former member of Central New Hampshire Solid Waste District
City of Portsmouth	Portsmouth	Single town district	Agreed to comply with district plan.	City of Portsmouth One Junkins Avenue Portsmouth, NH 03801	Former member of Southeast Regional Solid Waste District
Contoocook Valley Solid Waste District	Hancock Peterborough Sharon	RSA 149-M By-laws (currently under revision). RSA 53-A agreement between Sharon, Peterborough for solid waste. RSA 53-A agreement Hancock and Peterborough for recyclables.	Plan approved 3-5-92.	Town Manager 1 Grove Street Peterborough, NH 03458	
Dover-Rochester Solid Waste District	Dover Rochester	RSA 149-M By-laws adopted November 1983.	Plan approved 11-4-91.	City Manager 31 Wakefield Street Rochester, NH 03867 332-1167	
Gilsum Solid Waste	Gilsum	Single town status	Plan submitted 5-31-90.	Board of Selectmen	Formerly a member of

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Management District		granted 1-30-90.	Plan review completed 10-10-90. Revision submitted and reviewed 2-10-92. Revision needs to be submitted.	Town of Gilsum P.O. Box 67 Gilsum, NH 03448 357-0320	Southwest SWMD.
Goffstown Solid Waste Management District	Goffstown	Single town status granted 7-17-90	Plan approved 2-19-93.	Board of Selectmen Town of Goffstown 16 Main Street Goffstown, NH 03045 497-3616	Former member of TriCounty SWMD.
Hebron-Bridgewater Regional Refuse Disposal District	Bridgewater Hebron	RSA 53-B (1976) agreement.	Plan needs to be submitted.	Board of Selectmen Town of Bridgewater 297 Mayhew Turnpike Bristol, NH 03222 744-5055	Former members of Lakes region SWMD.
Hinsdale Solid Waste Management District	Hinsdale	Single town status granted 4-13-90.	Plan submitted 1-2-90. Plan review completed 8-3-90. Revision submitted and reviewed 2-27-92. Revision needs to be submitted.	Office of Selectmen Town of Hinsdale PO Box 13 Hinsdale, NH 03451 336-5401	Formerly a member of Southwest SWMD.
Hopkinton-Webster Solid Waste District	Hopkinton Webster	RSA 149-M By-laws	Plan approved 2-8-91.	Town Administrator Town of Hopkinton Rte. #3, Box 258 Hopkinton, NH 03229 746-3170	Both towns participate in RSA 53-A agreement (Concord Regional Solid Waste/Resource Recovery Cooperative).
Jackson - Bartlett - Hart's Location Solid Waste District	Bartlett Hart's Location Jackson	Memorandum of Understanding signed 9-29-83.	County-wide plan submitted 1-2-90. Specific district plan due by 2-11-91.	Board of Selectmen P.O. Box 476 Jackson, NH 03846 383-4223	Jackson and Bartlett share a site but have separate compactors.
Keene Solid Waste Management District	Keene	Single town status granted 3-20-95	Plan approved 03-20-95.	Duncan Watson Public Works 580 Main Street Keene, NH 03431	Keene was a member of the Southwest Solid Waste Management District.

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Laconia-Gilford-Belmont Solid Waste District	Belmont Gilford Laconia	RSA 53-A agreement signed 11-30-76 between Laconia and Gilford for use of TS in Laconia.	Plan submitted 2-26-90 as draft. Final submitted on 3-19-90. Plan review completed 10-15-90. Revision needs to be submitted.	Director, Public Works Dept. Beacon St., East Laconia, NH 03246 542-1520	All towns participating in RSA 53-A agreement (Concord Regional Solid Waste/Resource Recovery Cooperative).
Lamprey Regional Solid Waste Cooperative	Barrington Durham Epping Greenland Lee Madbury Newfields Newington Newmarket Northwood Rollinsford Somersworth Stratham	RSA 53-A agreement (1978). Amendments received 8-3-88	Plan approved 11-16-92.	Lamprey Regional Solid Waste Cooperative 24 Fitch Road Dover NH 03820-9564 742-3087	Exempted from RSA 149-M:18 on 12-9-82 with conditions.
Lincoln-Woodstock Solid Waste District	Lincoln Woodstock	RSA 53-A agreement signed 11-23-81	Plan submitted 1-2-90. Plan review completed 5-31-90. Revision needs to be submitted.	Board of Selectmen P.O. Box 25 Lincoln, NH 03251 745-8782	
Landaff Solid Waste District	Landaff	RSA 53-A agreement signed 1-23-89.	Plan approved 2-27-92.	Board of Selectmen PO Box 125 Landaff, NH 03585	Landaff did not submit warrant article in time for town meeting to join the Pemi-Baker District
Litchfield Solid Waste District	Litchfield	Operates as a single town district.	Plan approved 12-3-90.	Chairperson Solid Waste Management Committee Town of Litchfield 255 Charles Bancroft Hwy. Litchfield, NH 03051 424-4046	

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Lower Mt. Washington Valley Solid Waste District (Conway-Albany- Eaton Solid Waste Cooperative)	Albany Conway Eaton	RSA 149-M By-laws (1988)	Plan submitted (no date) Update received 11-14-89. Plan review completed 4-11-90. Revision needs to be submitted.	Chairman Board of Selectmen PO Box 70 Ct. Conway, NH 03813 447-3811	Organized originally under RSA 53-A agreement as Mt. Washington Valley Regional Solid Waste Disposal Cooperative.
Manchester Solid Waste District	Manchester	Single town status granted 9-15-81.	Plan submitted 12-29-89. Plan review completed 3-20-90. Revision submitted on 1-8-91. Plan review completed 11-12-91. Revision needs to be submitted.	City Coordinator Office of the Mayor 908 Elm Street Manchester, NH 03101 624-6500	
Moultonborough Solid Waste Management District	Moultonborough	Single town status granted 3-7-90.	Plan approved 11-6-91.	Town Administrator P.O. Box 139 Moultonborough,NH 03254 427-2347	Former member of Lakes Region SWMD.
Nashua Region Solid Waste Management District	*Amherst *Brookline *Hollis Hudson Merrimack Milford *Mont Vernon Nashua Windham	RSA 149-M By-laws signed by Milford, Merrimack, and Nashua 10-83. Hudson and Windham were assigned to the district 10-28-83. *Souhegan Regional Landfill District RSA 53-B agreement.	Plan approved 3-5-92.	Nashua Regional Planning Commission P.O. Box 847 Nashua, NH 03061 883-0366 Souhegan Regional Landfill District William W. Dunklee Chairman P.O. Box 360 Amherst, NH 03031 673-8359	Souhegan Regional Landfill District included as a sub-district. 8-23-83 letter exempts Souhegan District from RSA 149-M:18 with conditions.
New Hampton Solid Waste Management District	New Hampton	Single town status granted 3-8-90.	Plan approved 10-30-91.	Board of Selectmen Box 428 New Hampton, NH 03256	
New Ipswich Solid	New Ipswich	Single town status	Plan approved 3-31-93.	Board of Selectmen	

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Waste Management District		granted 11-8-89.		Town of New Ipswich Main Street New Ipswich, NH 03071 878-2772	
Pelham Solid Waste District	Pelham	Operates as a single town district.	Plan submitted 1-12-90. Plan review completed 6-5-90. Revision needs to be submitted.	Pelham Board of Selectmen 6 Main Street Pelham, NH 03076 635-7811	
Pemi-Baker Solid Waste District	Ashland **Campton Danbury Dorchester Easton **Ellsworth Franconia Groton Lisbon Littleton Lyman Plymouth Rumney Sugar Hill **Thornton *Warren Waterville Wentworth	RSA 53-B agreement on 1-31-89. *Needs town vote to approve agreement. **Towns have agreement for use of Thornton TS.	Plan submitted (prepared February 1986). Plan approved 8-26-92.	North Country Council 107 Glessner Road Bethlehem, NH 03574 444-6303	Landaff did not submit warrant article in time for town meeting to join the Pemi-Baker District
Rindge,NH-Winchendon, MA Solid Waste District	Rindge, NH Winchendon, MA	Not formally a single town district.	Plan submitted 8-20-90. Plan review completed 12-6-90. Revision needs to be submitted.	Board of Selectmen P.O. Box 163 Rindge, NH 03461 899-5181	Contract to use landfill facility in Winchendon, MA Requested exemption 9-14-83.
Salem Solid Waste District	Salem	Single town status granted	Plan approved 10-28-91.	Board of Selectmen 33 Geremonty Drive Salem, NH 03079 893-5731	Exempt from RSA 149-M:18.

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Sanbornton Solid Waste Management District	Sanbornton	Single town status granted 11-07-89	Plan submitted 1-9-90 as a draft. Final received 2-5-90. Plan review completed 7-8-90. Revision needs to be submitted.	Board of Selectmen Town of Sanbornton P.O. Box 124 Sanbornton, NH 03269	
Sandwich Solid Waste Management District	Sandwich	Single town status granted 11-30-89	Plan approved 2-26-92.	Board of Selectmen Selectmen's Office PO Box 194 Center Sandwich, NH 03227 284-7701	
Shelburne Solid Waste District	Shelburne	Single town status granted 7-10-90	Plan approved 1-29-92.	Office of Selectmen Town of Shelburne 74 Village Road Shelburne, NH 03581	Former member of Androscoggin Valley RRDD.
Southeast Regional Refuse Disposal District	Brentwood Fremont Hampton Hampton Falls Kensington New Castle North Hampton Rye Sandown South Hampton	RSA 53-B (1988)	Southeast Regional Solid Waste District (SRSWD) plan approved in 1988	SRRDD 86 Lafayette Road North Hampton, NH 03862 964-7116	SRRDD was a member of the Southeast Regional Solid Waste District that disbanded in 1997.
Strafford Solid Waste District	Farmington Middleton Milton New Durham Strafford	RSA 149-M By-laws.	Plan approved 1-31-91	Town Administrator 4 Main Street P.O. Box 207 New Durham, NH 03855 829-2091	

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Sullivan County Regional Refuse Disposal District	Acworth Center Harbor Claremont Cornish Croydon Goshen *Grantham Langdon Lempster Meredith New London Newport *Plainfield Springfield Sunapee	RSA 53-B agreement adopted 12-17-81. Reprinted 1-89. 149-M District approved 4-83.	Plan approved 4-3-83.	NH/VT Project 130 Pleasant Street Suite 3 Claremont, NH 03743 543-1201	Participates in the NH/VT Project. Cornish & Newport go to Claremont transfer station. *Participates in joint Upper Valley Recycling and Waste Management Contract.
Swanzey Solid Waste Management District	Swanzey	Single town status granted 4-13-90	Plan submitted 12-29-89. Plan review completed 8-15-90. Revision needs to be submitted.	Office of Selectmen Town of Swanzey P.O. Box 9 Swanzey, NH 03446-0009.	Formerly member of Southwest SWMD.
Three Rock Solid Waste Planning District	Auburn Candia Nottingham	RSA 149-M By-laws.	Plan approved 6-8-92.	Three Rock Solid Waste Planning District 74 High Street Office of Selectmen Candia, NH 03034	Towns were former members of Tri-County SWMD. District approved 11-8-89.
Town of Allenstown	Allenstown	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Allenstown 16 School Street Allenstown, NH 03275	Former member of Central New Hampshire Solid Waste District
Town of Alstead	Alstead	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Alstead PO Box 60 Main Street Alstead, NH 03602	Former member of Southwest Solid Waste Management District
Town of Andover	Andover	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Andover	Former member of Central New

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
				PO Box 61, 11 School Street Andover, NH 03216	Hampshire Solid Waste District
Town of Atkinson	Atkinson	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Atkinson 21 Academy Avenue Atkinson, NH 03811	Former member of Southeast Regional Solid Waste District
Town of Bedford	Bedford	Single town district	Agreed to comply with district plan.	Town Council Town of Bedford 24 North Amherst Road Bedford, NH 03110	Former member of TriCounty Solid Waste Management District
Town of Boscawen	Boscawen	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Boscawen 17 High Street Boscawen, NH 03303	Former member of Central New Hampshire Solid Waste District
Town of Bow	Bow	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Bow 10 Grandview Road Bow, NH 03304	Former member of Central New Hampshire Solid Waste District
Town of Bradford	Bradford	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Bradford 75 West Main Street Bradford, NH 03221	Former member of Central New Hampshire Solid Waste District
Town of Bristol	Bristol	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Bristol 71 Lake Street Bristol, NH 03222	Former member of Central New Hampshire Solid Waste District
Town of Canterbury	Canterbury	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Canterbury PO Box 500 Hackleboro Rd. Canterbury, NH 03224	Former member of Central New Hampshire Solid Waste District
Town of Chester	Chester	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Chester	Former member of TriCounty Solid Waste

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
				PO Box 275 Chester, NH 03036	Management District
Town of Chesterfield	Chesterfield	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Chesterfield PO Box 175 Chesterfield, NH 03443	Former member of Southwest Solid Waste Management District
Town of Danville	Danville	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Danville PO Box 11 210 Main Street Danville, NH 03819	Former member of Southeast Regional Solid Waste District
Town of Deerfield	Deerfield	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Deerfield P O Box 159 Deerfield, NH 03037	Former member of TriCounty Solid Waste Management District
Town of Deering	Deering	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Deering RFD 1, Box 166 Hillsborough, NH 03244	Former member of Central New Hampshire Solid Waste District
Town of Derry	Derry	Single town district	Agreed to comply with district plan.	Town Council Town of Derry 48 East Broadway Derry, NH 03038	Former member of Southeast Regional Solid Waste District
Town of Dublin	Dublin	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Dublin PO Box 277 Main Street Dublin, NH 03444	Former member of Southwest Solid Waste Management District
Town of Dunbarton	Dunbarton	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Dunbarton 1011 School Street Dunbarton, NH 03045	Former member of Central New Hampshire Solid Waste District
Town of E. Kingston	E. Kingston	Single town district	Agreed to comply with district	Board of Selectmen	Former member of

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
			plan.	Town of E. Kingston 24 Depot Road E. Kingston, NH03827	Southeast Regional Solid Waste District
Town of Exeter	Exeter	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Exeter 10 Front Street Exeter, NH 03833	Former member of Southeast Regional Solid Waste District
Town of Fitzwilliam	Fitzwilliam	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Fitzwilliam PO Box 725 Fitzwilliam, NH 03447	Former member of Southwest Solid Waste Management District
Town of Gilmanton	Gilmanton	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Gilmanton PO Box 550, RTE 107&140 Gilmanton, NH 03237	Former member of Central New Hampshire Solid Waste District
Town of Hampstead	Hampstead	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Hampstead 11 Main Street Hampstead, NH 03841	Former member of Southeast Regional Solid Waste District
Town of Harrisville	Harrisville	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Harrisville PO Box 34 Harrisville, NH 03450	Former member of Southwest Solid Waste Management District
Town of Henniker	Henniker	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Henniker 2 Depot Hill Road Henniker, NH 03242	Former member of Central New Hampshire Solid Waste District
Town of Hill	Hill	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Hill PO Box 236 32B Crescent Street Hill, NH 03243	Former member of Central New Hampshire Solid Waste District
Town of Hillsborough	Hillsborough	Single town district	Agreed to comply with district	Board of Selectmen	Former member of

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
			plan.	Town of Hillsborough PO Box 7, 29 School Street Hillsborough, NH 03244	Central New Hampshire Solid Waste District
Town of Hooksett	Hooksett	Single town district	Agreed to comply with district plan.	Town Council Town of Hooksett 16 Main Street Hooksett, NH 03106	Former member of TriCounty Solid Waste Management District
Town of Jaffrey	Jeffrey	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Jaffrey 10 Goodnow Street Jaffrey, NH 03452	Former member of Southwest Solid Waste Management District
Town of Kingston	Kingston	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Kingston 163 Main Street PO Box 716 Kingston, NH 03848	Former member of Southeast Regional Solid Waste District
Town of Londonderry	Londonderry	Single town district	Agreed to comply with district plan.	Town Council Town of Londonderry 50 Nashua Road, Suite 100 Londonderry, NH 03053	Former member of TriCounty Solid Waste Management District
Town of Loudon	Loudon	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Loudon PO Box 7837 South Village Road Loudon, NH 03301	Former member of Central New Hampshire Solid Waste District
Town of Marlborough	Marlborough	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Marlborough PO Box 487 236 East Main Street Marlborough, NH 03455	Former member of Southwest Solid Waste Management District
Town of Marlow	Marlow	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Marlow PO Box 184 Marlow, NH 03456	Former member of Southwest Solid Waste Management District

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Town of Nelson	Nelson	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Nelson HCR 33, Box 660 Nelson, NH 03457	Former member of Southwest Solid Waste Management District
Town of New Boston	New Boston	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of New Boston PO Box 250 New Boston, NH 03070	Former member of TriCounty Solid Waste Management District
Town of Newbury	Newbury	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Newbury PO Box 296 Newbury, NH 03255	Former member of Central New Hampshire Solid Waste District
Town of Newton	Newton	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Newton PO Box 378 Town Hall Road Newton, NH 03858	Former member of Southeast Regional Solid Waste District
Town of Northfield	Northfield	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Northfield 21 Summer Street Northfield, NH 03276	Former member of Central New Hampshire Solid Waste District
Town of Pembroke	Pembroke	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Pembroke 311 Pembroke Street Pembroke, NH 03275	Former member of Central New Hampshire Solid Waste District
Town of Plaistow	Plaistow	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Plaistow 145 Main Street Plaistow, NH 03865	Former member of Southeast Regional Solid Waste District
Town of Raymond	Raymond	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Raymond 4 Epping Street Raymond, NH 03077	Former member of TriCounty Solid Waste Management District

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Town of Roxbury	Roxbury	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Roxbury 3 Middletown Road Roxbury, NH 03431	Former member of Southwest Solid Waste Management District
Town of Salisbury	Salisbury	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Salisbury PO Box 214 Salisbury, NH 03268	Former member of Central New Hampshire Solid Waste District
Town of Seabrook	Seabrook	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Seabrook PO Box 456 99 Lafayette Street Seabrook, NH 03874	Former member of Southeast Regional Solid Waste District
Town of Stoddard	Stoddard	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Stoddard PO Box 216 Stoddard, NH 03464	Former member of Southwest Solid Waste Management District
Town of Sullivan	Sullivan	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Sullivan PO Box 110 Sullivan, NH 03445	Former member of Southwest Solid Waste Management District
Town of Surry	Surry	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Surry 1 Village Road Surry, NH 03260	Former member of Southwest Solid Waste Management District
Town of Sutton	Sutton	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Sutton PO Box 85 93 Main Street North Sutton, NH 03260	Former member of Central New Hampshire Solid Waste District
Town of Tilton	Tilton	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Tilton 257 Main Street Tilton, NH 03276	Former member of Central New Hampshire Solid Waste District

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Town of Troy	Troy	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Troy PO Box 249 Troy, NH 03465	Former member of Southwest Solid Waste Management District
Town of Walpole	Walpole	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Walpole PO Box 729 Walpole, NH 03278	Former member of Southwest Solid Waste Management District
Town of Warner	Warner	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Warner PO Box 265 5 East Main Street Warner, NH 03278	Former member of Central New Hampshire Solid Waste District
Town of Washington	Washington	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Washington PO Box 473 7 Half Moon Pond Road Washington, NH 03280	Former member of Central New Hampshire Solid Waste District
Town of Weare	Weare	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Weare 15 Flanders Memorial Road PO Box 190 Weare, NH 03281	Former member of Central New Hampshire Solid Waste District
Town of Westmoreland	Westmoreland	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Westmoreland PO Box 55 Westmoreland, NH 03467	Former member of Southwest Solid Waste Management District
Town of Wilmot	Wilmot	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Wilmot PO Box 72 Wilmot, NH 03287	Former member of Central New Hampshire Solid Waste District
Town of Windsor	Windsor	Single town district	Agreed to comply with district plan.	Board of Selectmen Town of Windsor	Former member of Central New

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
				RR 2, Box 145 Hillsborough, NH 03244	Hampshire Solid Waste District
Tri-Town Solid Waste Management District	Antrim Bennington Francestown	RSA 53-A agreement (1974) RSA 53-A agreement for 10 years on 2-1-82.	Plan submitted 10-13-83. Update received 2-27-89. Plan review completed 9-28-90. Revision needs to be submitted.	Town Administrator P.O. Box 257 Bennington, NH 03442 588-2189	
Tuftonboro Solid Waste District	Tuftonboro	Single town status granted 3/9/83.	County-wide plan submitted 1-2-90. Specific district plan was due 2-11-91.	Board of Selectmen P.O. Box 98 Center Tuftonboro, NH 03816 569-4539	
Twin Mountain Solid Waste Management District	Carroll	Single town status granted 4-17-90.	Plan approved 6-23-92	Office of Selectmen Town of Carroll P.O. Box 146 Twin Mountain, NH 03595 846-5754	Formerly a member of Upper Grafton Lancaster Area SW District.
Upper Connecticut River Valley Solid Waste District	Clarksville Colebrook Columbia Dixville Pittsburg Stewartstown Stratford	Memorandum of Understanding (No date) Plan states RSA 149-M.	Plan submitted 12-29-89. Plan review completed 4-25-90. Revision needs to be submitted.	Board of Selectmen 10 Bridge Street Colebrook, NH 03576 237-4070	
Upper Grafton Lancaster Area Solid Waste District	Bethlehem Dalton Lancaster	No By-laws Memorandum of Understanding (No date-unsigned) references 149-M.	Plan submitted (Prepared 3-86) Letter updating plan submitted 7-23-90. Plan review completed 2-3-92. Revision needs to be submitted.		The towns of Easton, Franconia, Littleton, and Sugar Hill have joined the Pemi-Baker Solid Waste District

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
Upper Valley Solid Waste District	Canaan Charlestown Enfield Grafton Hanover Lebanon Lyme Orange Orford Piermont Unity	RSA 149-M By-laws (9-22-83)	Plan approved 6-29-92	Upper Valley Lake Sunapee Regional Council 199 Heater Road Suite 1 Lebanon NH 03766-1451	Grantham and Plainfield also participate in contract.
Wakefield-Brookfield Refuse Disposal District	Wakefield Brookfield	Wakefield single town status granted 11-30-89. Wakefield formed 53-A with Brookfield in 1992.	Plan approved 4-1-91 New Plan needed to include Brookfield.	Board of Selectmen Town of Wakefield 2 High Street Sanbornville, NH 03872 522-6205	
White Oak Solid Waste District	Holderness	Single town status granted 3-7-90.	Plan submitted 3-7-90 Plan review completed 8-17-90. Revision needs to be submitted.	Town Administrator Town of Holderness PO Box 203 Holderness, NH 03245 968-3537	
Whitefield Solid Waste Management District	Whitefield	Single town status granted 1-19-90.	Plan submitted 1-3-90 Plan review completed 11-2-90. Revision needs to be submitted.	Board of Selectmen Selectmen's Office Whitefield, NH 03598 837-2551	Has a petition to join AVRRDD.
Wilton Solid Waste District	Greenfield Greenville Lyndeborough Mason Temple Wilton	Contract (10Years)between Wilton Recycling Center and participating towns.	Plan submitted 1-2-90 Plan review completed 6-7-90. Revision needs to be submitted.	Board of Selectmen Town of Wilton Box 83 Wilton, NH 03056 654-9451	District was granted an exemption from 149-M:18 with conditions on 11-19-82 and 8-3-83.
Winchester Solid Waste Management District	Richmond Winchester	RSA 53-A agreement signed 9-9-91.	Plan approved 12-19-90.	Board of Selectmen Town of Winchester Town Hall	Status as a new district was granted 11-30-89.(Former member of

DISTRICT NAME	MEMBER TOWNS	ORGANIZATIONAL FRAMEWORK	PLAN STATUS	CONTACT NAME	COMMENTS
				Winchester, NH 03470	Southwest SWMD). Richmond's transfer into the district was approved 1-19-90.
Wolfeboro Solid Waste Management District	Wolfeboro	Single town status granted 3-25-83.	Plan approved 4-3-92.	Public Works Director Town Office P.O. Box 629 Wolfeboro, NH 03894 569-3900	

STATE OF NEW HAMPSHIRE
POPULATION AND SOLID WASTE GENERATION FOR 2001
September 2002

Town	2001 Population	2001 Res. MSW tons/yr	2001 C/I tons/yr	2001 Cons/Demo tons/yr	2001 Recyclables tons/yr	2001 Compost tons/yr	2001 Other tons/yr	2001 Total MSW tons/yr
Acworth	842	301		1,100	294	15	28	1,738
Albany	658	728		124	129			981
Alexandria	1,360	578		196	64			838
Allenstown	4,934	3,083				56		3,139
Alstead	1,970	390		105	79		11	585
Alton	4,627	1,500		1,100	266	5		2,871
Amherst	11,026	3,743		639	920			5,302
Andover	2,148	1,270		89	264	10		1,633
Antrim	2,483	582			81			663
Ashland	1,972	805		207	193	50		1,255
Atkinson	6,387	322						322
Auburn	4,825	3,171			341			3,512
Barnstead	3,996	**2,407**						2,407
Barrington	7,687	650		300	350			1,300
Bartlett	2,757	2,097		327	5			2,429
Bath	904	**544**						544
Bedford	19,205	8,760	0		1,432	63		10,255
Belmont	6,905	6,387			30			6,417
Bennington	1,415	369			83			452
Benton	308	**185**						185
Berlin	10,543	4,656		1,665	1,326	1,000	492	9,139
Bethlehem	2,242	351			225			576
Boscawen	3,662	2,283	756		245	5		3,289
Bow	7,277	6,244						6,244
Bradford	1,484	979		175	6	20		1,180
Brentwood	3,369	150						150
Bridgewater	1,001	**603**						603
Bristol	3,067	3,770	2,556	254				6,580
Brookfield	629	213		69	80			362
Brookline	4,300	1,623		232	390	1		2,246
Campton	2,774	852		280	397	10		1,539
Canaan	3,358	1,720						1,720
Candia	4,024	886			476	20	122	1,504
Canterbury	2,036	728		322		13		1,063
Carroll	689	1,397		54	4	2		1,457
Center Harbor	1,006	304		168	164			636
Charlestown	4,811	**2,897**						2,897
Chatham	261	85		25	75			185
Chester	4,094	750			393	4		1,147
Chesterfield	3,596	671		135	167	7		980
Chichester	2,335	**1,406**						1,406
Claremont	13,187	12,986		152	127			13,265
Clarksville	297	74			62			136
Colebrook	2,335	943		291	745	4		1,983
Columbia	760	240		44	89			373
Concord	41,116	24,179	24,179			1,710		50,068
Conway	8,710	9,261		1,582	1,634	292		12,769
Cornish	1,680	547			41			588
Croydon	681	340						340
Dalton	942	116		17				133

Town	2001 Population	2001 Res. MSW tons/yr	2001 C/I tons/yr	2001 Cons/Demo tons/yr	2001 Recyclables tons/yr	2001 Compost tons/yr	2001 Other tons/yr	2001 Total MSW tons/yr
Danbury	1,084	596		94	79			769
Danville	4,115	**2,478**						2,478
Deerfield	3,915	1,371		174	430			1,975
Deering	1,918	351						351
Derry	34,436	9,027	1,073	818	3,881	840		15,639
Dorchester	353	120		41	26			187
Dover	27,437	377			229	1,101		1,707
Dublin	1,490	277		38	193			508
Dummer	313	110			50			160
Dunbarton	2,315	1,073			316			1,389
Durham	12,700	1,965	531	566	1,067	25		**4,154**
E.Kingston	1,827	52						52
Easton	260	74		23	50			147
Eaton	392	416		71	73			560
Effingham	1,285	295			61			356
Ellsworth	87	27		9	12	1		49
Enfield	4,719	2,639			417			3,056
Epping	5,742	**3,458**						3,458
Epsom	4,184	**2,520**						2,520
Errol	302	117	100		310			527
Exeter	14,192	3,135				112		3,247
Farmington	5,953	3,000	15	450	399	8		3,872
Fitzwilliam	2,176	250		80	270	1		601
Francestown	1,521	473		76	29			578
Franconia	947	494		154	180	3		831
Franklin	8,456	6,400	643	480	644			8,167
Freedom	1,340	506		288	35	48		877
Fremont	3,679	2,114						2,114
Gilford	6,935	6,989		299	141	428		7,857
Gilmanton	3,150	1,136						1,136
Gilsum	788	**475**						475
Goffstown	17,099	5,446	248	1,044	2,113	1,800		10,651
Gorham	2,937	2,125	1,022	318	376	550		4,391
Goshen	754	173						173
Grafton	1,149	499		116				615
Grantham	2,231	1,206						1,206
Greenfield	1,671	233		123	135			491
Greenland	3,296	1,450			127		5,398	6,975
Greenville	2,260	**1,361**						1,361
Groton	467	172						172
Hampstead	8,440	**5,083**						5,083
Hampton	15,037	9,679		1,320	1,667	1,900		14,566
Hampton Falls	1,921	**1,157**						1,157
Hancock	1,759	316		12	123	11		462
Hanover	10,953	6,398						6,398
Harrisville	1,086	**654**						654
Harts Loc	39	**23**						23
Haverhill	4,474	**2,694**						2,694
Hebron	475	276						276
Henniker	4,554	2,830		257	540	6		3,633
Hill	1,031	541			50			591
Hillsborough	5,020	3,295	2,380	407	463			6,545
Hinsdale	4,162	816		89	107	14		1,026
Holderness	1,971	900		350	175			1,425

Town	2001 Population	2001 Res. MSW tons/yr	2001 C/I tons/yr	2001 Cons/Demo tons/yr	2001 Recyclables tons/yr	2001 Compost tons/yr	2001 Other tons/yr	2001 Total MSW tons/yr
Hollis	7,215	2,720		328	935			3,983
Hooksett	12,009	4,566				50		4,616
Hopkinton	5,484	4,112		930	999	300		6,341
Hudson	23,156	9,404		449	1,124	28		11,005
Jackson	852	636		206	5			847
Jaffrey	5,539	823		526	446			1,795
Jefferson	1,014	319		76	196			591
Keene	22,800	37,976			8,521	400		46,897
Kensington	1,934	656			162			818
Kingston	6,102	2,560	34,985	0	0	11		37,556
Laconia	16,648	18,594	11,638	664	126	191		31,213
Lancaster	3,303	516		357	816	40		1,729
Landaff	381	76		20	49			145
Langdon	594	213						213
Lebanon	12,824	19,990			842	500		21,332
Lee	4,242	**2,555**						2,555
Lempster	997	504						504
Lincoln	1,279	477		371	320			1,168
Lisbon	1,614	509		133	215			857
Litchfield	7,604	780		240				1,020
Littleton	5,923	574		185	1,477	50		2,286
Londonderry	23,798	9,770		350	1,682	1		11,803
Loudon	4,617	3,417		110	109			3,636
Lyman	496	102		27	66			195
Lyme	1,700	818		77	192	50		1,137
Lyndeborough	1,639	**987**						987
Madbury	1,585	**955**						955
Madison	2,028	837		363	58			1,258
Manchester	108,078	**45,427**		4,123	1,511	6,394	3,892	61,347
Marlborough	2,030	465		80	230	10		785
Marlow	762	2,080		40	91			2,211
Mason	1,178	**709**						709
Meredith	6,055	2,356		1,270	1,009			4,635
Merrimack	25,829	8,060	15,719	2,640		438		26,857
Middleton	1,498	565						565
Milan	1,357	465			175			640
Milford	13,871	3,446	500	1,752	1,865	375		7,938
Milton	4,037	610		306	140			1,056
Monroe	774	432		1				433
Mont Vernon	2,130	786			241			1,027
Moultonborough	4,589	843		569	373	118		1,903
Nashua	87,449	44,190	29,787	10,286		6,114		90,377
Nelson	647	**390**						390
New Boston	4,395	1,552		177	587	50		2,366
New Castle	1,022	463				1		464
New Durham	2,295	**1,382**						1,382
New Hampton	2,004	693		255	115			1,063
New Ipswich	4,489	500		500				1,000
New London	4,232	2,949			708			3,657
Newbury	1,743	862		270				1,132
Newfields	1,584	492			171			663
Newington	789	**475**						475
Newmarket	8,268	**4,979**		244	193	120		5,536
Newport	6,343	4,328						4,328

Town	2001 Population	2001 Res. MSW tons/yr	2001 C/I tons/yr	2001 Cons/Demo tons/yr	2001 Recyclables tons/yr	2001 Compost tons/yr	2001 Other tons/yr	2001 Total MSW tons/yr
Newton	4,459	2,364			110	8		2,482
North Hampton	4,415	**2,659**			304	6		2,969
Northfield	4,635	2,700	970	168	92			3,930
Northumberland	2,468	858		333	225			1,416
Northwood	3,708	848		271	142			1,261
Nottingham	3,814	318		90	211			619
Orange	304	60						60
Orford	1,109	595						595
Ossipee	4,258	1,179		751	369	7	133	2,439
Pelham	11,300	2,300						2,300
Pembroke	6,989	4,474						4,474
Peterborough	5,951	416		93	655			1,164
Piermont	719	118			106			224
Pittsburg	874	319			186	3		508
Pittsfield	4,035	2,135		743	1,549	125		4,552
Plainfield	2,306	873					1,764	2,637
Plaistow	7,812	3,200			429	20		3,649
Plymouth	6,141	934	100	224	1,750	300		3,308
Portsmouth	20,906	6,289			1,863	1,793		9,945
Randolph	341	92	249		50			391
Raymond	9,938	4,150		857	367			5,374
Richmond	1,199	**722**						722
Rindge	5,651	679		218	160	6		1,063
Rochester	28,874	14,685	10,843	657	1,577	4,778	1,680	34,220
Rollinsford	2,655	**1,599**						1,599
Roxbury	240	**145**						145
Rumney	1,510	488		109	75			672
Rye	5,280	1,000		300	1,000	34		2,334
Salem	28,571	11,106		1,400	2,584	112		15,202
Salisbury	1,165	585		33	60			678
Sanbornton	2,668	462		358	301	1		**1,122**
Sandown	5,220	2,000		520	200	100		2,820
Sandwich	1,304	289		85	189			563
Seabrook	8,162	3,745		362	686	150		4,943
Sharon	367	**221**						221
Shelburne	385	182			76	4		262
Somersworth	11,591	**6,981**						6,981
S.Hampton	860	**518**						518
Springfield	971	**585**						585
Stark	525	88		47	28			163
Stewartstown	1,030	319		39	117			475
Stoddard	944	208		180	128		7	523
Strafford	3,713	999		155	236			1,390
Stratford	931	183		163	111			457
Stratham	6,531	**3,933**						3,933
Sugar Hill	569	153		48	103			304
Sullivan	760	**458**						458
Sunapee	3,120	1,766		1,105	720			3,591
Surry	685	**413**						413
Sutton	1,600	408		360	88	20	17	893
Swanzey	6,896	1,230		333	1,161			2,724
Tamworth	2,531	667		37	113	10		827
Temple	1,351	**814**						814
Thornton	1,877	1,309		149	211	5		1,674
Tilton	3,516	5,031						5,031

Town	2001 Population	2001 Res. MSW tons/yr	2001 C/I tons/yr	2001 Cons/Demo tons/yr	2001 Recyclables tons/yr	2001 Compost tons/yr	2001 Other tons/yr	2001 Total MSW tons/yr
Troy	1,983	179		98	78			355
Tuftonboro	2,184	809		180	199	4		1,192
Unity	1,562	**941**						941
Wakefield	4,325	1,563		505	595	45		2,708
Walpole	3,623	545		325	441			1,311
Warner	2,802	1,779	339	211	362			2,691
Warren	888	295			66			361
Washington	908	375		237	75	1		688
Waterville Valley	262	987		209	53	37		1,286
Weare	8,007	3,432		441	383			4,256
Webster	1,630	785						785
Wentworth	809	185		96	26			307
Westmoreland	1,804	302		69	153			524
Whitefield	2,059	298		29	230			557
Wilmot	1,165	460			39			499
Wilton	3,809	**2,294**						2,294
Winchester	4,219	954		389	348	23		1,714
Windham	11,491	3,622		851	2,009	125		6,607
Windsor	205	**123**						123
Wolfeboro	6,188	3,034		1,764	840	250		5,888
Woodstock	1,154	423		329	283			1,035

STATE OF NEW HAMPSHIRE
COLLECTION, STORAGE, AND TRANSFER FACILITIES
September 2002

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Acworth Beryl Mt. Rd. Acworth, NH	Town of Acworth P.O. Box 637 Acworth, NH 03601	DES-SW-TP-96-009	Acworth	NCES LF, Bethlehem	Yes	
Alexandria Smith River Rd. (Old Route 104) Alexandria, NH	Town of Alexandria 45 Washburn Road Bristol, NH 03222	DES-SW-90-034	Alexandria	W-to-E, Concord	No	C&D to NCES LF, Bethlehem.
Allenstown 156 Granite Street Allenstown, NH	Town of Allenstown 16 School St. Allenstown, NH 03275	DES-SW-90-018	Allenstown	W-to-E, Concord	Yes	
Allenstown 104 River Road Allenstown, NH	J.M. Container Corp. 104 River Road Allenstown, NH 03275	DPHS-SW-85-009	Spot Market	Various Sites in MA, ME and NH	No	Company was recently bought by Casella Waste Systems.
Alstead Rt. 12 A Alstead, NH	Town of Alstead PO Box 60 Alstead, NH 03602	Pre-1983	Alstead	W-to-E, Claremont	Yes	Local mandatory recycling ordinance.
Alton Hurd Hill Rd. Alton, NH	Town of Alton P.O. Box 659 Alton, NH 03809	DES-SW-91-009	Alton	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Amherst Route 101 Amherst, NH	Souhegan Regional LF District P.O. Box 360 Amherst, NH 03031	No Permit	Amherst	W-to-E, Concord	Yes	Former LF is owned by Souhegan Regional Landfill District.
Andover Route 11 Andover, NH	Town of Andover P.O. Box 61 Andover, NH 03216-0061	DES-SW-87-034	Andover	W-to-E, Concord	No	Local mandatory recycling ordinance.
Antrim Goddell Rd. Antrim, NH	Town of Antrim P.O. Box 517 Antrim, NH 03440	DES-SW-LP-92-504	Antrim	W-to-E, Concord	No	Local mandatory recycling ordinance.
Ashland Collins St. Ashland, NH	Town of Ashland PO Box 517 Ashland, NH 03217	DES-SW-LP-95-506	Ashland	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Atkinson Pope Road Atkinson, NH	Town of Atkinson 21 Academy Rd. Atkinson, NH 03811	No Permit	Atkinson	Waste Management, Inc.	No	
Auburn 24 Grey Point Avenue Auburn, NH	WMNH, INC-Auburn 24 Grey Point Avenue Auburn, NH 03032	DES-SW-SP-97-001	Spot Market	Turnkey LF, Rochester W-to-E, Concord	No	Transfer station receives Manchester waste along with spot market waste. Auburn has host community benefit to use facility for drop-off of recyclables and trash. Local mandatory recycling ordinance.
Barrington Smoke St. and Brewster Rd. Barrington, NH	Town of Barrington 41 Province Lance Barrington, NH 03825	Pre-1983	Barrington	Turnkey LF, Rochester	Yes	Pay-as-you-throw drop off program. Local mandatory recycling ordinance.
Bartlett Route 16 Bartlett, NH	Town of Bartlett RR 1, Box 49 Bartlett, NH 03845	DES-SW-90-033	Bartlett	NCES LF, Bethlehem	No	Operates on same site as Jackson TS. Each town has its own compactor. Local mandatory recycling ordinance.
Bedford 77 Chubbuck Road Bedford, NH	Town of Bedford 24 North Amherst Road Bedford, NH 03110	DES-SW-LP-94-504	Bedford	W-to-E, Haverhill, MA	Yes	

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Belmont Sargent St. Belmont, NH	Town of Belmont PO Box 310 Belmont, NH 03220	No Permit Needed	Belmont	W-to-E, Concord	No	Recycling center located at highway garage.
Belmont 277 Hurrican Road Belmont, NH 03220	Belmont Salvage 277 Hurricane Road Belmont, NH 03220	DES-SW-TP-97-007	Spot Market			"Junk Yard"
Bennington North Bennington Rd. Bennington, NH	Town of Bennington 7 School Street Unit 101 Bennington, NH 03442	DES-SW-LP-92-508	Bennington	W-to-E, Concord		
Berlin AVRRDD MRF Route 110 Berlin, NH	AVRRDD PO Box 336 Berlin, NH 03570	DES-SW-91-011	Berlin Errol Dummer Gorham Jefferson Milan Northumberland Randolph Stark Lancaster Thornton	Mt. Carberry LF, Berlin, (Success)	No	Recycling only. Also processes C&D on site.
Bethlehem Trudeau Rd. Bethlehem, NH	NCES 501 South Street, Box E Bow, NH 03304	DES-SW-87-015	Bethlehem, NH	NCES LF, Bethlehem	Yes	TS is located at the same site as current and operating LF.
Boscawen Corn Hill Rd. (Marlboro Rd.) Boscawen, NH	Town of Boscawen 17 High St. Boscawen, NH 03303	DES-SW-89-017	Boscawen	W-to-E, Concord	Yes	
Bow 12 Robinson Road Bow, NH	Town of Bow 10 Grandview Rd. Bow, NH 03304	DES-SW-PN-98-003	Bow	W-to-E, Concord	No	Town has curbside private pickup of MSW and recyclables.
Bradford Rt. 114 Bradford, NH	Town of Bradford 75 West Main Street Bradford, NH 03221	Pre-1983	Bradford	W-to-E, Concord	Yes	Local mandatory recycling ordinance.
Brentwood 1 Dalton Rd. Brentwood, NH	Town of Brentwood 1 Dalton Rd. Brentwood, NH 03833	DES-SW-PN-00-005	Brentwood	Turnkey LF, Rochester	No	Town has applied for permit to move facility.
Bridgewater Dick Brown Road Bridgewater, NH	Town of Bridgewater 297 Mayhew Turnpike Bristol, NH 03222	No Permit	Bridgewater Hebron	Hebron-Bridgewater Incinerator	Yes	Landfill on site for disposal of incinerator ash and C&D. Local mandatory recycling ordinance.
Bristol Ayer's Island Dam Road Bristol, NH	Town of Bristol 230 Lake Street Bristol, NH 03222	Pre-1983	Bristol	W-to-E, Concord	No	Located on two sites. One site is for trash, newspaper, and cardboard. Second site is located down the road and is for scrap metal and C&D.
Brookline North Mason Rd. Brookline, NH	Town of Brookline PO Box 360 Brookline, NH 03033	DES-SW-PN-98-001	Brookline	W-to-E, Concord	Yes	Trash is handled through Southegan Regional Landfill District.
Canaan Cardigan Mountain Rd. Canaan, NH	Town of Canaan P.O. Box 38 Canaan, NH 03741	DES-SW-89-023	Canaan Orange	Lebanon LF	No	
Candia 119 New Boston Road Candia, NH	Town of Candia 74 High Street Candia, NH 03034	DES-SW-TP-96-002	Candia	Candia Incinerator	Yes	Local mandatory recycling ordinance.
Canterbury Baptist Rd. Canterbury, NH	Town of Canterbury P.O. Box 500 Canterbury, NH 03224	DES-SW-PN-00-004	Canterbury	W-to-E, Concord	Yes	Local mandatory recycling ordinance.

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Carroll New Straw Rd. Twin Mountain, NH	Town of Carroll Box 146 Twin Mountain, NH 03595	DES-SW-LP-91-002	Carroll	NCES LF, Bethlehem	Yes	Landfill C&D on site. Town is planning to construct a new transfer station.
Charlestown Route 12 Charlestown, NH	Town of Charlestown P.O. Box 385 Charlestown, NH 03603	DPHS-SW-84-009	Charlestown	W-to-E, Claremont	Yes	
Chester 50 Dump Road Chester, NH	Town of Chester PO Box 275 Chester, NH 03036	DES-SW-LP-96-506	Chester	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Chesterfield Pond Brook Rd. Chesterfield, NH	Town of Chesterfield P.O. Box 175 Chesterfield, NH 03443	DES-SW-88-017	Chesterfield	Keene TS Brattleboro VT	Yes	Local mandatory recycling ordinance. Recyclables to TTT in VT.
Claremont Newport Rd Route 11 and 103 Claremont, NH	City of Claremont 8 Grandview St. Claremont, NH 03743	DES-SW-TP-96-042	Claremont Cornish Newport	W-to-E, Claremont	Yes	Pay-as-you-throw drop off program. Local mandatory recycling ordinance.
Claremont Industrial Blvd. Claremont, NH	Recycling Services, Inc. Plains Road PO Box 305 Claremont, NH 03743	DES-SW-91-015	Spot Market		No	Privately owned recycling center.
Colebrook Bridge Street Colebrook, NH	Town of Colebrook 10 Bridge Street Colebrook, NH 03576	DES-SW-LP-93-505	Colebrook	Mt Carberry LF, Success	Yes	Local mandatory recycling ordinance.
Concord 77 Old Turnpike Road Concord, NH	City of Concord 311 N. State Street Concord, NH 03301	DES-SW-89-020	Concord	W-to-E, Concord	Yes	Operated by Waste Management, Inc. Recycling only. Curbside recycling (resident pays).
Concord 25 Sandquist St. Concord NH	Advanced Recycling 25 Sandquist St. Concord NH 03301	DES-SW-SP-99-001	Spot Market		No	Owned by Max Cohen & Sons. Also has facilities in Manchester and Rochester.
Conway East Conway Rd. Conway, NH	Town of Conway PO Box 70 Center Conway, NH 03813	DES-SW-89-025	Albany Conway Eaton	Regional LF, Conway	Yes	Town opened a secure landfill at another location on East Conway Rd. in 1991 for MSW disposal. Local mandatory recycling ordinance.
Cornish Route 120 Cornish, NH	Town of Cornish PO Box 181 Cornish Flat, NH 03746	No Permit	Cornish	W-to-E, Claremont	Yes	Claremont TS is available to Cornish residents. Recycling only. Recyclables go to Keene.
Croydon Off Rt. 10 Croydon, NH	Town of Croydon HCR 63 Box 9 Croydon, NH 03773	DES-SW-PN-02-003	Croydon	W-to-E, Claremont	Yes	Local mandatory recycling ordinance.
Dalton Whitefield-Dalton Rd. Route 142 Dalton, NH	Town of Dalton RFD 2, Box 143 Dalton, NH 03598	DES-SW-LP-97-503	Dalton	NCES LF, Bethlehem	No	Pay-As-You-Throw dropoff program.
Danbury North Rd. Danbury, NH	Town of Danbury High Street Box 4A Danbury, NH 03230	DPHS-SW-85-002	Danbury	Various Markets	Yes	Local mandatory recycling ordinance.
Deerfield Brown Road Deerfield, NH	Town of Deerfield PO Box 159 Deerfield, NH 03037	DES-SW-LP-94-500	Deerfield	W-to-E, Concord	Yes	
Derry Transfer Station Rd. Fordway Derry, NH	Town of Derry 40 Fordway Derry, NH 03038	DES-SW-90-005	Derry	MERC, ME	No	Local mandatory recycling ordinance.

