



# Sanborn, Head & Associates

Consulting Engineers & Scientists

December 2, 1999  
File No. 1705

Mr. Michael McCluskey  
New Hampshire Department of Environmental Services  
P.O. Box 95, 6 Hazen Drive  
Concord, NH 03302-0095



WMD Log # 199900398

Re: Response to Review Comments  
Application for Type III Modification for Leachate Consolidation Project  
North Country Environmental Services  
Bethlehem, New Hampshire

Dear Mike:

At the request of North Country Environmental Services, Inc. (NCES), Sanborn, Head & Associates, Inc. (SHA) has prepared this letter providing responses to comments contained in an October 20, 1999 letter from the New Hampshire Department of Environmental Services (NHDES) regarding the Application for a Type III Permit Modification to construct a leachate consolidation system at the NCES facility in Bethlehem, New Hampshire. We have revised the plans and permit application, substituting a Type IB Permit Modification Application (Application) for the original Type III Modification as requested by the NHDES. Copies of the revised documents are enclosed.

The following paragraphs present our responses to NHDES' comments. For convenience we have provided NHDES' comments in *italics* followed by our response:

**A. Type of Permit Modification:**

*The Department believes that this application falls within the scope of a Type IB permit modification rather than a Type III. Please provide an application for a Type IB permit modification along with the appropriate fee. The technical information provided to date along with your response to the following comments should be adequate to support an application for a Type IB permit modification.*

**Response:**

As requested by the NHDES, a Type IB Permit Modification Application for the leachate consolidation project has been prepared. The plans accompanying the Application are proposed construction plans for the project. Therefore, we understand that approval of the Application will constitute construction approval for the project.

**B. Letter to Larry Lackey Describing the Proposed Design:**

1. *The stated intent of the proposed design is to convey the leachate to a common tank for loadout. Please provide an explanation why is the leachate from Stage I pumped to the Stage II leachate collection tank first rather than directly to the leachate loadout tank.*

Paul M. Sanborn ■ Charles L. Head ■ R. Scott Shillaber  
Charles A. Crocetti ■ Mathew A. DiPilato ■ Daniel B. Carr ■ Duncan W. Wood

Sanborn, Head & Associates, Inc.  
6 Garvins Falls Road ■ Concord, New Hampshire 03301  
Fax (603) 229-1919 ■ Phone (603) 229-1900

**Response:**

The leachate consolidation system configuration has been revised to utilize the 20,000-gallon contingency leachate storage tank as the consolidation tank instead of the Stage II leachate loadout tank. In addition, a force main has been incorporated in the system to allow for the transfer of Stage II leachate to the contingency tank by way of the leachate consolidation building to maintain the proposed versatility of loading Stage I and Stage II leachate into trucks at one loadout location.

2. *The existing leachate storage tanks for Stage II are proposed to be utilized for the consolidation and loadout of Stage I leachate. Please demonstrate that adequate leachate storage capacity remains to meet the requirements of Env-Wm 2505.06(g) for Stage II.*

**Response:**

The rate at which leachate is produced in active landfill cells after the first few lifts are placed typically ranges from about 200 to 400 gallons per acre per day. The rate varies gradually as a result of precipitation events due to the "buffering" capacity of the waste. It is assumed that the contingency event could occur when waste placement is just beginning in a cell. The critical time period has passed for Stage II as filling has progressed above surrounding grades. Therefore, the typical leachate production rate for Stage II may be in the range of 2,000 to 3,000 gallons per day. At that rate, a single 20,000-gallon storage tank provides sufficient capacity. Given the typical and expected leachate production rates at the facility, the storage provided by other tanks and the flexibility provided by the proposed system to manage leachate, SHA believes there is adequate storage capacity to manage leachate in the Stage II transfer tank, as originally proposed. However, NCES proposes to use the 20,000-gallon contingency tank as the consolidation and loadout tank rather than the Stage II leachate loadout tank which restores the original leachate storage capacity to the Stage II collection system. Therefore, there will be no change to the Stage II collection system capacity with respect to the requirements of Env-Wm-2505.06(g).

3. *Please revise Section 11 - Leachate Management Plan of the Facility Operating Plan to include detailed operating procedures for the proposed leachate consolidation system.*

**Response:**

NCES has revised Section 11 of the Leachate Management Plan portion of the Facility Operating Plan in response to this comment. The revised section is attached.