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Dover Mast Road Dover, NH	City of Dover 288 Central Ave. Dover, NH 03820	DES-SW-PN-02-002	Dover	Turnkey LF, Rochester	No	Pay-as-you-throw curbside program.
Dublin Cobb Meadow Rd. Bonds Corner Rd. Dublin, NH	Town of Dublin PO Box 277 Dublin, NH 03444	DES-SW-TP-95-015	Dublin	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Dunbarton Route 77 Dunbarton, NH	Town of Dunbarton 1011 School Street Dunbarton, NH 03045	DES-SW-TP-91-002	Dunbarton	W-to-E, Concord	Yes	
Durham Durham Point Rd. Durham, NH	Town of Durham Public Works Department 100 Stone Quarry Drive Durham, NH 03824	DES-SW-90-008	Durham	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
East Kingston 7 Main Street East Kingston, NH	Town of East Kingston 24 Depot Road East Kingston, NH 03827	No Permit	East Kingston	Waste Management, Inc.	No	Collects commingled containers and cardboard.
Effingham Snow Road Center Effingham, NH	Town of Effingham PO Box 25 So. Effingham, NH 03882	DES-SW-LP-93-509	Effingham	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Enfield East Hill Rd. Enfield, NH	Town of Enfield P.O. Box 373 Enfield, NH 03748	DES-SW-PN-00-009	Enfield	Lebanon LF	Yes	
Epping Old Hedding Rd. Epping, NH	Town of Epping 157 Main St. Epping, NH 03042	Pre-1983	Epping	Turnkey LF, Rochester	Yes	Town Annual Facility Report indicates some residents from Newfields bring recyclables to this site.
Epping 270 Exeter Road Epping, NH 03042	ERRCO PO Box L Epping, NH 03042	DES-SW-SP-92-003	Spot Market		No	Processes C&D.
Epsom 78 White Birch Road Epsom, NH	Ponderosa Salvage 78 White Birch Road PO Box 520 Epsom, NH 03234	DES-SW-SP-01-001	Spot Market		No	
Errol Colebrook Road Errol, NH	Town of Errol PO Box 100 Errol, NH 03579	DES-SW-LP-92-505	Errol	Mt Carberry LF, Success	Yes	
Exeter Cross Road Exeter, NH	Town of Exeter 10 Front Street Exeter, NH 03833	DES-SW-LP-93-506	Exeter	Turnkey LF, Rochester	Yes	Pay-as-you-throw curbside program.
Farmington Watson Corner Road Farmington, NH	Town of Farmington 39 North Main Street Farmington, NH 03835	DES-SW-90-040	Farmington	Farmington LF	Yes	Pay-as-you-throw drop off program.
Fitzwilliam Route 12 Fitzwilliam, NH	Town of Fitzwilliam P.O. Box 725 Fitzwilliam, NH 03447	DES-SW-PN-00-003	Fitzwilliam	Waste Management TS, Peterborough	Yes	Waste picked up by Monadock and delivered to spot market. Local mandatory recycling ordinance.
Francestown Todd Rd. Francestown, NH	Town of Francestown PO Box 5 Francestown, NH 03043	Pre-1983	Francestown	Waste Management, Inc.	Yes	Local mandatory recycling ordinance.
Franconia Route 116 Franconia, NH	Town of Franconia PO Box 900 Franconia, NH 03580	DES-SW-PN-99-002	Easton Franconia Sugar Hill	NCES LF, Bethlehem	Yes	Pay-as-you-throw drop off program.
Franklin Punch Brook Rd. Franklin, NH	City of Franklin Municipal Services 43 West Bow Street Franklin, NH 03235	DPHS-SW-84-002	Franklin	W-to-E, Concord	No	Adjacent to ash LF for Concord W-to-E facility.

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Freedom Bennett Road Freedon, NH	Town of Freedom PO Box 227 Freedom, NH 03836	DES-SW-LP-94-502	Freedom	MERC, ME	Yes	Local mandatory recycling ordinance.
Gilford 150 Kimball Road Gilford, NH	Town of Gilford Dept. of Public Works 55 Cherry Valley Road Gilford, NH 03246	Pre-1983	Gilford	W-to-E, Concord	Yes	Recycling only. No collection of MSW. Inactive C&D landfill located behind recycling facility.
Gilmantoo Route 107 Gilmonton, NH	Town of Gilmanton PO Box 550 Gilmanton, NH 03837	DES-SW-PN-00-011	Gilmanton	W-to-E, Concord	Yes	
Gilsum Off Dump Rd./Surry Rd. Gilsum, NH	Town of Gilsum P.O. Box 67 Gilsum, NH 03448	Pre-1983	Gilsum	Waste Management, Inc.	Yes	Local mandatory recycling ordinance. Pay-as-you-throw drop off program.
Goffstown 404 Elm Street Goffstown, NH	Town of Goffstown Department of Public Works 51 Depot Street Goffstown, NH 03045	DES-SW-LP-93-502	Goffstown	MERC, ME	Yes	Local mandatory recycling ordinance. Automated curbside collection of recyclables.
Gorham 24 Lower Main Street Gorham, NH	Town of Gorham Department of Public Works 24 Lower Main Street Gorham, NH 03581	DES-SW-PN-98-002	Gorham	Mt. Carberry LF, Berlin, (Success)	No	Recycling center located at public works garage. Local mandatory recycling ordinance.
Goshen Brook Rd. Goshen, NH	Town of Goshen P.O. Box 752 Goshen, NH 03752	DES-SW-PN-99-004	Goshen	W-to-E, Claremont	Yes	
Grafton Public Works Road Grafton, NH	Town of Grafton Town Hall Grafton, NH 03240	DES-SW-TP-97-015	Grafton	Lebanon LF	Yes	Local mandatory recycling ordinance.
Grantham Springfield Rd. Grantham, NH	Town of Grantham P.O. Box 276 Grantham, NH 03753	DES-SW-PN-01-007	Grantham	W-to-E, Claremont	Yes	
Greenfield Off Route 31 Bennington Rd. Greenfield, NH	Town of Greenfield P.O. Box 256 Greenfield, NH 03047	DES-SW-PN-00-010	Greenfield	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Greenland Off Cemetery Lane Greenland, NH	Town of Greenland 575 Portsmouth Ave. Greenland, NH 03840	Pre-1983	Greenland	MERC, ME	Yes	
Groton North Groton Rd. Groton, NH	Town of Groton HC 58 Box 580-3 Groton, NH 03241	DES-SW-LP-92-509	Groton	W-to-E, Concord	Yes	Recycles scrap metal, car batteries, and aluminum cans.
Hampton Tide Mill Road Hancock, NH	Town of Hampton 136 Winnacunnet Road Hampton, NH 03842	DES-SW-SP-94-003	Hampton	Turnkey LF, Rochester	Yes	
Hancock Route 137 Bennington Rd. Hancock, NH	Town of Hancock School Street P.O. Box 6 Hancock, NH 03449	DES-SW-90-021	Hancock	Waste Management TS, Peterborough	Yes	Local mandatory recycling ordinance.
Harrisville Willard Hill Road Harrisville, NH	Town of Harrisville PO Box 34 Harrisville, NH 03450	DES-SW-LP-91-001	Harrisville	Waste Management TS, Peterborough	Yes	Local mandatory recycling ordinance.
Henniker 61 Weare Road Henniker, NH	Town of Henniker 2 Depot Hill Rd. Henniker, NH 03242	DES-SW-89-022	Henniker	W-to-E, Concord	Yes	

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Hill Rt. 3A North of Village Hill, NH	Town of Hill PO Box 236 Hill, Nh 03243	Pre-1983	Hill	W-to-E, Concord	No	
Hillsborough Dump Rd. Off Main St. Hillsborough, NH	Town of Hillsborough 29 School St. P.O. Box 7 Hillsborough, NH 03244	DES-SW-88-033	Deering Hillsborough Windsor	W-to-E, Concord	Yes	
Hinsdale Dump Road Hinsdale, NH	Town of Hinsdale PO Box 13 Hinsdale, NH 03451	DES-SW-PN-01-004	Hinsdale	Hinsdale LF	Yes	Pay-as-you-throw drop off and curbside program
Holderness Tada Dump Rd. Holderness, NH	Town of Holderness P.O. Box 203 Holderness, NH 03244	Pre-1983	Holderness	Waste Management, Inc.	Yes	Local mandatory recycling ordinance
Hollis Rocky Pond Rd. Hollis, NH	Town of Hollis P.O. Box 509 7 Monument Square Hollis, NH 03049	Pre-1983	Hollis	W-to-E, Concord	Yes	
Hooksett 34 Industrial Park Drive Hooksett, NH	BFI Waste Systems 757 N. Eldridge Houston, TX 77079	DES-SW-90-023	Spot Market		No	Privately owned recycling center.
Hooksett 210 West River Rd. Hooksett, NH	Town of Hooksett 16 Main St. Hooksett, NH 03106	DPHS-SW-85-013	Hooksett	W-to-E, Concord	Yes	
Hopkinton 491 E. Penacook Road Hopkinton, NH	Town of Hopkinton 330 Main Street	DES-SW-89-001	Hopkinton Webster	W-to-E, Concord	Yes	
Jackson Route 16 Bartlett, NH	Town of Jackson PO Box 268 Jackson Falls Center, NH 03846	DES-SW-89-002	Jackson	NCES LF, Bethlehem	No	Operates on same site as Town of Bartlett. Each town has its own compactor. Local mandatory recycling ordinance.
Jaffrey Old Sharon Rd. Jaffrey, NH	Town of Jaffrey 69 Main St. Jaffrey, NH 03452	DES-SW-LP-92-003	Jaffrey	Various Markets	Yes	Local mandatory recycling ordinance.
Jefferson Rt. 116 & Rt. 2 Jefferson, NH	Town of Jefferson PO Box 81 Jefferson, NH 03583	DES-SW-TP-91-003	Jefferson	Mt. Carberry LF, Success	Yes	Local mandatory recycling ordinance.
Keene 55 Summit Road Keene, NH	City of Keene Department of Public Works Solid Waste Division 580 Main Street Keene, NH 03431	DES-SW-SP-92-002	Cheshire County	W-to-E, Claremont Turnkey LF, Rochester Chicopee,MA	Yes	Local mandatory recycling ordinance.
Kingston Route 125 Kingston, NH	Town of Kingston 168 Main Street Kingston, NH 03848	No Permit	Kingston	Kingston LF	No	
Laconia Meredith Center Rd. Laconia, NH	City of Laconia 45 Beacon St. East Laconia, NH 03246	DES-SW-TP-95-040	Gilford Laconia	W-to-E, Concord	Yes	Former incinerator site. Operated by Waste Management, Inc.
Lancaster Water St. Lancaster, NH	Town of Lancaster 25 Main St. P.O. Box 151 Lancaster, NH 03584-0151	DES-SW-TP-96-027	Lancaster	Mt. Carberry LF, Success	Yes	Local mandatory recycling ordinance. Pay-as-you-throw drop off program.

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Langdon Off 12A Langdon, NH	Town of Langdon RR1 Box 158A Alstead, NH 03602	DES-SW-TP-96-031	Langdon	W-to-E, Claremont	No	
Lebanon Route 12A West Lebanon, NH	Janci Metals Recycling, Inc P.O. Box 5117 West Lebanon, NH 03784	DES-SW-91-007	Spot Market		No	Privately owned facility located next to City of Lebanon solid waste facility.
Lebanon Route 12A West Lebanon, NH	City of Lebanon PO Box 1207 Lebanon, NH 03766	No Permit	Lebanon	Lebanon LF	Yes	Local mandatory recycling ordinance. Pay-as-you-throw drop off program. Receives recyclables from Canaan and Orange.
Lee 111 Recycling Drive Lee, NH	Town of Lee 7 Mast Rd Lee, NH 03824	DES-SW-PN-00-006	Lee	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Lempster Lovejoy Rd. Lempster, NH	Town of Lempster P.O. Box 33 Lempster, NH 03605	DES-SW-PN-02-006	Lempster	W-to-E, Claremont	Yes	
Lincoln Main Street Lincoln, NH	Lincoln-Woodstock SW Board PO Box 25 Lincoln, NH 03251	DES-SW-PN-99-003	Lincoln Woodstock	Waste Management, Inc.	Yes	Ash landfill located on site. Local mandatory recycling ordinance.
Lisbon Ecology drive Lisbon, NH	Town of Lisbon 46 School Street Lisbon, NH 03585	DES-SW-PN-00-007	Lisbon Lyman Landaff	NCES LF, Bethlehem	Yes	Local mandatory recycling ordinance. Pay-as-you-throw drop off program.
Litchfield Incinerator Road Litchfield, NH	Town of Litchfield 255 Charles Bancroft Hwy Litchfield, NH 03052	No Permit	Litchfield	Litchfield Incinerator	Yes	Local mandatory recycling ordinance.
Littleton 1213 Mt Eustis Road Littleton, NH	Town of Littleton 2 Union Street Littleton, NH 03561	DES-SW-LP-92-502	Littleton	NCES LF, Bethlehem	No	Local mandatory recycling ordinance. Pay-as-you-throw drop off program.
Londonderry 160 Rockingham Rd. Londonderry, NH	Spartan Consolidated, Inc. 117 Londonderry Turnpike Hooksett, NH 03106	DES-SW-88-005	Spot Market	Primarily Turnkey LF	No	Privately owned transfer station and recycling facility.
Londonderry Dan Hill Road Londonderry, NH	Town of Londonderry 50 Nashua Road, Suite 100 Londonderry, NH 03053	DES-SW-TP-93-001	Londonderry	Turnkey LF, Rochester	No	
Loudon Dump Road Loudon, NH	Town of Loudon P.O. Box 7837 Loudon, NH 03301	DES-SW-89-019	Loudon	W-to-E, Concord	Yes	
Lyme Town Highway Garage High St. Lyme, NH	Town of Lyme PO Box 125 Lyme, NH 03768	No Permit	Lyme	Lebanon LF	No	Facility operates on Sunday mornings only. Transfer vehicles for MSW and recyclables are loaded and materials are removed the same day.
Madison Boulder Rd. Madison, NH	Town of Madison P.O. Box 248 Madison, NH 03849	DES-SW-TP-97-028	Madison	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Manchester 18 Chagnon Street Manchester, NH	B. Rovner & Company, Inc. 18 Chagnon Street Manchester, NH 03102	DES-SW-LP-97-001	Spot Market		No	Privately owned facility that collects scrap metal.
Manchester 500 Dunbarton Road Manchester, NH	City of Manchester 227 Maple St. Manchester, NH	DES-SW-LP-96-505	Manchester	Auburn TS	No	Manchester resident MSW drop-off facility.
Manchester 87 Union Street Manchester, NH	Manchester Recycling Corp. PO Box 4387 Manchester, NH 03108	DES-SW-90-004	Spot Market		No	Privately owned recycling facility.

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Manchester 399 Willow Street Manchester, NH	Max Cohen & Sons, Inc Advanced Recycling 25 Sandquist St Concord, NH	DES-SW-LP-93-501	Spot Market		No	Privately owned facility that collects scrap metal.
Marlborough Rte 12 Troy Road Marlborough, NH	Pinetree Recycling Corp PO Box 402 Keene, NH 03431	DES-SW-TP-94-040	Spot Market		No	Privately owned recycling facility.
Marlborough 114 Roxbury Road Marlborough, NH	Town of Marlborough PO Box 487 Marlborough, NH 03455	DES-SW-LP-93-507	Marlborough Roxbury	Hinsdale LF	Yes	Local mandatory recycling ordinance. Recyclables go to Keene.
Marlow Route 10 N. Marlow, NH	Town of Marlow PO Box 184 Marlow, NH 03456	DES-SW-LP-92-002	Marlow	Keene TS	No	Local mandatory recycling ordinance. Recyclables go to Keene.
Meredith Jenness Hill Rd. Meredith, NH	Town of Meredith 41 Main Street Meredith, NH 03253	DES-SW-87-040	Center Harbor Meredith	W-to-E, Claremont	Yes	Local mandatory recycling ordinance.
Merrimack Lawrence Road Merrimack, NH	Town of Merrimack PO Box 940 Merrimack, NH 03054	DES-SW-90-015	Merrimack	Merrimack LF	Yes	
Milford 120 North River Rd. Milford, NH (Recycling Center adjacent)	Town of Milford 1 Union Square Milford, NH 03055	DES-SW-90-032	Milford	MERC, ME	Yes	Commingled recyclables are received at Recycling Center adj acentto TS. Local mandatory recycling ordinance.
Milton White Mountain Hwy Rte 125 Milton, NH	Town of Milton PO Box 310 Milton, NH 03851	DES-SW-LP-94-506	Milton	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Mont Vernon Weston Hill Rd. Mont Vernon, NH	Town of Mont Vernon PO Box 444 Mont Vernon, NH 03057	Pre-1983	Mont Vernon	W-to-E, Concord	Yes	
Moultonborough Route 109 Holland Street Moultonborough, NH	Town of Moultonborough P.O. Box 139 Moultonborough, NH 03254	DES-SW-LP-92-001	Moultonborough	Waste Management, Inc.	Yes	Local mandatory recycling ordinance. Landfill was reclaimed in 2009.
Nashua 840 West Hollis Street Nashua, NH	City of Nashua Solid Waste Department 840 West Hollis Road Nashua, NH 03062	DES-SW-TP-92-002	Nashua	Nashua LF	Yes	
New Boston 412 Old Coach Rd. Boston, NH	Town of New Boston PO Box 250 New Boston, NH 03070	DES-SW-87-029	New Boston	W-to-E, Concord	Yes	Local mandatory recycling ordinance.
New Durham Old Route 11 New Durham, NH	Town of New Durham P.O. Box 207 New Durham, NH 03855	DES-SW-89-010	New Durham	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
New Hampton Route 132 New Hampton, NH	Town of New Hampton 6 Pinnacle Hill Road New Hampton, NH 03256	DES-SW-91-014	New Hampton	NCES LF, Bethlehem	No	
New Ipswich 1381 Turnpike Road New Ipswich, NH	Town of New Ipswich PO Box 258 New Ipswich, NH 03071	DES-SW-TP-95-035	New Ipswich	New Ipswich LF	Yes	
New London Newport Rd. New London, NH	Town of New London P.O. Box 240 New London, NH 03257	DES-SW-87-014	New London	W-to-E, Claremont	No	

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Newbury Post Rd. Newbury, NH	Town of Newbury P.O. Box 296 Newbury, NH 03255	Pre-1983	Newbury	Lebanon LF	Yes	
Newington 14 Patterson Lane Newington, NH	Blue Fin Technologies, Inc 55 Green St. Newington, NH 03801	DES-SW-LP-97-505	Spot Market		No	Recycle computers and electronic equipment.
Newington Little Bay Rd. Newington, NH	Town of Newington 205 Nimble Hill Rd. Newington, NH 03801	Pre-1983	Newington	Turnkey LF, Rochester	Yes	
Newmarket Ash Swamp Road Newmarket, NH	Town of Newmarket 186 Main Street Newmarket, NH 03857	No Permit	Newmarket	Turnkey LF, Rochester	No	Pay-as-you-throw curbside program.
Newport 264 John Stark Highway Newport, NH	Casella Waste Management 25 Greens Hill Lane PO Box 866 Rutland, VT 05701	DES-SW-LP-93-508	Spot Market		No	Privately owned facility.
Newton Dugway Rd. Newton, NH	Town of Newton PO Box 378 Newton, NH 03858	DES-SW-90-012	Newton	Via Spartan, Londonderry to various markets	Yes	
North Hampton Cherry Rd. North Hampton, NH	Town of North Hampton Atlantic Ave. P.O. Box 710 North Hampton, NH 03862	DPHS-SW-84-003	North Hampton		No	Site is for transfer of recyclables only. Town has direct pick up and haul of MSW to disposal facilities.
Northfield 33 Sargent Street Northfield, NH	Town of Northfield 21 Summer St. Northfield, NH 03276	DES-SW-89-024	Northfield	W-to-E, Concord	No	Site receives bulky waste, C&D, and recyclables only. Town has curbside pickup and haul of MSW to W-to-E, Concord.
Northumberland Brown Rd. Groveton, NH	Town of Northumberland 2 State Street Groveton, NH 03582	DES-SW-90-029	Northumberland	Mt. Carberry LF, Success	No	Glass is landfilled at old MSW landfill located down the road from the transfer station. Local mandatory recycling ordinance.
Northwood Route 4 (Old Dump Rd.) Northwood, NH	Town of Northwood P O Box 818 Northwood, NH 03261	DES-SW-PN-01-005	Northwood	Turnkey LF, Rochester	Yes	
Northwood 42 Harding Drive Northwood, NH 03261	Harding Metals, Inc 42 Harding Drive Northwood, NH 03261	DES-SW-TP-92-024	Spot Market			Local mandatory recycling ordinance.
Nottingham Freeman Hall Road Nottingham, NH	Town of Nottingham PO Box 114 Nottingham, NH 03290	DES-SW-PN-01-003	Nottingham	Atlantic North (Casella)	Yes	Unlined LF is still operating and receiving C&D>
Orford Townshed Road Orford, NH	Town of Orford PO Box F Orford, NH 03777	No Permit	Orford	NCES LF, Bethlehem	Yes	Pay-as-you-throw drop off program.
Ossipee Chickville Road Ossipee, NH	Town of Ossipee PO Box 67 Ctr. Ossipee, NH 03814	No Permit	Ossipee	Ossipee Incinerator	Yes	Closed landfill on site.
Pelham Rte 111A Windham Road Pelham, NH	Town of Pelham 60 Old Bridge Road No Pelham, NH 03076	DES-SW-PN-00-008	Pelham	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Pembroke 8 Exchange St Pembroke, NH	Town of Pembroke 311 Pembroke St Pembroke, NH 03275	Pre-1983	Pembroke	W-to-E, Concord	Yes	
Peterborough Sanitation Lane Off Scott Mitchell Rd Peterborough, NH	Town of Peterborough 1 Grove St Peterborough, NH 03458	DES-SW-TP-96-022	Peterborough Sharon	Waste Management, Inc. TS, Peterborough Disposed at various markets	Yes	Local mandatory recycling ordinance. Recycling only.
Peterborough Route 202 N Peterborough, NH	Waste Management of NH 26 Liberty Dr. P.O. Box 1187 Londonderry, NH 03053	DES-SW-LP-96-002	Spot Market	Various markets	No	Privately owned facility
Piermont Bedford Rd Piermont, NH	Town of Piermont PO Box 67 Piermont, NH 03779	DES-SW-LP-95-502	Piermont	W-to-E, Concord	Yes	Recyclables go to Littleton and Recycling Services.
Pittsburg Back Lake Rd Pittsburg, NH	Town of Pittsburg P.O. Box 308 Pittsburg, NH 03592	DES-SW-91-012	Pittsburg Clarksville	Mt. Carberry LF, Success	Yes	Local mandatory recycling ordinance.
Pittsfield Rte. 107 Pittsfield, NH	B.C.E.P. Solid Waste District P.O. Box 426 Pittsfield, NH 03263	DES-SW-89-016	Barnstead Chichester Epsom Pittsfield	Various Markets	Yes	Local mandatory recycling ordinance.
Plainfield Stage Rd Plainfield, NH	Town of Plainfield HC 64 Box 16 A Meriden, NH 03770	DES-SW-90-001	Plainfield	W-to-E, Claremont	No	Pay-as-you-throw curbside program. Facility receives recyclables only.
Plaistow Old County Rd Plaistow, NH	Town of Plaistow 145 Main St Plaistow, NH 03865	No Permit	Plaistow	Spot Market	Yes	Recycling Center is run by volunteers Only open 2 Saturdays per month.
Plymouth Beech Hill Plymouth, NH	Town of Plymouth Office of Selectmen 6 Post Office Square Plymouth, NH 03264	DES-SW-LP-97-502	Plymouth	NCES LF, Bethlehem	Yes	Incinerator closed October, 1997. Uses pre-crusher to process bulky items before going into compactor. Local mandatory recyclingordinance.
Portsmouth 680 Peverly Hill Road Portsmouth, NH	City of Portsmouth 680 Peverly Hill Road Portsmouth, NH 03801	DES-SW-PN-99-008	Portsmouth	Waste Management, Inc.	No	Recycling center only.
Raymond Prescott Road Raymond, NH	Town of Raymond 4 Epping Street Raymond, NH 03077	No Permit	Raymond	Turnkey LF, Rochester	yes	Recycling center only.
Rindge Main St Rindge, NH	Town of Rindge PO Box 117 Rindge, NH 03461	DES-SW-91-005	Rindge	Hinsdale LF	No	Local mandatory recycling ordinance.
Rochester 155 Turnkey Way Rochester, NH	Waste Management of NH PO Box 7065 Gonic, NH 03839	DES-SW-90-030	Spot Market		Yes	Material Recovery Facility (MRF)
Rochester 10 Wallace Street Rochester, NH	Max Cohen & Sons, Inc. Advanced Recycling 25 Sandquist St Concord, NH	DES-SW-TP-92-004	Spot Market		No	Receives scrap metal. Privately owned recycling facility.
Rollinsford Jessie Doe Road Rollinsford, NH	Town of Rollinsford P.O. Box 309 Rollinsford, NH 03869	DES-SW-LP-92-507	Rollinsford	Turnkey LF, Rochester	No	Local mandatory recycling ordinance.
Rumney Buffalo Rd Rumney, NH	Town of Rumney PO Box 220 Rumney, NH 03266	DES-SW-TP-94-022	Dorchester Rumney	NCES LF, Bethlehem	Yes	Local mandatory recycling ordinance.

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Rye 309 Grove Rd. Rye, NH	Town of Rye 10 Central Rd. Rye, NH 03879	DPHS-SW-85-010	Rye	Turnkey LF, Rochester	No	Local mandatory recycling ordinance.
Salem Shiloam Rd. Salem, NH	Town of Salem 33 Geremonty Dr. Salem, NH 03079	DES-SW-LP-95-002	Salem	W-to-E, Haverhill, MA	Yes	Users pay a permit fee to take waste to facility. Local mandatory recycling ordinance.
Salem 87 Lowell Road Salem, NH	Lowell Road Wood Processing 87 Lowell road Salem, NH 03079	DES-SW-SP-94-002	Spot Market		No	Processor of construction and demolition debris.
Salisbury Warner Rd. Salisbury, NH	Town of Salisbury PO Box 214 Salisbury, NH 03268	DES-SW-89-030	Salisbury	W-to-E, Concord	Yes	
Sanbornton 184 Shaw Hill Road Sanbornton, NH	Town of Sanbornton PO Box 124 Sanbornton, NH 03269	DES-SW-LP-94-503	Sanbornton	NCES LF, Bethlehem	Yes	Pay-as-you-throw drop off program. Local mandatory recycling ordinance.
Sandown Depot Rd. Sandown, NH	Town of Sandown 320 Main St. Sandown, NH 03873	DES-SW-90-003	Sandown	Turnkey LF, Rochester	Yes	
Sandwich Route 113 Sandwich, NH	Town of Sandwich PO Box 194 Center Sandwich, NH 03227	DES-SW-TP-94-046	Sandwich	MERC, ME	Yes	Local mandatory recycling ordinance.
Seabrook 70 Rocks Road Seabrook, NH	Town of Seabrook P.O. Box 456 Seabrook, NH 03874	DES-SW-87-012	Seabrook	W-to-E, Haverhill, MA	Yes	Local mandatory recycling ordinance.
Shelburne 11 Landfill Drive Shelburne, NH	Town of Shelburne 74 Village Road Shelburne, NH 03581	DES-SW-LP-94-501	Shelburne	Mt Carberry LF, Success	Yes	Local mandatory recycling ordinance. Adopted Pay-As-You-Throw program in 2001.
Stark North Rd. Stark, NH	Town of Stark 1189 Stark Highway Stark, NH	DES-SW-91-004	Stark	Mt. Carberry LF, Success	Yes	Local mandatory recycling ordinance.
Stewartstown Route 3 and Back Pond Rd. West Stewartstown, NH	Coos County P.O. Box 10 West Stewartstown, NH 03597	DES-SW-90-025	Columbia Stewartstown Lemington, VT Norton, VT	Mt. Carberry LF, Success	No	Operated by Coos County.
Stewartstown Route 3 West Stewartstown, NH	Coos County P.O. Box 10 West Stewartstown, NH 03597	DES-SW-LP-92-500	Clarksville Colebrook Columbia Pittsburg Stewartstown Canaan, VT Lemington, VT Norton, VT		No	Owned and operated by Coos County. Recycling Center only.
Stoddard Route 123 Stoddard, NH	Town of Stoddard Box 216 Stoddard, NH 03464	Pre-1983	Stoddard	Keene TS	No	Users are required to have a permit. Local mandatory recycling ordinance. WMI operates facility.
Strafford Ricky Nelson Rd. Strafford, NH	Town of Strafford Box 23 Center Strafford, NH 03815	DES-SW-PN-02-004	Strafford	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Stratford Route 3 Stratford, NH	Town of Stratford PO Box 366 N. Stratford, NH 03590	DES-SW-PN-99-001	Stratford	Mt. Carberry LF Berlin, (Success)	No	Local mandatory recycling ordinance.

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site	Comments
Stratham Union Road Stratham, NH	Town of Stratham 10 Bunker Hill Ave. Stratham, NH 03885	DES-SW-LP-95-509	Stratham	Turnkey LF, Rochester	No	
Sunapee Avery Rd. Sunapee, NH	Town of Sunapee Route 103 B/P.O. Box 717 Sunapee, NH 03782	DES-SW-TP-93-018	Springfield Sunapee	W-to-E, Claremont	Yes	Annual Report from Town reports bulky and C&D to NCES LF, Bethlehem. Local mandatory recycling ordinance.
Sutton Rte 114 Sutton, NH	Town of Sutton PO Box 85 No. Sutton, NH 03260	DES-SW-PN-01-006	Sutton	Lebanon LF	Yes	Local mandatory recycling ordinance.
Swanzey 97 Pine Street West Swanzey, NH	Town of Swanzey P.O. Box 9 East Swanzey, NH 03446	Pre-1983	Swanzey	Various Markets	Yes	Local mandatory recycling ordinance.
Tamworth Route 25 Tamworth, NH	Town of Tamworth PO Box 359 Tamworth, NH 03886	DES-SW-PN-99-007	Tamworth	Waste Management, Inc	No	Built new transfer station in 2000.
Thornton Rte 175 Thornton, NH	Town of Thornton PO Box 1438 Thornton, NH 03223	DES-SW-LP-94-505	Campton Ellsworth Thornton	NCES LF, Bethlehem	Yes	Local mandatory recycling ordinance.
Tilton Rte. 3 Tilton, NH	Town of Tilton 145 Main St. Tilton, NH 03276	DES-SW-PN-01-009	Tilton	W-to-E, Concord	Yes	Volunteer operated recycling center. Curbside pickup of trash.
Troy 60 Quarry Road Troy, NH	Town of Troy PO Box 249 Troy, NH 03465	DES-SW-PN-99-005	Troy	Troy LF	Yes	Local mandatory recycling ordinance.
Tuftonboro 250 Mountain Road Tuftonboro, NH	Town of Tuftonboro PO Box 98 Center Tuftonboro, NH 03816	DES-SW-LP-95-505	Tuftonboro	Waste Management, Inc.	Yes	
Unity Mica Mine Road Unity, NH	Town of Unity HCR 66 Box 176 Newport, NH 03773	DES-SW-LP-96-509	Unity	Unity LF	Yes	
Wakefield 330 Rines Road Wakefield, NH	Town of Wakefield 2 High Street Wakefield, NH 03872	DES-SW-PN-99-006	Brookfield Wakefield	Casella	Yes	Town has built a new transferstation and has stopped landfilling as of November, 2000.
Walpole Rte 123 Walpole, NH	Town of Walpole PO Box 729 Walpole, NH 03608	DES-SW-LP-92-501	Walpole	Brattleboro Salvage	Yes	Pay-as-you-throw drop off program. Local mandatory recycling ordinance.
Warner Route 103 Warner, NH	Town of Warner PO Box 265 Warner, NH 03238	DES-SW-89-021	Warner	W-to-E, Concord	No	Local mandatory recycling ordinance.
Warren Pine Hill Rd. Warren, NH	Town of Warren Main St. P.O. Box 66 Warren, NH 03279	DES-SW-TP-95-038	Warren	W-to-E, Concord	Yes	Pay-as-you-throw drop off program. Local mandatory recycling ordinance.
Washington 101 South Main Street Washington, NH	Town of Washington PO Box 473 Washington, NH 03280	DES-SW-LP-96-508	Washington	W-to-E, Claremont	Yes	C&D to ERRCO. Local mandatory recycling ordinance.
Waterville Valley 6 Tripoli Road Waterville Valley, NH	Town of Waterville Valley 2 Tripoli Road Waterville Valley, NH 03215	DES-SW-PN-00-002	Waterville Valley	NCES LF, Bethlehem		Town has packer truck to collect waste from dumpsters.
Weare Merrill Rd. Weare, NH	Town of Weare PO Box 190 Weare, NH 03281	DES-SW-89-015	Weare	W-to-E, Concord	Yes	Local mandatory recycling ordinance.

Transfer Station Location	Owner/ Operator	Permit Number	Service Area	MSW Disposal Facility	Former Landfill Site?	Comments
Wentworth Turner Rd. Wentworth, NH	Town of Wentworth PO Box 2 Wentworth, NH 03282	Pre-1983	Wentworth	NCES LF, Bethlehem	Yes	
Westmoreland Dump Rd. 403 London Rd. Westmoreland, NH	Town of Westmoreland P.O. Box 55 Westmoreland, NH 03467	DES-SW-PN-01-010	Westmoreland	Keene TS	Yes	Local mandatory recycling ordinance.
Westmoreland 712 Glebe Road Westmoreland, NH	Waste Management Inc. 26 Liberty Drive Londonderry, NH 03053	DES-SW-LP-95-001	Spot Market		No	Did not operate in 1999.
Whitefield Hazen Road Whitefield, NH	Town of Whitefield 7 Jefferson Road Whitefield, NH 03598	DES-SW-LP-93-503	Whitefield	Mt Carberry LF, Success	Yes	Pay-as-you-throw drop off program. Local mandatory recycling ordinance.
Wilmot Route 11 Wilmot, NH	Town of Wilmot PO Box 72 Wilmot, NH 03267	DPHS-SW-84-007	Wilmot	W-to-E, Concord	Yes	Local mandatory recycling ordinance.
Wilton 291 Gibbons HWY Wilton, NH	Town of Wilton PO Box 83 Wilton, NH 03086	DES-SW-TP-96-032	Greenfield Greenville Lyndeborough Mason Temple Wilton	Wilton Incinerator	Yes	Local mandatory recycling ordinance.
Winchester Forest Lake Road Winchester, NH	Town of Winchester PO Box 25 Winchester, NH 03470	DES-SW-LP-96-507	Richmond Winchester	Turnkey LF, Rochester	Yes	Local mandatory recycling ordinance.
Windham Ledge Rd. Windham, NH	Town of Windham PO Box 120 Windham, NH 03087	DES-SW-90-019	Windham	W-to-E, Concord	No	Local mandatory recycling ordinance.
Wolfeboro Beech Pond Road Wolfeboro, NH	Town of Wolfeboro PO Box 629 Wolfeboro, NH 03894	DES-SW-LP-96-504	Wolfeboro	MERC, ME	Yes	Local mandatory recycling ordinance.

STATE OF NEW HAMPSHIRE
INFECTIOUS WASTE INCINERATORS OPERATING IN 2001

August 2002

Location/ Facility Name & Address	Owner/ Permit #	Total Tons/yr Burned	Tons/yr Infectious Waste	Tons/yr Ash Generated	Ash Disposal	Comments
Berlin Androscoggin Valley Hospital 59 Page Hill Rd. Berlin, NH 03570	Androscoggin Valley Hospital DES-SW-89-029 PO-C-0370	15	15	1	Mt Carberry LF	Receives medical waste from other facilities.
Hanover Dartmouth Medical School 805 Vail Building Rt. 10 Hanover, NH 03755	Trustees of Dartmouth College DES-SW-90-031	24	24	1	Permitted Subtitle D LF	
Lancaster Weeks Memorial Hospital 173 Middle Street Lancaster,NH 03584	Weeks Memorial Hospital DES-SW-91-001 PO-C-0325	11	11	1	Town of Lancaster Solid Waste Transfer Station	

STATE OF NEW HAMPSHIRE
MSW INCINERATORS OPERATING IN 2001

November 2001

Incinerator Location/ Permit#	Owner/ Operator	Permitted Capacity	Facility Users	Total Tons Incinerated (from NH)	Secondary Site Activities	Ash Generated (tons)	Ash Disposal Site	Former Site Activities	Comments
Bridgewater Dick Brown Rd. Bridgewater, NH PO-C-281	Board of Selectmen Bridgewater Town Office 297 Mayhew Turnpike Bristol, NH 03222 (603) 744-5055	14 TPD	Bridgewater Hebron	259 133 Estimate	SM recycled Composting	40	On-site	Landfill	Ash is disposed of on site next to C&D lan
Candia New Boston Rd. Candia, NH PO-C-315	Town of Candia Board of Selectman 74 High Street Candia, NH 03034 (603) 483-8101	5 TPD	Candia	495 Estimate	Recycling Composting	119	NCES, Bethlehem	Landfill	
Claremont Grissom Ln. Claremont, NH (Waste-to-Energy) DPHS-SW-84-010 PO-C-362, 363	Wheelabrator Claremont Co., LP RFD 2 Box 298 Grissom Lane Claremont, NH (603) 542-8764	200 TPD	Acworth Claremont Cornish Croydon Goshen Grantham Langdon Lempster Meredith New London Newport Plainfield Springfield Sunapee NH Spot Market VT Spot Market Sp. Spot Marke VT District VT C&D NH C&D	292 13,256 488 327 345 1,162 234 504 2,266 2,943 4,497 924 64 1,719 16,919 518 6 22,563 518 931	Recycling (batteries, some metal)	16,164 6,750	NH/VT Solid Waste Project Ash LF, Newport, NH Shrewsbury, MA		Acworth amount includes Langdon. Meredith amount includes Center Harbor. Sunapee amount includes Springfield.
Concord 11 Whitney Rd. Penacook, NH (Waste-to-Energy) DPHS-SW-86-006 PO-C-374 PO-C-375	Wheelabrator Concord Co., L.P. 11 Whitney Road Penacook, NH 03303 (603) 753-8411	500 TPD	Allenstown Andover Belmont Boscawen Bow Bradford Bristol Canterbury Concord Deering Dunbarton Franklin Gilford Gilmanton Henniker Hill Hillsborough Hopkinton Laconia Loudon Northfield Pembroke Salisbury Tilton Warner Weare Webster NH Spot Market	3,058 1,267 6,228 2,399 5,932 907 3,339 771 47,112 481 1,060 6,840 6,860 1,168 2,818 526 4,020 3,505 18,614 3,395 2,601 4,231 586 4,926 1,810 3,331 792 42,452		67,015	Concord Regional Solid Waste/Resource Recovery Cooperative Ash LF, Franklin, NH		
Litchfield Incinerator Rd. Litchfield, NH PO-C-335	Town of Litchfield Board of Selectmen Two Liberty Way, Suite 1 Litchfield, NH 03052-2345 (603) 424-4046	11 TPD	Litchfield	780 Estimate	Recycling Composting	120	BFI-Fall River, MA	Landfill	

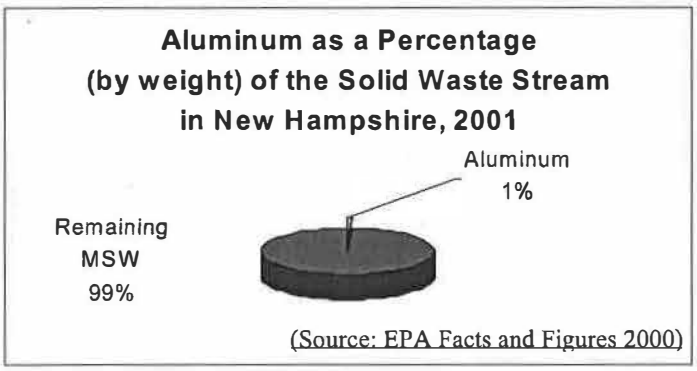
Incinerator Location/ Permit#	Owner/ Operator	Permitted Capacity	Facility Users	Total Tons Incinerated (from NH)	Secondary Site Activities	Ash Generated (tons)	Ash Disposal Site	Former Site Activities	Comments
Ossipee Chickville Rd. Ctr. Ossipee, NH DPHS-SW-85-011 PO-3-351	Town of Ossipee Board of Selectmen P.O. Box 67 Ctr. Ossipee, NH 03814 (603) 539-4181	6 TPD	Ossipee	1,081 Estimate	Recycling	147	Turnkey LF, Rochester	Landfill	Landfill closed in 1995.
Wilton Rte. 101 Wilton, NH PO-C-328	Town of Wilton Board of Selectmen 42 Main St. PO BOX 83 Wilton, NH 03086 (603) 654-9451	10 TPD	Greenfield Greenville Lyndeborough Mason Temple Wilton	454 649 422 389 357 973 Estimates	Recycling Composting	324	Turnkey LF, Rochester	Landfill	

STATE OF NEW HAMPSHIRE
MSW AND ASH LANDFILLS OPERATING IN 2001
August 2002

Landfill Location/ Permit #	Owner/Operator	Estimated Life Expectancy	Facility Users	MSW/Ash Landfilled (Tons)	Secondary Site Activities	Comments
Berlin Mt. Carberry LF Off Hutchins St. Success, NH DES-SW-88-029 (Secure, double-lined)	Mt Carberry Landfill, LLC 650 Main Street Berlin, NH 03570	20 years	Berlin/Ferco Colebrook Columbia Coos Dummer Errol Gorham Jefferson Lancaster Milan Mt. Washington Valley Northumberland Pittsburg Randolph Shelburne Stark Stewartstown Stratford Whitefield Maine Vermont Groveton Compay Waste Gorham Sludge Colebrook C&D	8,221 943 110 593 110 117 2,125 319 516 465 179 822 319 92 182 88 406 183 298 34 929 1,072 72,980 379 13	None	Company waste includes paper, sludge, dirt, grit, sawdust, asbestos, gravel, lime, paper and cardboard, and building debris. Mt. Carberry is allowed to receive 32,500 tons of MSW per year.
Bethlehem Trudeau Road Bethlehem, NH DES-SW-87-002 DES-SW-89-009 (Secure, double-lined)	North Country Environmental Services, Inc. 501 South Street, Box E Bow, NH 03304	4.5years	NH Spot Market Maine Massachusetts Vermont NH C&D NH Other Waste Maine C&D MA C&D MA Other VT C&D VT Other	96,983 9,970 7,064 3,388 28,875 50,848 1,416 5,186 849 1,259 258	Transfer Station Recycling (DES-SW-87-015)	Transfer Station/Recycling Center for Town of Bethlehem
Conway Lower Mt. Washington Valley Landfill E. Conway Road Conway, NH DES-SW-90-028 (Secure, double-lined)	Town of Conway P.O. Box 70 Center Conway, NH 03813	23 years	Albany Conway Eaton Albany C&D Conway C&D Eaton C&D	728 9,261 416 124 1,582 71	Recycling Composting	Residents bring wastes and recyclables to transfer station. Nonrecyclable waste is transferred to landfill which is located on a different site.
Farmington Watson Corner Road Farmington, NH DES-SW-TP-93-010	Town of Farmington Town Hall 39 North Main St. Farmington NH 03835	1 year	Farmington C&D Commercial/Industrial	3,000 Estimate 450 15	Recycling Brush burned Composting	
Franklin 73 Punch Brook Road Franklin, NH DPHS-SW-85-003	CRSW/RRC 6-B SOUTH MAIN STREET Penacook, NH 03303	8 years	W-to-E, Concord	65,369	None	Dedicated landfill for ash from W-to-E incinerator in Penacook, NH.
Kingston Rte. 125 Kingston, NH DES-SW-TP-97-037	Board of Selectmen Town of Kingston PO Box 716 Kingston, NH 03848	2 yrs.	Kingston Kensington Durham Phillips Exeter Academy Commercial/Industrial Other	2,561 657 579 296 34,987 9,383	Recycling Composting	"Other" refers mainly to NH area businesses and curbside collection.
Lebanon Rte. 12-A Lebanon, NH DES-SW-91-003 (Secure, double-lined)	City of Lebanon PO Box 1207 51 North Park St. Lebanon, NH 03766	6.2 years	Canaan Enfield Grafton Hanover Lebanon Orange Plainfield(C&D) Lyme Newbury Sutton Orford Vermont	1,720 2,639 499 6,398 19,773 60 4 817 868 71 577 15,326	Recycling Composting	

Landfill Location/ Permit #	Owner/Operator	Estimated Life Expectancy	Facility Users	MSW/Ash Landfilled (Tons)	Secondary Site Activities	Comments
Merrimack Rearon Rd. & Lawrence Rd. Merrimack, NH DES-SW-TP-94-013	Town of Merrimack Box 940 Merrimack, NH 03054	3 years	Merrimack C&D Commercial/Industrial	8,060 2,640 15,719	Recycling Tires separated Brush burned	
Nashua Route 111 840 W. Hollis St. Nashua, NH DES-SW-TP-96-012	Solid Waste Department 840 West Hollis Street Nashua, NH 03062	1 year	Residential Commercial/Industrial C&D Other	44,190 29,787 10,286 6,248	Recycling Composting	Double-lined landfill to be opened in 2001.
New Ipswich 1381 Turnpike Road New Ipswich, N.H. DES-SW-TP-95-034	Town of New Ipswich PO Box 258 Main St. New Ipswich, NH 03071	3 years	New Ipswich C&D Commercial/Industrial	500 Estimate 500 170	Recycling	
Rochester Rochester DES-SW-87-023 DES-SW-87-024 DES-SW-88-019 (Secure, double-lined)	Waste Management of NH P.O. Box 7065 Gonic, NH 03839	9 years	In State Out-of-State	571,080 530,842	Recycling (DES-SW-90-030)	
Unity North End Rd. Unity, NH DES-SW-TP-94-026	Town of Unity HCR 66, Box 176 Newport, NH 03773	1 year	Unity C&D	360 1,400 Estimate	Recycling Tires separated Brush burned	

Aluminum Cans



Weight and Volume --Aluminum is used to produce a variety of durable products such as automobiles and other modes of transportation, beverage cans and construction materials. The Governor's Recycling Program reported that New Hampshire municipalities recycled 835 tons of aluminum and 59 tons of mixed cans (includes both steel and aluminum cans) during that same time period. Over 96 percent of New Hampshire residents can recycle aluminum containers in curbside or drop-off programs.