4. *Please provide a sampling plan for characterizing the combined leachate in accordance with Env-Wm 502 prior to disposal. Please note that triannual sampling of the individual phases should continue for the purpose of monitoring landfill stabilization.*

**Response:**

NCES proposes to sample leachate for analysis in a manner similar to the current NCES monitoring program. Currently, NCES collects primary leachate samples from Stage I (Phases I through IV) and Stage II (Phases I and II, combined) on a quarterly, tri-annual and annual basis for various parameters required by New Hampshire Solid Waste Rules, wastewater treatment plants and other applicable regulatory agencies. Additionally, NCES' current typical procedure includes analysis of non-hazardous leachate destined for off-site disposal on a weekly basis to determine biological oxygen demand (BOD) and chemical oxygen demand (COD) concentrations.

With the new leachate consolidation system, leachate from each primary leachate storage tank will be pumped to a central control building and gravity fed into the newly designated loadout tank. The central control building will contain separate sampling ports for Stage I, Phases I through IV primary leachate and Stage II, Phases I and II (combined) leachate. Therefore, a total of five sampling ports will be housed in the central control building. Leachate samples will be collected from the central control building.

Samples to be analyzed for BOD and COD will be collected on a weekly basis (or as required by the receiving wastewater treatment plant) from the tanker or newly designated leachate loadout tank. The tanker sample will allow NCES to show compliance with applicable discharge permit limits.

NCES will also collect weekly primary leachate samples for analysis for BOD and COD from each phase of Stage I and Stage II (combined Phases I and II) by utilizing the sampling ports located in the central control building. The stage/phase-specific analysis of leachate will allow NCES to monitor landfill performance.

**C. Construction Plans:**

1. *The secondary leachate tanks do not appear to be connected to the leachate consolidation system. Please describe how leachate from the secondary tanks will be managed. Since any liquid on the secondary liner is presumably leachate from the primary liner, secondary leachate should be managed consistent with how the primary leachate is managed.*

**Response:**

Due to the limited volume of leachate collected from the secondary liner, NCES does not believe the cost to connect the secondary leachate collection tanks into the leachate consolidation system is warranted. It is intended that the contents of secondary leachate collection tanks will be transferred to tanker trucks using the current practice of portable pumping equipment as needed. NCES proposes to handle landfill gas condensate which collects in the storage tank near the blower/flare in a manner similar to that proposed for the secondary leachate. Secondary leachate and gas condensate will be properly characterized prior to off-site disposal.

2. *The leachate loadout arm is proposed to be located in close proximity to the general flow of traffic. Please provide some form of protection for the loadout arm.*

**Response:**

The configuration of the loadout system has been changed to provide protection, and concrete traffic barriers have been added to protect the loadout arm, adjacent 20,000-gallon storage tank, and loadout pad from adjacent traffic.

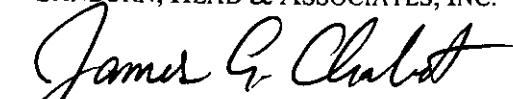
3. *It is noted that the existing catch basin and storm drain line located adjacent to the proposed leachate consolidation building are to be removed. Please describe how storm water in this area will be managed subsequent to removal.*


**Response:**

The area around the catch basin and storm drain shall be graded to promote sheet flow of runoff to the north. A comment to this effect has been added to the construction plans.

Should you have any questions or require further information, please do not hesitate to call.

Very truly yours,  
SANBORN, HEAD & ASSOCIATES, INC.

  
James A. Chabot, P.E.  
Associate

  
R. Scott Shillaber, P.E.  
Principal

MKA/JAC:lje/pmm

enc: Type 1B Permit Application  
Revised Leachate Management Plan  
Revised Design Plans

cc: Larry Lackey, NCES  
Len Wing, NCES  
Dave Adams, NCES

<b>For Office Use Only:</b>	
WMD Log #:	_____
Date Rec'd.:	_____
No. of Copies:	_____

APPLICATION FORM FOR  
**TYPE I MODIFICATION  
 TO SOLID WASTE MANAGEMENT  
 FACILITY PERMIT**

*pursuant to  
 RSA 149-M and New Hampshire Administrative Solid Waste Rule Env-Wm 315*

<b>SECTION I. FACILITY INFORMATION</b>	
(1)	Facility name: North Country Environmental Services, Inc.
(2)	Functional classification: <input type="checkbox"/> collection/storage/transfer <input type="checkbox"/> processing/treatment <input checked="" type="checkbox"/> landfill
(3)	Mailing address: P.O. Box 9, Bethlehem, NH 03574
(4)	Permit number: DES-SW-89-009
(5)	Location, by street address and municipality: 581 Trudeau Road, Bethlehem, New Hampshire

<b>SECTION II. PERMITTEE IDENTIFICATION</b>	
(1)	Permittee/applicant name: North Country Environmental Services, Inc.
(2)	Mailing address: P.O. Box 9, Bethlehem, NH 03574
(3)	Telephone number: (603) 869-3366
(4)	If different than above, identify the individual associated with and designated by the permittee/applicant to be the contact individual for matters concerning this application:
(a)	Name: Larry B. Lackey
(b)	Title: Vice President
(c)	Mailing address: 3 Pitkin Court, Montpelier, VT 05602
(d)	Telephone number: (802) 223-7221

<b>SECTION III. DESCRIPTION OF PROPOSED MODIFICATION</b>	
<i>Describe the proposed modification by answering each of the following questions. Use additional paper as necessary.</i>	
(1)	Provide a <b>BRIEF</b> description of the proposed modification [check (✓) box if response is provided on separate paper ☒]:
	Please refer to the attached narrative, letter from SHA providing responses to NHDES review comments and the proposed modifications to the Leachate Management Plan for the facility prepared by North Country Environmental Services, Inc. (NCES).

### **SECTION III - Description of Proposed Modification**

The project involves construction of a leachate consolidation system to provide a single leachate loadout location for the facility. The design plans for the project were prepared based on discussions which took place during a July 23, 1999 meeting at the New Hampshire Department of Environmental Services (NHDES) offices in Concord, New Hampshire and were subsequently modified in response to NHDES review comments provided in an October 20, 1999 letter.

As indicated on the enclosed plans, new leachate loadout pumps are proposed to be installed in the primary leachate collection tanks for the four phases of Stage I and the Stage II leachate loadout tank. The pumps will direct leachate via dual-walled HDPE pipe to a central control building, where the leachate flows will be metered. The leachate will be discharged into a gravity main which will drain to the 20,000-gallon contingency tank installed for operations in Phase IV of Stage I. (Note that Phase IV was closed and received final cover in 1997). The current loadout pump in the Stage II loadout tank will be relocated to the newly designated leachate loadout tank.

A new leachate loadout arm structure is proposed to be constructed north of the Stage I Phase III leachate tank, and a concrete pad will be constructed to provide a stable platform for the leachate tank trucks. Concrete traffic barriers will be provided adjacent to the concrete pad to protect the loadout arm from site traffic.

Controls for the system will include submersible pressure transducers to be installed in each of the Stage I primary leachate tanks; flow meters to be installed in the central control building; and communication with the existing controls for the Stage I primary leachate sump pumps, and the Stage II leachate tanks and landfill sumps.

The controls will allow for automatic pumping of leachate. Controls in the contingency (loadout) tank will inhibit the pumps in the various storage tanks if the contingency tank is full. Likewise, the Stage I primary leachate sump pumps will be inhibited if their respective primary leachate tank is full. The existing controls that inhibit the pumps in the Stage II sumps if the Stage II leachate collection tank is full will remain in place.

Sample ports will be installed on each of the incoming force mains in the central control building. Additionally, dry-disconnect cam-lock fittings will be installed on each of the incoming force mains and the existing primary loadout pumps for Stage I will remain in each tank to allow flexibility to pump directly to a tank truck in the future if necessary.

Equipment to be installed in the central control building will be compatible with Class 1 Division 1 Group D atmospheres, as defined by the National Electrical Code. The control panel will be mounted on the outside of the building to limit required entry into the building, and will contain pump switches, tank level readouts, and flow meter readouts.