Collection, Processing, and Storage—In New Hampshire and elsewhere, aluminum containers are frequently collected in a mix with steel containers or in a mix with steel and plastic containers. Dirt, moisture, glass, non-container aluminum, and other metals can contaminate aluminum containers, but these contaminants rarely interfere with recycling efforts. Drop-off centers collecting aluminum containers crush and/or bale the containers before they are shipped to markets for further processing.

The weight of the aluminum can has been reduced by 52 percent since 1972 and the weight of collected aluminum is less than many other recyclables. However, the high scrap value of aluminum cans provides revenue to offset other activities that occur at a recycling facility. Aluminum cans can also be stored outside without significant loss of market value.

Disposal --No demonstrable environmental concerns are associated with the disposal of aluminum packaging in landfills or incinerators. Aluminum is non-degradable and can be identified in landfill excavations after decades. Aluminum is also non-combustible and is found in the bottom ash of waste-to-energy incinerators, where it remains as an inert component after disposal.

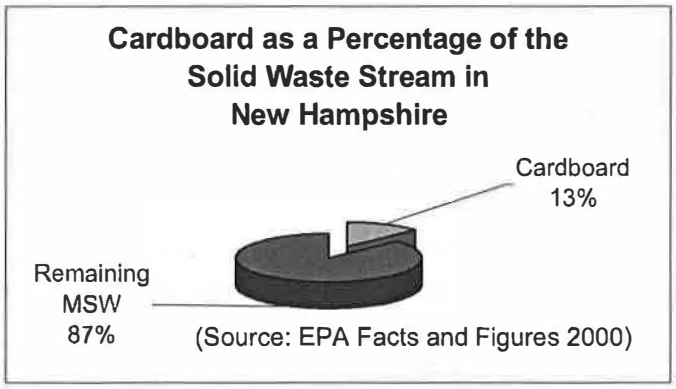
Recycling Markets for Aluminum Cans -- Although prices fluctuate for recyclables, aluminum has always commanded a higher price in comparison to other recyclables. In 2000, the aluminum industry paid out $1.2 billion to aluminum recyclers nationwide. The largest consumer of aluminum is the transportation sector (28%) followed by containers/packaging (23%) and construction materials (14%). The remainder is used in electrical products, machinery, or exported.

Aluminum as a Manufacturing Feedstock -- Aluminum cans can be processed back into new containers, requiring only about 5 percent of the energy needed to produce virgin aluminum from bauxite ore. The facilities required to produce recycled aluminum are also simpler and much less expensive than those required to produce aluminum from ore. Because the fundamental economics are so favorable, aluminum manufacturers actively seek out recycled aluminum.

Many aluminum producers are increasing aluminum capacity overseas where electricity for production is less expensive. This could push domestic mills towards using more recycled aluminum. The energy savings could help compete with foreign producers and stimulate the market.

Summary-- Although aluminum cans make up a small portion of the waste stream, they continue to be a recycling program staple. The revenue generated from the sale of the cans makes them an attractive addition to any recycling program.

Corrugated Cardboard



Weight and Volume -- Cardboard, also known as old corrugated cardboard (OCC), is the largest single constituent of municipal solid waste (MSW). The U.S. Environmental Protection Agency (EPA) estimates that nearly 30.2 million tons of waste cardboard containers were generated in 2000, representing 13 percent of the nation's MSW. Based upon EPA estimates, NH generated approximately 176,800 tons of cardboard in 2001. The Governor's Recycling Program reported that New Hampshire's municipalities recycled 16,668 tons of corrugated cardboard during that same time period.

Collection, Processing, and Storage -- The majority of cardboard recycled in the U.S. is collected and prepared for shipment on-site by medium and large commercial establishments. These establishments include department stores, supermarkets, and other retailers and businesses with active shipping and receiving operations. In addition, many private waste haulers, as well as municipal solid waste programs, offer separate pickup of cardboard for their commercial and public accounts. In New Hampshire, cardboard is collected by 156 of the state's 234 municipalities.

Although cardboard can be marketed loose, it is almost universally baled before it is shipped to end-markets to maximize efficiencies and revenues. Before and after baling, moisture is of most concern, as it will degrade the fiber quality, and reduce the value of the cardboard.

Like any recyclable, the specifications of the end market will determine the extent of processing and the acceptable degree of contamination and degradation of product. To maintain market quality, cardboard should be stored under cover, off the ground (on pallets, for example), and care should be taken to minimize the addition of other non-cardboard materials. One such contaminant for cardboard recyclers is Asian (rice) cardboard. It is an inferior corrugated product manufactured from low quality recycled fibers and/or rice fibers, and is considered a contaminant.

Recycling Markets for Cardboard -- Historically, markets for recycled cardboard have been among the strongest of all recycled papers. As with all recyclable commodities, prices tend to fluctuate as a result of supply and demand. Municipal recycling programs and commercial establishments continue to recycle cardboard even during down times in markets because of the avoided disposal costs. There are two factors that negatively impact marketing of recycled cardboard in New Hampshire. The first is that there are many commercial establishments (supermarkets, retail outlets, restaurants and hotels) generating relatively small quantities of cardboard that require storage and/or "milk run" methods of collection. Some towns allow businesses to bring cardboard to municipal recycling centers. Commercial haulers also collect small quantities in dumpsters or compactors. Secondly, the distance to major cardboard end-use

markets is great, so transportation costs can be significant. Buying products made from recycled materials helps to complete the "Buy Recycled" loop and maintains a strong recycling market for cardboard which can assist in overcoming the hurdles of collection and transportation.

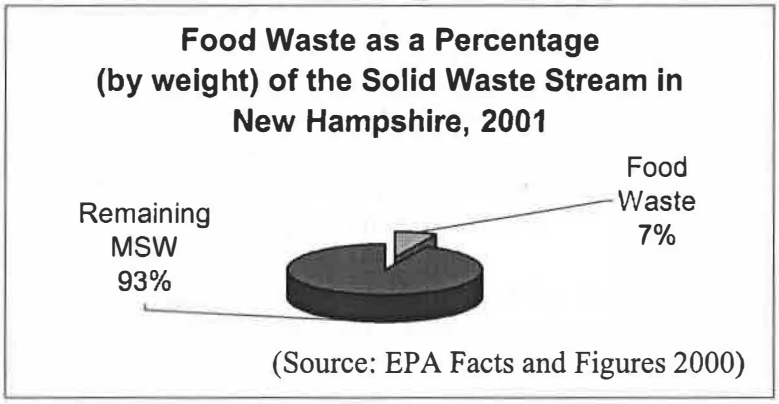
Cardboard as a Manufacturing Feedstock -- Cardboard is a high-quality paper product characterized by long fibers and high fiber strength. As such, it can be used as feedstock to manufacture a wide variety of recycled paper products, including new cardboard, printing and writing papers, paper and boxboard, paperboard tubes, cans, and drums.

In a typical remanufacturing process, recycled cardboard is first immersed in a water-based solution to dissolve the contaminants (e.g., tape, staples, dirt, etc.). These contaminants are removed by gravity, flotation, or filtration, and the recycled pulp is blended to produce a mix with the characteristics required for production of a specific paper product. Finally, the pulp is pumped to a paper machine where the final product is manufactured. Additional operations may include deinking and/or bleaching.

Disposal -- Cardboard is typically free of toxic and other hazardous constituents that might pose environmental or health concerns when it is disposed of in landfills. Although biodegradable, cardboard degrades very slowly in a moisture and oxygen-depleted landfill environment and its decomposition releases methane, a greenhouse gas. In incinerators, cardboard is a valued addition to the mix of fuels, releasing about twice as much heat per pound as MSW, and producing little ash. However, burning paper, including cardboard, in the presence of any chlorinated product (PVC pipe, salt, pool chemicals, etc…) contributes to the release of dioxins into the atmosphere.

Summary—Cardboard is found residentially, commercially and at institutions. It is easily separated, collected and recycled. The benefits associated with recycling cardboard can be both economical and environmental. Although revenues for cardboard fluctuate, end markets have been consistently available. For these reasons and the availability to cardboard recycling, it will continue to grow as a waste management practice by residents, municipalities, state agencies, and private businesses.

Food Waste



Weight and Volume-- Food waste consists of trimmings from the preparation of meals and the leftover uneaten portions. It is the third largest component of the waste stream behind yard waste and corrugated cardboard. As shown in the graph, food waste accounts for 7 percent by weight (95,200 tons) of the municipal solid waste stream in New Hampshire.

Collection, Processing, and Storage -- Apart from disposal, food waste can be managed in one of three ways. First, the food can be donated to food kitchens or community food banks. A great deal of food is wasted in hotels and restaurants and includes soups, breads and pre-made meals. Secondly, food waste can be used as feed for animals. The third method involves composting the material along with other organic wastes higher in carbon such as leaves, wood chips, and paper fibers.

Private or public haulers can collect food wastes not destined for a community kitchen or farm. The food waste at commercial establishments, such as supermarkets, cafeterias, restaurants, and fast food chains, can be collected in plastic trash barrels, dumpsters or closed top roll-offs and transported to a food waste composting or disposal facility.

Processing of food waste can range from a low level of technology to a highly sophisticated system. Residentially generated food waste could also be handled using backyard composting bins. As the technology increases, labor and equipment requirements also increase. As a trade off, the higher levels of technology require less land, and the breakdown of the material occurs at a more rapid rate. For low-tech methods, material is placed in windrows (long rows of organic material) and turned as needed with a front-end loader. A marketable product can be obtained in 6-12 months.

Inside the Compost Pile--The naturally occurring microorganisms found in a compost pile and soil break down in a windrow into an easily crumbled material. Other factors include temperature, moisture, and carbon/nitrogen content.

The **temperature** in the compost pile should be between 100° and 140° F. The natural digestion process by organisms results in increased temperatures within the compost. There are two types of microorganisms found in a compost pile: mesophilic and thermophilic organisms. Mesophilic organisms are active at temperatures above freezing and their activity causes temperatures within the windrow to increase. At temperatures above 110° F, thermophilic organisms become active

and decomposition increases, however, above 140° F, these aerobic, oxygen-loving organisms begin to die and decomposition decreases. When properly constructed, the temperature in a windrow will be self-sustaining until the compost is stabilized. Thermometers can be used to monitor the temperature of compost and to indicate how decomposition is progressing.

Moisture is necessary to dissolve nutrients for use as a food source by the microorganisms, however, excessive moisture in food waste creates an undesirable anaerobic condition. **Moisture content** between 40 and 60 percent by weight, much like the consistency of a wrung-out sponge, is optimal. To solve excessive moisture, a bulking agent such as sawdust, wood chips, or shredded paper may be added. This will help maintain the proper moisture content.

A **Carbon: Nitrogen ratio** of 20:1 to 30:1 is ideal for composting. Materials high in nitrogen, such as food waste and grass clippings, can be added to improve the ratio, and speed up the composting process.

To ensure that the pile recipe is working properly, the windrow or pile should be turned to maintain these conditions and speed decomposition. Turning the windrow can be done as little as once a year to as frequently as once a week. It should be noted that the less frequently a compost pile is turned, the longer the process will take and the greater the problem of odors due to the anaerobic state that exists within the pile.

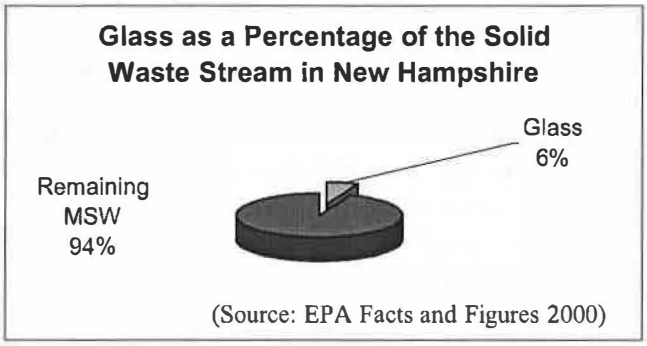
Markets for Food Waste Compost --There are a number of uses for compost. As a soil amendment, it improves the texture, water holding capacity, and the organic content of the soil. For mulch, it is placed around plants to suppress weeds, modify soil temperature, and conserve soil moisture. On slopes, it can be used for stabilization and reducing soil erosion. In a greenhouse or nursery, it can be used as one of the components of a potting soil mix.

The product can be given away or sold to residents, landscapers, nurseries, greenhouses, and local governments. As with any product, the higher the quality, the easier it is to market. Nurserymen and landscapers are more apt to reject a product with extraneous material in it and should be consulted in the initial planning stages.

Disposal -- In general, food waste has high moisture content and does not burn well in an incinerator. Additionally, the burning of organics in the presence of any chlorinated products (PVC pipe, salt, pool chemicals, etc…) contributes to the emission of dioxins. Food waste is biodegradable, but in the confines of an oxygen-depleted landfill environment, it degrades very slowly and releases the greenhouse gas methane.

Summary—Food waste makes up a large portion of the waste stream by weight and can be easily composted. For some in the commercial sector (supermarkets, restaurants and institutions), food waste represents nearly 50% of the waste generated. To increase diversion of food waste generated by homeowners, inexpensive backyard compost bins have been made available by the Northeast Resource Recovery Association (www.recyclewithus.org).

Glass



Weight and Volume -- Nationally, over 80 percent of all glass discarded is from residential sources; the remainder comes from commercial and industrial sources. The nation's glass recycling rate has risen from 22% in 1990 to 31% in 1998. It is estimated that New Hampshire residents generated 81,600 tons of glass in 2001.

There are 116 solid waste facilities in New Hampshire collecting glass and over 96 percent of New Hampshire's residents have access to glass recycling through curbside or dropoff programs. The Governor's Recycling Program reported that New Hampshire municipalities recycled 7,382 tons of glass in 2001.

Collection, Processing, and Storage -- Glass collected for recycling into new glass containers must be separated by color: flint (clear), amber (brown), and green. These containers must be free of contaminants such as plate glass, mirrors, and ceramics. Glass that has not been separated has a lower market price and limited market.

Once glass has been collected, preparing for market can take a couple of forms. If the containers are going to a glass-to-glass recycling market, the container should be kept unbroken. Containers going for non-container production can be size reduced to increase transportation efficiencies.

To comply with federal storm water regulations, glass should be stored in a manner that reduces both run-on and run-off. Tarping piles, storing in a shed or using berms and swales can accomplish this.

Recycling Markets for Glass – During the past two decades, two issues have dramatically impacted glass markets: industry consolidation and product replacement for container manufacturing.

Although New Hampshire doesn't have any glass manufacturers, there are regional options. The Container Recycling Alliance owned by Waste Management, Inc. operates a glass processing center in Franklin, MA. The processing center provides furnace-ready cullet for glass container manufacturers. The largest markets for glass cullet are container manufacturers. The second largest buyer is the fiberglass industry.

Revenue received for glass depends on several factors, including: color, distance to processor, and the region of the country. It is important to note that more than half of imported bottles are green, resulting in low demand and low prices in the US. Green glass seldom returns revenue

and, in some cases, communities pay the recycler, although not as much as they would pay to dispose of the glass in a landfill or incinerator.

The New Hampshire Department of Transportation was the first in the nation to adopt a specification allowing the use of processed glass aggregate (PGA) on state highway projects. Many New Hampshire communities also create and use PGA in municipal road construction projects. PGA has been certified by the DES as a waste-derived product for road construction, bedding for pipe, and fill for retaining walls and foundations. The DES specification for this material is one inch minus and free of debris. The private sector is also producing and using PGA. For example, Waste Management, Inc.'s Turnkey Landfill takes glass collected at curbside and creates PGA for use in on-site road construction.

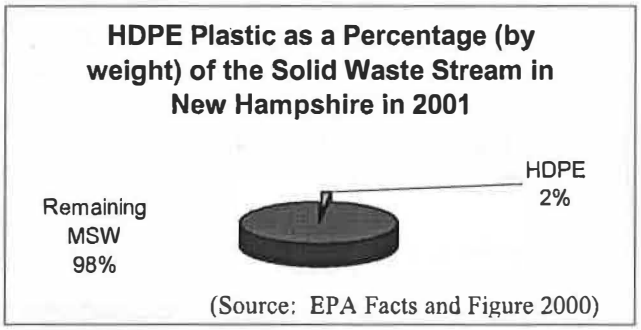
Glass as a Manufacturing Feedstock – The Earth Works Group's Recycler's Handbook reports that one ton of virgin glass requires 1,330 pounds (57%) of sand, 433 pounds (18%) of soda ash, 433 pounds (18%) of limestone, and 151 pounds (6%) of feldspar. Glass is unique in that it can be recycled indefinitely as it never wears out and is 100 % recyclable. In other words, one ton of recyclable glass bottles and jars can be recycled into one ton of new glass.

Once the glass is processed (crushed with labeling removed), the material, termed *cullet*, typically is delivered to a manufacturer that can once again make containers, or create other end products, such as fiberglass or asphalt. The specifications are extremely important with regard to reuse of containers, as an entire load may be rejected based upon contamination by just a single ceramic container or other similar waste materials that impact the reheating process.

Disposal – At the present time, there is no New Hampshire law or regulation to prevent glass from being disposed of in a landfill or incinerator. Although certain decorated glass may contain toxic or hazardous constituents, most glass can be landfilled or incincerated without environmental concern. Since glass is chemically and biologically inert, it remains intact in landfills for thousands of years. Glass melts upon incineration, and is captured for disposal in incinerator bottom ash. However, melted glass can present problems with equipment inside the chamber and may increase maintenance costs.

Summary-- Glass is a unique material in the recycling industry, in that it is 100% recyclable. A glass bottle can be recycled time and time again into another glass bottle or product, without any loss of quality. Since glass represents 8% by weight of the waste stream, glass is a good candidate for municipal recycling programs.

High Density Polyethylene (HDPE)



Weight and Volume -- High Density Polyethylene (HDPE) is used in the manufacturing of a variety of products such as rigid containers, pipe and lawn and garden supplies. HDPE accounts for about 2 percent by weight of municipal solid waste (MSW), but because of its size, makes up a larger volume than weight would indicate. The Governor's Recycling Program reported that municipalities in New Hampshire recycled 691 tons of HDPE in 2002.

Collection, Processing, and Storage -- Recycling of HDPE plastics is available to more than 75% of New Hampshire residents through curbside or drop-off recycling programs. There are two types of HDPE (#2) plastic. One type, which includes milk jugs, laundry detergent and shampoo bottles (rigid bottles) is universally collected, marketed and recycled. The second type of HDPE plastic, is recycled less frequently and contains items such as butter tubs and yogurt containers (tubs).

The major difference between the two types is not the "ingredients", it is how the material is created. Rigid bottles are produced using blown molding technology where the plastic is "blown" into a mold to create the desired shape. Tubs are produced using injection-molding technology where the runny plastic is injected into a mold. These differences in production affect the melting point of the end product. The simplest way to tell the two types apart is to "check for a neck". If the container has a neck, like a bottle, it is a blown molded HDPE plastic and can be readily recycled. If the container doesn't have a neck, like a tub, it is an injection molding HDPE plastic and recycling markets are harder to find.

To address the increased use of plastic container,s the American Plastics Council has developed an "All Bottles" collection method that reduces the confusion as to what is accepted at the recycling center. This method excludes the pigmented #2 tubs. Research has shown that this method of collection and separation not only increases diversion, but also reduces contamination.

Once collected, HDPE plastics can be prepared for market in one of two ways: by baling or chipping. Most of New Hampshire's communities collecting HDPE plastic choose to bale. A small number of towns create flake or chip the plastic. Flake receives higher revenue, but requires more labor and a better understanding of market specifications.

Storage for collected plastic is always an issue because large volumes are required to generate sufficient revenues. A cubic yard of HDPE containers may weigh as little as 50 pounds. Since a typical bale weight for HDPE is around 900 pounds, it could take up to 18 cubic yards of plastic to make a bale. Bales should be covered because milk jugs degrade in sunlight and mills will reject loads containing ice and snow.

Disposal -- The primary concern related to plastics disposal in landfills is the fact that they do not degrade. Regarding incineration, plastics have a very high "BTU content" (an expression of their heat value as fuel), approximately equivalent to the heat released by fuel oil, and two to four times greater than MSW. Plastics also burn with very little ash, and are a valued component of the fuel mix in waste-to-energy incinerators. These factors make them attractive as a waste derived fuel. However, incinerating plastics releases carbon dioxide, a greenhouse gas. A more general concern is that plastics disposal represents a waste of a valuable, non-renewable resource, because plastics are manufactured from oil and natural gas.

Recycling Markets for Plastics -- Historically, markets for recycled plastics have been subject to fluctuation. Prices for recycled plastics are directly related to prices for oil and natural gas as well as worldwide virgin plastics production. Most plastics recycled in New Hampshire communities are marketed outside of New England. Buying products made from recycled HDPE helps to keep the plastics recycling markets strong.

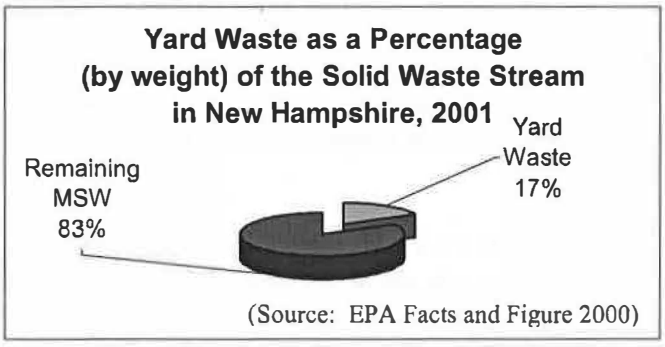
HDPE as a Manufacturing Feedstock -- Recycled plastics are typically chipped, washed, and heated to produce pellets or flakes that can be remanufactured into secondary products. Some mixed plastic items can be separated by weight into their component resins, but in general, plastics must be separated before they are used in a secondary manufacturing process. Technologies to automatically sort mixed plastics are still several years away from widespread use. Although a third of HDPE recycled is used to produce bottles, other items manufactured from recycled HDPE include flowerpots, pipes, toys, pails and drums.

The Resin Identification Code

The resin identification code was introduced in 1988 by the Society of the Plastics Industry (SPI; the largest plastics trade association) as a voluntary measure to aid in plastics identification for recycling. The code has since been made mandatory on rigid containers with a holding capacity of 8 ounces to 5 gallons in 39 states. The code includes a number from 1 through 7 surrounded by chasing arrows, plus a resin acronym. Professional recyclers and the general public have encountered significant problems with the code, because many coded plastics are not recyclable in the majority of U.S. communities, and because the code is ambiguous (e.g., not all "2s" can be recycled together).

Summary-- HDPE, like other plastics, is a small portion (by weight) of the waste stream. However, units sold and materials made from HDPE are increasing every year. Due to the increased replacement of traditional containers with plastic, HDPE should continue to be separated for recycling.

Leaf and Yard Waste



Weight and Volume – Leaf and yard waste consists of organic material such as leaves, grass, garden waste, brush, stalks and roots. As shown in the graph, leaf and yard wastes account for 17 percent by weight of the municipal waste stream in New Hampshire.

Leaf and yard waste volumes fluctuate throughout the year, depending on the season and weather conditions. Harsh winters can contribute to the amount of brush and a hot summer will reduce the amount of grass clippings. The composition of yard waste also fluctuates. In the fall and early spring, large volumes of leaves and brush are generated and in late spring and summer, grass becomes the more dominant material.

Collection, Processing, and Storage -- Collection of yard wastes for a municipal program can be separated into three categories: drop-off; curbside pickup in bags or other containers; or bulk pickup where the leaves are collected loose off the street. If bags are to be used for collection, it is advantageous to use paper or biodegradable plastic because this type of bag can be shredded and mixed into the compost while non-degradable plastic bags must be removed prior to composting. Bulk collection requiring the material to be scooped, raked, swept or vacuumed off the street can be slow and may contain contaminants from the street. The choice of collection methods should be determined by cost, convenience, household participation rate, and the amount and type of yard waste to be collected.

Processing of yard wastes can be done in three different ways: composting, chipping or burning. Each method has its benefits and results in three different products. Composting and chipping yield a usable product while burning simply reduces the amount of material and, ultimately, the ash must be disposed of as a solid waste.

A pile or windrow method is used to compost yard waste. Both methods can range from a low level of technology (using front-end loaders) to a highly sophisticated system (using windrow turners, blowers, tub grinders and screens). As the technology increases, labor and equipment requirements also increase. As a trade off, the higher levels of technology require less land, and the breakdown of the material occurs at a more rapid rate. For low-tech methods, material is placed in windrows (long rows of organic material) and turned with a front-end bucket loader or skid-steer. A marketable product can be obtained in 6-12 months.

Storage of the end product is determined by quantities and the management style selected. Storing compost does not require a building or structures, however, it is necessary to reduce the amount of precipitation and run-off in and around the pile. This storm run-off can impact surrounding water supplies, but can also leach beneficial nutrients out of the pile. To reduce these concerns, use a tarp and locate finished compost on higher ground.

Chipping of yard waste is usually done with brush only. A wood chipper or tub grinder is used to create chips of wood that can be used as a mulch product or a fuel to produce electricity at one of New Hampshire's biomass plants. Brush that is chipped should not present any storage problems. Chips can be stored outside with little concern for leachate or product down grading. Piles of wood chips should not too large and periodic turnings may be necessary to reduce the possibility of spontaneous combustion. To avoid this problem, chips should be used soon after production.

Many of NH's municipal transfer/recycling centers burn yard waste, especially brush and unpainted and untreated dimensional lumber. The brush pile should be kept free of painted and otherwise treated wood. Permits to operate a burn pile are required from the Air Resources Division, Department of Environmental Services and the Department of Resources and Economic Development. If the clean brush portion is burned, the ash must be managed as a solid waste and stored in a manner that reduces run-on and run-off and be disposed of in a lined landfill.

Inside the Compost Pile--The naturally occurring microorganisms found in the yard wastes and soil break down a windrow into an easily crumbled material. Other factors include temperature, moisture, and carbon/nitrogen content.

The **temperature** in the compost pile should be between 100° and 140° F. The natural digestion process by organisms results in increased temperatures within the compost. There are two types of microorganisms found in a compost pile; mesophilic and thermophilic organisms. Mesophilic organisms are active at temperatures above freezing and their activity causes temperatures within the windrow to increase. At temperatures above 110° F, thermophilic organisms become active and decomposition increases, however, above 140° F, these aerobic, oxygen-loving organisms begin to die and decomposition decreases. When properly constructed, the temperature in a windrow will be self-sustaining until the compost is stabilized. Thermometers can be used to monitor the temperature of compost and to indicate how decomposition is progressing.

Moisture is necessary to dissolve nutrients for use as a food source by the microorganisms, however, excessive moisture in food waste creates an undesirable anaerobic condition. **Moisture content** between 40 and 60 percent by weight, much like the consistency of a wrung-out sponge, is optimal. To solve excessive moisture, food waste, such as sawdust, wood chips, or shredded paper, may be added as a bulking agent. This will help maintain the proper moisture content.

A **Carbon: Nitrogen ratio** of 20:1 to 30:1 is ideal for composting. Materials high in nitrogen, such as food waste and grass clippings, can be added to improve the ratio, and speed up the composting process.

To ensure that the pile recipe is working properly, the windrow or pile should be turned to maintain these conditions and speed decomposition. Turning the windrow can be done as little as once a year to as frequently as once a week. It should be noted that the less frequently a

compost pile is turned, the longer the process will take and the greater the problem of odors due to the anaerobic state that exists within the pile.

Markets for Leaf and Yard Waste Compost -- There are a number of uses for compost. As a soil amendment, compost improves the texture, water holding capacity, and the organic content of the soil and can be used as one of the components of a potting soil mix in greenhouses and nurseries. For mulch, it is placed around plants to suppress weeds, modify soil temperature, and conserve soil moisture. Compost is also used on slopes for stabilization and reducing soil erosion.

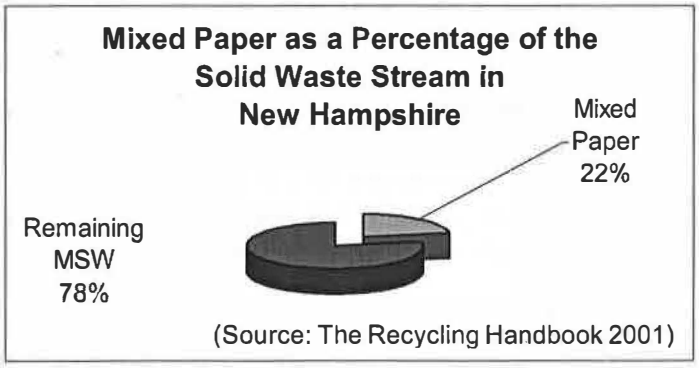
The product can be given away, sold, or traded to residents, landscapers, nurseries, greenhouses, and local governments. Compost is usually distributed in bulk, with pick up at the composting site by the user. As with any product, the higher the quality, the easier it is to market. Nurserymen and landscapers are more apt to reject a product with extraneous material in it, so if they are to be a major outlet for the compost, they should be contacted in the initial planning stages to ensure that an acceptable product is produced.

To support the development of the compost industry, the State of NH Department of Transportation (NHDOT) has used compost in their highway median beautification projects. In these projects, NHDOT used six inches of compost in median strips throughout the state to plant native wildflowers.

Disposal – In 1992, the New Hampshire Legislature instituted a ban on the disposal of leaf and yard waste in both landfills and incinerators. The rationale for this restriction is that leaf and yard waste can use precious capacity in our solid waste management facilities and is more effectively composted.

Summary— Leaf and yard waste is the largest portion of the waste stream and there are a variety of methods to manage leaf and yard waste. This material is different from other typical recyclables because it can be processed into a usable product at the point of generation or at a processing facility. For this reason, municipalities should actively manage yard waste generated by residents.

Mixed Paper



Weight and Volume -- Mixed paper consists of several types of waste streams, including magazines, phone books, junk mail, paperboard packaging, office paper and any other paper that doesn't meet the specification for newspaper or corrugated cardboard. As indicated in the chart, mixed paper is about 22 percent by weight (299,200 tons) of the solid waste stream in New Hampshire. In 2002, the Governor's Recycling Program reported that New Hampshire's municipalities recycled 11,254 tons of mixed paper.

Collection, Processing, and Storage -- Residential curbside recycling programs typically collect commingled paper (newspaper and mixed paper). Currently, there are 39 curbside recycling programs in NH, serving 41% of the state's population.

Mixed paper is also collected loose at municipal recycling centers in gaylord boxes, rolloffs or in bunkers. The presence of glossy magazines makes it difficult to make a bale of mixed paper that does not fall apart. Because mixed paper is made up of different grades of paper, it has low value, but is generally cheaper to recycle than to haul and to dispose of it. Handling and marketing mixed paper loose can reduce labor/processing costs. This processing cost savings can make up for the loss in revenues.

Contamination with food, broken glass, moisture, or other non-paper materials is also a concern for recyclers, as is the deterioration caused by prolonged storage or exposure to sunlight and moisture. Consequently, paper must be stored under cover or moved to markets relatively quickly.

Disposal -- In general, mixed paper burns very well in waste-to-energy incinerators and produces little ash. However, most magazines are printed on clay or plastic coated, groundwood paper. The coating is used to smooth the paper surface to enable the adherance of the glossy inks. The groundwood paper is similar to newsprint used for newspapers. Burning of paper, in the presence of any chlorinated products (PVC pipe, salt, pool chemicals, etc.), contributes to the emission of dioxins. Additionally, most mixed paper is biodegradable, although in a moisture and oxygen-depleted landfill environment, it degrades very slowly. During its decomposition, methane, a greenhouse gas, is released.

Manufacturing -- Mixed paper can be remanufactured back into paper, but paper cannot be recycled indefinitely. Typically, paper can be recycled 6-7 times before the paper no longer has any value due to degraded fiber strength. End-product performance dictates what feedstocks will be used in the manufacturing process. Products made with mixed paper are not considered high value and primarily include paperboard items such as hard covers for books, game boards, and

cereal boxes. Due to the large quantity of mixed paper being collected, some mills are using more mixed paper in their primary feedstock to fill capacity. Using mixed paper as a feedstock does require more chemicals to be added during the de-inking process to eliminate the number of different inks used on the paper.

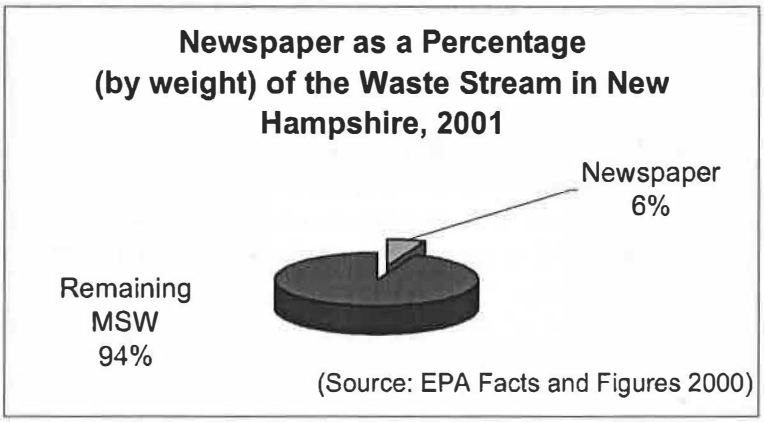
Recycling Markets for Mixed Paper – Mixed paper markets depend largely on how other paper markets are doing. If high-grade ledger or newspaper is doing well, mixed paper will be doing poorly because processors will separate out the higher value paper. However, factoring in the avoided hauling and disposal costs, mixed paper recycling usually has positive savings. Price or cost for mixed paper will also depend on what is included with larger portions of higher-grade paper bringing the most value.

Currently, there are three mills in NH that accept mixed paper to be added to their primary feed stock. Products made include: tissue paper, container tubes and paper match sticks. End-markets are also located throughout the northeast and in Canada. A portion of mixed paper is shipped overseas to foreign markets as revenues dictate.

Junk mail-- Mixed paper includes junk mail, also known as "business bulk". It is estimated that each NH household receives nearly 100 pounds of junk mail annually. This material can be reduced from the waste stream. The Department of Environmental Services has developed a web site to assist residents in reducing the amount of junk mail received. The web address is www.des.state.nh.us/junkmail. With identity theft on the rise in the US, residents are removing their names from advertisers mailing lists. This activity, along with increased collection opportunities, will assist in reducing the amount of mixed paper disposed of.

Summary— Mixed paper represents a high percentage of the waste stream because it includes so many types of paper. Quantities collected for recycling are increasing due to curbside recycling programs. Avoided disposal costs work favor recycling activities and soon mixed paper may surpass cardboard as the most recycled material in the nation.

Newspaper



Weight and Volume – According to Environmental Protection Agency (EPA) estimates, more than 84,000 tons of newspaper were discarded in New Hampshire during 2001. Households generate a vast majority of all newspaper, with commercial hotels, restaurants and industrial sources making up the remainder of newspaper discards. In 2001, the Governor's Recycling Program reported that municipalities had recycled 10,644 tons. This is a slight drop in tonnage from the previous year.

Collection, Processing, and Storage -- In New Hampshire, approximately 96 percent of the public solid waste facilities accept newspaper for recycling. Newspaper comprises between 80-90% of curbside collected paper, according to Northshore Fibers, the Newark Group a buyer of curbside collected paper in the Northeast. Some of NH recycling centers are also collecting newspaper along with a "mixed paper" blend in an effort to increase diversion. This method of collecting newspaper reduces the need to separate out many grades of paper, making it easier for residents to recycle.

Wastepaper brokers recognize many different grades of newsprint ("newsprint" is the paper itself; "newspaper" is the printed product). Most communities recycle either a "Number 6 blend," which may contain up to 25% of other papers, such as brown shopping bags, junk mail, office paper, telephone directories, envelopes, box board and magazines, or "Number 8 news," which has higher quality specification, allowing only for newspaper and newspaper inserts. The prices paid by brokers and mills vary by grade. Grades with a smaller proportion of mixed papers or other contaminants receive higher prices.

Newsprint can be marketed either baled or loose. A baled product is easier to handle, and generally commands a higher price. Contamination with food, broken glass, moisture, or other foreign materials is a concern for recyclers. In addition, newspaper deteriorates with prolonged storage or exposure to sunlight and moisture; consequently, it must be moved to markets in a timely manner.

Recycling Markets for Newspaper -- As with all recyclable materials, markets and prices tend to fluctuate based on supply and demand. New manufacturing capacity for recycled newsprint has come on line as manufacturers have responded to both the large available supplies of newspaper and to increasing demand for recycled newsprint. A significant factor in this new demand growth has been a large number of legislative mandates and public/private voluntary agreements to expand recycled newsprint consumption. For example, in 1990, New Hampshire's eight daily

newspaper publishers signed a voluntary agreement with the State to consume increasing quantities of recycled newsprint. By 2000, the newspapers had achieved a recycled content of 33%. The Northeast Recycling Council (NERC) is working with other states in the northeast on similar projects. NERC resolves to work in cooperation with newspaper publishers in the region and increase the use of recycled content newsprint as appropriate.

Newspaper as a Manufacturing Feedstock --Newspapers that are reprocessed into new newsprint are pulped into a mush. Next, the mush is spun and screened to remove the ink and unwanted particles. It is air-treated in a flotation cell, causing any remaining unwanted particles to float to the surface. After one more washing and screening, the mush is bleached and used as 100% recycled content or combined with virgin pulp. It is then pressed and dried. On average, newspaper can be recycled five to seven times before fiber strength is completely compromised.

Newspapers are readily recyclable, and can be remanufactured back into newsprint or into any number of other paper products, such as boxboard, newsletter stock, hard cover books and game boards. Additionally, newsprint can be reprocessed into many other products including insulation, tarpaper, roofing shingles, and animal bedding.

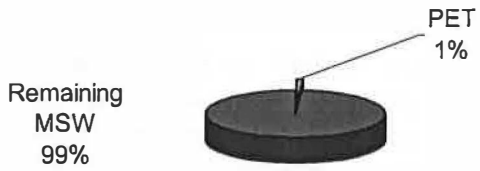
Composting--NH Solid Waste Rules include paper as an approved bulking agent for composting. In areas where the distance to markets is great, composting of newspaper is an option. A few of NH's communities have partnered with area farmers to divert newspaper from landfills and incinerators and into animal stalls and, ultimately, the compost pile.

Disposal -- Due to the lack of oxygen and moisture in landfills, newspaper degrades very slowly and contributes to the accumulation of methane, a greenhouse gas. The heat released by burning newspaper in a solid waste incinerator is about 7,500 British Thermal Units (BTU) per pound, compared to about 4,500 BTU/pound for MSW. The incineration of newspaper produces little ash under normal operating conditions. Due to changes in newspaper inks, lead and other hazardous constituents are no longer a concern.

Summary-- New Hampshire communities are recycling an estimated 20% of the newspaper generated in the state. Since newspaper is easily collected for recycling and markets are readily available, there is great opportunity to recycle much more newsprint.

Polyethylene Terephthalate (PET)

PET as a Percentage of the Solid Waste Stream in New Hampshire



(Source: EPA Facts and Figure 2000)

Weight and Volume – Polyethylene terephthalate, better known as PET, makes up almost half of all plastic bottles and is also found in strapping used to palletize goods and in some fabrics. It accounts for only about 1 percent, by weight (13,600 tons) of NH municipal solid waste (MSW), however, due to its size, PET contributes to a larger portion of MSW by volume. The Governor's Recycling Program reported that municipalities in New Hampshire collected 545 tons of PET (beverage containers) in 2001.

Collection, Processing, and Storage -- Recycling of PET is available to over three-fourths of New Hampshire residents through curbside or dropoff recycling programs. Containers must be carefully sorted by resin type before they can be sold into recycling markets. This is a particular concern for PET bottles, which can be contaminated by only a small number of look-alike PVC containers and other non-bottle PET plastics. Technologies to automatically sort mixed plastics are still several years away from widespread use. Processing can be accomplished by granulating, but more often is baled. Once processed, PET should be stored under cover to reduce exposure to sunlight to maintain market quality.

The Resin Identification Code

The resin identification code was introduced in 1988 by the Society of the Plastics Industry (SPI; the largest plastics trade association) as a voluntary measure to aid in plastics identification for recycling. The code has since been made mandatory on rigid containers in 39 states. The code includes a number from 1 through 7 surrounded by chasing arrows, plus a resin acronym. Professional recyclers and the general public have encountered problems with the code because most coded plastics are not recyclable in the majority of U.S. communities, and because the code is ambiguous (e.g., not all "2s" can be

The strength and lightweight quality that make plastics a desirable packaging material can also make them problematical to recycle. Since a large volume of plastics must be collected before they can be economically processed and marketed, unprocessed volumes consume a very large amount of space in curbside collection vehicles and curbside/dropoff storage facilities.

Collection and recycling will need to allow for increased amounts of PET, as well as for different color materials. Recently, Gerber Baby Foods has moved away from glass containers for some of their more popular flavors. Another example of a product line that is undergoing changes is the Tropicana Company, which is moving products away from glass and into more plastic containers, and is also producing colored PET bottles (pink or yellow for grapefruit).

Disposal -- The primary concern related to plastics disposal in landfills is the fact that they do not degrade. The "BTU content" of plastics (an expression of their heat value as fuel), is

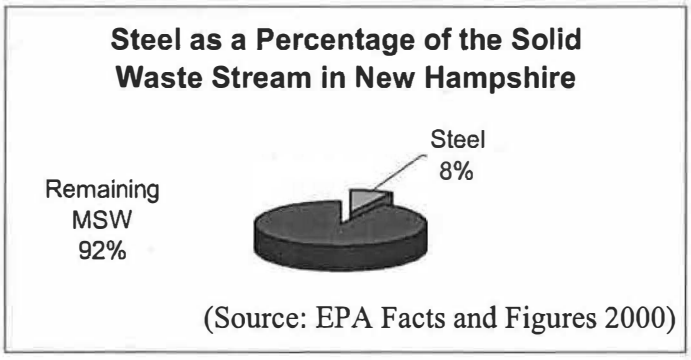
approximately equivalent to the heat released by fuel oil, and two to four times greater than mixed MSW. The burning of plastics results in very little ash, and the material may be viewed as a valued component of the fuel mix in waste-to-energy incinerators. However, incinerating plastics releases carbon dioxide, a greenhouse gas. A more general concern, however, is that plastics disposal represents a waste of a valuable, non-renewable resource, because they are manufactured from oil and natural gas.

Manufacturing-- Recycled plastics are typically granulated, washed, and heated to produce pellets or flakes that can be manufactured into secondary products. Items manufactured from recycled PET include carpet fiber, fiberfill insulation for jackets and sleeping bags, appliance casings and handles, and floor tiles. Other uses include strapping for shipping, sheet products, and containers. Buying products made from recycled PET helps to maintain strong recycling markets. Only a limited volume is currently used to manufacture containers.

Recycling Markets for PET-- Historically, markets for recycled plastics have been subject to significant fluctuation. Prices for recycled plastics are directly related to prices for oil and natural gas and worldwide virgin plastics production. Most plastics collected for recycling in New Hampshire communities are marketed outside of New England and more than half of the PET recycled is used in the fiber industry.

Summary— PET is a commonly collected and highly recyclable portion of the waste stream. Although significant volumes may be required for storage and separation of materials may be time intensive, several recycling markets exist and manufacturers can use the materials as feedstock in a variety of products.

Steel



Weight and Volume -- Steel is used in the production of many durable products, which have a life span from a few months to many years. They include steel cans, appliances, automobiles, and construction materials. In New Hampshire, the Governor's Recycling Program reported that municipalities had recycled 1,421 tons of steel cans, along with 59 tons of mixed cans (mixed steel and aluminum containers) and 13,527 tons of commingled containers (mixed steel, aluminum, glass, and plastic) in 2001.

Steel Cans

Steel cans account for about 1.4 percent of municipal solid waste (MSW) by weight. The figure reported for recycled steel cans has declined slightly over the past three years because several communities have begun commingling their cans or containers.

Collection, Processing, and Storage -- Many recycling programs, both drop-off and curbside, collect steel cans separate from other recyclables, or commingle the cans with other mixed steel, aluminum containers and/or plastic containers. Steel cans are separated from commingled materials with the use of simple magnets and is then stored loose or baled prior to shipment to market. Recycling processes are also very forgiving of contaminants and containers with labels and food residue (burned off during steel making), small quantities of aluminum (e.g., from steel/aluminum "bi-metal" cans), tin, or non-container steel. Steel can be stored outside, however, to reduce the effects of weather it should be moved to a market in a timely fashion.

Potential concerns for local recycling programs are the handling of aerosol containers (because they may still contain compressed gases) and paint cans (a concern if any liquid residues remain). Therefore, aerosol cans and paint cans are typically recycled with scrap metal and not with steel food containers.

Appliances

Appliances, sometimes called "white goods", are comprised of approximately 75% steel. According to the Steel Recycling Institute, an estimated 84% of appliances were recovered for recycling in 2001.

Collection, Processing and Storage--Appliances can be collected at a drop-off center or at the curb. Curbside programs may require residents to schedule an appointment or set the appliance on the curb on a given day. Fees collected at a drop-off or for a curbside program help to offset the costs.

Doors of refrigerators should be removed prior to storage to reduce the danger of entrapment. Refrigerators without doors should be stored door-side down to reduce collection of snow and rain.

There are three components of household appliances that are of potential environmental concern and require special handling. These components are *Chlorofluorocarbons* (CFCs), *polychlorinated biphenyls* (PCBs), and *mercury*. CFCs that have been associated with stratospheric ozone depletion are used as a coolant in most refrigerators and room air conditioners. Under federal law, CFCs must be removed from these appliances before they are disposed of. Many scrap dealers have the equipment to remove CFCs from appliances, and now offer on-site removal of CFCs.

Electric transformers in some older appliances (air conditioners, dryers, fluorescent lights, and others) contain PCBs, a known carcinogen. These transformers must be removed before the appliances are processed for sale in scrap metal markets. Ballasts NOT containing PCBs have a label on them stating "No PCBs". Operators should contact their metal recycler to find out if non-PCB ballasts can be included with scrap metal. Ballasts without this label should be managed as a hazardous waste.

Mercury, found in the switches of many appliances, is a nerve toxin that is converted by bacteria into methyl mercury. Mercury (methyl) enters the food chain and builds up in the tissues of fish and eventually concentrates in the humans and wildlife that eat the fish. Mercury switches are found in gas appliances, such as ranges, ovens, clothes dryers, and space heaters, as well as chest freezers, sump pumps, and automobiles. Before processing or disposal, the mercury switches must be removed and handled as a universal waste.

Automobiles

In 2000, approximately 14,736,000 tons of steel were used to produce automobiles. Nearly 14 million tons were recovered nationally, demonstrating the high recyclability of steel.

Collection, processing and storage--There are approximately 175 automotive dismantlers in New Hampshire. The dismantlers remove the environmentally hazardous materials such as gasoline, antifreeze, CFCs, oils and other lubricants. After the automobile has been drained of hazardous fluids and parts salvaged, the vehicle is crushed and sent to a regional shredder.

Construction Material

Steel is used to construct buildings and other structures such as bridges and is used in the manufacturing of metal roofing, I-beams, steel 2X4s, and fasteners such as nails and screws. Many construction sites maintain a recycling rate of 40-50% for steel items.

Collection, processing and storage--Steel material can be separated during building or demolition. It is typically left on site until such time as collection boxes are filled.

Scrap metal can be stored outside for long periods with no significant deterioration or loss of value. Many municipalities stockpile scrap metal for a year or more before moving it to a processor. To reduce the potential for run-off of pollutants and suspended solids to bodies of

water through storm water, piles should be maintained using best management practices. Some of these practices include storing on high ground, the use of vegetative swales, compost berms around a scrap pile, the use of an impervious surface with a collection system or vegetative berm, a tarped roll-off and dikes to reduce run-on and run-off.

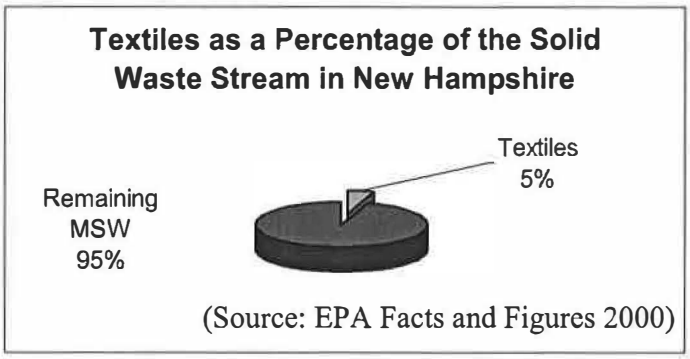
Disposal – Steel is resistant to most disposal methods. It degrades very slowly (by rusting) in the environment and large pieces can puncture landfill liners and cause leachate problems. Steel is noncombustible and when placed in an incinerator, will not burn and ends up in the bottom ash. Waste-to-energy facilities typically use magnets or other equipment such as loaders to separate steel (and other ferrous metals) from incoming wastes or from ash prior to disposal in an ash landfill.

Recycling Markets for Steel -- Most New Hampshire municipalities market their steel to an established network of dealers in the northeast. Many towns take advantage of local salvage facilities to handle much of the scrap generated. These dealers consolidate shipments from many municipalities (plus commercial/industrial sources) into loads that are resold into regional markets. Prices for steel cans and other steel scrap are sufficient to justify their relatively low collection and processing costs. In an effort to encourage the use of domestic steel and keep mills open, tariffs on imported steel have been imposed.

Steel as a Manufacturing Feedstock –Scrap has been used in metal manufacturing for as long as metalworking technologies have existed. The majority of US steel production capacity is made up of basic-oxygen furnaces. Basic-oxygen furnaces can use up to 20-30% scrap to produce steel for cans, appliances and automobiles. Electric arc furnaces (a newer steel-making technology) can operate with 100% scrap to make new steel. Foundries for iron and steel, aluminum, brass, and other metals also routinely use scrap as a raw material. There are few limitations on the range of metal products in which recycled scrap can be used as an input.

Summary— Steel is used in a variety of products and is readily recyclable. It is a considerable portion of the waste stream and stable markets exist in the region. Revenues and disposal cost avoidance make steel recycling an attractive part of any recycling program.

Textiles



Weight and Volume – The U. S. Environmental Protection Agency estimates that 9.4 million tons of textiles were generated in 2000. As shown in the graph, textiles account for 5% by weight of the municipal solid waste stream in New Hampshire. In 2001, the Governor's Recycling Program reported that NH communities recycled 1,292 tons of textiles.

Collection, Processing and Storage – The two more common collection methods are both drop-off options. Municipal transfer stations/recycling centers collect the textiles and either bag the material loose or bale it for resale to the reuse clothing or "rag" markets. The other method employs organizations such as Goodwill Industries and Salvation Army, as well as other local charities.

Many municipalities encourage residents to reuse old clothes that are left off at the transfer station swap shop. This method of collection reduces labor costs due to limited processing and keeps the clothing in local use. Regardless, there will always be a residual amount of clothing to process for recycling or disposal.

Textiles must be kept under cover and free of moisture; otherwise mold develops and the textiles have little or no market value. During winter months, textiles should be monitored to reduce infestation by rats, mice and other vectors.

Disposal – Textiles disposed of in an oxygen-depleted landfill decompose very slowly and release methane, a greenhouse gas. Natural fibers (cotton, linen, silk, and wool) burn well and produce little ash. Man made fibers; especially from petroleum products (acrylic, nylon, and polyester) burn rapidly, and produce a hard ash. Incinerated textiles also produce carbon dioxide, a greenhouse gas.

Recycling Markets for Textiles – In the US, used clothing is the eighth largest export material behind automotive parts and wheat. It is reported that almost 50 percent of recycled textiles are reused as clothing with 20 percent made into wiping cloths and another 25 percent converted back into textile fiber for use as stuffing or insulation in vehicles. Domestic economic conditions also impact textile recycling activities. For example, in 1998, the General Motors strike affected the "rag" market since 80 pounds of rag material are used to deaden sound in each automobile.

Textiles as a Manufacturing Feedstock – The remanufacturing process will depend on the intended end-use. Textiles can be shredded and used as stuffing in furniture or can be broken down into fibers, color-sorted and spun into thread to make new textiles or bleached and used in

the manufacturing of paper. Textiles that are not suitable for reuse as clothing or do not meet other market specifications can be cleaned, sorted and torn for use as wipers.

Summary—There are many reuse options, including Planet Aid, Salvation Army, Goodwill Industries and church organizations. NH also has textiles processors that prepare the material for overseas markets. The use of textile swap shops in municipal recycling centers gives residents more reason to visit and acts as an incentive to recycle other material as well.

Asbestos

Background

"Asbestos" is the name given to a group of minerals that occur naturally as masses of fibers which can be separated into thin threads and woven, or combined with binding materials and pressed into solid form. There are six primary types of asbestos: Chrysotile; Amosite; Crocidolite; Anthophyllite; Actinolite; and Tremolite.

Asbestos is non-combustible, is resistant to corrosion, has a high tensile strength and has low electrical conductivity. These characteristics, in addition to the material's relatively low cost, made asbestos an attractive material for producing a variety of commercial products over a period of 100 years, beginning around 1880. Such products (and examples) included:

- friction devices (clutches and brake shoes);
- plastic products (floor tile, coatings and sealants);
- paper products (roofing felt and gaskets);
- textile products (curtains and gloves);
- building construction materials (siding and roofing shingles, "cement board," peg board);
- road construction materials (wearing surfaces and curbing); and
- insulating products (boiler insulation, pre-formed pipe wrapping and troweled/sprayed coatings).

For nearly a century, New Hampshire was home to a number of asbestos manufacturing facilities. Plants were located in Nashua, Meredith and Tilton. The Nashua plant, owned by the Johns-Manville Corporation, commenced operations around 1900. It ceased manufacturing asbestos-containing products in 1985 and the buildings were razed in 1997. The principal raw materials used at the Nashua plant consisted of asbestos fiber and Portland cement. These were combined to produce 4 feet by 8 feet sheets of "cement board" material which ranged from 1/8" to 4" in thickness. In addition, the Nashua plant produced a variety of other asbestos-cement products for construction and industrial uses, primarily durable insulation products.

For many years (c. 1900-1970), the Nashua plant made its asbestos-containing waste material available free of charge to area property owners for use as fill. Consequently, asbestos-containing waste material was dumped in large quantities throughout the Nashua/Hudson communities, generally to fill low lying areas and facilitate land development. Today, over 300 properties in Nashua and Hudson are identified as asbestos disposal sites. Additional sites are being identified each year.

Less is known about the waste disposal practices of the asbestos manufacturing plants formerly located in Meredith and Tilton. At the site of the Tilton plant, there are two areas which the company used to landfill asbestos waste. These areas are no longer in use and are capped with soil materials. In Meredith, asbestos waste was disposed of at the town landfill. The existence of other dump sites in Tilton and Meredith is not known.

Health and Environmental Issues

The U.S. Occupational Safety and Health Administration (OSHA) is aware of no instance in which exposure to a toxic substance has more clearly demonstrated detrimental health effects on humans than has asbestos exposure. For this reason, asbestos manufacturing has largely ceased in this country and a number of government regulatory programs have been established to address the safe management of asbestos within our living environment.

The inhalation of asbestos fibers in high concentrations is known to cause:

Asbestosis, a debilitating and irreversible respiratory illness which is characterized by a scarring of the lung tissue, or linings of the lung, reducinh lung function and making breathing more difficult;

Mesothelioma, a cancer of the thin membranes lining the chest and abdomen, which is almost exclusively caused by exposure to asbestos and is almost always fatal; and

Lung cancer and other cancers, including cancers of the larynx, tongue, sinuses, mouth, throat, stomach, colon, rectum, intestines, kidney, pancreas, and gall-bladder.

Symptoms of asbestos-caused diseases generally do not appear for 10-35 years after the first exposure to asbestos. There is no known level of asbestos exposure which is considered risk free. Moreover, among people exposed to asbestos, cigarette smokers are at much greater risk of developing lung cancer than those individuals who do not smoke.

The inhalation of asbestos is the primary exposure route of concern. Ingestion of asbestos is another concern. Direct contact with asbestos is not of concern from the perspective of absorption through the skin. However, by making direct contact with asbestos, a person's skin or clothing can become contaminated with asbestos fibers and the fibers can then be carried into the home or workplace, where they may become airborne or transferred to the mouth. The same applies when tools, machinery or toys come in contact with asbestos-containing materials.

Asbestos fibers are not water soluble and do not move through groundwater to any appreciable extent. Based on studies of other insoluble particles of similar size, the expected migration rate of an asbestos fiber through soils by the forces of groundwater is approximately 1 to 10 centimeters (0.4 to 4 inches) per 3,000 to 40,000 years. Thus, asbestos is not considered a groundwater contaminant.

Although asbestos does not move with groundwater flow, it can move with surface water flow. Therefore, if asbestos waste is allowed to come in contact with rivers, wetlands and other surface water bodies, fibers may be transported to places that will result in human exposure, including intakes for drinking water supplies and recreation areas.

Rules/Policy

Asbestos management programs in New Hampshire are focused on two primary activities: the control of asbestos waste generation; and the control of asbestos waste disposal sites. The New Hampshire Department of Environmental Services (NHDES) administers the programs through its Air Resources and Waste Management Divisions. In addition, the NH Department of Health & Human Services, Office of Community & Public Health (NHDHHS-OCPH) administers a supporting program that licenses employers and certifies employees who handle asbestos waste during demolition, renovation and construction activities.

The Waste Management Division (WMD) oversees the management of asbestos disposal sites, both active and inactive. A number of New Hampshire's operating landfills are currently authorized to receive asbestos waste and the WMD regularly monitors all such active disposal facilities for compliance. In addition, there are several hundred inactive asbestos disposal sites located on residential, commercial, industrial, and public properties throughout Nashua and Hudson. The WMD administers an inactive asbestos disposal site program comprised of the following program elements: investigation / confirmation of new sites; periodic inspection of known sites; technical assistance for developing / implementing emergency response and remedial action plans; long term site maintenance; and coordination of program initiatives with the U.S. Environmental Protection Agency (US-EPA). Education is also a critical element of helping individuals in working safely with asbestos. In conjunction with DHHS, DES has provided training programs to certify workers who disturb Asbestos Disposal Sites (ADS). This aspect of the program will assure that work in these properties is properly done, and help to avoid putting people at unnecessary risk.

Summary

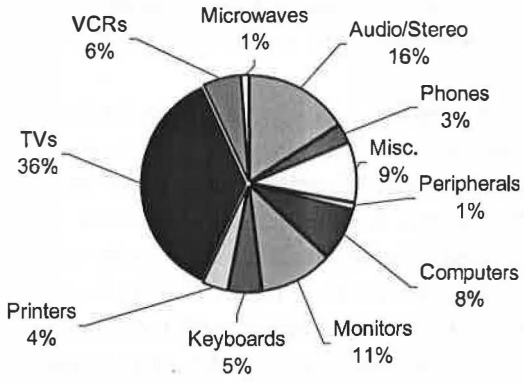
Asbestos poses a serious health risk when inhaled or ingested, therefore most efforts are intended to minimize the ability of asbestos to become airborne. The NHDES Asbestos program relies on maintaining strong partnerships with local officials, property owners, and federal environmental officials. At the present time, NH-DES is evaluating measures to further strengthen these partnerships and establish a clear framework to manage the problems at hand and assure long-term protection of public health through the proper management of asbestos wastes.

Computers and Televisions

Background

Among electronics, computers and televisions dominate concerns, mostly because of their bulk, toxicity and cost. A study by the US Environmental Protection Agency, Common Sense Initiative[1] examined the results of five electronic collection events in Missouri. The distribution in Table 1 shows that televisions, computer accessories, and audio equipment are the most common wastes at these collections. The high profile and popularity of these items, combined with a lack of forethought toward end of life issues, has caused televisions and computers to rise to the forefront of product stewardship discussions.

Table 1
Percentage by Type and Number of Items Collected, Weighted Average of Five Collection Events
(Source: U.S. EPA, 1999)

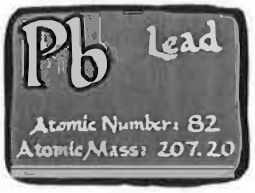


Generation According to the U.S. EPA, monitors make up 11 percent of the electronics waste stream and contribute 28 percent of the lead found in the entire municipal waste stream. In the next ten years, it is estimated that 315 million computers will inundate the national waste infrastructure, with about 1.5 million units impacting New Hampshire. Additionally, the television industry is bracing for a change to digital broadcasting, scheduled to happen after 2007, which means that existing televisions will most likely be replaced and disposed of at an increasing rate after that date.

Recycling Approximately 95 percent of discarded computers end up in the solid waste stream, headed for disposal or treatment in landfills and incinerators. Generally speaking, more commercial computers are likely to be recycled than their household counterparts, primarily because of bulk volume and the likelihood of parts usable to the recycler.

Health and Environmental Concerns

First, computer components and televisions are heavy and extremely bulky. A typical monitor (from a computer or color television) may weigh as much as 70 lbs and occupy significant space. Indeed, the very bulk of these items have created problems for handlers in terms of back strain and injuries due to dropping and the shattering of the glass.



Secondly, the cathode ray tubes (CRTs) in monitors and televisions contain lead in the tube, neck and the enclosed glass seal ("frit"). According to a study provided for the University System of Florida[2], the funnel portion alone can contain as much as 75 ppm of leachable lead as determined through a toxicity characteristic leaching procedure (TCLP). EPA interprets this level of lead,

which exceeds the 5 ppm regulatory limit, to be indicative of a hazardous waste and is restrictive on the types of outlets which supposedly constitute recycling. Apparently, the level of lead found in older black and white televisions is of lesser concern, as they have not been found to exceed TCLP limits.

In addition to the CRTs, computer components in general contain a significant and diverse number of materials, many of which are not amenable to recycling activities. For example, there are about 18 different plastics that make up the casings, the cables, and the wiring. Long appreciated for its durability, its heat conduction properties, and ease of production, the mixture of plastics, particularly in older models, has long been a source of frustration to recyclers. This is complicated by the presence of "brominated flame retardants" which decrease ignitability, but also raise health concerns. There are also metals in computer components, such as mercury in batteries and the motherboard (.154 lbs in a typical 70 lb computer), aluminum and copper, which combined make up 20% of the computer, and iron at another 20%.

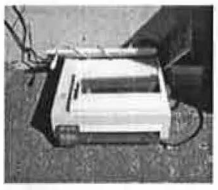
When electronics are disposed of in landfills, there are two problems. First, as noted, because the items are generally large, there is a concern about the use of valuable capacity for these wastes. Secondly, leachate containing various "heavy metals," such as lead and mercury, can be readily treated, but the metals will become a component of the treatment sludge generated as a byproduct of the treatment. With incineration, there are always concerns with the potential emissions and resulting levels of lead found in the ash. The result is that many disposal facilities in New Hampshire will not accept CRTs. Alternatives to CRT disposal can be found on the DES website at www.des.state.nh.us/pcas.

Management Strategies and Issues

Collection, Processing and Storage
Collection The local transfer/recycling center is often the recipient of household computers and televisions. Oftentimes, the transfer station is forced by a lack of funds to throw the items away in the disposal container or consider the material as metal and place it in the metal bin. With a "swap shop," there is the possibility for reuse or scavenging for parts by local repair shops or residents, however, the transfer station will likely receive the residual wastes (empty casings, broken parts, etc.) at a later date once parts of value have been removed.

Another technique for communities is the organized electronics collection, which is growing in popularity. In 2001, DES estimates that at least 50 of the 234 towns in New Hampshire had access to collections of CRTs from computers and televisions, and of these, about half collected a user fee of $5-10. At an average cost of $2,500 per collection event, DES estimates an annual collective cost to NH municipalities at $62,500. On the state level, the Department of Administrative Services, which administers the program to surplus equipment, reports that their cost to recycle 2,520 CRTs during 2002 was $12,600. State agencies are charged $5 for each CRT sent to surplus to cover this cost. DES has also been involved in a successful Northeast Recycling Council USDA Rural Collections Grant Project, which studied the economics of various methodologies used for collection and transport of household electronics. One of the benefits of that project was a collection of used electronics held in Concord in 2002, which resulted in over seven tons of electronics collected in a two-day period.

Reuse/Repair:
There are three levels of reuse and repair: community based, non-profit/donation and commercial activities. At the local level, mention has already been made of the swap shop option for residents. For donation outlets and non-profit organizations (e.g., Goodwill, churches, schools), there are pros and cons. While it may be preferable to give used units to charitable or non-profit organizations, there is the increasing reality that these organizations need units able to access the Internet, provide for current software needs, and give some assurance that the item will not become a burden in terms of maintenance cost and time for personnel training.



Although many commercial facilities in the northeast are at least in part designed for reuse, they face many hurdles. The cost effectiveness of reuse or repair options on a large scale, is dependent upon the age of the computers, the method of transport, the volume, and the value of the reused computers as compared to the virgin product. For example, dot matrix printers are only slightly less obsolete than typewriters, and computers with a 386 CPU processor speed or less are simply not practical for reuse. The labor costs to refurbish computers and televisions are considerable, and the increased use of less expensive prison labor has been controversial. Additionally, there is the problem with bundled software and the need for future upgrades since there are restrictions on the licensing of software that can be installed on the refurbished machines. Thus, the cost of a license can negate any cost effectiveness of the activity. Particularly for televisions, the manuals for repair can be especially costly (an average of $30.00 each), adding overhead to the repair activity.

Recycling/Processing
In New Hampshire, computers sent for recycling are typically salvaged for valuable parts with the residuals recycled or disposed of. Cathode ray tubes are often shredded and sent to smelting operations to recover lead or other precious metals. In more rare instances, the monitor glass may be recycled through "glass to glass" recycling operations. Several businesses *demanufacture* computers and direct the components for recycling and reuse to the greatest extent practicable. This is an opportunity for commercial sources of computers, particularly if they have newer models to trade for rebates on usable parts. The number of permitted solid waste facilities that recycle computer equipment in New Hampshire has doubled in the last two years and the cost of recycling computers has been significantly reduced. However, it is still quite costly for a business who finds the specifications for recycling difficult to meet, the processing service too costly, and transportation difficult. There are several smaller businesses, which also retrofit and demanufacture the units, but they also require parts with value, and have residuals for disposal or recycling. Finally, some of the components, such as the circuit boards and older computer housings, end up in the scrap metal piles (allowable through federal exemption), which are then redirected for recycling.

Factors that Affect Generation and Collection:
There are other factors that impact the generation/collection rates of computers and televisions.

First, the majority of computers and televisions destined for disposal or recycling are currently in storage. In part, this is due to limited options for removal, but more likely, it is due to the perception of the owners that there may be options for reuse, or there is likely a reluctance to part

with an expensive item purchased just a short time ago. Stored computers from the last ten years, particularly from residential consumers, have only a few dollars worth of parts. Computers from commercial entities typically have some value and offer at least the potential for some type of rebate to the generator from the recycling facility. Falling prices of new products can exacerbate the situation by limiting the resale value of older units, limiting the upgrade options, and creating a larger universe of replaced computers.

Consumer activities have a profound impact on generation rates, especially since computers have an obsolescence often less than three years and televisions less than seven years. Users will often upgrade to products, peripherals, and features that may not even be needed, such as monitors or printers for new computer units included in bundled equipment packages. Consumers will often upgrade in response to the increasing hardware demands derived from the Internet and software. The old units and items are then stored or discarded. On a more positive note, many of the replacements for CRTs are less toxic, less bulky and far more energy efficient than their predecessors. Regardless, as long as the industry has relatively no universal standards for manufacturing their materials with the thought of recycling the components, the problem of management will continue to mount. Industry can solve this problem by setting uniform standards for production and reuse, allow for easier and cost effective upgrades, and providing "universal" software (such as that suggested by the State of Massachusetts), which can bridge the gap as technology changes.

Additionally, the television industry is bracing for a change to digital broadcasting around 2007, which will cause many consumers to replace their existing units. Given the fact that televisions made currently are not designed with an end of life consideration, the ensuing flow of televisions will have a substantial impact on state and local resources, particularly considering the lack of markets for television recycling. Additionally, VCRs, which are being replaced by their digital cousins (DVD players), will end up in collections along with obsolete satellite dishes that are being discarded due to replacement with smaller, more efficient dishes and cable based broadband technology.

Rules/Policies

Computer monitors are not regulated at the residential level unless collected for recycling or disposal. If individual residents bring computer monitors to be disposed of, there is no NH law that would prohibit disposal. Commercial enterprises are regulated, however, and their computer monitors should be handled as a universal waste, which is a less burdensome method of disposal than if the business were to handle the monitor as a hazardous waste. Also, many disposal facilities, such as the Waste Management, Inc. facility in Rochester, NH, are not accepting monitors from any source, simply because they are concerned about inability to discern commercial from residential CRTs.

Cathode ray tubes are covered in the state's Universal Waste Rule; all other electronic wastes, including collection, transport, disposal, and recycling/processing, are regulated under the New Hampshire Solid Waste Rules. In order to encourage the development of the demanufacturing industry, the DES has lessened the requirements for financial assurance typically associated with a standard solid waste permit.

National/Regional Efforts

An advance disposal fee on electronics has been the subject of intense national debate because the concern transcends the borders of any one state. One particular effort, the National Electronics Product Stewardship Initiative, or NEPSI, seeks to establish a national collection system for electronics and define a mechanism by which the collections are paid. The NEPSI process has involved many public and private groups, including the Northeast Waste Management Officials Association (NEWMOA) and the Northeast Recycling Council (NERC), both of which have New Hampshire representatives. The crux of the discussions is whether there should be a fee on computer purchases, and if so, whether the manufacturer should shoulder that fee. Despite the fact that the consumer will ultimately be responsible for all or part of the fees, DES has joined many other northeastern states in supporting a fee at the level of the manufacturer, rather than establishing a regulatory scheme which would likely be more expensive for no more effectiveness. The agency believes that encouraging manufacturers to consider what becomes of their product when it enters the waste stream is the most appropriate path to follow and several manufacturers have begun to do so.

Summary

There are numerous problems with the functional reuses or actual disposal of computers and televisions in terms of unit volume, toxicity, and the obsolescence of the original items. Most importantly, there are impacts in the consumer market caused by technological and marketing changes. Within the next several years, we expect to see the common usage of high definition television and an increasing use of flat screen monitors for computers. It is estimated that greater than 50% of replaced units are currently in storage, awaiting other uses and most likely, ending up in the waste stream. Preparations must be made for the large volumes of discarded materials, but the problem will only be solved when the electronics industry as a whole adopts procedures, policies and designs that will decrease the current burden on the consumers, local government and the solid waste disposal industry.

[1]U.S. EPA, Common Sense Initiative. Analysis of Five Community Consumer/Residential Collections, EPA-901-R-98-003, 1999.

[2] Townsend,T., Musson, S.,Jang, Y.,Chung,I. Characterization of Lead Leachability from Cathode Ray Tubes, Using the Toxicity Characteristic Leaching Procedure, Florida Center for Solid and Hazardous Waste Management, Report ##99-5, 1999.

Construction and Demolition Debris

Background

"Construction and Demolition Debris" is the term used to describe the material generated by all phases of the construction and demolition industry and household renovation. It is a mixture of materials generated through the housing market, but also encompasses the woody debris of brush and stumps, as well as the residual wastes of the timber industry and the remains of violent storms.

By lumping the two terms "construction" and "demolition" together, we tend to distort the fact that the two are very different in their generation, management, and disposal options. Construction materials, which tend to be more prevalent in urban areas, are cleaner, can be easily separated at the job site, and are easier to reuse because newer, more universal, materials are used. Clean, woody materials are often desirable for wood processing for production of clean "fines" or wood chips. In contrast, demolition material is often dirty, has more contaminants (such as lead paint, glass, and insulation), and the presence of older construction materials means that it is less likely to be reused. The reuse market is quite specialized and is similar to salvage operations. The processing of demolition material can be problematic due to the persistence of contaminants in the final product and the high volume of residuals from processing requires costly disposal.

Total 2001 construction and demolition waste generation in NH is estimated at 260,000 tons or approximately 1 lb/person/day. DES estimates that >90% of all residential C&D waste generated was managed in-state with approximately one half processed and the remainder disposed of or burned. The state also accepted approximately 182,000 tons of imported C&D wastes in 2001, primarily from Massachusetts, Vermont and Maine. The vast majority of these imports were processed as well. The state has seen an increase in C&D generation (Figure 1), as data reporting becomes refined and as more Americans

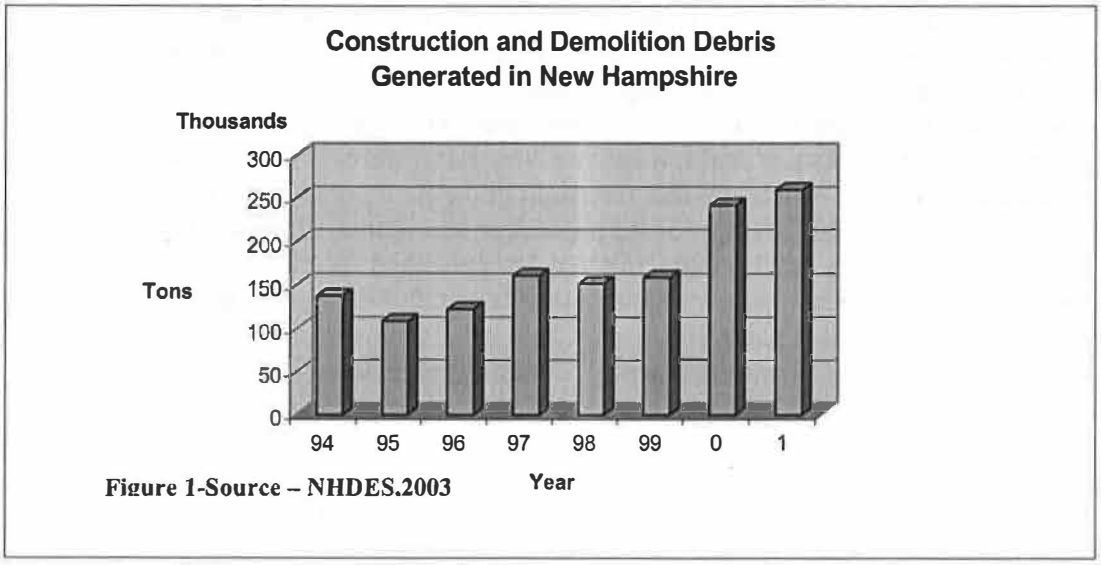


Figure 1-Source – NHDES.2003

focus upon home building and renovations. Certainly, the level of imports has increased as other states look for processing facilities as an alternative to limited choices and pricing within their own state. An upcoming landfill ban in Massachusetts on unprocessed C&D will likely increase this amount. Additionally, pressure treated wood, which will be banned from the consumer marketplace in 2003 as a result of health and environmental concerns, will also likely cause an increase in material.

There is the continued concern, however, that the traditional markets of C&D processors, such as fines, woodchips, and alternative daily cover, are shrinking, particularly as virgin wood chips become more cost effective, the need for backhauled fines shrinks along with landfill space, and the specifications of the final products are scrutinized for contamination. For this reason, many states, including New Hampshire, have invested resources in researching new markets for C&D and assisting with the development of new businesses.

Health and Environmental Issues

There are health and safety issues at all levels of C&D management. At the local collection level, improper handling can injure the operator and provide an unsafe environment for the public to drop off the material. Burning of "dirty" wood (e.g., painted) exposes contaminants to the atmosphere and can distribute particulates over a wide area. Failure to remove storage piles contributes to the leaching of contaminants, incentives for vermin, and fire danger. Often, demo debris enters the facility with a myriad of contaminants that need to be segregated. Examples include household hazardous wastes (e.g., paints, and construction adhesives), large pieces of metal and residual trash, and other contaminants, such as asbestos. All of these present their own safety issues and require regular training on proper handling methods.

At the next level of collection, all of the previous concerns remain, although there is certainly increased danger from use of the processing and sorting equipment, particularly if the material is not managed appropriately, there are no procedures for startup and shutdowns, or workers are not adequately trained. In the processing facilities where there is more accumulation of material, regulations require closure plans and financial assurance in case the business fails. Processing of demo material into usable products must also address the fate of contaminants that may have been initially present, such as asbestos and lead paint; otherwise, the contaminant will also be present in the final material. This is why most states, including New Hampshire, have some form of certification process, which provides oversight of the final product and ensures that there is no greater impact due to usage of the product or its eventual disposal. To become certified, a processing facility must follow either published specifications or accepted protocols prior to marketing any product made from C&D debris. Additionally, boilers that accept chips from these facilities must hold valid solid waste and air permits from NH prior to operations to ensure that any contaminated material is not being emitted during operations.

Disposal/Recycling Options

There are a number of New Hampshire facilities that collect C&D debris and there are a variety of methods and outcomes that can include grinding, mulching, screening,

composting and even disposal. There are three primary facilities that process C&D in NH – the Environmental Resource Return Corp. in Epping (ERRCO), the Turnkey Facility in Rochester, and the LL&S Wood Processing Plant in Salem. In 2001, the ERRCO facility in Epping processed 55,000 in-state tons and another 70,000 tons of imports. The Turnkey facility in Rochester accepted 70,000 tons of in-state C&D and approximately 11,000 from imports. The facility diverted 16,000 tons for processing. The LL& S facility in Salem processed 56,000 tons in-state and 86,000 imported tons. Their product is primarily wood chips and mulch. The impact of these three facilities in New Hampshire has been considerable in that they provide an alternative to landfilling and incineration and produce a product that is in demand. However, there is a significant portion of C&D, mostly the demo material, which is simply landfilled at the three lined and twelve unlined facilities that reported disposal in 2001. Additionally, most towns opt to have a burn pile, which takes care of the brush, stumps and clean wood, and a compost pile to manage brush, sawdust, and even gypsum.

While many towns collect C&D material, the costs of collection and transport can be excessive. The gate rates for a community can approach $100/ton with transportation costs up to $1.50/mile. The costs of processing directly impact decisions at the local level as to whether a community will choose to process, burn, or landfill the material. For example, there is limited accessibility to these facilities from both the northern region and the southwest, and these regions transport less material to the state processors. To combat the rising costs, towns have had to scrutinize their existing infrastructure for collection. Collection procedures can be modified to separate clean wood from the painted wood (so the clean wood can be burned in burn piles), and utilize equipment to volume reduce the material collected so that "dead air" does not fill up storage bins, making transportation more efficient. Volume reduction of C&D can best be accomplished using large augers, which essentially crush large, bulky items into more manageable pieces so that more material can be shipped at any one time. This problem has also been addressed in part through back hauling of processed dirt fines for landfill cover, cooperative hauling agreements and an examination of processing options. Non-profit brokers, such as the Northeast Resource Recovery Association, can usually provide better contract prices for communities and can arrange for cost effective transport.

Rules/Policies

The oversight of construction and demolition materials can be found primarily in the Solid Waste Rules. Transfer stations and disposal facilities must receive a standard permit prior to startup. Public facilities, however, may receive a permit-by-notification providing they accept less then 30 tons of disposable wastes a day at the facility. Facilities that receive C&D and process, such as ERRCO, also require a standard solid waste permit and must submit annual reports detailing their activities. As part of the standard permit, there are closure and financial assurance requirements, storage limits, acceptable materials, and standards for operations. Additionally, like any other solid waste facility, there are regulations for operator training and management of residuals stemming from the processing.

A product resulting from the processing of C&D may fall under additional regulation. For example, if the product is going to act as a substitute for other materials or feed

stocks, then the product will need to be certified as a "waste derived product" under Env-Wm 3200 of the Solid Waste Rules. An approved waste derived product is one where a demonstration has been made, either through application or through published specifications, that the product will not have a more negative impact to the environment or safety when compared to the use of virgin materials. The Department has rewritten the criteria for waste derived products, which was once encompassed in the "beneficial reuse" process, to better reflect the regulations of neighboring states, the need to encourage the use of recyclable materials in manufacturing, and the recognition of the variety of products which can arise from processing operations, such those operated by C&D facilities.

Summary

The C&D industry is constantly evolving to meet the demands of the economy and the need for responsive solid waste management activities. Clearly, the processing industry provides a service that states should embrace, provided the materials produced conform with appropriate checks for health and safety, storage limits can be maintained, and the service is cost effective. Beyond support for the processing industry, the generator of the waste material should endeavor to separate, reduce and reuse C&D materials so as to minimize disposal needs.

Household Hazardous Waste

Background

Household hazardous wastes are produced when household hazardous materials are no longer wanted or needed as household products. These wastes include unused paint thinners (flammable), oven cleaners (caustics) or bleach (oxidizers), and they can affect a consumer's health and contaminate the soil, ground water and surface waters. To make informed decisions when buying and using products with hazardous ingredients, consumers must identify which products are considered harmful and then ensure that they are managed safely upon disposal.

Health and Environmental Issues

We use hazardous products everyday in our homes. These products become a hazard when improper use or disposal causes a threat to the environment or human health. Many common household products (paints, solvents, drain openers, oven cleaners, polishes, waxes, pesticides, cleaning agents and spent automotive products) have hazardous properties (flammability, corrosivity, explosivity, and toxicity).

The average household throws 15.5 pounds of hazardous materials into the trash each year. Household hazardous materials are disposed of in other ways, too. Certain products, such as used oil, are frequently poured down storm drains and many products end up going down the sink drain to septic systems or sewers.

Flammable or reactive household chemicals can release toxic fumes or even explode if they are mixed together in the trash, causing fires or injuring workers. Dumping solvents into septic systems or landfills may contaminate ground and surface waters, ruining drinking water and killing fish and wildlife. Pesticides can damage sewage treatment plants, and oil poured into storm drains can flow directly into streams and ponds.

There are also health threats associated with some of these products. Products like drain openers contain lye that can burn skin, eyes or respiratory passages. Exposure to some pesticides, paints and solvents can cause weakness, confusion, dizziness, irritability, headaches, nausea, sweating, tremors and convulsions. Other repeated chemical exposures can cause cancer or birth defects.

Children are very vulnerable to these products and accidental poisonings can occur if these products are not properly stored. In New Hampshire, the third and fourth leading causes of poisoning are personal care products and cleaning substances (first and second are prescription and nonprescription drugs). These substances should be stored safely and disposed of properly.

Rules/Policy

Household hazardous waste is exempted from the Hazardous Waste Rules until collected as part of a HHW Collection Project or at a permitted solid waste facility. The Rules are designed to facilitate maximum collection of HHW in order to prevent the wastes from being disposed of with other solid wastes. For example, towns may transport HHW to a larger collection site in town vehicles, saving the cost of hiring registered transporters.

Summary

Proper management of HHW requires vigilance from the consumer, towns, solid waste facilities, product manufacturers and the Department of Environmental Services. To protect health and the environment, consumers need to buy products wisely, *store* them safely, and *use* products safely. This includes reading and following label warnings required by federal law. Although these labels typically do not indicate long-term health hazards, they provide valuable information to make informed choices about what products to buy and how to dispose of them if they become a waste.

Towns need to educate their citizens about the proper disposal of HHW and provide safe collection opportunities, either through one-day collection events, or on-going, permanent collections. The Department of Environmental Services provides matching grants and educational assistance to towns for HHW collection, but the towns need to make their own financial commitment to protecting their workers, the public and the environment. Solid waste disposal facilities, whether public or privately owned, have a similar obligation, plus the need to protect the environment from eventual release of toxics in the waste stream through diligent inspection of the waste. The Department imposes such restrictions in permit conditions, but the facilities should also recognize the benefits of preventing long-term liability at their facility.

The achievement of source reduction is easiest when it takes place at the manufacturer. If companies were to pursue harmless or less toxic alternatives for household hazardous *products*, there wouldn't be as much of a concern about the *waste*. It would also help if companies embrace the idea of "product stewardship," and assume responsibility for the proper disposal of their product when it is no longer needed or wanted.

At the state level, there should be exploration of additional funding mechanisms for the disposal of HHW. The concept of advance disposal fees, a true "user fee," has been considered by the Legislature. Because HHW is common to all facilities, it would also be appropriate to use a portion of revenue raised from a per tonnage surcharge on solid waste for the purposes of proper disposal of HHW. In the interim, the Department of Environmental Services will continue to promote permanent collection facilities, offer education, and use the budgeted funds for the grant program for maximum benefit.

Proper management of household hazardous products during use, storage and disposal should be everyone's concern. Responsible actions to reduce the use of these products wherever possible, to reduce the amount of waste generated, and to properly dispose of all household hazardous wastes will help safeguard health and the environment. This involves participation by citizens, towns, solid waste facilities, product manufacturers and the State in finding ways to decrease the toxicity of the waste stream at a reasonable price. All parties must assume their appropriate responsibilities: citizens must become more informed; towns must make a financial commitment to collection; facilities must ensure adequate inspection; manufacturers must engage in research and development of improved, non-toxic products; and the State must continue its outreach and grant program while considering additional methods of funding.

Municipal Solid Waste (MSW) Incinerator Ash

Background

Ash is the solid waste residue produced from the combustion of materials, including municipal solid waste and medical waste. Ash from thermal combustors, such as solid waste incinerators, is commonly broken into two major categories: bottom ash, and fly ash/air pollution control residue. Bottom ash is the term used to refer to the residue, which remains on (or sifts through) the incinerator stoker and grating system during the combustion process. Fly ash is the material that becomes airborne in the incinerator and is collected in either the incinerator stacks or in the air pollution control equipment. In facilities where lime is added for acid-gas scrubbing, reacted and unreacted lime can comprise the dominant weight and volume fraction of the fly ash residue. Typically, MSW incinerators generate both a bottom ash and a separate fly ash whether or not energy recovery is part of the process or not.

The total 2001 MSW incinerator ash generation in New Hampshire is estimated at about 84,000 tons, which includes estimates from municipal combustors and the small amount of ash generated by medical waste incinerators. The state has seen a decline in the amount of MSW incinerator ash generated due to the closure of old MSW combustors and the shift from incinerating medical waste to other new disposal techniques, including microwaving and sterilization.

Health and Environmental Issues

The management of ash is an important regulatory concern because ash can contain contaminants, including heavy metals, and may produce leachate if improperly handled or disposed of, risking contamination of groundwater and surface waters. The primary health and environmental issues associated with ash result from poor handling, storage, transportation and leaching of contaminants from landfills. Ash contains heavy metals such as lead, cadmium and mercury, and dioxins and furans, which are potentially toxic organic compounds created as a product of combustion. This is why the NH Solid Waste Rules cover all facets of ash handling and management, from representative sampling and analytical characterization to disposal.

Disposal and Recycling Options

Until 2000, the ash from the Claremont Wheelabrator incinerator was disposed of in a dedicated double-lined monofill in Newport at a rate of about 22,000 tons/year. The landfill was owned by the NH/VT Solid Waste Project, a bi-state organization serving 29 communities in New Hampshire and Vermont. Now that the landfill is closed, the Project exports the ash to a landfill in Massachusetts.

Ash from the Penacook Wheelabrator incinerator is disposed of at a dedicated double-lined monofill located in Franklin at a rate of about 60,000 tons/year. The Concord Cooperative, a group of 27 New Hampshire cities and towns, owns the Franklin ash landfill (monofill).

Ash from the remaining small municipal waste combustors and medical waste incinerators is disposed of at the North Country Environmental Services double-lined MSW landfill in Bethlehem or the Turnkey MSW Landfill located in Rochester, or it is shipped out of state for disposal.

Ash does not have to be landfilled. Waste-to-energy incinerators equipped with state-of-the-art pollution control equipment and proper management of the ash greatly reduce air emissions and adverse environmental and public health impacts. After being properly tested, ash can be used as landfill cover, road base material, and in cinder blocks. The reuse of MSW waste-to-energy incinerator ash is being actively researched as an alternative to using valuable landfill space for disposal. One promising reuse option is the utilization of bottom ash as a partial substitute for aggregate in the manufacture of binder course pavement.

In May 1993, a Research and Development project was completed which entailed the reconstruction of 2,000 linear feet of U.S. Rt. 3 in Laconia, NH. The bottom ash from Wheelabrator Concord was used as a substitute for 50% of the natural aggregate in the binder course paving of 850 linear feet in the test section roadway. The remainder was constructed as normal pavement to constitute a control section. The results indicate that, after a decade of service and five million vehicles, the "ashphalt" demonstration test section is performing as well as the control section in all aspects.