(2) Identify whether the proposed modification is a "type I-A" or "type I-B" modification. (If uncertain, use the worksheet provided with the instructions for this form):  Type I-A  Type I-B

(3) Identify, either below or on separate paper, each written permit condition which will require amendment to effect the proposed modification and provide draft language for the same. [Check (✓) box if response is provided on separate paper  ]

NCES is not aware of any permit condition which requires amendment as a result of the proposed modification to consolidate leachate for transfer to tanker trucks at the landfill.

(4) Identify, below, each "last approved plan of record" identified in the permit which will be affected by the proposed modification and will therefore require amendment/revision:

Check (✓) here if affected	TYPE OF PLAN	DES APPROVAL DATE	WMD LOG # (find this number on your copy of the approval)
<input checked="" type="checkbox"/>	Facility design plans/specifications	September 15, 1998	1998 00307, 00357, 00387, 1998 00399, 00400, 00402
<input checked="" type="checkbox"/>	Facility operating plan	March 25, 1998	1999 00089, 00095, 00105-6 1999 00108
<input type="checkbox"/>	Facility closure plan		
<input type="checkbox"/>	Facility financial assurance plan		
<input type="checkbox"/>	Other plan (specify)		

(5) Submit, on separate paper, the proposed amendments/revisions for each document identified pursuant to (4) above, based on the below listed instructions. (Note: The revisions may be presented in the form of replacement pages ready for substitution into the last approved plan of record, each page being clearly marked to show the date of revision. In the event there is no last approved plan of record for any of the following, you must prepare and submit a full plan, including the proposed modification(s), in accordance with the applicable cited Rules.)

- ◆ **Facility design plans** must be prepared in accordance with Env-Wm 2803.05.
- ◆ **Facility operating plans** must be prepared in accordance with Env-Wm 2805.11.
- ◆ **Facility closure plans** must be prepared in accordance with Env-Wm 2806.04.
- ◆ **Financial assurance plans** must be prepared as specified in Env-Wm 3100 and must include all related draft financial assurance documents required to effect the proposed modification.

(6) In order for DES to approve the proposed modification, the agency must be able to conclude from the information provided in this application that the proposed modification meets all applicable requirements of the Rules. Therefore, for any aspect of the proposed modification where it may not be self-evident that the proposed change meets all applicable requirements of the Rules, you should explicitly provide such information. Provide your response below and/or use separate paper as necessary. (Check (✓) box if response is attached on separate paper:  )

The proposed modification will simplify the loading of leachate from the primary leachate collection tanks into tanker trucks for delivery to the leachate treatment facility. NCES believes the modification is consistent with the Solid Waste Rules.



### SECTION IV. SCHEDULE

Provide a proposed schedule for implementing the modification. Use separate paper if necessary. (Check (✓) box if response is attached on separate paper )

NCES intends to install the modifications described in the Leachate Consolidation Project plans and design letter within 90 days of NHDES approval.

### SECTION V. STATEMENT OF NEED

Provide a statement of need describing why the proposed change is necessary or desirable. Use separate paper if necessary. (Check (✓) box if response is attached on separate paper )

The proposed modification will simplify transfer of leachate from the primary leachate collection tanks. The proposed leachate loading arm will allow simpler and safer loading of tanker trucks with leachate. The overflow protection and control system will further reduce the risk of spillage of leachate during the transfer process.

### SECTION VI. IMPACT EVALUATION

On separate paper, identify all impacts, both positive and adverse, which the proposed modification will have, including each of the below listed considerations.

- (1) The effect the modification will have on facility function, capacity, life expectancy, service type and service area.
- (2) The effect the modification will have on the environment, public health and safety.
- (3) The effect the modification will have on the state's ability to achieve the goals and objectives specified in RSA 149-M:2, namely achieving a 40% minimum weight reduction in the solid waste stream on a per capita basis by the year 2000 and avoiding the disposal of recyclable materials in a lined landfill with a leachate collection system.
- (4) The effect the modification will have on establishing and maintaining integrated waste management systems consistent with the hierarchy of waste management methods in RSA 149-M:3 [the methods, in descending order of preference as specified in RSA 149-M:3, are: source reduction; recycling and reuse; composting; waste-to-energy technologies (including incineration); incineration without resource recovery; and landfilling]; and
- (5) Consistency with the state solid waste management plan and the applicable district plan, pursuant to RSA 149-M:12, I(b). (If necessary, contact the Planning & Community Assistance Section at (603) 271-2900 for plan information.)