Rules and Policy

As previously noted, the management of ash is an important regulatory concern because ash can contain contaminants, including heavy metals, and may produce leachate if improperly handled or disposed, thus risking the contamination of groundwater and surface waters. In New Hampshire, ash is regulated primarily under the New Hampshire Solid Waste Rules.

The Solid Waste Rules require sufficient on-site ash storage capacity to ensure that facility operations continue during short-term interruptions of ash transportation and/or disposal. Ash stored on-site must be stored in watertight, leak-resistant containers located inside a building or an enclosed structure, in such a manner to avoid the dispersion of dust. Loaded containers may be stored inside or outside of a building if the containers are sealed or covered to prevent rainwater infiltration or airborne emissions. Ash may also be stored on-site in a waste pile if it is located in an enclosed structure on a base that meets the requirements of the Solid Waste Rules. There must be a run-off management system to collect and control the free liquid that drains from the ash residue.

A quality assurance/quality control (QA/QC) plan developed by each ash generator must specify how representative samples of ash will be obtained, which contaminants and parameters (metals, pH, etc.) will be included in the test, as well as how the laboratory analyses will be performed. It is important to ascertain the analytical characteristics of the ash, particularly in terms of contaminants, so that environmentally sound management and disposal methods can be practiced.

In some cases, depending on the analytical characteristics of the ash, certain ashes may have to be managed and disposed of as a hazardous waste rather than a solid waste. Therefore, the importance of the QA/QC plan must be emphasized at both the operational and management levels of the facility.

The transportation and conveyance of ash must be done in a manner that avoids any dispersion of ash into the environment and is in compliance with all other local, state and federal regulations. Prior to disposal, all ash must be sampled and analyzed in accordance with an approved QA/QC plan. In New Hampshire, ash can only be disposed of at facilities permitted to receive such waste. Much of the MSW ash disposed of in New Hampshire is placed in a secure double-lined monofill that contains only ash. In addition, there are secure double-lined commercial MSW landfills that are authorized to dispose of MSW incinerator ash.

Grant Programs

Unlined former ash landfills are eligible for a 20% state reimbursement grant under the State Unlined Landfill Closure Grant program. Unlined ash landfill closure projects are also eligible for participation in the federal/state Revolving Loan Program (SRF), which provides low interest, loans to communities for those unlined landfill closure projects.

Summary

Incineration is used for the volume reduction and disposal of 22% of New Hampshire solid waste. The resulting ash must be managed in a responsible manner, employing reuse options when available and using secure, safe disposal when reuse is not feasible.

Infectious Waste

Background

Infectious waste is a subcategory of the broader medical waste stream. In New Hampshire, it is defined as any waste which, because of its infectious nature, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed or otherwise managed. It is regulated as a solid waste under New Hampshire RSA Chapter 149-M and the New Hampshire Solid Waste Rules (ref. Part Env-Wm 2604), with special treatment and disposal standards.

Infectious wastes are generated at many different facilities, including doctors' and dentists' offices, hospitals, clinics, schools, nursing homes, mortuaries and veterinary facilities. Infectious waste includes, but is not limited to, cultures and stocks of infectious agents, pathological wastes, waste human blood and blood products, sharps used in patient and animal care, laboratory wastes and dialysis waste.

The most common method of disposal for this material is via pathological incineration, which has temperatures and residence times greater than those of municipal solid waste incinerators. However, the number of medical waste incinerators is declining due to more stringent requirements on air emissions. Existing regulations also provide that infectious waste may be disposed of in a permitted landfill if certain criteria are met. Liquid infectious waste may be disposed of via a sanitary sewer, subject to local approval.

Health & Environmental Issues

In the past, the bulk of infectious waste in New Hampshire was generated in hospitals and disposed of in hospital incinerators. Now there are many clinics and healthcare facilities that require disposal sites. Most hospitals that had previously accepted infectious waste from off-site sources are now either at capacity or can no longer afford to accept those wastes.

When burned, infectious wastes emit a number of toxic air pollutants, including hydrochloric acid, dioxin, lead, cadmium, and mercury. The 1998 ***New Hampshire Mercury Reduction Strategy*** identified hospital/medical/infectious waste incinerators as major contributors to mercury emissions in the state, and as a result, led to the implementation of strict new state and federal regulations. The ***New Hampshire Dioxin Reduction Strategy (2001)*** lists medical waste incinerators as the top contributor for dioxin emissions. Many of the plastics used in medicine, particularly intravenous bags and tubing, contain polyvinyl chloride (PVC), which is a known precursor of dioxin formation due to its high chlorine content.

There are several methods that hospitals and health care providers can use to address the problems with incinerator emissions, including source separation (segregating ordinary household waste and recyclables from medical/infectious waste), source reduction, (eliminating dioxin precursors and other toxics from the waste stream) and alternative disposal techniques, including autoclaving and microwaving prior to disposal in a landfill. All of these options are

effective in reducing overall hospital waste generation and minimizing the formation of dioxin and other pollutants.

Rules/Policy

Infectious wastes can be incinerated in a hospital/medical/infectious waste incinerator. These wastes can also be disposed of in landfills, provided (1) the waste has been previously treated in autoclaves or microwave technology to meet disinfection standards, (2) approval has been obtained from the Waste Management Division of the Department of Environmental Services (DES), and (3) notification is given by the transporter to the receiving facility prior to disposal. Shredding or otherwise rendering the waste unrecognizable is not required.

DES does not require manifests or licensing of transporters for the transportation of infectious waste, however, there are requirements for *how* the waste is transported. Untreated waste transported off-site for treatment and disposal must be double-bagged in non-permeable, 3 mil polyethylene (or equivalent) and labeled as infectious waste with the transporter's name and address. Sharps must be encased in rigid, puncture-resistant containers within the double bags. Additional transportation and packaging requirements have been adopted by the United States Department of Transportation (US DOT) under their Hazardous Materials regulations. For the specifics on these federal requirements, the US DOT should be contacted directly at (603) 225-1626.

Summary

The incineration of infectious wastes can contribute significantly to the levels of mercury, dioxin and other air pollutants. Autoclaving and microwave technology are alternatives to incineration that do not cause the release of the pollutants. Education about how to best manage and dispose of infectious wastes can alleviate some of the concerns about infectious waste management. The Department needs to educate hospitals and other members of the health care industry about additional solutions to managing infectious waste. As we learn more about the harmful effects of certain disposal methods, the Department should conduct coordination and outreach efforts. The health care industry and product manufacturers need to recognize their role in the management of infectious wastes and contribute input to efforts to promote safe disposal methods.

Motor Vehicle Salvage Facilities

Background

The motor vehicle salvage industry plays a key role in managing a significant volume of solid and hazardous waste. The Department estimates that there are more than 300 motor vehicle salvage yards in the state, with on-site inventories ranging from less than 50 to more than 500 vehicles. Roughly 75 percent of the material in a vehicle is recycled, conserving natural materials and energy.

Health and Environmental Issues

Properly managed salvage yards can contribute significant environmental benefits. When parts are available from the salvage yard, it is not necessary to manufacture new ones (source reduction). Salvage yards also recycle tons of scrap metal and other materials. However, a poorly managed facility can have a serious impact on environmental quality. The typical motor vehicle salvage yard handles a broad range of fluids (gasoline, oil, lubricants, brake fluid, transmission fluid); each has the potential to contaminate groundwater, surface water and soils if not properly drained and contained. Additional hazardous wastes are handled by the industry, including mercury-containing switches, air bag propellants, and lead parts, such as wheel weights. Other wastes of concern include asbestos brake shoes and clutches, solvents for cleaning parts, soiled shop wipes, lead acid batteries, sludge from oil/water separators, certain types of antifreeze, and chlorofluorocarbons (CFCs). Each of these wastes must be managed without a release to the environment or employee exposure.

Rules/Policy

At present, motor vehicle salvage facilities are regulated by various separately managed programs within local, state and federal government. Since none of those programs provide comprehensive oversight of *environmental* concerns, a key objective of the department is to promote environmentally sound operating practices through integrated management of the existing requirements and a proactive program of pollution prevention.

The Department has been working on an initiative to establish a program for improving environmental management practices within the motor vehicle salvage industry. An important component of this initiative is Best Management Practices (BMPs), which provide guidance for proper management of the wastes. Leaders of the industry have been involved in the development of this program, and have helped to strengthen the proposed rules, which are envisioned to require registration of motor vehicle salvage yards.

The Department of Environmental Services has two main objectives in this initiative. First, we will promulgate and implement program rules; second, we will establish and maintain an inventory of environmental problems at motor vehicle salvage yards. This effort will be implemented through a variety of methods, including education/outreach, and compliance/enforcement. The industry should continue to play an active role and should assist in educating their colleagues through their own organizations.

Summary

To achieve maximum environmental protection and benefits, the Department of Environmental Services will continue to work with the motor vehicle salvage yard industry. This is an area where there are many opportunities for improvement, and most of them are relatively inexpensive to implement. Through the efforts of the Department and the industry, we can reap the benefits of this industry without long-term impacts to the environment.

ScrapTires

Background

The Rubber Manufacturers Association (RMA) reported in 2001 that tire markets had consumed approximately 218 million tires out of 292 million tires generated that year in United States. Of this amount, approximately 84% is from light passenger vehicles, 15% to light and heavy trucks and 1% from heavy vehicles (e.g., aircraft). In addition, the RMA reported that at least 40 million tires were used in civil engineering applications, including 25 million scrap tires used in landfill applications. An estimated 30 million tires were reused, with approximately half of that amount exported.

Facts about Scrap Tires

- *A steel belted tire has about 2.5 pounds of steel.*
- *Each tire has the equivalency of 7 gallons of oil.*
- *Each tire has about 15,000 BTUs per pound of rubber*

(Source: North Carolina P2 Program)

The amount of scrap tires generated in New Hampshire is estimated using the formula of one tire/person/year, with each tire estimated to weigh 20 pounds (without rims and for passenger cars). In 2001, the estimated number of scrap tires generated in New Hampshire was at least 1,259,000 tires or about 12,600 tons.

Health and Environmental Issues

If improperly managed, scrap tires pose a significant fire threat and offer breeding sites for mosquitoes and other vermin. Tire fires are extremely hazardous to public safety and the environment. When tires burn, they produce a black plume of acrid smoke with potentially toxic gases and an oily residue that spreads the fire and contaminates the soil and surrounding surface waters. In addition, because tires are such a good fuel with a higher per pound heat output than most coal, tire fires are difficult to extinguish.

Scrap tires left outdoors fill with rainwater and provide a breeding place for certain species of mosquitoes that have adapted to breeding in water-filled tires. Before there were tires, these mosquitoes, called "container breeders", would breed in natural containers such as tree cavities. Mosquitoes can transmit diseases such as the West Nile Virus, yellow fever, dengue, LaCrosse encephalitis, and eastern equine encephalitis. In 1999, the concerns over proliferation of the West Nile Virus prompted federal and State officials to urge communities and businesses to reduce unnecessary piles of tires and to cover those piles that remain.

Recycling Options

The principal market for tires is tire-derived fuel for cement kilns, pulp/paper mills, electric utility boilers, and industrial boilers. Other applications include civil engineering applications, products, export and agriculture. Whole tires have several uses, including playground equipment, retaining walls, planters, artificial reefs, and weights on covers over silage or hay. Split tires become the feedstock in the manufacturing of floor mats; bumpers on loading docks, wharfs, and docks; and mats for blasting. Shredded tires have many applications, including use in septic systems, road construction, and landfill cover. Crumb rubber from tires is used in products such as running tracks, carpet padding, playgrounds and rubber modified asphalt.

In New Hampshire, tires are generally collected for disposal/recycling through the local community transfer station or through the tire retailer where new tires are purchased. The local

transfer station or tire retailer will usually charge to take scrap tires to cover the cost of hauling and disposal. Unfortunately, these charges can be a disincentive for proper removal and some residents may dispose of tires on back roads, the woods, or on personal property. In addition, those communities that do not charge for tires become the unintended regional collection center, receiving tires from the residents of the surrounding towns that charge for tires.

Scrap tires collected at the local transfer station are typically stockpiled outside until there is enough for a trailer load. A few communities carefully stack tires in a closed box trailer, maximizing the number of tires in a load and preventing the accumulation of water in the tires. The charge for hauling and disposing of tires is usually based on weight in tons, which, in the year 2001, translated to about $1.00 - $1.50/tire.

Several communities have adopted a vehicle registration fee for collecting and disposing of tires, motor oil and motor vehicle batteries. The fee is an additional amount paid by the resident when registering their vehicles at the town or city clerk's office. The money is placed in a town reclamation trust fund for the purpose of paying for collection and disposal of the town's motor vehicle wastes. Any excess monies in the fund can be used for the purpose of recycling and reclamation of other types of solid waste.

Rules and Policies

Scrap tires are regulated as a solid waste in New Hampshire by the Solid Waste Rules. The rules cover requirements for collection, storage and transfer; processing and treatment; disposal; reuse and limitations for reuse; transportation; and testing and reporting. A solid waste permit is required to collect, store and transfer scrap tires unless the tires are sent directly for salvage and re-use as tires. No permit is required to actively collect, store and transfer source separated tires that pass inspection in New Hampshire and are to be re-used as tires. However, a permit is required to collect mixed loads of usable and non-usable tires where the usable tires are then sorted out for future sales.

Collection, Storage and Transfer Tires may be collected and stored in outdoor transfer containers or stockpiled on the ground. Outdoor stockpiles of tires must be underlain by asphalt, concrete or packed soil. To reduce the adverse environmental effects of fires, tire piles must be no greater than 25 feet in diameter and less than 15 feet in height with fire lanes 25 feet in width around each pile. Each pile must have a minimum of a 12-inch berm to prevent any release of oils and liquids in the event of a fire. Further, the solid waste facility must have enough equipment, water, cover material and other supplies sufficient to control a fire until the nearest fire company capable of extinguishing the fire arrives. If stored indoors, the storage facility must comply with the Standards for Storage of Rubber Tires, N.F.P.A. 231D, 1994 edition, as adopted by the National Fire Protection Association, and as it may be amended.

Scrap Tire Piles

During the last decade, many tires in NH were collected for use as a drainage layer for landfills undergoing closure, such as the Rocketenetz Landfill in Pelham. As such, many of the smaller tire piles were eliminated. As of 2001, the State currently has about 225,00 tires remaining in piles.

Processing and Treatment Scrap tires must be processed or treated in accordance with Chapter Env-Wm 2200 of the Solid Waste Rules. A scrap tire processing or treatment

facility must properly account for and manage all bypass and residual waste (including ash) generated by the treatment process. The processing of tires by chipping and shredding must be done in a manner to limit noise, odor and dust emissions to the greatest extent possible. If the treatment method is by incineration, additional requirements apply, as specified by Chapter Env-Wm 2400 of the Solid Waste Rules.

Alternative Uses Manufacturers interested in using processed tires for feedstock in products or for uses in projects (e.g., construction, highway) must first ensure that the final usage is "certified for direct reuse"; which is detailed in Env-Wm 3200 of the Solid Waste Rules. Under this process, the applicant makes the demonstration to the DES that the use of the tires in the eventual project or product presents a legitimate use as an ingredient and will present no greater harm to the environment upon usage or disposal.

Disposal Scrap tires are to be disposed of at authorized facilities only. When landfilled, scrap tires must first be quartered, split or shredded to prevent the tire from floating to the surface. Waste-to-energy incinerators that are permitted and properly equipped may burn scrap tire chips to create energy and reduce the volume of tires landfilled. However, such facilities typically also require that the tires be at least quartered and limit the number of tires per transport. The open burning of tires as a mechanism of disposal is prohibited.

Summary

Because scrap tires pose a significant fire threat and provide breeding grounds for mosquitoes and other vermin, proper management and disposal is important to protecting public health and the environment. Scrap tire pile management has greatly improved in New Hampshire since the Hunt Tire Pile fires in October 1984 and September 1989. Since these fires, new rules have been promulgated requiring proper management of tire piles. Given the abundance of scrap tires and the long term wear and affordability of new tires, markets for scrap tires have been very slow to develop. Tires still have a negative value in that one has to pay for removal. This situation is exacerbated due to long distances to facilities and increased supplies of tires due to events such as tire recalls and the removal of tires to prevent mosquito-breeding areas.

Universal Wastes

Background

"Universal wastes" are wastes which meet the definition of hazardous waste in the NH Hazardous Waste Rules, but which, during accumulation and transport, pose a relatively low risk compared to other hazardous wastes. Many of these universal wastes are post-consumer type wastes that have toxic qualities associated with their structure or formulations and frequently are disposed of in the solid waste stream. Wastes which DES has determined meet universal waste criteria include used antifreeze, mercury-containing lamps and devices, certain types of batteries, Cathode Ray Tubes (CRTs); and recalled or suspended hazardous waste pesticides regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

Health and Environmental Issues

- Antifreeze is used as an engine coolant and commonly consists of ethylene glycol or propylene glycol. Antifreeze breaks down over time and forms acids that corrode a vehicle's cooling system. During its use, antifreeze may become contaminated with traces of fuel, metal particles, and grit. Benzene, lead, and other hazardous constituents may cause used automotive antifreeze to be characterized as a hazardous waste.

- Mercury is a heavy metal that can accumulate in living tissue and cause adverse health effects. When a mercury-containing waste is disposed of in a solid waste landfill or incinerator, the mercury can contaminate air, soil, surface water and groundwater. In New Hampshire, mercury has been detected in freshwater fish and a statewide fish consumption advisory has been issued by the NH Department of Health and Human Services.

- Nickel cadmium (Ni-Cd) batteries are the most common type of rechargeable battery in use today. These batteries are found in many products, such as power tools, camcorders, notebook computers and cordless telephones. The advantage of Ni-Cd batteries is that they can be recharged over and over again. Eventually, however, the battery is depleted and requires disposal. The problem with disposing of Ni-Cd batteries is that they contain cadmium, a known cancer-causing heavy metal. As long as the cadmium remains in the battery casing, there is no risk. If the battery is disposed of, though, the heavy metals may be released into our environment through landfill leachate or incinerator emissions and ash. Other types of batteries may contain lithium (which is reactive), mercury and silver (both hazardous).

- Cathode Ray Tubes (CRTs) are glass tubes used to provide the visual display in televisions, computer monitors, and certain scientific instruments. The average CRT contains five to eight pounds of lead to shield the viewer from electromagnetic radiation. The lead has the potential to become airborne if incinerated or released to groundwater over long periods of time. Lead has been known to cause neurological and other toxicological effects on humans and other animals.

- Pesticides are any substances or mixtures of substances intended for preventing, destroying, repelling, or mitigating any pest. Mismanagement causes human and environmental impacts.

Rules/Policy

Due to the concerns listed above, the NH Department of Environmental Services (DES) has developed a policy on universal wastes that promotes recycling, pollution prevention and safe handling methods. Universal waste from businesses, industry and institutions may **not** be disposed of as a solid waste unless they are below the regulatory limits for mercury when subjected to a toxicity test required by the U.S. Environmental Protection Agency and DES. Many mercury-containing devices, including thermostats, exceed the hazardous waste regulatory limit for mercury toxicity of 0.2 milligrams per liter. Generators of waste are responsible for determining whether their wastes are hazardous and, if so, managing these wastes in accordance with the requirements of the NH Hazardous Waste Rules. These requirements may include use of a hazardous waste manifest, NH registered hazardous waste transporter, and delivery to an authorized hazardous waste facility.

Alternatively, universal waste may be handled under the less stringent requirements of the Universal Waste Rule. Under this Rule, hazardous waste generators are not required to include universal waste in their calculation of generator status in accordance with the NH Hazardous Waste Rules, Env-Wm 503. Universal wastes, when recycled, are also not subject to the generator fee required by Env-Wm 512.02. A facility may collect universal waste from other sites or generators without a permit, provided the facility meets the handler requirements and complies with other applicable federal, state, and local regulatory requirements. A "handler" of universal waste means: (1) a generator of universal waste; or (2) an owner or operator of a facility that receives universal waste from other handlers, accumulates the waste, and sends the waste to another handler or to a destination facility.

Also, convenient recycling of Ni-Cd batteries is available to New Hampshire municipalities. The NH Department of Environmental Services (DES) and the Rechargeable Battery Recycling Corporation (RBRC), a non-profit public service organization created by the Rechargeable Power Industry, work together to provide a free household Ni-Cd battery recycling program called "Charge up to Recycle!" Batteries containing silver can also be recycled.

Summary

Universal wastes are hazardous, but because they are so common, the Universal Waste Rule makes it easier to separate and collect these wastes to keep them from contributing to the toxicity of the waste stream. The Rule covers used antifreeze, mercury-containing lamps and devices, certain types of batteries, Cathode Ray Tubes (CRTs), and recalled or suspended hazardous waste pesticides regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

Used Oil

Background

To provide financial support for the proper collection of Do-It-Yourselfer (DIY) used oil, the State collects a fee of $0.02 per gallon on the import of virgin automotive oil. The monies are deposited into a dedicated portion of the NH Hazardous Waste Cleanup Fund and used to award grants to establish, improve or operate used oil collection centers. Political subdivisions, other governmental entities and private businesses that are registered state motor vehicle inspection stations are eligible to apply for grants.

Health & Environmental Issues

Used oil is the result of normal use in motor vehicles and motorized equipment. After use, motor oil may contain a number of contaminants, including metals and organic chemicals. It is estimated that approximately 3 million gallons of used oil are generated in New Hampshire each year. As much as 50 percent of this amount may be generated by Do-It-Yourself (DIY) oil changers. Proper management of used oil is important to help prevent contamination of surface water and groundwater.

It takes only one pint of oil to produce a one-acre slick on surface water which may kill plants, fish and other wildlife. One quart of oil can contaminate 250,000 gallons of groundwater and make it unsafe to drink. DIY used motor oil should not be disposed of in the trash or on the ground where it may eventually contaminate drinking water supplies. It should not be spread on roads or driveways or poured down storm sewers where it may be carried to lakes and streams.

The goal is for DIY used motor oil to be recycled or reused. One gallon of used oil can be rerefined into 2.5 quarts of recycled lubricating oil, whereas it takes 42 gallons of crude oil to produce this same amount of virgin lubricant. When meeting the proper specifications, used oil can also be efficiently used as fuel in approved boilers or furnaces.

Rules/Policy

Because of its flammability and tendency to become contaminated during its use, used oil is listed as a hazardous waste under the Hazardous Waste Rules. However, to facilitate the recycling of used oil, Part Env-Wm 807 of the Rules governs "Requirements for Management of Used Oil being Recycled." This Part reduces much of the regulatory burden when used oil is recycled rather than incinerated without energy recovery. There are sections in Part 807 that address the requirements for generators, transporters, marketers of used oil being recycled and burners of used oil fuel.

Summary

Even with the alternatives of electric and solar-powered vehicles, there will still be a significant amount of used oil generated in the coming years. Technology has not yet replaced oil, which

means that it is incumbent upon everyone to properly manage used oil. Readily accessible collection centers and recycling are the solutions.

There are around 27 towns that do not have collection facilities. The Department's goal is to have at least one outlet for DIY used oil in each town. The Department will continue to encourage these particular towns to apply for grant funds and the towns should make this a priority. If towns are not interested, private enterprises can apply for the grants as well. Convenient access to citizens is key to the success of this program.

As the number of towns without access goes down, the Department will devote more time to compliance assurance to protect the environment from used oil releases and to maximize the amount of used oil that is recycled.

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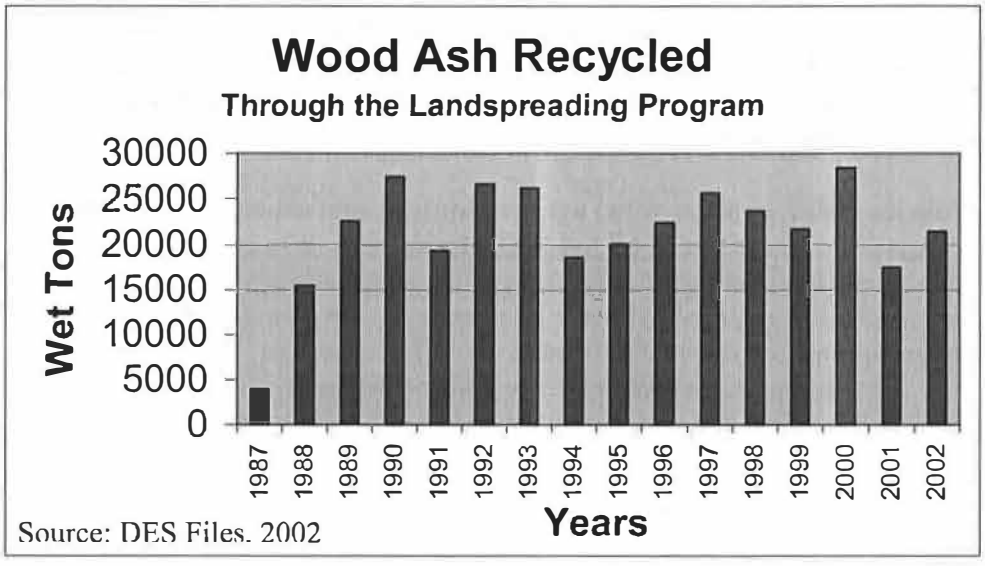
4.3.3. **Wood Ash**

Background "Wood Ash" is a residual material produced when wood is burned, and is defined as solid waste in accordance with RSA 149-M. As a result of the energy crisis, and heavy dependency on foreign oil in the 1970's, the United States Department of Energy encouraged the development of alternative energy sources. It was during this time that the "wood fired" power plants developed as an industry in New Hampshire. The primary fuel utilized by the power plants is whole tree chips, mostly derived from forest thinning and development clearing. The growth of this industry produced a sudden and large increase in the generation of wood ash in the state. In the years prior to 1986, thousands of tons of wood ash generated by wood fired power plants were being disposed in landfills annually.

The wood fired power plants generate electricity from a regional, renewable source and the resulting by-product is completely recyclable. In 1986, the Department of Environmental Services and the Department of Agriculture, Markets and Food, with guidance from the UNH Cooperative Extension, entered into a formal policy to encourage the use of wood ash as a liming agent which raises the pH of the soil on farmland. The use of a liming agent is essential to a soil fertility program, especially in New Hampshire, where many soils tend to be naturally acidic. Wood ash also has significant amounts of potassium, magnesium and phosphorus, which are micro and macronutrients beneficial to plant growth. Today, there are six wood fired power plants operating in New Hampshire to provide the state with approximately 4% of its electricity or 90 megawatts of power. Currently, five of the six power plants recycle all the wood ash they generate.

Generation The total amount of wood ash recycled in New Hampshire during 2002 was 21,483 wet tons, with approximately 18% of that amount imported from Maine and Vermont plants. Since 1987, nearly 350,000 wet tons of wood ash have been recycled and diverted from landfills. It is estimated that NH farmers save over $500,000 a year by using wood ash instead of commercial lime.



Health and Environmental Issues- Crystalline silica, also known as quartz, is a natural component in the earth's crust, and is a basic component of wood ash. The health concern of utilizing wood ash is one of dust. Precautions should be taken when working with wood ash that might include choosing not to spread the ash on a windy day, covering stockpiles, and wearing a dust mask when handling the ash. Long-term inhalation exposure to crystalline silica may cause fibrosis (silicosis) or chronic bronchitis. Also, the Department of Agriculture, Markets and Food recommends waiting 30 days before turning animals out onto a field that has been spread with wood ash.

Wood ash is caustic, and usually has a pH of 11 or greater. Therefore, when physically working with the ash, one should wear gloves, and wash with soap and water after handling.

Will wood ash affect ground and surface waters? The wood ash is tested throughout the year, and has to meet stringent requirements for heavy metals before it is allowed to be used for any agricultural purpose. Wood ash is land-applied only at levels that meet soil and crop needs, thus reducing the potential for run-off problems, and risk of groundwater contamination. DES has developed environmental guidelines for land spreading setback distances from houses, wells, surface water bodies, roadways and property boundaries to further protect the integrity of our state's water systems. No ash may be spread on frozen ground or on slopes of land greater than 15%. That is why it is a requirement for each receiving site to have a farm management plan in place before wood ash is delivered. Each site also must document and maintain records of cumulative loading of heavy metals, as required by Env-Wm 3404.05.

Disposal/Recycling Options The five wood fired power plants in New Hampshire which are permitted by DES, are recycling 100% of their wood ash. Over the years, the number of uses for wood ash has increased. Wood ash has become popular as an odor control agent for biosolid stockpiles, or compost bulking agents. Wood ash is also used as an ingredient in manufactured topsoil, and one of the major components in a product known as "lime-ash". Wood ash characteristics vary from plant to plant, and the discreet characteristics tend to lend the ash to different uses. For example, wood ash generated at Bridgewater Power Co. (located in Ashland) is always high in carbon content, and well suited for composting and odor control of biosolids, or manufacturing of topsoil. However, Pinetree Power, in Tamworth generates an ash with a high calcium/carbonate equivalence (more liming capability/less carbon) and therefore is more suitable for land spreading. Because of the expanded uses of wood ash and fixed supply, currently the demand exceeds the supply.

Rules/Policies DES regulates wood ash used for land application in accordance with Chapter Env-Wm 3400 of the NH Solid Waste Rules. Env-Wm 3403.02 sets forth analytical standards and requirements for sampling and analysis of the ash. Every site receiving wood ash is required to have a farm management plan that includes soil analysis, and application rate recommendations approved by the UNH Cooperative Extension. The joint policy between DES and the Department of Agriculture, Markets and Food is still in effect and was last modified in 1997. All other uses for wood ash are

regulated under Env-Wm 3200, "Certified Waste Derived Products"; however, only wood ash that is certified in accordance with Chapter Env-Wm 3400 may be utilized in other agricultural applications.

Wood ash derived from the burning of clean and /or virgin wood and certified pursuant to Chapter Env-Wm 3400 is required to be sampled monthly, and analyzed quarterly for the parameters listed in Env-Wm 3403.02. The quarterly reports are submitted to DES for review. The wood ash may never exceed those quality standards. At the end of the calendar year, each generator of wood ash must file an inventory with DES, detailing the final destination of the ash. If the ash was land spread, the generator is also responsible to ensure that the receiving site has an approved farm management plan (including soils analysis), and the cumulative metals loading is calculated and tracked, not to exceed standards referenced in Env-Wm 3404.05. If the ash is going to a compost facility, or to a lime/ash or topsoil manufacturing site, then the inventory records only need to document the date of delivery, amount delivered and name/address of recipient.

The DES responsibility for the program is one of oversight and environmental compliance. Since the proper use of wood ash includes the disciplines of plant biology, agronomy, and soil science, the program could not be successful without the active roles played by the UNH Cooperative Extension and the NH Department of Agriculture, Markets and Food.

Future Needs/Recommendations The future of wood fired power plants in New Hampshire is uncertain. The deregulation of public utilities in this state has caused some economic hardship for these facilities, and their ability to compete in a new energy marketplace has not yet been determined. Due to plants shutting down, in the next few years, there may continue to be a shortage of this beneficial residual.

Summary As early as 1986, DES recognized that it was important to "close the loop" in our recycling strategy for wood ash. Through an inter-agency, cooperative effort, we have diverted nearly 350,000 tons of ash from the landfills, and provided farmers with a liming agent (saving NH farmers half a million dollars a year). New Hampshire is fortunate to be able to support an industry that reduces our dependence on foreign fossil fuels, provides energy derived from a renewable resource that can be obtained locally, and produces a beneficial residual end-product.

Table 1
Summary of 2015 Waste Generation and Recycling/Diversion Data

Disposal Facility	Waste Disposed (tons)[1]					
	Residential MSW (In-state)	Commercial MSW (In state)	Total MSW (In state)	C&D (In state)	Total Special Waste	Total
Boscawen Corn Hill Rd C&D Landfill				169		169
Lebanon Regional SW Facility	26,448		26,448	1,828	19,689	47,965
Lower Mt Washington Valley SW landfill	1,926	106	2,032	258		2,290
Mt Carberry Landfill	16,652	12,114	28,766	61,437	27,871	118,075
Nashua Four Hills Landfill	35,598	23,693	59,291	6,978	1,860	68,129
NCES Landfill	144,087	324	144,412	75,628	22,884	242,924
TLR-III Refuse Disposal Facility	167,060	54,466	221,526	69,682	258,176	549,385
Concord Waste to Energy (WTE)	87,535	108,293	195,828			195,828
Total In-State Disposal[2]	**479,306**	**198,996**	**678,302**	**215,980**	**330,481**	**1,224,764**
Exported Waste to Massachusetts[5]			85,217	4,801		90,018
Exported Waste to Maine [6]			14,391	20,423	48,742	83,556
Exported Waste to NY [7]			14,745			14,745
Exported Waste to Vermont [8]				6,136	15,187	21,323
Total Waste Disposal of NH Waste			**792,655**	**247,340**	**394,410**	**1,434,406**
Diversion Quantities, Tons			356,120	143,223 *		499,344
Diversion Rates for MSW[3] and C&D[4]			31%	34%		32%
see C&D Processing Facility date below						
Total Waste Generation [9]			**1,148,776**	**425,050**	**278,183**	**1,852,009**
Per capita Waste Generation[10]	2015 Population = 1,330,501					
Tons per year per capita			0.86	0.32	0.21	1.39
Pounds per day per capita			4.7	1.8	1.1	7.6

C&D Processing Facilities

	Received, Tons	Diversion Rate	Diverted, Tons	
ERRCO	90,522	78.7%	71,241	
LL&S	87,188	82.6%	71,982	
Total	177,710		143,223	*

Table 1
Summary of 2015 Waste Generation and Recycling/Diversion Data

Notes:

1. Waste disposal quantities were obtained from 2015 Annual Facility Reports (AFRs) provided by NHDES.
2. Assumes C&D from processing facilities (ERRCO and LL&S) that was not recycled is included in the C&D or special waste totals provided by the disposal facilities.
3. Recycling/Diversion % for MSW is from NHDES, Director Wimsatt's presentation at EBC Solid Waste Management Program New England Regional Conference of State Solid Waste Directors, May 4, 2017 in Westborough, MA.
4. C&D recycled/diverted was calculated by applying the average recycling/diversion rate shown as provided by ReEnergy based on reports from 2011 to 2015 for the two commercial C&D recylcing facilites in New Hampshire, ERRCO and LL&S.
5. Source 2015 Solid Waste Data Update by MADEP, dated March 2017
6. Source Susan Alderson MDEP Materials Management Programs, April 2017
7. Source 2015 NYSDEC Annual Facility Reports
8. Source 2015 Annual Facility Report for the New England Waste Services (NEWSVT) Landfill in Conventry, VT provided by the VT Department of Environmental Conservation by e-mail dated May 3, 2017.
9. For total waste generation the special waste quantity is reduced by the C&D based products (such as C&D fines and ADC) since these quantities are also included in the C&D column of Total Waste Generation
10. Per capita waste generation was calculated by dividing the total waste generation by the estimated population obtained from a document titled, 2015 Population Estimates of New Hampshire Cities and Towns," prepared by the New Hampshire Office of Energy and Planning.

BIENNIAL SOLID WASTE REPORT

OCTOBER 2019

Prepared by the New Hampshire Department of Environmental Services

NEW HAMPSHIRE
DEPARTMENT OF
Environmental
Services

R-WMD-19-02

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Table of Contents

I. Introduction

This report has been prepared pursuant to NH RSA 149-M:29, II, which directs the New Hampshire Department of Environmental Services (NHDES) to prepare a report on New Hampshire's progress toward reaching the 40% solid waste diversion goal established in RSA 149-M:2, as well as proposed strategies for achieving the goal, proposed changes to the goal, and various other details, which are addressed in the body of this document.

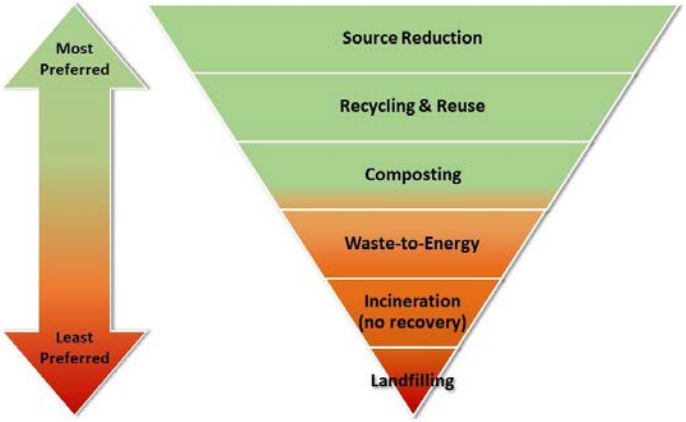
In 1990, RSA 149-M was amended to establish a Waste Reduction Goal, which has been subsequently revised over the years. The current version of this goal, established in 1999, sets a target to divert at least 40% of New Hampshire's solid waste from final disposal by the year 2000 in order to reduce the quantity of solid waste disposed in the state's landfills and incinerators, as measured on a per capita basis. As stated in RSA 149-M:2:

> *The general court declares its concern that there are environmental and economic issues pertaining to the disposal of solid waste in landfills and incinerators. It is important to reserve landfill and incinerator capacity for solid wastes which cannot be reduced, reused, recycled or composted. The general court declares that the goal of the state, by the year 2000, is to achieve a 40 percent minimum weight diversion of solid waste landfilled or incinerated on a per capita basis. Diversion shall be measured with respect to changes in waste generated and subsequently landfilled or incinerated in New Hampshire. The goal of weight diversion may be achieved through source reduction, recycling, reuse, and composting, or any combination of such methods. The general court discourages the disposal of recyclable materials in landfills or processing of recyclable materials in incinerators. (RSA 149-M:2, I. – effective July 20, 1999)*

While the terminology used to express this goal emphasizes diversion, it is evident that the intention was to reduce the overall quantity of waste generated (via source reduction) while also diverting from disposal waste that cannot be reduced (via reuse, recycling, or composting). Although RSA 149-M:2 discourages the disposal of recyclable materials, it does not establish recycling, composting or other forms of waste diversion as mandatory.

To promote achievement of the waste reduction goal, RSA 149-M:3 establishes a hierarchy of waste management methods to be used in New Hampshire (see Figure 1).

Figure 1. New Hampshire's Waste Management Hierarchy



This hierarchy provides a standard of preference for management of solid waste in the state, with priority placed on methods that reduce the generation of waste or divert recoverable materials from disposal. Source reduction is at the top of the hierarchy because such practices prevent a waste from being generated, which results in less waste needing end-of-life management, conserves resources and reduces overall environmental impact. When a waste is generated, managing it via reuse, recycling or composting is preferred because these methods recover and divert materials from disposal, thereby encouraging circular use of resources. Waste-to-energy technologies include incineration with energy recovery, anaerobic digestion, and emerging conversion processes that turn waste into fuel. These technologies are preferable to outright disposal in a traditional incinerator or a landfill because they recover energy, reduce volume and weight, and in some cases may produce useful by-products.

As established by the General Court, the waste management hierarchy, in conjunction with the waste reduction goal, was envisioned to support an integrated waste management system in New Hampshire, combining a variety of approaches to reduce the quantity of waste generated while managing the waste that is generated in the most environmentally-responsible manner available. In this way, the hierarchy serves as a guiding principle not only for NHDES and the state at large, but also for municipalities, commercial and industrial waste generators, solid waste management companies, and the general public. However, it is worth noting that since the hierarchy was established in 1990, waste management infrastructure in New Hampshire has not significantly shifted from disposal (landfilling and incineration) toward more preferred management methods.

In preparing this report, NHDES used readily-available information to address the topic areas required by statute (RSA 149-M:29, II). However, NHDES acknowledges that some of the content contained herein may not meet the robust level of detail that was likely intended by the statute. This is partly due to data and resource limitations, in addition to a lack of statutory clarity. The conclusion of this report provides suggestions on how the waste reduction goal might be revised to enable NHDES to better measure and track progress toward attainment.

II. Generation of Solid Waste in New Hampshire

The term "generation" refers to the act of producing a waste, which is something that happens every day in New Hampshire as a result of the routine activities of residents, visitors, businesses, institutions and industry. RSA 149-M generally defines "solid waste" as any abandoned or discarded material, excluding hazardous waste, nuclear waste, sludge and septage, point source discharges of certain municipal and industrial wastewater, and yard waste. Given these broad boundaries, the category of solid waste encompasses a wide variety of potential materials, including household trash, recyclable materials, food waste, commercial and industrial waste, construction and demolition debris, electronic waste, asbestos waste, non-hazardous contaminated soils, end-of-life motor vehicles, animal carcasses, infectious waste, or anything else that qualifies as abandoned or discarded material.

For the purposes of this report, the concept of generation is intended to consider the entirety of solid waste produced in the state, not only wastes disposed in a landfill or incinerator, but also wastes that are diverted (for example, reused, recycled, composted). Estimating statewide generation of solid waste is complex. There are a variety of generators across various sectors in New Hampshire, but NHDES does not specifically track solid waste from the point of generation. Instead, NHDES regulates the management of solid waste at permitted solid waste facilities within the state. This only provides NHDES with data on wastes managed at these facilities and does not capture all solid waste actually generated within the state. For example, some industrial, commercial or institutional generators may use hauling services that directly transport refuse and recycling to destinations outside of New Hampshire. Further, there is an indeterminable quantity of waste that is generated but never reaches a permitted solid waste facility because it is managed at the site of generation, such as home composting, or is diverted directly to reuse (for instance, donation).

According to 2015 data from the United States Environmental Protection Agency (EPA), U.S. consumers generate an average 4.48 pounds of municipal solid waste (MSW) per person per day.[1] It is worth noting that this figure does not include generation of construction and demolition debris (C&D), industrial wastes, end-of-life motor vehicles, and contaminated soils.

Applying EPA's generation rate to New Hampshire's 2018 population[2] would suggest that just over 1.1 million tons of MSW were generated within the state in 2018. However, as noted above, there are broad categories of solid waste not included in this estimate. Because this figure only represents an estimate of MSW generation, we know that New Hampshire's actual generation rate for all solid waste is likely considerably higher. However, NHDES does not have data to support a definitive figure.

[1] United State Environmental Protection Agency. *National Overview: Facts and Figures on Materials, Wastes and Recycling*. https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/national-overview-facts-and-figures-materials#Generation

[2] According to NH Office of Strategic Initiatives, New Hampshire's population in 2018 was 1,365,458.

III. Disposal of Solid Waste in New Hampshire

The term "disposal," defined in RSA 149-M:4, VI, generally refers to the act of depositing waste in or on land or water. The term is most commonly used to refer to "final" management methods, including deposition in a landfill or combustion in an incinerator. As noted in the introduction, disposal methods such as incineration and landfilling are least-preferred on the waste management hierarchy established by RSA 149-M:3, while source reduction (reducing the quantity of waste generated at the source) and diversion (such as, reuse, recycling, composting) are at the top of the hierarchy. However, since the hierarchy was established, New Hampshire's waste management infrastructure has not significantly shifted from a reliance on disposal. With three commercial landfills, three limited-service public landfills, and one commercial waste-to-energy facility operating in New Hampshire, the state is somewhat unique among its neighboring states in terms of active disposal capacity.

Table 1 below illustrates total quantities of waste disposed over the last four years at New Hampshire's landfills and waste-to-energy facility. The data are broken down by waste received from in-state sources, as well as out-of-state sources. The vast majority of out-of-state waste disposed in New Hampshire is received by the three commercial landfills. As the table shows, disposal tonnages have increased incrementally over the last several years, while the ratio of in-state waste compared to out-of-state waste has hovered around 50%.

Table 1. New Hampshire Disposal Figures 2015 – 2018

Year	Total Tons Disposed	Tons from In-State Sources	Tons from Out-of-State Sources	Percentage In-State Sources
2015	1,973,561	1,053,130	920,431	53%
2016	2,076,656	1,082,138	994,518	52%
2017	2,329,946	1,225,366	1,104,580	53%
2018	2,388,877	1,228,819	1,160,058	51%

Table 2. Disposal of NH-generated Waste, Normalized Per-Capita

Year	NH Population*	Total Tons Disposed From In-State Sources	Tons Disposed per Capita
2015	1,330,608	1,053,130	0.79
2016	1,334,795	1,082,138	0.81
2017	1,342,795	1,225,366	0.91
2018	1,356,458	1,228,819	0.91

* Population estimates from New Hampshire Office of Strategic Initiatives
https://www.nh.gov/osi/data-center/population-estimates.htm

Table 2 shows disposal of waste generated in New Hampshire relative to the state's population. The data show an increase in per capita disposal from 2016 to 2017, with 0.81 tons disposed per person in 2016 to 0.91 tons disposed per person in 2017. While there is not enough information to conclusively

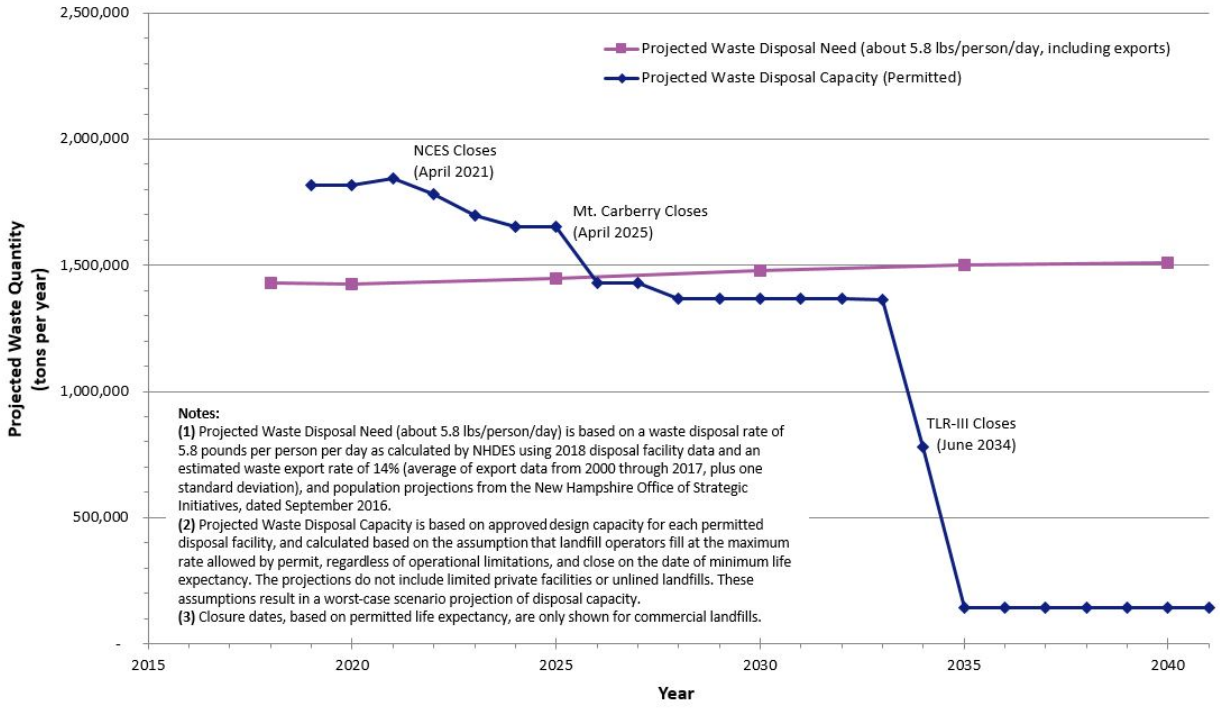
determine the cause for this increase, it is likely due to a number of factors, including increased waste generation resulting from increased economic activity. In addition, international recycling markets began to experience disruptions in the second half of 2017, and the situation worsened considerably in 2018. However, it is unclear to what degree this impacted per capita disposal rates, especially in light of the fact that the rate of 0.91 tons disposed per person did not change from 2017 to 2018, despite growing challenges for recycling markets over the same period.

Disposal is a metric that NHDES can definitively track and measure. However, relative to the hierarchy of preferred waste management methods, NHDES acknowledges that the agency has some blind spots in terms of tracking management trends higher on the hierarchy. Source reduction is something the agency does not track, and, even if it attempted to do so, it would be inherently difficult to estimate source reduction in a meaningful way. For example, source reduction is a common occurrence in today's consumer marketplace, where packaging manufacturers have been using increasingly thinner, lighter materials to produce product packaging, such as lighter weight plastic water bottles and flexible plastic pouches instead of paperboard. However, NHDES is not in a position to measure or quantify how this trend has been affecting New Hampshire's waste stream. Similarly, NHDES does not currently have reliable information on New Hampshire's recent recycling trends. Obtaining and analyzing data to produce meaningful statewide estimates is a complex task, and NHDES has been limited in terms of both its ability to obtain comprehensive data as well as the necessary program resources to allow the department to measure recycling trends, or other diversion trends, with a high degree of confidence.

IV. Projected Solid Waste Disposal Need and Disposal Capacity

Figure 2 illustrates NHDES' projections for the quantity of solid waste generated in New Hampshire needing disposal compared to available permitted disposal capacity at New Hampshire's landfills and incinerators. Further explanation of the figure and how NHDES derived these projections is provided below.

Figure 2. Projected Waste Disposal Need & Capacity for New Hampshire (2020 - 2040)



Projected Waste Disposal Need

For this report, NHDES projected New Hampshire's solid waste disposal need in accordance with RSA 149-M:11, V, which requires the department to consider disposal need over a 20-year planning period. There are numerous methods by which such disposal need projections might be made. NHDES based its projections on the following:

- Disposal tonnage reported by NH's operating landfills and incinerators in their 2018 annual facility reports (AFRs).
- Export data reported to NHDES from 2000 through 2017.
- Population projections made by the NH Office of Strategic Initiatives (NHOSI), dated September 2016, which are the most current population projections available for the 20-year planning period.
- The statutory requirement in RSA 149-M:11, V(a) that disposal projections account for all waste generated in New Hampshire (including waste exported to out-of-state disposal facilities).
- The assumption that New Hampshire's rate of disposal will remain constant over the 20-year planning period.
- The assumption that diversion rates will remain constant over the 20-year planning period.

NHDES estimated the disposal rate at New Hampshire landfills and incinerators for in-state generated solid waste in 2018 as about 5.0 pounds per person per day, and assumed this to be the baseline waste disposal need for New Hampshire. Consistent with RSA 149-M:11, NHDES attempted to account for all solid waste generated within New Hampshire destined for disposal by including the amount of solid waste generated in New Hampshire that is exported to out-of-state disposal facilities. NHDES estimates this disposal export rate at 14%, based on the average export rate from 2000 to 2017 plus one standard deviation (to account for variability and unreported exports).[3] Based on this estimate, waste exported for disposal outside of New Hampshire equates to approximately 0.8 pounds per person per day. Therefore, New Hampshire's total solid waste disposal rate, inclusive of exports, is estimated to be about 5.8 pounds per person per day. Because this estimate relates solely to disposal, it does not account for solid waste diverted from disposal by way of reuse, recycling or composting. The "Projected Waste Disposal Need" line depicted in Figure 2 represents 5.8 pounds per person per day multiplied by the population projections made on 5-year intervals by NHOSI. Changes in any of the factors and assumptions noted above may affect actual disposal need.

Projected Waste Disposal Capacity

Projected waste disposal capacity is based on a combination of factors, including specific conditions relative to operational lifespan contained in each disposal facility's permit. NHDES estimated the statewide "Projected Waste Disposal Capacity" line shown in Figure 2 based on the following:

- The total permitted capacity of New Hampshire solid waste disposal facilities, excluding unlined landfills pursuant to RSA 149-M:11, V(a) and limited private facilities, which are closed loop facilities that only serve the capacity needs of the generator who owns the facility and therefore do not provide disposal capacity for the general public.
- The assumption that landfill operators will fill at the maximum rate allowed by the facility's permit, regardless of operational limitations.
- The assumption that a facility will close on the minimum operational date required by permit, which NHDES considers the earliest anticipated closure date of a disposal facility.

These assumptions result in a slightly conservative but reasonable scenario for projected disposal capacity in New Hampshire. Note that Figure 2 shows the earliest anticipated closure dates for the state's commercial landfills, which accept the majority of New Hampshire's solid waste, and Table 3 below shows the earliest anticipated closure date of each disposal facility in New Hampshire, excluding unlined landfills and limited private facilities.

[3] The average export rate for solid waste during this 17-year period was about 10% and the standard deviation was about 4%.

Table 3. Active New Hampshire Disposal Facilities, Listed by Earliest Anticipated Closure Date

Facility Type	Facility Name	Location	Service Type / Service Area	Earliest Anticipated Closure Date
Waste-to-Energy Incinerator	Wheelabrator Concord Company L.P.	Concord, NH	Commercial / Unlimited	None
Incinerator (no resource recovery)	Hebron-Bridgewater Refuse District	Bridgewater, NH	Limited Public / Limited	None
Landfill	North Country Environmental Services, Inc.	Bethlehem, NH	Commercial / Unlimited	April 16, 2021[4]
	Four Hills Secure Landfill Expansion	Nashua, NH	Limited Public / Limited	April 15, 2023[5]
	Mount Carberry Secure Landfill	Success, NH	Commercial / Unlimited	April 29, 2025[6]
	Lebanon Regional Solid Waste Facility	Lebanon, NH	Limited Public / Limited	est. 2027[7]
	Lower Mount Washington Valley Secure Solid Waste Landfill	Conway, NH	Limited Public / Limited	est. 2033[8]
	TLR-III Refuse Disposal Facility	Rochester, NH	Commercial / Unlimited	June 30, 2034[9]

Assessment of Waste Disposal Need Relative to Waste Disposal Capacity

Based on a review of Figure 2, NHDES predicts a limited shortfall in disposal capacity between 2025 and 2034, ranging between about 20,000 and 120,000 tons per year. In 2034, assuming that TLR-III Refuse Disposal Facility in Rochester, NH closes, the Wheelabrator Concord Company L.P. waste-to-energy plant in Concord, NH remains operational, and there are no changes in current solid waste diversion rates, the state will experience a shortfall in disposal capacity of about 1.35 million tons per year thereafter. Although some landfills may have physical space to accommodate future expansions, NHDES' projections do not consider hypothetical capacity, but are based solely on permitted capacity as of the date of this report. As disposal facilities seek approvals for additional permitted capacity, the projections made herein are subject to change.

[4] North Country Environmental Services, Inc.: Condition (13)(a) of the permit modification effective August 15, 2014 stipulates that the permittee shall operate Stage V in a manner that provides 5.3 or more years of disposal capacity. The permittee began operations in Stage V on December 28, 2015.

[5] Four Hills Secure Landfill Expansion: Condition (7) of the facility's Standard Permit, effective June 26, 1995, stipulates that the permittee shall operate the facility in a manner that provides 20 or more years of disposal capacity. The permittee began operations in Phase I on April 15, 2003.

[6] Mount Carberry Secure Landfill: Condition (20)(b) of the permit modification effective February 25, 2019 stipulates that the permittee shall operate the facility through at least April 29, 2025.

[7] Lebanon Regional Solid Waste Facility: There is no minimum operating life expectancy in the facility permit. The anticipated closure date is estimated based on projected remaining capacity and life expectancy reported in the facility's 2018 Annual Facility Report.

[8] Lower Mount Washington Valley Secure Solid Waste Landfill: There is no minimum operating life expectancy in the facility permit. The anticipated closure date is estimated based on projected remaining capacity reported in the facility's 2018 Annual Facility Report, and a proposed fill rate in the initial facility permit application of 10,000 tons per year.

[9] TLR-III Refuse Disposal Facility (aka Turnkey Landfill): Condition (21)(b) of the permit modification effective June 11, 2018 stipulates that the permittee shall operate the facility through at least June 30, 2034.

V. State and Regional Trends in Solid Waste Management

Trends in New Hampshire

Landfill Expansions – Applications for landfill expansions constitute the vast majority of requests for new permitted solid waste management capacity received by NHDES. At the same time, there continues to be significant public opposition to expanding existing facilities or siting new disposal facilities.

Waste Imports – Out-of-state waste comprises roughly 50% of total waste disposed in New Hampshire facilities. Most of the out-of-state waste disposed in New Hampshire is received by three commercial landfills. Commercial disposal facilities in New Hampshire are permitted to receive waste from out-of-state sources, provided they also provide capacity for New Hampshire-generated waste. The Commerce Clause of the U.S. Constitution has commonly been interpreted to preempt a state from explicitly prohibiting or adopting protectionist policies against the acceptance and disposal of out-of-state waste.[10]

Legislative Attention to Waste Issues – There has been increased interest in issues related to solid waste within the last year, with several bills introduced during the 2019 legislative session focused on recycling and plastic waste reduction, including:

- HB 102 and HB 559 – both of these bills relate to enabling municipalities to ban or otherwise regulate the distribution of disposable, single-use plastic items such as plastic shopping bags, straws, and take-out food containers. Both of these bills were retained in committee.
- HB 558 – an act relative to restricting the distribution of plastic straws at food service businesses, unless a customer specifically requests one. The bill passed the House, but was deemed inexpedient to legislate by the Senate.
- HB 560 – initially introduced as an act relative to restricting the distribution of single-use carryout bags by retails stores and food service businesses, this bill passed the House. It was subsequently amended by the Senate, but the House did not concur with the Senate's amended version.
- HB 617 – an act establishing a committee to study recycling streams and solid waste management in New Hampshire. The bill passed the House and Senate, and was signed into law by Governor Sununu. The committee convened for the first time on August 28, 2019 and is required to produce a report of findings and recommendations by November 1, 2019.
- SB 79 – an act relative to required reporting on waste reduction. To help NHDES better assess achievement of the 40% diversion goal in RSA 149-M and further solid waste management planning efforts, the bill requires New Hampshire towns to report certain recycling and diversion information to NHDES. NHDES worked with the prime sponsor to amend the bill, which passed the Senate, but was retained in the House.

Organic Waste Diversion – In recent years, there has been rising interest among legislators, municipalities, regional organizations, commercial/institutional entities, and members of the general public in the topic of composting and organic waste diversion. Diverting organics is consistent with the hierarchy, recovers resources, reduces disposal need, and has the potential to reduce waste

[10] The 1978 Supreme Court Case, Philadelphia v. New Jersey, struck down a New Jersey law that prohibited the importation of waste into the state. For additional information, see: http://law2.umkc.edu/faculty/projects/ftrials/conlaw/statecommerce.htm

management costs. In an effort to encourage development of food waste composting infrastructure, NHDES convened a stakeholder workgroup in 2017-2018 to look at potential revisions to the New Hampshire Solid Waste Rules (see discussion of on-going efforts in Section VII. herein).

Regional Trends

Recycling Market Downturn – Regional (and international) recycling markets experienced a significant downturn starting in late 2017, spurred by China's National Sword Policy, which effectively banned that country's importation of certain recyclable commodities in response to contamination issues (such as unacceptable or non-recyclable items mixed with recyclables). Prior to this policy, China had been a leading importer of the world's secondary materials, which provided feedstock for China's manufacturing sector. The implementation of National Sword significantly lowered the value of recycled commodities worldwide. Mixed plastics and mixed paper were particularly affected, as these streams have traditionally been dependent on export markets and are commonly prone to higher contamination rates, especially when sourced from single stream recycling programs. With the world's largest consumer of secondary materials no longer available, recycling markets worsened through 2018 to present. As a result, municipal single stream recycling programs across the United States are experiencing rising costs as waste management companies that process and sort recyclables at material recovery facilities (MRFs) are facing depressed revenues and increased processing costs.[11] Municipalities that have not adopted single stream recycling have also been affected by depressed commodity revenues, but in many cases are faring slightly better overall. In response to this economic shift, some communities have decided to suspend recycling programs, either entirely or in part. Some New England states with mandatory recycling policies are reacting by temporarily lifting disposal bans for certain recycling streams that currently have no viable outlet. States like Massachusetts, Connecticut and Rhode Island are attempting to get at the root of the problem by addressing the issue of contamination and increasing outreach to educate the public about how to "recycle right." Waste management companies are investing in MRF upgrades to more effectively sort materials and meet market expectations for lower contamination. Meanwhile, the manufacturing industry in the U.S. is starting to respond by developing increased domestic capacity for use of recycled feedstocks—such as mixed paper or plastics—to produce new products and packaging.

Disposal Capacity Challenges – Over the last year, two commercial landfills in Massachusetts ceased operations. The closure of these facilities, one in Chicopee and the other in Southbridge, represents a loss in regional disposal capacity of approximately 500,000 tons per year. This development puts pressure on the region's remaining disposal infrastructure, and exports of waste from Massachusetts are expected to increase. As a result, there has been heightened interest in hauling waste by rail or truck to locations outside the Northeast that have ample disposal capacity, such as Pennsylvania or Ohio. Meanwhile, waste-to-energy facilities face economic pressures as they compete in a marketplace with

[11] A recent report published by the Northeast Recycling Council (NERC) surveyed 15 MRFs across 10 Northeast states to learn more about average value of material processed through these facilities, as well as the average composition of the recycling stream. The report indicates that, on average, roughly 12% of the material received by these facilities is considered "residue" (i.e. contaminants that can't be processed through the MRF's system). Rising contamination rates in recycling streams have been a growing challenge for MRFs in recent years (especially for those that process single stream), which in turn has affected processing costs for these facilities. The full report is available here: https://nerc.org/documents/Recycling%20Market%20Development/Blended_Commodity_Values_in_the_Northeast%20-%20August_2019.pdf

other electricity producers that use relatively inexpensive natural gas and have comparatively lower operational costs.

Organic Waste Disposal Bans – Several Northeast states have enacted laws banning the disposal of food waste in recent years. In 2014, Vermont enacted Act 148 (a.k.a. The Universal Recycling Law), which includes requirements for diversion of food scraps. Vermont Act 148 uses a phase-in approach, targeting the largest food waste generators first and incrementally decreasing the generation threshold until all generators will be required to divert food scraps, regardless of quantities generated. Vermont's approach has gained attention as the most aggressive statewide organics diversion policy. Connecticut, Massachusetts, Rhode Island and New York have taken a different approach by enacting food waste disposal bans that target large-scale generators. In most cases, these bans apply to commercial or institutional generators that produce a ton or more of food waste per week. States across the region have adopted these statutory requirements to reduce disposal need and spur development of infrastructure for composting and anaerobic digestion.

Extended Producer Responsibility – In order to encourage resource recovery and minimize the impacts to public health, safety and the environment from the use and disposal of consumer products, several Northeastern states have adopted extended producer responsibility (EPR) laws that require manufacturers to share responsibility for end-of-life management of the product(s) they produce. A long-standing example of one such policy in New Hampshire is the mercury thermostat take-back program established in 2008 (RSA 149-M:58-a). More recent examples of EPR programs in other states include:

- Paint take-back programs in Connecticut, Maine, Rhode Island, and Vermont.
- Electronic waste recycling programs in Connecticut, Maine, New York, Rhode Island, and Vermont.
- A battery recycling program in Vermont that targets single-use and rechargeable batteries.
- A recent initiative in Maine that seeks to assist municipal recycling programs by requiring manufacturers of packaging/containers to share in the costs of managing and recycling packaging products sold in the state. The Maine Legislature has charged MaineDEP with developing proposed legislation for this purpose, which is largely a response to the recent upheaval of recycling markets.

Bans on Single-use Products – in 2019, several Northeastern states passed laws restricting the distribution of single-use plastic consumer products, including:

- Connecticut, Maine and New York will restrict the distribution of plastic shopping bags.
- Maine will ban expanded polystyrene (EPS) foam food and beverage containers.
- Vermont has passed a comprehensive law targeting several single-use plastic products, including plastic bags, plastic straws, and polystyrene foam food and beverage containers.

VI. Congressional Actions and Court Rulings

NHDES is not aware of any recent federal legislation or court rulings that have affected the management of solid waste on a national level.

VII. NHDES' Solid Waste Programs and On-going Efforts

RSA 149-M grants NHDES authority to administer and enforce the provisions of RSA 149-M, and the Solid Waste Rules adopted pursuant to RSA 149-M. This work is carried out by the Solid Waste Management Bureau (Bureau) within NHDES' Waste Management Division. The Bureau ensures that management of solid waste in New Hampshire is protective of human health and the environment by regulating the facilities and practices associated with the collection, processing, treatment, recycling, re-use, and disposal of solid waste in New Hampshire. Examples of the types of facilities regulated by the Bureau include transfer stations, recycling centers, scrap yards, composting facilities, incinerators, and landfills. The Bureau oversees and assures compliance for approximately 260 active permitted solid waste facilities, 120 motor vehicle salvage yards, and 600+ closed, inactive solid waste disposal sites (consisting of inactive landfills and asbestos disposal sites).

NHDES' Solid Waste Programs

Although at one time NHDES had resources dedicated specifically to waste reduction through technical assistance, outreach and planning, those resources were incrementally lost over time due to general fund budget constraints. Unfortunately, the resultant deficiencies have not allowed the Bureau to pursue these program areas in recent years. Using its current resources, the Bureau focuses its efforts on two essential program areas:

1. *Permitting of solid waste facilities*:

   In accordance with RSA 149-M:6, III, the Bureau regulates solid waste facilities through the administration of a permit system. The Bureau's Permitting and Design Review Section is responsible for processing applications for facility permits, permit modifications, and other requests requiring approval by NHDES. The Permitting and Design Review Section also provides permitting technical assistance, inspects and monitors the operation, construction and closure of New Hampshire's active landfills and processing/treatment facilities, and reviews environmental monitoring data and proposed plans for corrective actions when problems are identified.

2. *Compliance assurance for solid waste facilities*:

   The Bureau's Compliance Assurance Section is responsible for assuring that solid waste facilities are operated and closed in compliance with permit requirements, the Solid Waste Rules (Env-Sw 100 et seq.) and RSA 149-M. This involves providing compliance technical assistance, reviewing reports, conducting facility inspections, investigating complaints, and pursuing enforcement when necessary. The Compliance Assurance Section also assures that facility owners maintain adequate funds to guarantee proper closure and post-closure care of facilities, and distributes grant money to reimburse municipalities for eligible costs for closure of old landfills and incinerators. In addition, and as required by RSA 149-M:6, XIII, the Bureau administers a training and certification program for solid waste facility operators, known as the Solid Waste Operator Training (SWOT) Program. Each year the Bureau hosts multiple 'Basic Training' SWOT workshops for new operators and also provides numerous continuing education opportunities (provided by NHDES staff and/or 3rd parties). The SWOT Program equips facility operators with an awareness of regulatory requirements, fosters a direct relationship between the Bureau and the regulated community, and promotes voluntary compliance. There are over 1,200 solid waste operators currently certified under this program.

On-going Program Efforts

On-going efforts by the Bureau include the following:

- The Permitting and Design Review Section has been working to streamline application processing procedures in response to recent changes to RSA 541-A:29 and the addition of RSA 541-A:29-a that imposed shortened application processing time limits and provisions for automatic approval should the agency fail to act within the prescribed time limits, respectively. These changes, which took effect on January 1, 2019, required the Bureau to devote intensive efforts to completing application reviews and avoiding automatic, default approvals. As a result, other program obligations could not be fulfilled. During the Spring 2019 legislative session, NHDES supported Senate Bill 163 to restore application processing time limits to those previously allowed by the Solid Waste Rules. Senate Bill 163 passed the House and Senate, was signed by Governor Sununu, and took effect September 17, 2019. Senate Bill 163 has provided some relief for application processing time limits; however, the default approval provision in RSA 541-A:29-a remains a significant concern. If program resource levels are not adequately maintained, default approvals may occur, and other important program functions will also suffer.
- The Compliance Assurance Section has put an emphasis on closed/inactive landfill monitoring and maintenance to ensure facility owners and permittees are aware of ongoing requirements. With over 300 closed landfills across the state, nearly every New Hampshire municipality is host to at least one such facility, the majority of which are unlined. Although perhaps not always considered part of the state's solid waste management infrastructure, these closed landfills continue to perform a critical function as waste containment systems. As these facilities age, it is important that they are properly monitored and maintained to minimize adverse impacts to public health, safety and the environment.

As resources allow, the Bureau has been also been working on the following:

- Updating the State's Solid Waste Management Plan, as required by RSA 149-M:29. The last plan was published in 2003.[12]
- Revising regulatory requirements for composting facilities in New Hampshire. In 2017-2018, under the direction of RSA 149-M:7, XV, NHDES convened a stakeholder workgroup to look at potential revisions to the current composting rules, which regulate the siting, design and operating requirements for composting facilities. The workgroup provided NHDES feedback on numerous aspects of the rules, especially with regard to composting of meat and dairy food scraps – an activity that is currently allowed in New Hampshire, but only under a standard permit, which involves a detailed application and review process. Stakeholders have expressed a desire to conduct meat and dairy composting under the more streamlined "permit-by-notification" provisions of the rules. NHDES intends to implement rule revisions to improve the permitting framework as soon as feasible. In the meantime, NHDES has been communicating with interested parties on potential pathways to accommodate development of meat and dairy composting operations under the current regulatory framework. Despite these efforts, NHDES has not received any applications for additional composting capacity to date.

[12] The 2003 New Hampshire Solid Waste Management Plan is available on NHDES' website: https://www.des.nh.gov/organization/commissioner/pip/publications/documents/r-wmd-03-2.pdf

- Identifying wastes that may warrant specific attention, such as street sweepings, contaminated soils and wastes containing per- and polyfluoroalkyl substances (PFAS), as well as considerations for management of landfill leachate that contains PFAS contamination.

Other Organizations Involved in Solid Waste Management

For a list of other organizations involved in solid waste issues in New Hampshire, see Appendix A. The list includes a brief description of each organization. Further details for each organization can be obtained by going to its website or contacting the organization directly.

VIII. Conclusions and Recommendations

As stated in RSA 149-M:29, II, one of the primary purposes of this report is to assess the level of achievement in reaching the 40% diversion goal established in RSA 149-M:2 (Waste Reduction Goal). Considering the information provided above, NHDES is not able to adequately assess the state's achievement of the 40% diversion goal. This is due in large part to the noted resource deficiencies within the Solid Waste Management Bureau, as well as difficulty obtaining and analyzing data. More importantly, NHDES notes that successive revisions to the Waste Reduction Goal have obscured the original intention of the goal, making it unclear what exactly the goal intends to measure or how diversion should be defined.

In light of this, and in consideration of the difficulties inherent in measuring solid waste generation, source reduction and diversion (as noted previously in this report), NHDES respectfully submits that the Waste Reduction Goal might be revised and restructured as a Disposal Reduction Goal. Because disposal tonnage is something that NHDES can definitively measure, NHDES believes it would be much more feasible to track changes in waste disposed over time than to track changes in waste generated.

It is worth noting that challenges with measuring waste generation, source reduction and diversion are not unique to New Hampshire. For example, in Massachusetts, the Department of Environmental Protection (MassDEP) has recently shifted from using a waste reduction/diversion target, to instead use a disposal reduction target as an indicator of overall waste reduction and diversion progress.[13] NHDES believes that adopting a similar practice for New Hampshire could provide a clear and measurable metric for tracking waste reduction and diversion in the state.

NHDES would suggest a Disposal Reduction Goal that defines a baseline year and sets a specific target to reduce annual tonnage disposed by X%, as compared to the baseline, within a specified time period. For example, MassDEP's 2010-2020 Solid Waste Master Plan sets 2008 as the baseline, with short- and long-term goals to reduce annual solid waste disposal 30% by 2030, and 80% by 2050. Annual disposal could also be measured on a per capita basis to account for changes in population over time.

In light of New Hampshire's continued reliance on disposal and limited progress toward advancing more preferable management methods identified in the Waste Management Hierarchy, it is clear that the Waste Reduction Goal in RSA 149-M:2 warrants reconsideration. No matter what course of action the General Court decides to take, NHDES would recommend a goal that is relevant, achievable, and measurable. Furthermore, if NHDES is directed to encourage, promote, and measure achievement of the goal, the agency will need to have clear statutory authority and the tools necessary to perform such functions.

As required by statute, the recommendations in this report are focused specifically on the Waste Reduction Goal. NHDES may provide additional recommendations related to broader solid waste management issues in other communications with the General Court. NHDES looks forward to its continuing work with the HB 617 Study Committee and the General Court at large with respect to vital solid waste policy issues, and NHDES will continue in its efforts to achieve the goals and mandates of RSA 149-M to the extent its resources allow.

[13] MassDEP, 2010-2020 Solid Waste Master Plan – p. 17, bottom: https://www.mass.gov/files/documents/2016/08/nw/swmp13f.pdf

Appendix A: Organizations Involved with Solid Waste Management

State/Local Organizations

Auto and Truck Recyclers Association of NH (ATRA)
Address: PO Box 2761, Concord, NH 03302-2761
Telephone: (603) 529-7211
Website: http://www.atranh.org/
Contact: David Wilusz, President, allied10@aol.com

The Auto and Truck Recyclers Association of New Hampshire (ATRA) promotes environmentally friendly business practices for facilities engaged in automobile and truck recycling, dismantling and salvage within the state of New Hampshire. ATRA encourages uniform commercial practices among its members and provides leadership in ensuring familiarity with local, state, and federal laws and regulations governing the conduct of such businesses. It represents the interests of its members before governing bodies, seeking to ensure recognition of the contributions of the vehicle recycling industry. ATRA seeks to work closely with regulatory bodies such as the Department of Environmental Services, the Department of Safety and the Department of Transportation, as well as organizations with similar goals, such as the New Hampshire Municipal Association, New Hampshire Auto Dealers Association, the New Hampshire Towing Association and many others.

Lakes Region Planning Commission (LRPC)
Address: Humiston Building, 103 Main Street, Suite 3, Meredith, NH 03253
Telephone: (603) 279-5341
Website: https://www.lakesrpc.org/
Contact: Dave Jeffers, Regional Planner, djeffers@lakesrpc.org

The Lakes Region Planning Commission (LRPC) is a unique association of local governments that provides comprehensive planning services to meet the diverse needs of New Hampshire's Lakes Region. Their mission is to provide effective planning, in order to achieve and sustain a quality environment, a dynamic economy, and local cultural values by supporting community efforts through leadership, education, technical assistance, information, advocacy, coordination and responsive representation. During the tenure of this report, the LRPC has developed a series of Solid Waste Roundtable events where they invite attendees to learn about solid waste issues in the region and offer solutions. Topics range from capped landfill maintenance, to disposal and use of glass, to food waste composting. In addition, they coordinate the household hazardous waste collection events for the Lakes Region.

New Hampshire the Beautiful
Address: 2101 Dover Road, Epsom, NH 03234
Telephone: 1-888-784-4442 Toll-Free in NH, (603) 736-4401
Website: http://www.nhthebeautiful.org/
Email: nhtb@nrra.net

New Hampshire the Beautiful, Inc. (NHtB) is a private, non-profit Charitable Trust established in 1983 and voluntarily funded by the soft drink distributors and bottlers, retail grocers, and the malt beverage industry. The Board of Directors of NHtB has awarded the Northeast Resource Recovery Association (NRRA) a contract to administer the grants and solid waste facility sign programs in addition to overseeing the distribution of litter bags for roadside cleanups across New Hampshire.

UNH Cooperative Extension
Address: Taylor Hall, 59 College Road, Durham, NH
Telephone: 1-800-735-2964 Toll-Free in NH, (603) 862-1520
Website: https://extension.unh.edu/

The Cooperative Extension Network provides information and outreach on a multitude of topics to the citizens of New Hampshire. For example, through their Master Gardeners Program, they provide information on backyard composting and community gardens. They also continue to provide information on the use of wood ash as an agricultural soil amendment and promote the reduction of marine debris through a project that recycles derelict fishing gear.

Upper Valley Lake Sunapee Regional Planning Commission (UVLSRPC)
Address: 10 Water Street, Suite 225, Lebanon, NH 03766
Telephone: (603) 448-1680
Website: https://www.uvlsrpc.org/
Contact:Vickie Davis, Planner, vdavis@uvlsrpc.org

The Upper Valley Lakes Sunapee Regional Planning Commission (UVLSRPC) has been providing professional planning assistance to municipal boards since 1963. UVLSRPC coordinates all aspects of planning, act as a liaison between local and state/federal governments and provide advisory technical assistance to the 27 communities and committees in its region who affect the future land use of the region. UVLSRPC has provided training to solid waste operators on implementing organics recycling at rural transfer stations, reduction of HHW in the waste stream and improper disposal of medicines. The group also worked with business owners who are small quantity generators of hazardous waste for better solutions for managing their waste.

Regional and National Organizations

Association of State and Territorial Solid Waste Management Officials (ASTSWMO)
Address: 1101 17th Street NW, Suite 707, Washington, DC 20036
Telephone: (202) 640-1060
Website: http://astswmo.org
Contact: Cathy Jamieson, Materials Management Subcommittee Chair, cathy.jamieson@vermont.gov

The Association of State and Territorial Solid Waste Management Officials (ASTSWMO) supports the environmental agencies of the States and trust territories. ASTSWMO focusses on the needs of State hazardous waste programs; non-hazardous municipal solid waste and industrial waste programs; recycling, waste minimization, and reduction programs; Superfund and State cleanup programs; waste management and cleanup activities at federal facilities, and underground storage tank and leaking underground storage tank programs. The association's mission is: "To Enhance and Promote Effective State and Territorial Waste Management Programs, and Affect National Waste Management Policies." The organization is structured to accomplish this two-part mission through both member committees and Association staff efforts.

Northeast Recycling Council (NERC)
Address: 139 Main Street, Suite 401, Brattleboro, VT 05301
Telephone: (802) 254-3636
Web Site: https://nerc.org
Contact:Lynn Rubinstein, Executive Director, lynn@nerc.org

The Northeast Recycling Council provides technical assistance, information access, research and networking opportunities on recycling market development for state and regional programs in the six New England states as well as New York, New Jersey, Pennsylvania and Delaware. In addition to providing a forum for the exchange of information between states and state agencies, NERC undertakes research and education projects that address regional recycling, market development and waste management issues.

Northeast Resource Recovery Association (NRRA)
Address: 2101 Dover Road, Epsom, NH 03234
Telephone: (603) 736-4401 or (800) 223-0150
Web Site: https://nrra.net
Contact:Reagan Bissonnette, Executive Director, rbissonnette@nrra.net

Founded in 1981 as a private, non-profit organization, NRRA provides technical, educational, and marketing support to New Hampshire municipal recycling programs. NRRA provides marketing and brokerage services for municipalities in New Hampshire, Massachusetts, Maine and Vermont. This cooperative approach combines materials from many communities to gain economies of scale in transportation and offers access to markets which would typically be denied to individual small communities. NRRA also provides extensive outreach and technical assistance to its member communities designed to strengthen and expand recycling and waste diversion activities.

Northeast Waste Management Officials' Association (NEWMOA)
Address: 89 South Street, Suite 600, Boston, MA 02111
Telephone: (617) 367-8558
Website: http://www.newmoa.org/
Contact:Jennifer Griffith, jgriffith@newmoa.org

The Northeast Waste Management Officials' Association (NEWMOA) is a non-profit, non-partisan, interstate association established in 1986 by the governors of the New England states as an official interstate regional organization. The membership is composed of state environmental agency directors of the hazardous waste, solid waste, waste site cleanup, pollution prevention and underground storage tank programs in Connecticut, Maine, Massachusetts, New Hampshire, New York, New Jersey, Rhode Island, and Vermont. NEWMOA's mission is to help states articulate, promote, and implement economically sound regional programs for the enhancement of environmental protection. The group fulfills this mission by providing a variety of support services that facilitate communication and cooperation among member states and between the states and EPA, and promoting the efficient sharing of state and federal program resources.

Solid Waste Association of North America (SWANA)
Address: 1100 Wayne Avenue, Suite 650, Silver Spring, MD 20910
Telephone: 1-800-GO-SWANA (1-800-467-9262)
Website: https://swana.org/
Contact: Meri Beth Wojtaszek, Deputy Executive Director

The Solid Waste Association of North America (SWANA) is the largest member-based solid waste association in the world with 45 Chapters, in the U.S., Canada and the Caribbean and over 10,000 members. SWANA is

the U.S. and Canadian National Member of the International Solid Waste Association (ISWA), and participates and supports ISWA events and programs. SWANA's conferences and training programs cover all aspects of integrated municipal solid waste management, and the Association is a policy and technical representative of solid waste management practitioners, executives, companies and government organizations.

The Composting Collaborative
Email: Info@compostingcollaborative.org
Website: www.compostingcollaborative.org

The Composting Collaborative is a project of the GreenBlue, BioCycle Magazine, and the U.S. Composting Council. Their mission is to accelerate composting access and infrastructure to improve soil health and divert compostable materials from landfills. As a collaborative, they are able to provide educational support to groups looking to implement composting in their community or business. Since 2017 The Composting Collaborative has focused on projects to gather better data on organics processing capacity, provide information about pretreatment and preprocessing technologies, and establish optimized soil sampling methodologies. They are presenting at three national conferences in 2019 and 2020 and have provided numerous webinars for anyone looking for information regarding composting.

The Recycling Partnership
Address: 125 Rowell Court, Falls Church, VA 22046
Website: https://recyclingpartnership.org/

The Recycling Partnership is a national nonprofit organization that is transforming recycling in towns, cities and states all across America. Their mission is to encourage recycling by offering a different perspective on the role of recycling in our society. They have created tools to enhance recycling that can be customized to specific needs of a town, city or organization or even a business. In the last five years, they have partnered with various stakeholders on recycling enhancement projects. The Recycling Partnership tracks each of these projects to create baseline data and case studies in order to train others on how to implement the tools they have created.

Toxics in Packaging Clearinghouse (TPCH)
Address: c/o NERC, 139 Main Street, Suite 401, Brattleboro, VT 05301
Telephone: (802) 254-8911
Email: info@toxicsinpackaging.org
Website: https://toxicsinpackaging.org/
Contact: Melissa Walsh Innes, Program Manager

In 1990, New Hampshire was the second state in the nation to adopt the toxics-in-packaging model legislation developed by the Coalition of Northeastern Governors (CONEG). Nineteen states have adopted a toxics-in-packaging law based on the CONEG model and the model has been used internationally. To ensure consistent and effective implementation of the laws, the Toxics in Packaging Clearinghouse (TPCH) was created in 1992 to simplify the law's administrative procedures, promote cooperation and information sharing between participating states, minimize procedural burdens on affected industries, and promote understanding and greater awareness of the law's objectives. TPCH is assisted in its mission by technical advisers from representatives of industry and public interest organizations.

The US Composting Council (USCC)
Address: 3801 Lake Boone Trail, Suite 190, Raleigh, NC 27607
Telephone: (301) 897-2715
Email: uscc@compostingcouncil.org
Website: https://www.compostingcouncil.org

The US Composting Council (USCC) was established in 1990 and is a national member-based organization dedicated to the development and promotion of the composting industry, including the manufacturing, marketing and utilization of compost. USCC members include compost manufacturers, compost marketers, equipment manufacturers, product suppliers, academic institutions, public agencies, nonprofit groups and consulting/engineering firms.

United States Department of Agriculture Rural Development
Grants Contact: Water & Environmental Programs National Office
Telephone: (202) 720-9583
Website: https://www.rd.usda.gov/programs-services/solid-waste-management-grants

NH Contact: Anthony Linardos, State Director
Address: 87 State Street, Suite 324, PO Box 249, Montpelier, VT 05601
Telephone: (802) 828-6080
Website: https://www.rd.usda.gov/nh

The United States Department of Agriculture Rural Development provides annual solid waste management grants. The goal is to reduce or eliminate pollution of water resources by providing funding for organizations that provide technical assistance or training to improve the planning and management of solid waste sites. This grant program has helped organizations in New Hampshire provide technical assistance where NHDES has been unable to.

United States Environmental Protection Agency (U.S. EPA) – Sustainable Materials Management
Address: Office of Resource Conservation and Recovery, 1200 Pennsylvania Ave., NW (5305P), Washington, DC 20460
Website: https://www.epa.gov/smm

The United States Environmental Protection Agency – Sustainable Materials Management Program (SMM) provides information to the regulated community as well as the public on managing materials from cradle-to-grave. It is a systematic approach to using and reusing materials over the entire life cycle by highlighting changes in how society thinks about natural resources and environmental protection. EPA's SMM program provides webinars and training free of charge on all things solid waste including food waste reduction, electronics recycling, C&D recovery, and partnership opportunities for communities. The SMM program has also gathered data from the states regarding solid waste management, created a waste reduction model (WARM) and other sustainable materials management tools for users.

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

November 18, 2020

GRANITE STATE LANDFILL LLC
1855 VERMONT RTE 100
HYDE PARK, VT 05655

Re: Request for More Information – Standard Dredge and Fill Wetlands Permit Application (RSA 482-A)
NHDES File Number: 2020-02239
Subject Property: Douglas Drive, Dalton, Tax Map #M405, Lot #33

Dear Applicant:

The New Hampshire Department of Environmental Services (NHDES) Wetlands Bureau reviewed the above-referenced Standard Dredge and Fill Wetlands Permit Application (Application). Pursuant to RSA 482-A:3, XIV(a)(2) and Rules Env-Wt 100 through 900, the NHDES Wetlands Bureau determined the following additional information is required to complete its evaluation of the Application:

1. As is the case with most landfill projects in the state, when they are close to reaching capacity, requests are made to expand the landfill footprint in the immediate vicinity. While 3 phases are currently proposed, please address how potential future expansions will impact surrounding wetlands and surface waters on the property, as this long-term planning is critical to determine if avoidance and minimization of wetland resources has been fully demonstrated per Rule Env-Wt 311.07 and Env-Wt 313.03.
2. As stated in a letter dated September 27, 2019, signed by Water Division Director Thomas O'Donovan, NHDES requested that alternative sites in neighboring states be considered that may have less overall wetland impacts. The analysis provided in the application considered Maine and Vermont, which both prohibit out-of-state solid waste, but did not consider Massachusetts as a potential siting area. Please address this in your response, as there may be other areas that are better suited for landfill siting with less overall wetland impacts per Rule Env-Wt 311.07.
3. If excavation and blasting is proposed to prepare the site for the landfill, as well as the continued use of the existing quarry and gravel operations on-site, it is not clear how these activities will impact surrounding wetlands, groundwater levels and flow directions, or nearby drinking water supplies. There is a public water supply well near Forest Lake, as well as numerous private wells in the area that could be impacted if groundwater flow directions are altered as part of the construction. Provide further detailed groundwater analysis with supporting documentation to ensure detrimental groundwater impacts are avoided and minimized as required by Env-Wt 313.03(8).
4. As stated and offered in the application, provide any updates in regards to meetings with local officials, Conservation Commissions or Local Advisory Committees that may have occurred since the application was submitted, and provide any available meeting minutes for NHDES review.
5. On October 1, 2020, NHDES received a letter of concern from the Ammonoosuc River Local Advisory Committee (LAC) (copy attached). Please address each of the LAC comments as part of your response to this request.
6. On October 11, 2020, NHDES received a letter of concern from the Bethlehem Conservation Commission (BCC) (copy attached). Please address each of the BCC comments as part of your response to this request.
7. On November 18, 2020, NHDES received a letter with comments from the Dalton Conservation Commission (DCC) (copy attached). Although the DCC did not raise specific concerns with the application, they did express their trouble finding a reputable consultant to assist with the review and were limited in time on their response. NHDES recommends that you continue to coordinate directly with the DCC and incorporate any future recommendations in your response to this request.

8. To help NHDES better understand the local zoning issues for the existing Bethlehem facility and the proposed Dalton project and how these decisions relate to avoidance and minimization of wetland impacts on the Dalton site, provide NHDES with the approved zoning ordinances from both towns and explain how the current proposal demonstrates that Env-Wt 311.07 has been met, particularly when the Bethlehem facility expansion will have significantly less overall wetland impact.
9. Section 8 and Section 9 of the application materials states that 17.49 acres of wetland will be impacted, however the application fee was based on 17.57 acres. In addition, the Siting, Evaluation and Minimization Report in Section 7 done by CMA Engineers lists 16.8 acres of total wetland impact. Please explain the discrepancies.
10. Review of the Phase 1-A historical assessment in Section 11 by Victoria Bunker, Inc. recommended that continued Phase 1-A on-site surveys are necessary to be conducted on the property. Please provide an update of the additional on-site surveys as well as any addition correspondence with NH Division of Historical Resources regarding the historical assessment pursuant to RSA 227-C:9.
11. Review of the existing conditions plan indicates that there are many existing roads on the property, some more recently constructed, that cross wetlands and streams; however, NHDES does not find records of permits in these areas. If there are unpermitted wetland impacts on the property, then a full wetland delineation for disturbed areas should be completed to fully assess any unpermitted wetland impacts per the federal delineation method as defined by Env-Wt 103.02 (see methods for atypical and difficult wetland situations). These areas should be labeled on the plans as such, and the application summary should be updated to reflect these additional impacts or restoration as necessary, as well as providing any additional application fees that may be required.
12. Areas of the property East of Douglas Drive do not appear to be fully assessed for a potential phase of the proposal, and a wetland delineation was not completed in this area. Please identify any wetland resources on this portion of the property to see if further avoidance and minimization can be achieved by relocating a phase of the project in this area per Env-Wt 311.07.
13. Similar to the above comment regarding demonstrating avoidance and minimization of wetland impacts as outlined in Env-Wt 311.07, it appears that the project could be located further upslope to the North reducing the overall wetland impact. Additional avoidance measures should be assessed for the entire 1,900-acre property to ensure this rule has been met.
14. It appears that finish grades of the landfill will be higher in elevation than the height of land (drainage divide) towards Forest Lake and Forest Lake State Park. Visual and aesthetic impacts must be further assessed in detail per RSA 482-A:1 as these impacts could “eliminate, depreciate or obstruct the commerce, recreation and aesthetic enjoyment of the public”.
15. As highlighted in the Archeological Report by Bunker dated July 2020, Forest Lake State Park is one of New Hampshire’s 10 original state parks, constituting 397 acres, which was built by the Civilian Conservation Corps (CCC) in 1935. The CCC cut ski trails between the top of Dalton Mountain and the shores of Forest Lake within Forest Lake State Park, and Dalton Mountain played a supporting role in the growth of regional recreation, as ski trail maps from 1934-1935 shows the location of Dalton Mountain and other ski slopes throughout the state. Further, the Ammonoosuc River LAC comment letter highlights the current day outdoor recreation and tourism that occurs in this region. Given the extensive recreational history and the current recreational use of Forest Lake State Park and the Ammonoosuc River, a response should be provided in greater detail whether impacts from this project could “eliminate, depreciate or obstruct the commerce, recreation and aesthetic enjoyment of the public” as outlined in RSA 482-A:1.
16. It is not clear how the downstream high-value Alder Brook wetland complex (which was previously considered for prime wetland designation by the Town of Dalton) and ultimately the Ammonoosuc River’s water quality will be protected if treatment of landfill runoff fails or if the landfill liners develop leaks over time. Downstream wetlands and surface waters should be monitored long term to protect from contaminants and pollution, and to ensure that these resources are protected pursuant to RSA 482-A:1. It should be noted that there are also downstream

communities that depend on the Ammonoosuc River as a drinking water source, so it is imperative that these issues are addressed as part of the project.

17. Review of Grading Sheet C401A, as required to be submitted under Env-Wt 311.05, found the following errors that should be addressed:
    a) Wetland impacts for road grading near DMH-27 were not included on the Wetland Impact Plan (Sheet 6).
    b) Wetland impacts for closed drainage between DMH-4 and DMH-26 were also not included on the Wetland Impact Plans. These areas should be included in the application along with any additional fees that may be necessary.
18. Review of Grading Sheet C401-B found the following issues:
    a) A small area of wetland impacts (247 square feet) for slope grading could be avoided or eliminated by installing a knee wall in this location.
    b) Wetland impacts near HW-13 do not match with the Wetland Impact Plan on Sheet 12. This impact area could be reduced in scope given the limited grading needed at this location.
    c) Wetland impacts could be further reduced with the use of retaining walls North of HW-8 near grade line 1120 in 2 locations (before and after the pond entrance road).
    d) NHDES recommends that roadway station numbers be added the grading plans to better help identify these areas.
19. Review of Grading Sheet C402 found that there are many side slope wetland fill areas that could be eliminated by installing retaining walls in several locations. Please address these areas in your response.
20. Review of Grading Sheet C403-B found that there are proposed wetland impacts for stormwater ponds in 2 locations which is not allowed per Env-Wt 524.04(b). Also, stormwater Pond 31 has a similar wetland impacts. Please revise the plans to eliminate these wetland impacts.
21. Review of Grading Sheet C404A found that wetland impacts are shown for a diversion swale for stormwater conveyance. Please relocate outside of wetlands per Env-Wt 524.04(b).
22. Review of Grading Sheet C404-B found that stormwater ponds dug below existing grade, which are adjacent to wetland areas, may drain the surrounding wetlands and cause impacts. Please address how the hydrology of these wetland areas will be maintained.
23. Review of the stream crossing proposal for an access road finds that the flood stage increases at the inlet by 3 feet over existing conditions during the 100-year storm, and flow velocities at the outlet increase by 9.74 feet per second (fps). A larger opening may be needed to ensure that upstream flooding and downstream scouring are avoided as part of this crossing, as this can be detrimental to aquatic organism passage. Please address this in your response.
24. The application states that the project does not impact habitats ranked as Tier 1 or Tier 2 as identified by the NH Wildlife Action Plan (WAP); however, review of the Wetland Permit Planning Tool (WPPT) finds that there are indeed Tier 2 habitats that fall within the project area which are described as the “Highest Ranked Habitat in the Biological Region”. Please update the wetland application and forms accordingly, and overlay the project’s limits of disturbance on the WAP maps to clearly show where the project impacts will occur, and how the project avoids these important areas as described in RSA 482-A:1 and Rule Env-Wt 313.03(b)(2).
25. Provide written permission from NH Department of Transportation (NHDOT) for those portions of the project that occur within the NHDOT right-of-way along NH Route 116 pursuant to RSA-A:11, II.
26. The review of on-site and off-site mitigation options was conducted and resulted in two parcels under consideration for preservation. The two parcels include upland buffer preservation of a 244-acre lot located west of the proposed landfill and 106 acres of land off of Trudeau Road in Bethlehem. NHDES has reviewed the parcels and note the following:
    a) The 244-acre lot is located west of the proposed landfill and does not abut land that is subject to a conservation interest, a requirement to be met as noted in Env-Wt 803.06(a)(2). Due to the parcel’s location on the

landscape, the long-term habitat value of the resources may not be sustainable overtime due to the uncertainty of adjacent activities. For this parcel to continue to be considered, it would be advised to determine abutting land uses and opportunities for future conservation efforts. This may include consulting with local conservation entities on their goals and determine if any future lands in the area will be protected so this parcel is not isolated.

b) The 106-acre parcel consists of multiple lots added together which are located along the state designated, Ammonoosuc River. The parcel abuts White Mountain National Forest lands, consists of high value wildlife habitat, and may have the potential for habitat enhancement at the sand and gravel mining site. For this upland preservation effort to go forward, the following items would need to be provided:
   (1) Delineate wetlands within the proposed compensatory mitigation area and all contiguous wetlands and surface waters to be completed by a certified wetland scientist in accordance with Env-Wt 406.01.
   (2) Include a functional assessment of the proposed mitigation site.
   (3) Provide a date when a complete mitigation proposal will be submitted to the department.
   (4) Document the current conditions which includes submittal of color photographs to illustrate important site features with location(s) noted on the property survey plan, including the location(s) of significant ecological features; existing impervious surfaces, including but not limited to buildings, structures, and trails; wells; power lines or pipelines; historic resources; and other improvements that will be in place at the time of the establishment of the compensatory mitigation area.
   (5) Identify any existing encumbrances or restrictions on the property.
   (6) Summarize the conservation goals in accordance with Env-Wt 804.
   (7) Complete a baseline documentation report in accordance with Env-Wt 808.15.
   (8) Describe how the property proposed for preservation will be legally protected in perpetuity. A letter noting the proposed grantee indicates that they will accept the easement or fee simple deed will be needed.
   (9) A copy of the proposed conservation easement language or language noting conveyance of fee simple ownership or conservation easement which protects the conservation values in perpetuity, in accordance with Env-Wt 808.14.
   (10) If protective measures already exist on the mitigation site(s), identify the existing protective measures and describe how the proposed additional measures would provide greater protection of the aquatic resources on the site(s).
   (11) Submit a property survey plan in accordance with Env-Wt 808.11 that identifies the boundaries of the compensatory mitigation area.
   (12) Submit a draft legal description of the compensatory mitigation area; and
   (13) Submit a stewardship plan for the property that has been accepted by the conservation easement grantee.

27. Based on review of the impacts noted in the application materials, stream impacts have not been included in the Aquatic Resource Mitigation (ARM) Fund payment calculation. The permanent loss of 216 linear feet of perennial stream resources and 1,046 linear feet of intermittent streams needs to be included in the total calculation for mitigation payment. The square footage of these resources has been removed from the total so the impacts are not double counted. With these losses, the payment would result as follows:

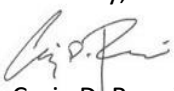
Wetland loss of 738,399 square feet of wetlands =	$2,994,882.52
216 feet of perennial stream =	$19,730.30
1,046 feet of intermittent stream =	$286,637.47
TOTAL ARM Fund payment =	$3,301,250.29

In addition, it should also be noted that NHDES received comments and questions from the North Country Alliance for Balanced Change, Save Forest Lake group, as well as numerous public comments from citizens in the region, which have all been reviewed and were considered as part of this request. For future public comments regarding this application, NHDES set up the following email address to receive this important public input at: wetlandsapplicationpubliccomments@des.nh.gov

Please submit the required information as soon as practicable. Pursuant to RSA 482-A:3, XIV(a)(2), **the required information must be received by the NHDES Wetlands Bureau within 60 days of the date of this request, no later than January 17, 2021, or the Application will be denied**. Should additional time be necessary to submit the required information, an extension of the 60-day time period may be requested. In accordance with applicable statutes and regulations, the applicant is also expected to provide copies of the required information to the municipal clerk and all other interested parties.

Pursuant to RSA 482-A:3, XIV(a)(3), the NHDES Wetlands Bureau will approve or deny the Application within 30 days of receipt of all required information, or schedule a public hearing, as required by RSA 482-A or associated rules. If you have any questions, please contact me at craig.rennie@des.nh.gov or (603) 271-0676.

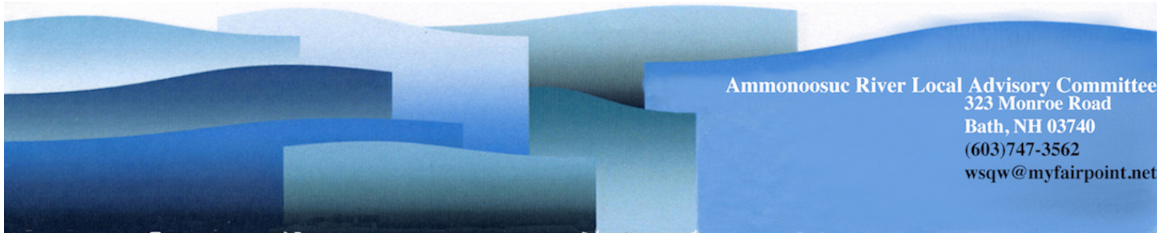
Sincerely,



Craig D. Rennie, CWS, CWB
Inland Wetland Supervisor
Land Resources Management

cc: Douglas Ingerson, Jr., JW Chipping
BH Keith Associates
Dalton Clerk/Conservation Commission
Bethlehem Clerk/Conservation Commission
Ammonoosuc River LAC
NHDES Rivers Program

ec: Lori Sommer, NHDES Mitigation Coordinator
Ridge Mauck, NHDES Alteration of Terrain
Tim Drew, NHDES Public Information Office
Rene Pelletier, NHDES Assistant Director, Water Division
Thomas O'Donovan, NHDES Director, Water Division
Michael Marchand, NHFG
Lindsey Lefebvre, ACOE
Beth Alafat, EPA
Amy Manzelli, North Country Alliance for Balanced Change
Jon Swan, Save Forest Lake
Tom Irwin, Conservation Law Foundation



To: Craig Rennie, CWS, Inland Wetland Supervisor
NHDES Wetlands Bureau
Land Resources Management Water Division,
NH Dept. of Environmental Services
PO Box 95, 29 Hazen Drive
Concord, NH 03302

Date: October 1, 2020

Re: NHDES File #2020-02239

Description: Standard Dredge and Fill Wetlands Application for the proposed landfill in Dalton and Bethlehem

Applicant: Granite State Landfill LLC

Owner: Douglas Ingerson, Jr., d.b.a. J.W. Chipping

Location: Adjacent to and north of NH RT 116 and the Ammonoosuc River in Dalton, NH

Message: The Ammonoosuc River Local Advisory Committee (LAC) members held a conference call meeting on September 25, 2020 and reviewed the essential elements of the proposed project, as described in the wetlands application received.

In their review and discussion of the application LAC members noted their concerns about environmental impact to the site selected for the landfill, being uphill of the Ammonoosuc River, a designated river in the NH Rivers Management and Protection Program. The headwater streams on the hillside are highly interconnected with ground water, feeding into the Hatch Brook-Alder Brook tributary, a perennial stream complex that flows into the Ammonoosuc River just a short distance upstream of Town of Littleton. The following concerns were expressed:

- Disturbance to the well-functioning wetland complex
- Disturbance to Alder Brook fishery managed to protect wild brook trout (catch & release)
- Disturbance to rainbow trout and brown trout fishing in the Ammonoosuc River
- Alder Brook has Highest Ranked Wildlife Habitat in NH in 2020 Wildlife Action Plan
- 5 Vernal Pools on the property are a priority resource that need to be protected
- Ammonoosuc River is source of drinking water downstream in Woodville and in Lisbon with river's proximity to the Lisbon town wells

- Fluvial Geomorphology indicates very high fluvial erosion zone in this reach of the river (Ammonoosuc River Geomorphic Assessment, Floodplain Conservation, and River Corridor Planning by Dr. John Field, October 2011)
- Slope of land in topography directs drainage flow from the site down to the river
- Runoff drainage from impervious gravel area on the site would also flow downhill
- Screening landfill from the public view of tourists, a challenge for the proposed hillside
- Truck traffic blowing dust from gravel driveway down to highway Route 116 below
- Highway sharp turn access to site poses an impediment to traffic flow along highway

A river reflects the health of the watershed. The importance of the river, as a community resource involves local planning and protection efforts by a town. Littleton expressed recognition of the outstanding features of the Ammonoosuc River in 2014, wanting to make the riparian zone and access to it a town focal point. It went ahead to make river district improvements, paired with commitment to take all necessary measures ahead to preserve and protect the existing riparian buffers where and when practical, to offer opportunities for outdoor recreation, bringing greater public knowledge about the river, and spur involvement for the residents to look after their river. Trout Unlimited fishing events, country music, and seasonal events have taken place annually along the shoreline in the town proper. Young people go wading on the ledges in the river. The Farmer's Market is open on the south shore in the summer. No one would feel comfortable enjoying recreational opportunities riverside, if there was a landfill upstream just a stone's throw away. Littleton has committed economic funding for citizen enjoyment of the natural surrounds to be an established use of the riparian zone. Residents and tourists alike seek out the riverside environs for recreation, relaxation and renewal. Imagine how it would feel, if upon leaving the river, one observed landfill trucks, heading up Douglas Drive just a short distance away upstream. The two uses are totally at odds with each other.

Considering factors of topography, natural resources, socio-economics, and safety, the LAC members in attendance were in accord that selection of the landfill location should be based on criteria related to the environmental and hazardous material management. It is recommended that the Dalton site selected for the new landfill does not appear to be a suitable location for multiple reasons. In addition, the Ammonoosuc River having been selected for two upstream landfill sites (existing landfill in Bethlehem and proposed site in Dalton) makes it seem like the responsibility has unduly been put on one river to carry the landfill burden, which is unfair to the downstream communities.

Sincerely,

Richard Walling

Richard Walling, Chair
Ammonoosuc River LAC

Bethlehem Conservation Commission
Bethlehem, New Hampshire

October 11, 2020

NHDES Wetlands Bureau
29 Hazen Drive
P.O. Box 95
Concord, NH 03302-0095

Re: NHDES File Number 2020-02239

Dear Wetlands Bureau:

The Bethlehem Conservation Commission is expressing its concerns about this project and is asking the Department of Environmental Services to take a particularly close look at this application based on past experiences on a different project (proposed landfill) but with the same landowner on a project (a dragstrip) in an adjacent area. Part of this proposed landfill in Dalton, is in the Town of Bethlehem (Tax Map #406, Lots # 1 and 2).

Our Commission has attached letters we sent to DES on December 21, 2008, December 14, 2009 and December 23, 2016, in addition to a letter from the Dalton Conservation Commission on November 19, 2009.

A big concern at that time was over growing wetlands impacts, which increased from 1,762 to 1,920 to 6,650 sq. ft seemingly because they were never fully delineated. In 2009 the Army Corps of Engineers mapped the proposed site and found the area of impacted wetlands was significantly greater than it was portrayed in the original application.

This current proposed project is described as having a permanent impact of 16.3 acres of wetlands, as well as approximately 150 linear feet of perennial stream and 1350 linear feet of intermittent stream impact.

We are expressing concern over this location for a number of reasons.

Two branches of Alder Brook run alongside the proposed site of the 180-acre landfill, then join and flow out of Dalton into Littleton and then back into Bethlehem and into the Ammonoosuc River, a protected river. Disruptions and impacts there could result in run-off into Alder Brook and, therefore, into the Ammonoosuc. There are Alder Brook wetlands to consider and there is a stratified-drift aquifer in the area of Alder Brook Road and the Ammonoosuc, which continues under Wing, Hazen and River roads and then continues under Trudeau Road and the NCES landfill. A copy of the Bethlehem aquifer map is attached.

The two lots in Bethlehem are designated as Supporting Landscape to Highest Ranked Habitat, according to the NH Wildlife Action Plan; and the Alder Brook shoreline has been identified as a Highest Ranking Habitat in New Hampshire.

The members of the Ammonoosuc River Local Advisory Committee voted, at their meeting on September 25, to oppose the siting of this proposed landfill in this location for these reasons and more in a letter to DES of October 1, 2020.

We are asking DES to take all of these issues into account when deciding on this project.

Sincerely,

Lindsay Webb, Chair, Bethlehem Conservation Commission

Bethlehem Conservation Commission
Bethlehem, New Hampshire

Attachments:

BCC letter, December 21, 2008
BCC letter, December 14, 2009
DCC letter, November 19, 2009
BCC letter, December 23, 2016

Aquifer Map of Bethlehem, New Hampshire

Dalton NH Conservation Commission

756 Dalton Road

Dalton, NH 03574

Craig Rennie

CWS, CWB, Inland Wetland Supervisor

Wetlands Bureau, Land Resources Management

Water Division, NH Department of Environmental Services

PO. Box 95

Concord, NH 03302-0095

Dear Craig,

The Dalton Conservation Commission would like to thank you for the opportunity to provide our comments/concerns to you for the Wetlands Permit NHDES File Number 2020-02239. Considering the matters at hand, COVID-19, and natural life issues, as well as trying to get a firm to go over the Permit packet the Commission received, and also having our meeting fall the day after the deadline for said File #, we have had limited time to fully prepare for a full look into this. The Commission was unsuccessful in having a firm that A. had the time to go over the application in a timely manner with our schedule and theirs, also B. a firm that was capable to do so that was also not in conflict in any way with the Permit. In the meantime, of looking for this firm, the Commission was able to do its due diligence in meeting with members from Casella as well as their wetlands and soil scientist. All the members from the Conservation Commission were in attendance. Commission Chair, Cory St. Cyr, Vice Chair Douglas Ingerson Jr. also the landowner (who has recused himself for any conflict of interest. Was in attendance as landowner.) Secretary Vanessa Cardillo, (Girlfriend to Douglas Ingerson Jr, whom also was recused for relationship status with Douglas.) and members Nancy Comeau, Christine Rouillard, and interested returning member David Rouillard.

During the site walk, the engineers that were involved in the making of the maps and well digging and monitoring were extremely helpful and informative as well as answering all questions the members of the Commission had. We all physically walked the site using the maps as the land was explained in detail. Members Cory St Cyr, Nancy Comeau, and Christine Rouillard ask questions such as, “the intermitting stream, where the water goes underground and drains being close to Alder Brook shooting range area which was mentioned by Nancy.” Cory asked about the monitoring wells, as well as the water that flow that runs away from Forest Lake, he also mentioned that they have to put a bigger pipe in at the lower part of the driveway. The team informed the commission there are 36 monitoring water wells on the property. Casella had additional wells added than what there was initially to have a more extensive water research and reading. The Casella team discussed and showed the seasonal

stream that goes under ground during rainstorms and snow melt. Using the current information accessible to us there did not seem to be anything out of place or in conflict with the permit application that was submitted and appeared to follow all rules and regulations to great extent.

The commission is still seeking to discuss the permit with a expert team to have a full and complete understanding on the wetlands permit. We feel that we were able to ask the questions that we needed, and they were addressed greatly.

Thank you,

Dalton Conservation Commission

NEW HAMPSHIRE DEPARTMENT OF Environmental Services	**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	**Reviewed by**	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 October 9, 2020	
Application	Type I-A Modification – Landfill Expansion (Stage VI resubmittal)	**Application No.**	2020-47865	Page 1 of 48

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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 in March 2020 to modify Permit No. DES-SW-SP-03-002 to authorize an expansion of the Landfill, referred to as "Stage VI". This is a resubmittal of Application No. 2019-36785 for expansion into the same footprint (that application was withdrawn by NCES in February 2020). In the resubmitted application, NCES requested the following modifications:

- Increase landfill footprint by 5.71 acres (Phase I, aka Stage VI-South: 3.35 acres; and Phase II, aka Stage VI-East: 2.36 acres);
- Increase landfill approved design volume by 1.241 million cubic yards;
- Increase landfill "life through 2026 filling at an average rate of 175,000 tons per year"[1];
- Addition of two abutting properties owned by NCES to the regulated Facility; and
- Final approval of the construction-level plans and technical specifications for Stage VI Phase I (3.35 acres).

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).

NHDES is approving the application, with conditions. NHDES notes that portions of the approved expansion (Stage VI, Phase II) are based upon preliminary plans (e.g., design drawings) and, as stated in this review, NHDES is requiring specific additional information be included in the various subsequent application(s) required by the NH Solid Waste Rules, Env-Sw 100 et seq., (Rules) for obtaining approval of final plans.

Submittals

- North Country Environmental Services, Inc. (17 March 2020). *Application for a Type I-A Modification to a Solid Waste Management Facility Permit (Parts 1 and 2)*. Received March 24, 2020. Assigned WMD Log No. 2020-47865-01.
- North Country Environmental Services, Inc. (3 April 2020). *Application for a Type I-A Modification – Replacement Page to Operating Plan and Stamped Cross-section Drawings (S-1 and S-2).* Received April 3, 2020. Assigned WMD Log No. 2020-47865-02.
- CMA Engineers, Inc. (6 April 2020). *Application for a Type I-A Modification – Notification Letters (Ammonoosuc*

[1] See Application, Part 1, PDF p. 21 (WMD Log No. 2020-47865-01). See herein Attachment A, *Public Benefit Determination*, for further discussion.

River LAC and NHDES Rivers Coordinator). Received April 6, 2020. Assigned WMD Log No. 2020-47865-03.

- CMA Engineers, Inc. (6 May 2020). *Application for a Type I-A Modification – Certified Mail Receipts.* Received May 6, 2020. Assigned WMD Log No. 2020-47865-04.
- North Country Environmental Services, Inc. (7 May 2020). *Application for a Type I-A Modification – Revised Tables for Public Benefit Demonstration (Tables 5 and 6, as well as associated text).* Received May 8, 2020. Assigned WMD Log No. 2020-47865-05.
- North Country Environmental Services, Inc. (26 May 2020). *Application for Type I-A Modification – Certified Mail Receipts for Revised Public Benefit Section and Ammonoosuc River LAC.* Received May 26, 2020. Assigned WMD Log No. 2020-47865-06.

On April 22, 2020, NHDES received confirmation from NH Department of Justice (NHDOJ) that it received the business and personal disclosure forms required to perform a background investigation pursuant to Env-Sw 316.

On July 6, 2020, NHDES notified the applicant that the application was complete 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 outside the landfill footprint 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 Stages I through 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
- Stage IV: Permit No. DES-SW-SP-03-002

On August 15, 2014 with the approval of Stage V, NHDES administratively merged the previously issued permit numbers, and all activities at the Landfill are now administratively 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 review of Env-Sw 316 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, RSA 149-M:11,IV(a) and RSA 149-M:12,III, NHDES scheduled, noticed, and held a public hearing on the application for expansion as described below.

After NHDES deemed the application complete, 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 *Littleton Courier* on July 19, 2020 and the *Caledonian Record Weekender* on July 25, 2020.
- 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 (as identified pursuant to Env-Sw 303.08 through Env-Sw 303.12), 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 of NHDES' Solid Waste Management Bureau (SWMB).

NHDES also made notice as follows:

- Posted the notice electronically on the NHDES website;
- Emailed a brief description and link to the notice directly to certified solid waste operators on July 30, 2020; and
- Provided a brief description and link to the notice in NHDES' Municipal EcoLink e-bulletin sent July 31, 2020.

On August 24, 2020, in preparation for holding the public hearing online, NHDES provided additional information regarding access to and conduct of the public hearing via a frequently asked questions (FAQ) document posted to the NHDES website and linked to postings on facebook and twitter, and sent via email to solid waste facility permittees, known solid waste consultants, and certified solid waste operators. Further, people who registered in advance to attend the hearing via GoToWebinar were provided a link to the FAQ document in automatically generated reminder emails.

NHDES and NCES fulfilled their notification obligations in accordance with Env-Sw 304.08.

Due to the State of Emergency declared by the Governor as a result of the COVID-19 pandemic and in accordance with the Governor's Emergency Order #12 pursuant to Executive Order 2020-04, as extended, NHDES conducted the hearing electronically via the GoToWebinar platform. To assist individuals without reliable internet access, NHDES also provided established an in-person gathering place staffed by NHDES, with remote access through a shared communications portal at the Elks Lodge in the host municipality of Bethlehem, NH, to accept in-person oral and written testimony. The public hearing was held on August 25, 2020. About a dozen persons attended the hearing at the Bethlehem gathering place and over 40 persons attended remotely.

At the request of a commenter during the public hearing, the Hearing Officer extended the public comment period to September 18, 2020. NHDES provided notification of the extended comment period as follows:

- Posted the notice of extension electronically on the NHDES website;
- Emailed a brief description and link to the notice of extension directly to the applicant, host municipality, host solid waste management district, affected entities, public hearing registrants and attendees that provided an email address, commenters-to-date that provided an email address, solid waste facility permittees and known solid waste consultants on August 28, 2020;
- Provided a brief description and link to the notice of extension in NHDES' Municipal EcoLink e-bulletin sent August 31, 2020;
- Sent a copy of the notice of extension via first class mail on September 1, 2020 to facility abutters, the host municipality, affected entities without an email address on record with NHDES, and hearing attendees that only provided mailing addresses;
- Posted a brief description and link to the notice of extension on facebook and twitter on September 8, 2020; and
- Emailed a brief description and link to the notice of extension directly to certified solid waste operators (with a periodically issued training update) on September 11, 2020.

The public comment period closed on September 18, 2020 at 4 pm. NHDES considered all comments received during the public hearing and comment period in making its decision. See NHDES' concurrently issued Response to Public Comments.

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 through a compliance assessment 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.
- 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. 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 did not provide confirmation to NHDES that NHDOJ was provided the required information. Upon NHDES inquiry on April 22, 2020, 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 316.03 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 ultimate 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. NHDES has also identified Kevin Roy as a key employee with management or supervisory or substantial decision-making authority and responsibility. The applicant also submitted the BDF and PDF for Edmond R. Coletta, Jr., and Edwin Johnson; and, thus, these individuals were included in the background investigation.
- 316.05(c) – Not applicable

Env-Sw 316.06 Scope of Disclosures

- 316.06 – Applicable – NHDOJ confirmed receipt of the required completed disclosure forms. No further 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 the existing footprint is classified, per Env-Sw 103.48, as a "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 Design Report and Hydrogeological Report. Permittee holds groundwater release detection permit GWP #198704033, which requires modification to relocate certain monitoring wells prior to constructing Stage VI, Phase II. Env-Sw 305.04(b) ensures compliance therewith. Satisfies requirement.
- 804.02(c) – Applicable – Hydrogeological report provided. See also 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 52 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 Design Report and 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 – See note at Env-Sw 804.02(b) above. 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.
- 804.03(g) – 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 to include Tax Map 419 Lots 24 and 25, now owned by NCES. Application includes a survey plot plan stamped by a licensed surveyor (Andrew Nadeau, NH PLS #947, exp. 6/30/2021) showing proposed landfill footprint relative to Town of Bethlehem tax map parcels proposed to be included in the regulated solid waste facility boundary. Pursuant to prior approvals, NHDES notes that Tax Map 419 Lots 1, 2, 21, and 22 are also part of the regulated facility. Based on a review of the application and prior approvals, Tax Map 419, Lots 1, 2, 21, 22, 24 and 25 are locations where solid waste operations occur, are proposed to occur, and/or are necessary to maintain regulatory setbacks from the existing and proposed landfill footprint to the facility property line. NHDES notes that the existing landfill footprint and the proposed Stage VI footprint are only located on Tax Map 419, Lot 22. Satisfies requirement.

  For clarity, the permit identifies the regulated solid waste facility as being comprised of Bethlehem Tax Map 419, Lots 1, 2, 21, 22, 24 and 25, establishes the outer boundaries of those lots as the compliance boundary for requirements in the Rules that refer to "property line" or "property boundary."

  Further, to ensure the footprint of the landfill is maintained on Tax Map 419 Lot 22, as depicted and described in the application, the permit requires a qualified third-party surveyor to periodically survey the anchor trench alignment and proximate topography, and report the results of the survey compared to the approved footprint.

- 804.04(b) – Applicable – Satisfies requirement.
- 804.04(c) – Applicable – Satisfies requirement.
- 804.04(d) – Not applicable.
- 804.04(e) – Applicable – Satisfies requirement.

Env-Sw 804.05 Geologic Siting Limitations

- 804.05(a) – Applicable – See Design Report and Hydrogeologic Report, specifically Appendix B thereof. Satisfies requirement.
- 804.05(b) – Applicable – See Design Report and Hydrogeologic Report, specifically Appendix B thereof. Satisfies requirement.

Env-Sw 804.06 Other Siting Limitations

- 804.06 – Applicable – See Design Report. See also Env-Sw 804.04 above. 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) – 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 – see also note at Env-Sw 804.02(b) above. Preliminary capping plan proposed with Closure Plan (see Env-Sw 807, Env-Sw 1006, and Env-Sw 1106). Other necessary features are incorporated in the existing built facility.
- 805.02(b) – Not applicable – Landfill is not unlined.

Env-Sw 805.03 Landfill Subgrade and Base Grade Standards

- 805.03(a) – Applicable – See Technical Specifications, Section 02222, *Excavation* as well as Section 02223, *Filling*. See also Env-Sw 805.06(c) below. Satisfies requirement.
- 805.03(b) – Applicable – "Screened Till" identified in Technical Specifications, Section 02223, *Filling,* meets hydraulic conductivity requirement. "Select Secondary Subgrade Fill" shown in details on the Design Drawings is defined in the Technical Specifications, Section 02222, *Excavation*. Satisfies requirement.

  To ensure the subgrade meets the requirement of this rule, the permit requires the permittee to revise Technical Specification, Section 02223, *Filling*, to identify that "Screened Till" is also known as "Select Secondary Subgrade Fill."

- 805.03(c), (d), and (e) – Applicable – See Application Design Report, Appendix A.2, *Geotechnical Calculations: Landfill Stability Analyses*. Stamped by professional engineer (Robert J. Grillo, P.E. License No. 07565, expires 8/31/2022). 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 and be compacted to at least 95% of the maximum dry density as determined by ASTM D1557. Pursuant to Technical Specifications, Section 02223, Part 3.02, Common Borrow Fill and Screened Till shall be compacted to 95% of the maximum dry density as determined by ASTM D1557, and within 3% of optimum moisture content.
    - 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 or flatter. The cut will be incrementally advanced, with cover materials placed over the excavated cut area at the end of each operating day. The length of time this cut will exist is proposed to be several months, although work in the excavation is not expected to take more than several days. Stability calculations for the temporary cut condition were provided – the estimated factor

of safety is 2.4. Backfilling procedures and schedule for this cut area are incorporated into the fill sequencing drawings. Based on these drawings, the cut will be filled in lifts, as waste lifts are placed in Stage VI, Phase I.

- Global Stability. Two cross-sections from Stage VI (Stage VI, Section A-A' and Section B-B'), and one previously analyzed cross-section from Stage V (Stage V, Section A-A') were included in the design evaluation. 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).
- Liner Stability. Liner stability (interface) is estimated to have a factor of safety of 1.5 or greater.
- 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. For 3H:1V slopes, stability analyses indicate a factor of safety of about 1.6 in the static condition, and a predicted seismic deformation within allowable tolerance. For 2H:1V slopes, stability analyses indicate a factor of safety of about 1.7 in the static condition, and a predicted seismic deformation within allowable tolerance. NOTE: 2H:1V slope design does not comport with Env-Sw 805.10.

To ensure the as-built facility meets the requirements of Env-Sw 805.03(c), the permit requires the permittee to:

- Submit with the written inspection report and as-built certification required pursuant to Env-Sw 1104.04(h) and Env-Sw 1104.07(f), an inspection report prepared pursuant to Env-Sw 1104.04(h) for earthwork completed prior to this approval that was required to facilitate construction of Stage VI; and
- Prioritize backfilling of excavated waste areas, inclusive of the waste cut, such that they are filled as soon as practicable.

- 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. 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. D1, Detail 1/8, 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 using 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.

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 select sand. See also review of Env-Sw 805.06 and Env-Sw 806.05 herein. Satisfies requirement.
- 805.05(g) – Applicable – See Technical Specifications, Section 02273, *Drainage Geocomposite*, and Design Drawing No. D1, Detail 1/8. Satisfies requirement.
- 805.05(h) – Applicable – Liner grades are proposed at 3H:1V (extended sideslopes), except where leachate cutoff trenches are present, in which case liner grades shall not exceed 2H:1V consistent with this rule – not clear on Drawing D1, Detail 4/7 the upgradient slope of the leachate cutoff trench. Stability calculations were provided – see review of Env-Sw 805.03. Interface stability calculations were provided for Stage V, which the permittee's licensed engineer asserts is the critical surface for the proposed design. **Unclear if satisfies requirement.**

  To ensure this requirement is met, the Drawing D1, Detail 4/7 and other details as needed shall be revised to show no liner slope exceeding 2H:1V.

- 805.05(i) – Applicable – See review of Env-Sw 805.16 herein.
- 805.05(j) – Applicable – No penetrations of liner systems proposed in low areas or in any location where leachate might collect. 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 3-5, and Design Drawings. 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. See review of Env-Sw 805.06(e), (f), (g), (i), (o), and (p).
- 805.06(e) – Applicable – See Design Report, including Appendix A-1. The time of concentration is 41 hours with 6 feet of waste in place. A 25-year, 48-hour storm event was used for rainfall intensity. (Rainfall intensity was taken from Northeast Regional Climate Center estimates. NHDES notes that the precipitation tables used are dated 2013; however, based on a brief comparison with precipitation tables dated July 1, 2020, the Extreme Precipitation Estimates are not different, but the confidence intervals are – because the precipitation estimates used have not changed, new calculations are not required on that basis.) Professional Engineer concludes no storage on the Stage VI liner system during a 25-year event. Appendix D.8 is referenced but not included (see Design Report, Appendix A-1, Section 4, page vii). "Base flow" estimated using historical flows in 2017, 2018 and 2019 at pump stations 1 and 2. Pump station 3 not addressed (see also Design Report, page 5). **Unclear if satisfies requirement.**
- 805.06(f) – Applicable – See Design Report, including Appendix A-1. The time of concentration is 41 hours with 6 feet of waste in place. A 100-year, 48-hour storm event was used for rainfall intensity. (Rainfall intensity was taken from Northeast Regional Climate Center estimates. See note under Env-Sw 805.06(e) herein.) 100-year storm event HELP model results referenced but not included. **Unclear if satisfies requirement.**
- 805.06(g) – Applicable – See 805.06(f) above. Calculations do not show whether leachate generation and storage

capacity is inclusive of all stages; that is, leachate storage capacity calculations do not appear to include storage and contribution from primary and secondary systems through Pump Station 3. Further, unclear if leachate removal rate is similarly comprehensive; that is, if tanker truck removal is cumulative for all storage capacity and the maximum daily rate of removal needed is possible during permitted operating hours (6 am to 6 pm). **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 Drawings, Drawing No. D-1, Detail 12/5). See Technical Specifications, Section 02622, *PVC Pipe and Fittings*. 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. Satisfies requirement.
    - (5) Applicable – See Design Report (page 18). Satisfies requirement.
- 805.06(j) – Applicable – Solvent welding not proposed. 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. 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, *Spare Pumps and Related Mechanicals*, and Section 6.8, *Back Up Power Plan*. Fulltime operator is present on site during normal operating hours and generators are available on-site. Satisfies requirement.
- 805.06(o) – Applicable – See (3) below. **Does not satisfy requirement**.
    - (1) Backup pumping capacity available;
    - (2) Backup power supply available;
    - (3) Relocated pump station 3 does not have high water alarm; and
    - (4) Efficiency during average and peak flow addressed (see Design Report, Appendix A-1).
- 805.06(p) – Applicable – No changes proposed to existing sumps or existing storage tanks; therefore, no evaluation undertaken of these existing features. One relocated pump station proposed that requires an extension of existing pump lines and detection systems; features included (see Design Drawings, including Drawing No. 6). Satisfies requirement.

Based on an overall review of the application relative to Env-Sw 805.06 requirements, NHDES believes that the permittee has provided sufficient information to demonstrate that Stage VI will comply with these requirements; however, certain information must be submitted for record, and some documents updated.

To ensure compliance with Env-Sw 805.06, the permit requires the permittee to:

- Provide Appendix D.8, or a correction to the calculation package with regards to Appendix D.8, including an explanation as to the change(s);
- Submit the 100-year storm event HELP model results for record;
- Revise the leachate storage capacity calculations as needed to (a) ensure primary and secondary flows for Pump Station 3 are included and the existing storage capacity is adequate; and (b) ensure that tanker truck removal can be accomplished within the permitted operating hours (6 am to 6 pm) to meet the requirements of Env-Sw 805.06;
- A trend analysis of leachate flows, presented numerically and graphically, for each leachate flow monitoring point shall be included in the quarterly reports required pursuant to Env-Sw 806.08; and
- Add a high water alarm to pump station 3.

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 the secondary system in a portion of Stage I; therefore, a leak detection and location system is required below the secondary (i.e., bottommost liner) in this non-conforming area (effectively, a third leachate collection and removal system). Applicant submitted a waiver request as part of this application. See Env-Sw 202 herein.
- 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 Design Report, Appendix A-1, Section 2. Time to convey liquids to observation point is less than 24 hours. Leak isolation and detection system design consistent with previously approved designs for this facility. Satisfies requirement. NHDES notes that the referenced figure "Secondary Pipe Layout" was not provided.
    - For the "vertical expansion" footprint, applicant submitted a waiver request as part of this application. See Env-Sw 202 herein.

To ensure a complete record, the permit requires the permittee to:

- Provide the "Secondary Pipe Layout" figure referenced in Section 2, Leak Detection and Location System, of the design report calculation package;

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 Design Report, Appendix A.3, Stormwater Management Report. Note that if more than 4 acres of exposed geomembrane used for intermediate cover, evaluation must be revisited. Satisfies requirement.

To ensure compliance with the stormwater design, the permit requires the permittee to add to the operating plan a statement that if more than 4 acres of exposed geoembrane is used as cover material, a qualified professional engineer must re-evaluate stormwater management requirements.

- 805.09(d) – Applicable – Satisfies requirement.
- 805.09(e) – Applicable – Satisfies requirement.
- 805.09(f) – Applicable – Satisfies requirement.
- 805.09(g) – Applicable – See Design Report, Appendix A.3, Stormwater Management Report; AoT Permit No. AOT-1767 issued March 20, 2020. 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 added to operating plan, Section 5.9, *Stormwater Management Systems*. Satisfies 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 (Application, Part 2, PDF pages 129-133) and Design Report (Application, Part 2, PDF page 239). 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 for 3H:1V slopes (Drawing No. C-3, Detail 6/C2).
    - (1) 12" Intermediate Cover proposed. Intermediate cover is an unspecified soil. Satisfies requirement.
    - (2) 6" Select Sand proposed (see Technical Specifications, Section 02234, *Select Sand*). Satisfies requirement.
    - (3) 40-mil textured LLDPE geomembrane proposed. Satisfies requirement.
    - (4) 12" Select Sand with geonet (i.e., drainage geocomposite) proposed. See also Technical Specifications, Section 02234, *Select Sand*. Satisfies requirement.
    - (5) 6" of Screened Till overlain by 4" Topsoil proposed. Satisfies requirement.
    - NHDES further notes:
        - Stormwater management features include Typical Dropchute (Detail 4/C2), Drainage Bench (Detail 5/C2), and Drainage Bench Outlet Into Dropchute (Detail 2/C2). Stormwater management features proposed are consistent with previously approved preliminary designs, and must meet requirements at time of final design approval. At this time, NHDES takes no exception to the preliminary design of stormwater management features.
        - Capping System Section for 2H:1V slopes (Drawing No. C-3, Detail 6/C2) which 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. While the applicant

may request NHDOT Type "C" stone as an alternative to topsoil per Env-Sw 805.10(f), the underlying layers must conform to the requirements of Env-Sw 805.10(e). **Does not satisfy requirements.**

- 805.10(f) – Applicable – See Design Report, page 19 (Application, Part 2, PDF page 239). Relative to the 2H:1V capping section detail, applicant's determination of need is not sufficient relative to the 2H:1V slopes. Applicant asserts that 2H:1V slopes are required around Stage III pump station to meet local zoning requirements to keep the pump station within the landfill zoning district. NHDES does not agree with the applicant's assertion that the 2H:1V slopes and thus an alternative cap design are necessary to meet zoning requirements – alternative slope geometries and/or topsoil alternative may be used to meet cap design requirements *and* maintain compliance with local zoning restrictions. **Does not satisfy requirement.**

To address the deficiencies related to Env-Sw 805.10(e) and (f), the permit requires the permittee to revise the details for the 2H:1V cap cross-section around Pump Station 3 and, if needed, the final grading envelope to meet the capping system design requirements of Env-Sw 805.10.

NHDES acknowledges that, if a change in final grading is required, a reduction in the volume capacity of the landfill may occur. See further discussion in Attachment A, *Public Benefit Determination*, herein.

- 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 – See review of Env-Sw 805.03 herein. Satisfies requirements.
- 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 Design Report, Appendix A.3, Stormwater Management 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 and associated detail sheets. Some LFG migration probes shown on Closure Plans – see Sheet Number A-1 in Operating Plan for further details. Plans are preliminary; final design shall include existing and required features.
- 805.10(n) – Applicable – Requirements not addressed. Plans are preliminary; final design shall consider these requirements.
- 805.10(o) – Applicable – Limit of waste marked per Drawing D2, Detail 10/7. Satisfies requirement.
- 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. For the area proximate to the pump house, the average slope (weighted by the hypotenuse) is about 2.5H:1V (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

- 805.11(a) – Applicable – See Stage VI Facility Sequencing Plans. A diversion berm is proposed between Stage VI-East and Stage VI-South. Backfilling of waste cut at toe of Stage IV slope is addressed in Sequence 2 (see Drawing No. 3). Satisfies 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. Decommissioning of monitoring wells cannot be avoided with proposed configuration; however, monitoring wells are proposed to be replaced. See review of Env-Sw 804.02 herein. Satisfies requirement.
- 805.11(e) – Applicable – See Stage VI Facility Sequencing Plans; and Operating Plan Section 3.7, including Appendix H. Satisfies requirement.
- 805.11(f) – Applicable – See Stage VI Facility Sequencing Plans; and Operating Plan Section 3.7, including Appendix H. Satisfies requirement.
- 805.11(g) – Applicable – See design drawings. Satisfies requirement.
- 805.11(h) – Applicable – Additional road constructed on perimeter berm includes litter fence (see Drawing D2, Detail 10/7). Satisfies requirement. No changes proposed to other roads - 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 – Limited interior berm 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(a) – Applicable – Purpose and instruction statement. No evaluation undertaken..
- 805.16(b) – Applicable
    - (1) ASTM D422 withdrawn, not replaced. ASTM C136/C117 proposed. Satisfies requirement.
    - (2) Satisfies requirement.
    - (3) ASTM D3042 proposed. **Does not satisfy requirement.**

      To address this deficiency, the permit requires the permittee to update the technical specifications to replace method ASTM D3042 with method ASTM D4373.

- 805.16(c) – Applicable
    - (1) Satisfies requirement.
    - (2) Satisfies requirement.
    - (3) Not proposed for use.
    - (4) Satisfies requirement.
    - (5) Satisfies requirement.
- 805.16(d) – Applicable

- (1) Satisfies requirement.
- (2) Satisfies requirement.
- (3) Satisfies requirement.
- (4) Satisfies requirement.
- (5) Satisfies requirement.
- (6) Satisfies requirement.
- (7) Satisfies requirement.
- (8) Satisfies requirement.
- (9) Satisfies requirement.
- (10) Satisfies requirement.
- (11) Satisfies requirement.

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 Env-Sw 805.05 and Env-Sw 202 herein. Satisfies requirement.
- 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 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 included in Operating Plan, Appendix H. Satisfies 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 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)*, including WMD Log No. 2020-47865-02. 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)*, including WMD Log No. 2020-47865-02. 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*. Changes proposed are relative to on-site production of CWDP #6, and cover material removal. Cover material removal does not relieve the permittee of compliance with these requirements. 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*. Changes proposed are relative to cover material removal. Cover material removal does not relieve the permittee of compliance with these requirements. 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*. Changes proposed are relative to on-site production of CWDP #6, and cover material removal. Cover material removal does not relieve the permittee of compliance with these requirements. 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.* Changes proposed relative to on-site production of CWDP #6, and cover material removal. No further evaluation undertaken.

NHDES notes the following:

- Removal of final cover or cap is a construction activity to be included in the Type II application for Phase II construction and operation.
- In order for NCES to make the connection from Stage VI leachate collection systems to existing leachate collection systems, a waste excavation of up to approximately 28 feet in the southwest corner of the existing landfill is required. The waste excavation will exist during both construction and operation of the facility.
- Limited details and no dedicated technical specifications or best management practices for use of a spray-on cover material (such as Posi-Shell® or an approved equivalent, see Drawing No. 5 and Technical Specifications, Appendix B – Odor Control Plan) were included in the application.

To ensure that final cover/cap removal occurs as required pursuant to a permit modification, the permit requires the permittee to revise the operating plan to remove instructions regarding final cover or cap removal.

To ensure cover materials applied during construction will meet cover requirements during operations, the permit requires the permittee to ensure cover materials used during construction activities meet the requirements of Env-Sw 806.03.

In addition, NHDES is approving use of a spray-on cover material such as Posi-Shell® or an approved equivalent as a cover material during construction activities only, with conditions.

To ensure a spray-on applied cover material meets the requirements of Env-Sw 806.03, the permit requires the permittee to add to the Odor Control Plan a section regarding use of spray-on cover materials during construction activities, with best management practices incorporated.[2]

[2] Best management practices were identified by the Minnesota Pollution Control Agency. See guidance document "Alternate Daily Cover: Spray-On Cover Materials," Waste/Solid Waste Publication No. 5.11, dated May 2009.

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. See also review of Env-Sw 804.02 herein.

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.
- 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. Minor changes proposed in Operating Plan, Section 4.1.3, Pumping/Removal Schedule. Leachate removal schedule not provided (e.g., loadout rate in gallons or truckloads per day). **Does not satisfy requirement.**

  To ensure operations meet this requirement, the permit requires the permittee to add to the operating plan:
  - A leachate removal schedule that identifies the design load out rate of the leachate collection system; and
  - Needed amount of leachate removal per typical operating day and during or immediately following a 25-year storm event and a 100-year storm event.

- 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*. Closure Plan is preliminary. No procedural changes proposed. No further evaluation undertaken.
- 806.07(d) – Applicable – The number and locations of gas probes is proposed to change. Nine (9) gas probes proposed to be replaced by six (6). Spacing between gas probes is proposed to increase, particularly along the southern and eastern sides, from about 300 feet to between about 450 and 575 feet, except at the northeastern-most area of Stage VI where the spacing between GP-5 and GP-12A is greater, likely due to gravel borrow pit operations. Spacing is generally consistent with previously approved gas probe spacings. 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 included in Operating Plan. Indoor air monitoring points and subliner gas wells included. NHDES notes that subliner gas wells monitoring location likely requires a system extension that is not shown on the preliminary design drawings. No further evaluation undertaken.

  To ensure the design drawings and operating plan align, the permit requires the permittee to include an extension of the monitoring location for subliner gas wells in the design and construction drawings.

- 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. Closed stormwater system inspection requirements and snow and ice control requirements added. Other clarifications made. See review of Env-Sw 1105.11 herein.

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

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 at this facility. 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 design report, operating plan and closure 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 also design report, operating plan and closure 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 granted. See design report, operating plan and closure 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. See Env-Sw 804.02 herein.

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 and WMD Log No. 2020-47865-03. Stage VI, Phase II is within the Designated River Corridor; however, the proposed expansion is set back a minimum of 100 feet from the

landward extent of the 500 year floodplain and is screened from the river with vegetation and other natural barriers (see RSA 483:9-a,VII(c)). Satisfies requirement.

Env-Sw 1004 UNIVERSAL DESIGN REQUIREMENTS

Env-Sw 1004.01 Basic Design Requirements

- 1004.01 – Applicable – Existing facility. 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. D2, Detail 10/7 and Operating Plan, including Appendix H. See also Design Report, pages 9-10. Satisfies requirement.

Env-Sw 1004.03 Drainage

- 1004.03 – Applicable – See Design Report, Appendix A.3, Stormwater Management Report. 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. See Design Report (p. 23), Design Drawings and Sequencing Plans. 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.

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. See Operating Plan, including Appendix H. 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. Clarification added to operating plan relative to on-site production and use of CWDP #6. 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.

Env-Sw 1100 ADDITIONAL FACILITY REQUIREMENTS

Env-Sw 1101 PURPOSE AND APPLICABILITY

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

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 to requirements in this chapter 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 – See review of Env-Sw 805 and Env-Sw 806, as well as review of Env-Sw 1103 (following) and Env-Sw 1105 herein.

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 419 Lots 24 and 25 trigger review. See Design Report (p. 24). Satisfies requirement.1103.03(b) – Applicable – See review of Env-Sw 1103.03(a) above. Signage not addressed. **Unclear if satisfies requirement.**

  To ensure compliance with this requirement, the permit requires the permittee to submit for record confirmation that signage has been posted as required by Env-Sw 1103.03.

- 1103.03(c) – Applicable – Proposed addition of Tax Map 419 Lots 24 and 25 trigger review. See Design Report (pp. 23-24) and Operating Plan. Satisfies requirement.

Env-Sw 1103.04 Surrounding Properties

- 1103.04 – Applicable – The design incorporates features to minimize adverse impacts to surrounding properties, including but not limited to:
  - Dust control – pavement and gravel roads, erosion controls;
  - Litter control – litter fencing, setbacks from abutting properties;
  - Insects – limited opportunities for standing or ponded water in stormwater design and due to waste settlement;
  - Odors – landfill gas collection system, ability to apply and maintain cover materials, odor control plan during construction;
  - Vectors (e.g., rodents, birds) – ability to apply and maintain cover materials;
  - Spills – secondary containment in pump station, dual-walled pipes outside of landfill footprint;
  - Generation of methane and other explosive/hazardous gases – landfill gas collection system, and gas migration monitoring network;
  - Noise – limited construction hours, design facilitates routine operations occurring within the 6 am to 6 pm window;
  - Other Nuisances – visual impact minimized by vegetated buffers and, following waste fill completion, vegetated slopes blending with existing topography except around pump station 3 where NHDOT Stone is proposed.

  To ensure compliance with this requirement, the permit requires the permittee to adhere to the following:
  - Construction hours limited to 7 am to 6 pm consistent with previous approvals;
  - Static alarms are to be used whenever and wherever not in conflict with health and safety regulations;
  - Odor Control Plan to be revised to add details regarding use of spray-on cover material; and
  - Revise cap design, and final grading, as needed, to meet requirements of Env-Sw 805.10.

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 – No elevation labels on final grades in Stage VI closure plan, Drawing No. C-2. **Does not satisfy requirement**.

To address this deficiency, the permit requires the permittee to add elevation labels to Closure Plan Drawing No. C-2.

- 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 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. Minor change proposed to leachate removal schedule in operating plan. Permittee has not submitted a demonstration as required to allow for an alternative to the 6 am to 6 pm operating window for leachate removal. No further evaluation undertaken.

To ensure compliance with the requirements herein, and as previously permitted, the permit requires the permittee to clarify that the routine hours for leachate removal are limited to routine operating hours of 6 am to 6 pm, including leachate removal trucks entering the facility.

NHDES notes that leachate removal occurring outside of routine operating hours requires the permittee to file an incident report pursuant to Env-Sw 1005.09.

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*. Landfill gas management added as a separate subsection for clarity, other minor changes for clarity. 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 produces certified waste-derived product CWDP No. 6 from residual waste (C&D) debris; however, the facility does not distribute to others (see Operating Plan, Section 3.7.3 at page 22). If permittee elects to distribute, this requirement applies.

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.**

To satisfy this requirement, the permit requires the permittee to revise the operating plan to include the facility location and permit number on each page, including the cover page.

- 1105.11(d) – Applicable – See Application (Pt. 2), Operating Plan and supplement WMD Log No. 2020-47865-02

NHDES notes that not all changes in the operating plan were redlined or otherwise highlighted; therefore, the entire operating plan is subject to review. The proposed operating plan is compared to the Approved Operating Plan of Record, dated October 2016, and approved by permit modification dated December 28, 2018.

- (1) Section 1, Facility Identification

- (1)a. – Applicable – Satisfies requirement.
- (1)b. – Applicable – Satisfies requirement.
- (1)c. – Applicable – The average weekly tonnage to be received at the facility (see Env-Sw 102.09(a)) is not identified. **Partially satisfies requirement.**
- (1)d. – Applicable – Satisfies requirement.
- (1)e. – Applicable – Satisfies requirement.
- (1)f. – Applicable – Satisfies requirement.
- NHDES notes that Facility History was added. NHDES takes no exception to the addition.

To address the deficiency, the permit requires the permittee to identify the average weekly tonnage to be received at the facility during the quarter in which the most waste is anticipated to be received pursuant to Env-Sw 102.09(a).

o (2) Section 2, Authorized and Prohibited Waste

- (2)a. and b. – Applicable – No substantial changes made; minor adjustments to remove redundancies. Satisfies requirement.

To clarify the authorized wastes for this facility, NHDES has included a condition in the permit modification that updates the facility's authorized wastes as identified in the Stage IV approval effective March 13, 2003 and subsequently modified by changes in the Rules, NHDES practices and the NCES operating plan. Further, in response to public concerns regarding odors, NHDES is prohibiting the facility from accepting sludges that have not been treated for odors prior to receipt.

o (3) Section 3, Routine Operations Plan

- (3)a. – Applicable – Minor change proposed. NHDES notes that leachate removal constitutes an active and routine aspect of facility operations and therefore shall occur between 6:00 a.m. to 6:00 p.m. under normal non-emergency circumstances pursuant to Env-Sw 1105.08. Removal outside normal hours is reserved for emergency circumstances only and is subject to incident reporting per Env-Sw 1005.09.

To ensure compliance with Env-Sw 1105.08, the permit requires the permittee to conduct active and routine facility operations between 6:00 a.m. and 6:00 p.m., and clarify in the operating plan that leachate removal outside of these hours is reserved for emergency circumstances only and requires the filing of an incident report per Env-Sw 1005.09.

- (3)b. – Applicable – Access controls identified, and include proposed expanded facility boundary. Grammatical errors make description difficult to understand. Traffic pattern plan and facility sequencing plans, with traffic patterns, included in Appendix H. Satisfies requirement.

To ensure compliance with Env-Sw 1105.11(a), the permit requires the permittee to clarify the language in paragraph one of Section 3.2 of the Operating Plan.

- (3)c. – Applicable –Declaration to be signed by hauler changed. NHDES has no objection. Other changes made to Subsection 3.3.3, Customer Education, Subsection 3.3.5, Waste unloading & Routine Inspection, 3.3.6 Random Load Inspection (changed from 5% of loads to one load per

day). No other changes proposed. No further evaluation undertaken.

To ensure compliance with these requirements, the permit requires the permittee to:
- Restore the language in 3.3.5 reading "As refuse is spread at the working face, operators continue to visually inspect for unacceptable materials."
- Add to 3.3.6 that "*at least*" one load per day is randomly chosen to be inspected more thoroughly.

- (3)d. – Applicable – No substantial changes made. No further evaluation undertaken.
- (3)e. – Applicable – No changes proposed. No further evaluation undertaken.
- (3)f. – Applicable – No changes proposed. NHDES notes that sections refer to an incorrect appendix. No further evaluation undertaken.

To correct this error, the permit requires the permittee to update the operating plan to change the reference in Section 3.6 to Appendix F.

- (3)g. – Applicable – Fill sequencing plans included in Appendix H of the Operating Plan. Substantial revisions to Section 3.7.3, *Landfill Cover,* primarily regarding removal of temporary cover and final cover/cap systems. Removal of the final cover or cap system is a construction activity, requiring explicit approval by NHDES via the Type II permit modification process. See review of Env-Sw 806.03 herein. NHDES recommends more frequent monitoring of the leachate collection systems following cover removal. NHDES also notes that if more than 4 acres of exposed geomembrane is used, the stormwater management system evaluation must be revisited (Stormwater Management Report, p. 2). Further, NHDES notes that the operating plan does not state that all waste is to be covered at the end of each operating day (see Env-Sw 806.03(c)). **Partially satisfies requirement.**

The permit requires the permittee to revise the operating plan to:
- Remove instructions regarding final cover or cap removal;
- Add the requirement that buckets with teeth shall not be used within a specified distance of the anchor trench or liner system;
- Add that if more than 4 acres of exposed geoembrane is used, a qualified professional engineer must re-evaluate stormwater management requirements; and
- Add that cover material must be placed over all exposed waste no less frequently than at the end of each operating day.

- (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. Information included in 3.7.3, *Landfill Cover* and Appendix F. Satisfies requirement.

o (4) Section 4, Residual Waste Management Plan – Residual wastes include leachate and decomposition gas (aka landfill gas).
  - (4)a. – Applicable – Leachate quantities identified. Decomposition gas quantities not addressed. **Partially satisfies requirement.**
  - (4)b. – Applicable – Leachate management identified, but removal schedule not provided. See

review of Env-Sw 805.06 herein. **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. Landfill gas is destroyed onsite using a flare. See facility's air permits. Satisfies requirement.

NHDES found the operations and maintenance manual for NCES' gas management system clear and understandable. A few remaining LFG system items are required to be addressed, and should be addressed in Section 4.3 of the Operating Plan.

To ensure the requirements of Env-Sw 1105.11(a) and Env-Sw 1105.11(d)(4) are met, the permit requires the permittee to:

- Add a very brief description of the landfill gas management system to Section 4.3, identify the quantity(ies) of landfill gas generated, and identify that the facility also has air permit(s).
- Add a leachate removal schedule that identifies the design loadout rate of the leachate collection system, and the needed amount of leachate removal per typical operating day and during or immediately following a 25-year storm event and a 100-year storm event

o (5) Section 5, Facility Maintenance, Inspection and Monitoring Plan

- (5)a. through (5)c. – Applicable – No substantial changes proposed. No further evaluation undertaken.
- (5)d. – Applicable – No substantial changes proposed. Notification method not in accordance with Rules. No further evaluation undertaken.

To correct the discrepancy with Rule requirements, the permit requires the permittee to revise the notification provisions to identify that exceedances of the LEL limits require notification and a written incident report pursuant to Env-Sw 1005.09(a).

- (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.

NHDES has identified that odor complaint response and reporting as identified in the operating plan is not having the desired effect of improving reported odorous conditions. In addition, public comments identified odors as an issue of concern. To facilitate continuous improvement in odor control, NHDES has added conditions to the permit relative to odor control.

The permit requires the permittee to:

- Add that facility personnel who receive and respond to odor complaints shall be trained in detecting odors, identifying potential sources of odors, and documenting the odor complaint and NCES' response actions, and such training shall be provided by a qualified third-party and renewed annually.
- Post a contact information for receiving complaints to the facility's existing website (https://www.casella.com/locations/bethlehem-nh-landfill).
- By August 31 of each year of operations, submit an annual odor control evaluation report for July 1 through June 30 (preceding).

- (5)f. – Applicable – No changes proposed. No further evaluation undertaken.
- (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 (which can be also considered under vectors at (5)c above), asbestos records and historical asbestos waste burial location plan, and snow and ice control. NHDES takes no exception to the inclusion of these additional operating plan sections.

  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 notes that any substances used to control snow and ice (or dust) may effect local groundwater quality and such potential effect should be considered in context of the facility's groundwater permit.

o (6) Section 6, Contingency Plan
  - (6)a. – Applicable – Power outages added to list of contingencies. Accumulation of LFG or combustible gas (methane or explosive gases) detected above applicable LELs in Env-Sw 806.07(b)) added – NHDES notes that such addition is partially redundant with Section 5.3. Further NHDES notes that "disposal" relative to a leachate spill lacks clarity. Materials disposed in the landfill, whether they are generated on-site or off-site, must be a waste authorized for landfilling at the facility pursuant to it's permit. Satisfies requirement.
  - (6)b. – Applicable – Recordkeeping and reporting requirements relative to LELs do not comport with Env-Sw 806.07 and Env-Sw 1005.09(a). **Partially satisfies requirement.**
  - (6)c. – Applicable – Satisfies requirement.

  To address the deficiency, the permit requires the permittee to modify the operating plan to:
  - Identify that when LELs exceed the limits identified in Env-Sw 806.07, the permittee shall file an incident report pursuant to Env-Sw 1005.09(a);

o (7) Section 7, Employee Training Program – Applicable – Descriptions of employee training programs removed. **Does not satisfy requirements.**

To address this deficiency and ensure compliance with Env-Sw 1105.11(a), the permit requires the permittee to restore the previous description of training requirements (Section 7) from the approved October 2016 Operating Plan. See also training regarding odors under (5)e. above.

o (8) Section 8, Recordkeeping and Reporting – Applicable – Recordkeeping requirements identified. Requirement to file an annual report removed from previously approved operating plan. Reporting requirements not identified. **Partially satisfies requirements.**

To address the deficiency, the permit requires the permittee to add to Section 8 of the operating plan a

list of solid waste reports required to be filed with NHDES and/or other entities such as the host solid waste district.

- Appendices – NHDES briefly reviewed the appendices and takes no exception.

To ensure NHDES has a complete copy of the approved operating plan, the permit requires the permittee to submit the approved operating plan of record, with the changes noted as required herein, and with all pages oriented upright and sections bookmarked.

Env-Sw 1105.12 Interaction with Districts – Applicable – Operational requirement to be implemented and enforced as a condition of any approval granted. See also review of Env-Sw 1105.11(d)(8) above. 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. See also review of Env-Sw 1105.11(d)(8) above. 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 not all changes in the closure plan were redlined or otherwise highlighted; therefore, the entire closure plan is subject to review. The proposed closure plan is compared to the Approved Closure Plan of Record, dated August 2014, and approved by permit modification dated August 15, 2014, and inclusive of Revised Drawing Sheets C2 and C3 (WMD Doc Log #15625) approved by permit modification dated July 9, 2015.

- 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 – Satisfies requirement.
- 1106.04(e) – Applicable
  - (1) Section 1, Facility Identification – Applicable – Satisfies requirement.
  - (2) Section 2, Closure Schedule – Applicable – Preliminary closure schedule provided. Schedule does not address when capping will occur. **Partially satisfies requirement.**

To ensure timely capping of the facility, the permit requires the permittee cap the facility consistent

with the fill sequencing plans received March 2020, and entitled, "Stage VI Facility Sequencing Plans."

- (3) Section 3, Waste Identification – Applicable – Satisfies 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 – to be updated consistent with review in Env-Sw 800. Technical specifications are included on the drawings and in Attachment C. Plans do not meet all requirements of Env-Sw 1103.05 – elevations are missing. See review of Env-Sw 1103.05. Plans are preliminary.
- (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.

To ensure NHDES has a complete copy of the approved closure plan, the permit requires the permittee to submit the approved closure plan of record, with the changes noted as required herein, and with all pages oriented upright and sections bookmarked.

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 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

for Stages I through VI. 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 pursuant to Env-Sw 1405. No further evaluation.
- 1403.02(b) – Applicable – Satisfies requirement.
- 1403.02(c) – Applicable – Estimate prepared for entire footprint (Stage I through VI). Satisfies requirement.
- 1403.02(d) – Not Applicable
- 1403.02(e) – Applicable – Satisfies requirement.
- 1403.02(f) – Applicable – Satisfies requirement.
- 1403.02(g)
    - (1) Applicable – Satisfies requirement.
    - (2) Applicable – Satisfies requirement.
    - (3) Not applicable
    - (4) Applicable – Satisfies requirement.
    - (5) Applicable – 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

Env-Sw 200 SOLID WASTE PROGRAM: PROCEDURES

Env-Sw 202 WAIVER OF SOLID WASTE RULES

Env-Sw 202.01 Purpose – Purpose Statement. No evaluation undertaken.

Env-Sw 202.02 Procedures

- 202.02(a) – Applicable – Rule provides option for applicant to request a waiver. No further evaluation undertaken.
- 202.02(b) – Applicable – Satisfies requirement.
- 202.02(c) – Applicable – See review of Env-Sw 202.03 below.
- 202.02(d) – Applicable – Satisfies requirement.
- 202.02(e) – Applicable – Undertaken.

Env-Sw 202.03 Application Content and Formatting

- 202.03(a)
    - (1) Applicable – Satisfies requirement.
    - (2) Applicable – Satisfies requirement.
    - (3) Applicable – Waiver of Env-Sw 805.07 sought for those portions of Stage I, Phases I-III that underlie portions of proposed Stage VI. Satisfies requirement.
    - (4) Applicable – Hardship would result from either being required to excavate and install required systems or install overlay liner. Satisfies requirement.
    - (5) Applicable – No explicit alternative provided; implied alternative is no change to facility design or operations; if leak develops, pertinent section(s) will be capped. Satisfies requirement.

- (6) Applicable – Permanent. Satisfies requirement.
- (7) Applicable – See review of Env-Sw 202.04 herein.
- (8) Applicable – See review of (b) and (c) below. Satisfies requirement.

- 202.03(b) – Applicable – Satisfies requirement.
- 202.03(c) – Not applicable.
- 202.03(d) – Applicable – Optional. Satisfies requirement.
- 202.03(e) – Applicable – Satisfies requirement.

Env-Sw 202.04 Criteria – Applicable – Considered in context with demonstrations made in previous applications for waiver (see applications for Waiver effective August 15, 2014 and Waiver effective March 1, 2013) the intent and purpose of the rule is met by the existing design. Satisfies requirements.

APPLICATION DECISION

Env-Sw 305 APPLICATION DECISIONS

- 305.01 – Applicable – Application was reviewed in accordance with Env-Sw 304.
- 305.02(c) – Applicable – Application is ***approved*** because NHDES has determined that the proposed activity can be conducted in compliance with applicable requirements of RSA 149-M and the Solid Waste Rules, and there are no grounds for denial in accordance with Env-Sw 305.03.

Reason/Condition for Denial	Does Condition Exist?
305.03(b)(1) Does not meet the requirements of the Rules	No
305.03(b)(2) Insufficient or ambiguous information that precludes a determination and the deficiencies are so substantial as to not be remedied by compensating terms and conditions	No
305.03(b)(3) Applicant meets criteria pursuant to RSA 149-M:9, IX[3]	
RSA 149-M:9, IX(a) Person fails to demonstrate reliability, expertise, integrity, and competence to operate a SW facility	No
RSA 149-M:9, IX(b) Person has been convicted of, or pled guilty or no contest to, a felony within previous 5 years of application date	No
RSA 149-M:9, IX(c) For corporations or business entities, key personnel have been convicted of, or pled guilty or no contest to, a felony within previous 5 years of application date	No
305.03(b)(4) Has not demonstrated legal right to occupy property	No
305.03(b)(5) Notified by rivers coordinator that a proposed activity violates a protection measure under RSA 483:9, 483.9-a, 483.9-b	No
305.03(b)(6) Application is dormant	No
305.03(b)(7) Application is for a PBN or Type III permit modification and applicant is unable to provide compliance certification	No
305.03(b)(8) Application meets any other provision for denial	None known

With regards to Env-Sw 305.03(b)(2) – Those items identified during review to not meet the requirements of the Solid Waste Rules due to ambiguous or insufficient information have been remedied with compensating terms and conditions.

[3] Solid Waste Management, RSA 149-M: 1-60

- 305.02(c)(3) – Applicable – Application for a Type I-A permit modification for expansion of the landfill and waiver to certain wetlands setback requirements is ***approved*** and such approval is being issued in accordance with Env-Sw 305.06.

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.

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)), and the economic viability of a proposed facility, including the ability to secure financing (see RSA 149-M:11,IV(b)). See Response to Public Comment issued concurrently with this assessment.

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.

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 September 2020 through August 2040 (referred to as the planning period) based on a waste generation rate of 1.31 tons per capita. 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 2018 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, Recycling), the sum total of which corresponds to 36,981,000 tons of solid waste to be generated within the borders of New Hampshire during the 20 year planning period.

For the 20 year planning period of this decision (October 2020 through September 2040), NHDES presents alternative calculations using more recently available 2019 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 2019 by 25%[4] to account for recycling and 13.5%[5] to account for exports, both of which are assumed to have occurred between the point of generation in NH and the point of disposal. Applying New Hampshire Office of Strategic Initiatives (NHOSI) sourced population data, NHDES estimates the waste generation rate to be 1.45 tons per capita (or about 7.9 pounds per person per day), which is greater than the rate calculated by NCES (1.31 tons per capita). Assuming the per capita waste generation rate remains the same year to year during the 20 year planning period,[6] NHDES estimates the total quantity of solid waste to be generated within the borders of New Hampshire over the 20-year planning period (October 2020 through September 2040) to be approximately 40,444,900 tons, in contrast to the lesser amount (36,981,000 tons) projected by NCES for the same relative time period (September 2020 through August 2040).

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, perhaps by about 3.5 million tons based on NHDES projections for the planning period using a higher (more conservative) per capita waste generation rate.**
- **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.*

[4] Using the department's most recent recycling rate data from 2015

[5] Using publicly available data from 2000 through 2019, the estimate is an average plus one standard deviation over that time period.

[6] 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.

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 wastewater treatment sludge and air pollution control 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, which are not proposed for acceptance by NCES, can be and are managed by others using 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, which NCES proposes to accept for disposal, can be and are managed by others using one or more methods higher on the hierarchy in RSA 149-M:3.
- NHDES notes that incinerator ash, certain contaminated soils, and certain other special wastes, which NCES proposes to accept for disposal, 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 NCES 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 5; Part 3.2.3) the existence of six lined landfills, one waste-to-energy (WTE) facility, and two C&D processing facilities operating in the state. In Table 3 of Section VII of the application (page not numbered), 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.

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,[7] WWTP sludge from N. Conway Water Precinct,[8] MSW, C&D[9]	Treated infectious waste, Incinerator ash, Other sludge, Contaminated soils and media
Lebanon Regional Solid Waste Facility	Lebanon, NH	Limited	MSW, C&D, Bulky waste,[10] WWTP sludge from Lebanon,[11] WWTP grit/grease/screenings,[12] Treated infectious waste[13]	Other sludge, Contaminated soils and media, ash
Four Hills Secure Landfill Expansion	Nashua, NH	Limited	MSW, C&D, asbestos,[14] bulky waste, street sweepings, WWTP sludge/grit/grease[15,16]	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, auto shredder and metal shredder residue, bulky waste, WWTP sludge, asbestos, treated infectious waste, incinerator ash, contaminated soils and media, mill wastes (i.e., MSW, ash, grit, lime, WWTP sludge)[17]	None

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 unlimited service area 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 NCES 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.*

[7] NHDES. *Authorization to Manage Solid Waste, Permit No. DES-SW-90-028*. Approved October 22, 1990.
[8] NHDES. *Record of Modification to Solid Waste Management Facility Permit.* Approved July 12, 1995.
[9] CMA Engineers, Inc. *Lower Mount Washington Valley Secure Solid Waste Landfill: Facility Operating Plan.* Dated November 2012.
[10] NHDES. *Solid Waste Management Facility Standard Permit.* Approved March 19, 1999.
[11] NHDES. *Record of Modification to Solid Waste Management Facility Permit.* Approved August 9, 2000.
[12] NHDES. *Record of Modification to Solid Waste Management Facility Permit.* Approved December 20, 1999.
[13] City of Lebanon. *Operating Plan: Phase II Secure Expansion*. Revised April 2013.
[14] NHDES. *Solid Waste Management Facility Standard Permit*. Approved June 26, 1995.
[15] City of Nashua. *Operating Plan: Phase II Secure Landfill Expansion*. Revised June 2013.
[16] NHDES. *Record of Modification to Solid Waste Management Facility Permit.* Approved February 7, 2003.
[17] NHDES. *Record of Modification to Solid Waste Management Facility Permit.* Approved February 25, 2019.

Relative to addressing the requirement in RSA 149-M:11,V(d), NCES asserts in Part 3.2.4 of Section VII of the application, the existence of a lump sum shortfall in disposal capacity ranging from 3,009,883 tons to 17,416,542 tons during their assumed 20-year planning period (September 2020 through August 2040). 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 4 in Section VII of the Application presents NCES' disposal capacity numbers used to make the shortfall calculations, with related notes documenting the underlying methods and assumptions used by NCES to produce its estimates. The capacity shortfall calculated by NCES is figured by subtracting 27,050,000 tons (from Table 2, i.e., the total quantity of solid waste NCES projected to be generated within the borders of New Hampshire less the quantity anticipated by NCES to be diverted from disposal during the 20-year planning period) from, first, the state's "operating disposal capacity" (9,633,458 tons) and, second, the state's "permitted disposal capacity" (24,040,117 tons) for the same time period, using the capacity figures presented at the bottom of Table 4. This produces the estimated shortfall of 3,009,883 tons to 17,416,542 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 lined landfills to be about 22,752,200 tons for the 20 year planning period (October 2020 through September 2040), which is about 5.34 million tons more than NCES has estimated.[18]

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.[19]

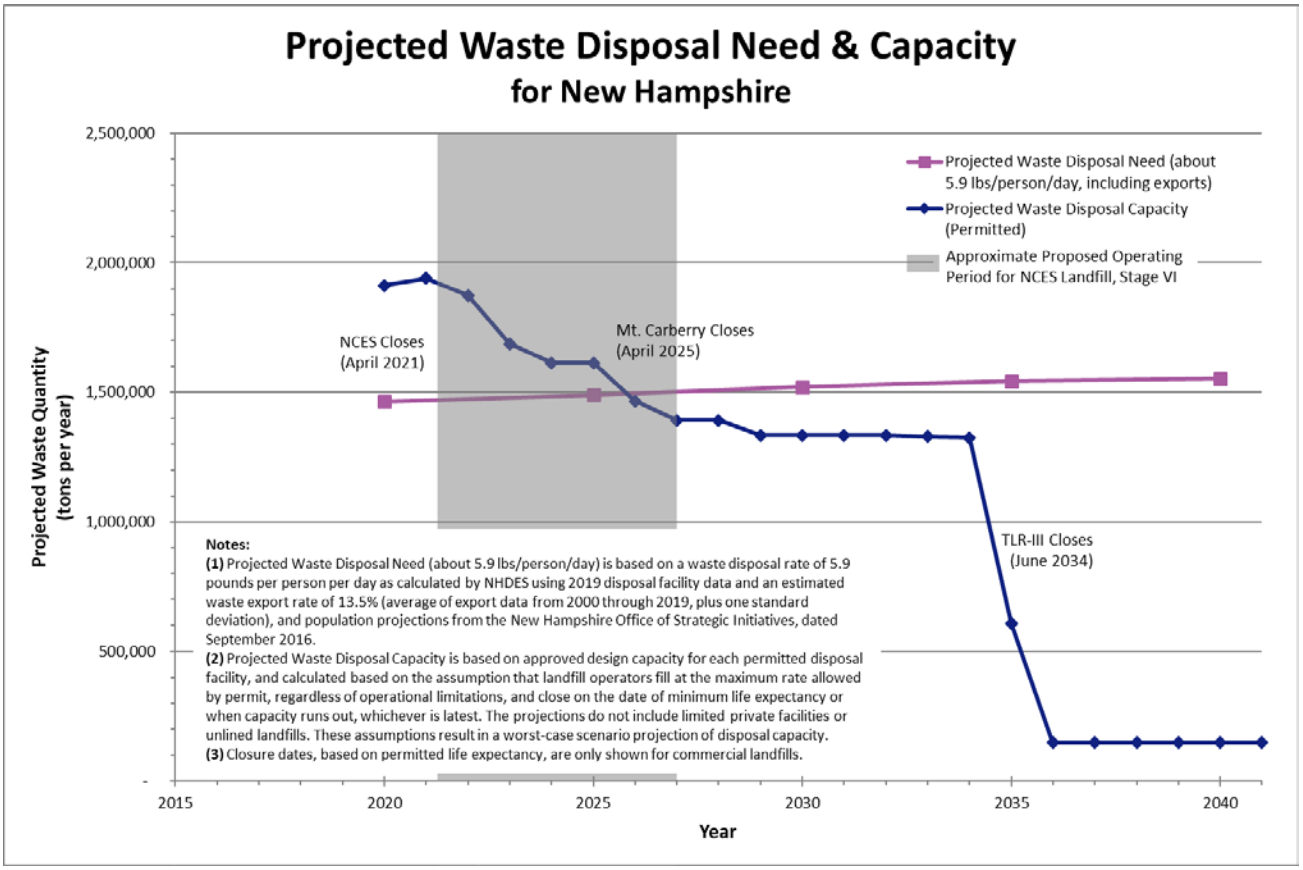
- Wheelabrator Concord Co. (Concord) – Disposal capacity of the WTE is the facility's effective disposal capacity, based on the permitted throughput capacity (575 tpd, 365 days per year) reduced by the quantity of ash requiring final disposal (approx. 30% ash disposal rate). Its assumed operating life expectancy includes the entire 20 year planning period.

[18] NHDES 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.

[19] 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.

- 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 2019 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 2019 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 minimum permitted life expectancy, estimated remaining permitted capacity and a facility-specific compaction rate of 1,220 lbs/cy as provided in the remaining waste capacity evaluation dated August 20, 2020.
- 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 1,570 lbs/cy (rounded) reported in the 2019 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 lined landfills over time is shown in the following graph. During the proposed operating life of Stage VI, the graph shows that approximately one year of Stage VI operating life would overlap a time period of disposal need.



NCES did not project disposal capacity and capacity need as a function of time during the 20-year planning period. Further, NCES made conflicting statements in its application regarding the projected life expectancy of Stage VI. NCES asserts variably that Stage VI will operate at an annual acceptance rate of 175,000 tons per year, and for 5.3 years, and through December 31, 2026. The assertions are not in harmony. NHDES projects that, at an annual acceptance rate of 175,000 tons per year, using a conversion factor of 1,520 lbs/cy, the facility would reach capacity in September 2026, not December 31, 2026. Alternatively, if the Stage VI lifespan is simply measured as 5.3 years from April 16, 2021 (end of Stage V capacity requirement), the facility would reach capacity in August 2026, not December 31 2026. Therefore, for purposes of this evaluation, NHDES assumed that the facility would operate through December 31, 2026, based on the commitment expressed by NCES in the application. This is the date that provides disposal capacity furthest into the time of capacity need.

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 (October 2020 through September 2040). 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 has excess disposal capacity, as well as a time period when the state has a disposal capacity shortfall.**

Therefore, in conclusion pursuant to RSA 149-M:11,V(d), NHDES has determined that a capacity shortfall exists during the planning period for the proposed type of facility (i.e., landfill), which is satisfied by the proposed facility for one year based on the applicant's commitment to operate the facility through December 31, 2026. Thus, the proposed facility satisfies a need for disposal capacity within the planning period.

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 = 1,241,000 cubic yards or roughly 943,000 tons;
Fill rate = 175,000 tons per year, operating through December 31, 2026.
Location: Bethlehem, NH

To summarize, NCES seeks a permit for new landfill capacity to be operated during a period of time that the state initially has excess permitted disposal capacity and extending for one year into the period of time that the state is projected to have disposal capacity need. NCES proposes to decrease its disposal rate compared to the facility's current waste disposal rate in Stage V, and accept no more than 175,000 tons per year.

Determination re—RSA 149-M:11,III(a): NHDES finds that the proposed facility – a landfill in Bethlehem, NH operating at a rate of not more than 175,000 tons per year through December 31, 2026, providing about 943,000 tons of capacity during a time period that the state is projected to have a disposal capacity need – meets the criterion in RSA 149-M:11,III(a).

To ensure that capacity provided by the expansion remains available to satisfy the capacity need, NHDES has established permit conditions that limit the maximum airspace usage to 230,200 cubic yards per year and that require the facility to remain operational through December 31, 2026 (see Condition (27)). Adjustments to the facility's design required by the permit as noted in Condition (30) of the permit modification may reduce the total capacity of the facility by an undetermined volume, creating uncertainty in the annual allowable airspace usage while maintaining compliance with facility life expectancy (December 31, 2026) and this public benefit determination. To that end, NHDES has granted 230,200 cubic yards of airspace use per year (as requested by NCES at 175,000 tons per year converted using NCES' conversion rate presented in the application of 1,520 lbs/cy); however, NHDES has set the 230,200 cubic yards per year as the maximum airspace usage permitted and does not allow for averaging year-to-year. Additionally, the permit requires the facility to operate ---regardless of any design capacity reduction---through at least December 31, 2026 and preserving for use during calendar year 2026, no less than 150,000 cubic yards of capacity.

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

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 seeks to answer two inquiries relative to RSA 149-M:3 (i.e., waste hierarchy): "(1) whether the proposed facility is part of an integrated set of solid waste disposal solutions providing safe and economical waste management and (2) whether the integrated set of solutions of which the facility is a part is consistent with the hierarchy." (Section VII, p. 14)

NCES states that NCES, in coordination with Casella Waste Systems, Inc. and its affiliates, are part of an integrated system, and provides a number of examples regarding source reduction and interception, recycling and reuse, composting, a future waste-to-energy project, and a food waste-to-energy conversion project.

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. NCES asserts that the NCES landfill (to include services provided by Casella and its affiliates) is part of an integrated solid waste management system.

<u>Determination re- RSA 149-M:11,III(b):</u> Based on a review of NCES' public benefit demonstration, NHDES finds that the proposed expansion provides disposal capacity, as part of an integrated solid waste management system, which supports the goals and hierarchy under RSA 149-M:2 and RSA 149-M:3. For example, the landfill provides disposal capacity for wastes for which there are no, or limited, alternative management methods available in New Hampshire.

To assure the permittee operates the facility in accordance with this determination, NHDES has placed conditions in the facility's permit to ensure that operation of the landfill will assist the state in achieving the implementation of the hierarchy and goals under RSA 149-M:2 and RSA 149-M:3. For example, Condition (27)(d) of the permit modification relates to improving waste diversion. In addition, Condition (27)(e) requires NCES to, yearly, assist no fewer than 10 solid waste generators, at least 5 of which must be NH municipalities, with improving waste management practices consistent with the hierarchy and goals. It is the intention of NHDES that over the additional operating life of the facility, this provision will enable at least 25 NH municipalities that currently rely on landfilling, to obtain the assistance they need to move toward more sustainable waste management practices that can reduce their dependency on landfilling long-term.

Note: In Condition (27)(d), NHDES has intentionally limited the diversion requirement to MSW and C&D wastes because these waste streams, as defined, have viable and therefore achievable diversion options higher on the solid waste management hierarchy than landfilling. However, there may be some sub-types of MSW and C&D debris wastes for which environmentally safe and economically sound alternatives to landfilling are limited (e.g., sludges, off-specification commercial products). As provided in Condition (27)(d)2, NCES may propose to exclude certain sub types of MSW and C&D waste from the diversion calculation.

III. <u>Assessment and Determination---RSA 149-M:11,III(c).</u>

RSA 149-M:11,III(c) establishes the third and last criterion that must be satisfied in order to demonstrate a 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. <u>Reduce the volume of the solid waste stream</u> – 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. NCES operates a transfer station in Bethlehem, that includes recycling and diversion of waste in its operations.
2. <u>Reduce the toxicity of the solid waste stream</u> – 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. <u>Maximize diversion of residential and commercial/industrial solid wastes</u> – NCES and its affiliates offer recycling services, and convert biosolids to beneficial use (in composting and/or for land application).
4. <u>Assure disposal capacity for New Hampshire</u> – NCES states that the proposed Stage VI will mitigate a shortfall in disposal capacity over the 20-year planning period, and further asserts that over 70% of the capacity of Stage VI will be used to accommodate New Hampshire waste (Section VII, page 30).
5. <u>Assure that solid waste management activities are conducted in a manner protective of human health and the environment</u> – 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.

<u>Determination re- RSA 149-M:11,III(c):</u>

Based on a review of NCES' public benefit demonstration, NHDES finds that the integrated services provided by NCES and its affiliates assist the state in achieving the goals of the State solid waste management plan. Further, NCES provides disposal services to New Hampshire municipalities and solid waste districts; as such, NHDES finds that the integrated system of the NCES landfill and its affiliates assist New Hampshire municipalities and districts with meeting their solid waste management planning requirements.

NHDES has placed conditions in the facility's permit to ensure that during operation of the landfill the permittee will continue to assist the state in achieving the implementation of the hierarchy and goals of the State solid waste management plan as well as district plans.

Specifically, as also noted above, Condition (27)(e) requires the permittee to assist at least 10 New Hampshire solid waste generators, inclusive of at least 5 municipalities, per year with establishing or improving programs that assist in the implementation of the goals and hierarchy under RSA 149-M:2 and M:3. NHDES based the number of generators to be assisted on the applicant's proposal (Section VII, page 18) and adds specificity regarding assistance to NH municipalities based on public comments and concerns. It is the expectation of NHDES that the assistance provided will make a measurable reduction in how much waste the generators manage by landfilling.

IV. Determination – RSA 149-M:11,III

Based on the information provided and the projected disposal capacity needs and shortfalls for New Hampshire generators, NHDES finds that the proposed facility provides a substantial public benefit based on the criteria specified in RSA 149-M:11,III, subject to Condition (27) of the permit modification. To maintain status as providing a substantial public benefit, NCES must comply with the public benefit requirements of the permit and discuss how it satisfied public benefit in its annual facility reports pursuant to Env-Sw 1105.13(k).

V. Assessment and Determination—RSA 149-M:11,IV(a).

RSA 149-M:11,IV(a) states "*The department shall also consider as part of its public benefit determination: The concerns of the citizens and governing bodies of the host municipality, county, and district and other affected persons. For any proposed solid waste facility, including transfer stations, designed to accommodate in excess of 30 tons of solid waste per day, the department shall hold at least one public hearing in the host municipality, or in the case of an unincorporated town or unorganized place in the host county, in order to take testimony to identify those concerns.*"

NHDES hosted a public hearing, inclusive of a public comment period, as described in this Application Review Summary under the section entitled, "Public Hearing and Comment Process." Public comments and NHDES' response to public comments are summarized under separate cover.

NHDES Assessment & Determination---RSA 149-M:11,IV(a)

NHDES held a public hearing and accepted public comments regarding this application. See Response to Public Comments issued concurrently with this document and the permit modification. In making its public benefit determination and stating such in the permit as required by RSA 149-M:11,X, NHDES considered the public comments received. Many of the concerns expressed by commenters helped form the conditions of this permit

modification relevant to the permittee's requirements for providing a public benefit. NHDES fulfilled the requirement of RSA 149-M:11, IV(a) for this application.

VI. Assessment and Determination—RSA 149-M:11,IV(b)

RSA 149-M:11,IV(b) states *"The department shall also consider as part of its public benefit determination: The economic viability of the proposed facility, including but not limited to, its ability to secure financing."*

The applicant provided the closure cost and post-closure cost estimates as required. NHDES has on file the financial assurance mechanism used to ensure that funds exist to close the facility and perform post-closure care. In addition, NHDES has no information to suggest that the facility would be unable to secure financing for construction or operations.

NHDES Assessment & Determination—RSA 149-M:11,IV(b)
Based on a review of the information provided and available in the facility file, NHDES believes that the permittee has the financial resources necessary to continue operating the facility inclusive of Stage VI, close the facility (Stages I through VI), and maintain the facility after closure.

-- END OF REVIEW --

Exhibit 7

CMA ENGINEERS, INC.
CIVIL | ENVIRONMENTAL | STRUCTURAL

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Portsmouth, New Hampshire
03801-3819

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www.cmaengineers.com

CMA ENGINEERS

February 4, 2021

[redacted]

VIA CERTIFIED MAIL RETURN RECEIPT REQUESTED

RE: Granite State Landfill, LLC Phase I Development
New Hampshire Department of Environmental Services
Waste Management Division, Permitting & Design Review Section
Standard Permit for Solid Waste Landfill
CMA #1101

Dear [redacted]

Pursuant to RSA 149-M and the New Hampshire Solid Waste Rules, you are hereby notified that Granite State Landfill, LLC., (GSL) will be filing an application with the New Hampshire Department of Environmental Services (NHDES) for a Standard Permit for Solid Waste Landfill on or about February 5, 2021. The proposed landfill, to be known as the Granite State Landfill, will be located on Douglas Drive in Dalton, NH. The application, if approved, would allow the construction of Phase I of the landfill and associated infrastructure.

The Granite State Landfill will accept municipal solid waste (MSW), construction and demolition debris, and special waste (approved by the NHDES prior to acceptance). MSW is expected to generally make up 50 to 60% of the total waste received at the facility. The primary source of the waste accepted at the facility will be from New Hampshire residents and businesses but will also accept waste from the New England region. The anticipated construction start is in 2023, with operations in Phase I expected to begin in 2027 with operations continuing through 2041. Phase I will provide approximately 9,053,000 cubic yards of disposal capacity. On an annual basis, the landfill expects to receive 468,000 tons of waste per year (1,300 tons per day).

The lined footprint of Phase I will comprise approximately 62.9 acres of the site and be located over one mile from NH Route 116. Other site infrastructure that will be constructed as part of the project include berms, access roads, truck scales, leachate tanks and piping, a gas flare, operations office, maintenance building, and stormwater ponds. The project also proposes to improve Douglas Drive including paving and widening to 32 feet from NH Route 116 to the landfill – approximately one mile. NH Route 116 will receive a deceleration lane to the facility to the east of Douglas Drive.

For additional information regarding this application, you may contact me at CMA Engineers, Inc., 35 Bow Street, Portsmouth, NH 03801, (603) 431-6196 or rgrillo@cmaengineers.com.

[redacted]

The applications can be reviewed at the North Country Environmental Services Landfill at 581 Trudeau Road, Bethlehem, NH 03574 during normal business hours, the offices of the Town of Dalton at 756 Dalton Road, Dalton, NH 03598, and at NHDES located at 29 Hazen Drive, Concord, NH. In-person access to the application for NHDES is by appointment only and can be scheduled though the NHDES Public Information Office by calling (603) 271-2919 or emailing sarah.chance@des.nh.gov. The application may also be accessed via the NHDES Onestop database: https://www4.des.state.nh.us/DESOnestop/basicSearch.aspx

The permit applicant, facility owner, and facility operator is GSL. GSL's mailing address is 25 Greens Hill Lane, Rutland, VT 05701. The current owner of the property is Mr. Douglas Ingerson. The properties that the proposed landfill facility will be sited will be acquired from Mr. Ingerson upon approval of the Standard Permit. You may also direct inquiries about the application to Mr. John Gay, Engineering Manager, 1855 VT Route 100, Hyde Park, VT 05655. Mr. Gay can also be contacted at 802-651-5454 or John.Gay@casella.com.

The New Hampshire Solid Waste Rules have specific procedures for the review and issuance or denial of applications such as GSL is filing. The procedures involve a series of steps, which are depicted on the enclosed flow chart for a standard permit application.

If you have any questions regarding the permit application review process, or wish to comment on the subject application, please contact Ms. Jaime Colby, P.E. at NHDES-Waste Management Division, 29 Hazen Drive, P.O. Box 95, Concord, NH, 03302-0095, (603) 271-5185.

Very truly yours,

CMA ENGINEERS, INC.

Robert J. Grillo, P.E.
Project Manager

Enclosure

Cc w/o enc: Jaime Colby, P.E., NHDES
John Gay, GSL
Kevin Roy, GSL
Bryan Gould, Esquire, Cleveland, Waters and Bass, P.A.

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

STANDARD PERMIT APPLICATION PROCESSING PROVISIONS AS PROVIDED IN PARTS Env-Sw 303 - 305 OF THE *NEW HAMPSHIRE SOLID WASTE RULES*