### SECTION VII. PUBLIC BENEFIT DEMONSTRATION

Provide a "demonstration of public benefit" based on the below listed instructions. Check which one of the listed instructions applies to your particular application.

- |                                     |   |
|-------------------------------------|---|
| <input type="checkbox"/>            | For a type I-A modification of a standard permit, provide a "demonstration of public benefit" in accordance with RSA 149-M:11 and in conformance with the provisions of Env-Wm 2705.05. Prepare and submit the demonstration on separate paper.   |
| <input type="checkbox"/>            | For a type I-A modification of an emergency permit or a research and development permit, or a permit-by-notification, there is a presumption of public benefit, provided that the proposed modification meets all requirements of the <u>Rules</u> . Therefore, you may skip this section and go to Section VIII. |
| <input checked="" type="checkbox"/> | For a type I-B modification, there is a presumption of public benefit, provided that the proposed modification meets all requirements of the <u>Rules</u> . Therefore, you may skip this section and go to Section VIII.  |



## SECTION VI - Impact Evaluation

- (1) *The effect the modification will have on facility function, capacity, life expectancy, service type and service area;*

The modification will not affect facility function, capacity, life expectancy, service type or service area.

- (2) *The effect the modification will have on the environment, public health and safety;*

The modification will allow for more efficient handling of leachate thereby limiting the potential for spills.

- (3) *The effect the modification will have on the state's ability to achieve the goals and objectives specified in RSA 149:M:2;*

Not applicable.

- (4) *The effect the modification will have on establishing and maintaining integrated waste management systems consistent with the hierarchy of waste management methods in RSA 149-M:3; and*

The proposed modification does not affect waste management methods at the facility.

- (5) *Information that demonstrates that the facility, as modified, will be consistent with the state solid waste management plan and the applicable district plan, pursuant to RSA 149-M:12, 1(b);*

The proposed modification will not affect the facility in relation to the state solid waste management plan or district plans in that no changes to facility capacity, accepted waste type or facility service area are proposed.

## SECTION VIII. OTHER PERMITS

Complete the following table to identify and provide the status of all other permits or approvals necessary to effect the proposed modification.

Type of Permit/Approval Required	Date the Application was/will be Submitted	Status/Comments
		NCES is not aware that any other permits or approvals are required for the proposed modifications to the leachate collection system.

## SECTION IX. LEGAL NOTICES

Submit proof of having provided certain legal notifications and filings, as follows:

- (1) You must send by certified mail, or deliver in hand, a complete copy of this application to the host municipality, host solid waste management district and other affected entities, with a "notice of filing," as specified by Env-Wm 303.
- (2) For a type I-A modification, you must send by certified mail, or deliver in hand, a "notice of filing" to each owner of property abutting the facility site, as specified by Env-Wm 303. If the applicant/permittee or the owner of the facility site owns any abutting parcel of land, the "notice of filing" must be sent to the owner(s) of the next parcel(s) not owned by the permittee/applicant or facility site owner.
- (3) You must also provide a "notice of filing" to the New Hampshire Department of Justice/ Office of Attorney General (NHDoJ/OAG) if, pursuant to Section X(2) of this form, you are required to submit business and personal disclosure information.
- (4) You must attach to this application "proof" that notification has been provided as required by (1) through (3) above. Therefore, attach a copy of the notice(s) of filing and the signature(s) of all required recipients, acknowledging receipt.

## SECTION X. CERTIFICATION OF COMPLIANCE/ COMPLIANCE REPORT

All applications for permit modification must be submitted with either certification of compliance or a compliance report, as follows:

- (1) If you are ABLE to certify that each of the statements numbered (1) - (8) below are true, do so by your signature.
- (2) If you are UNABLE to certify that each of the statements numbered (1) - (8) below are true, you must:
  - prepare and submit a separate Compliance Report as specified by Env-Wm 303.15; and
  - if the proposed modification involves a change in organizational structure, or a change in individuals/ entities holding 10% or more of the permittee's debt or equity, or a change in officers, directors, partners or key employees, none of which constitutes a change in operational control of the facility or a change in ownership per Env-Wm 315.02(f), also submit completed "business and personal disclosure forms" for each non-compliant individual and entity involved in the change. Obtain the required forms from the P&DRS at (603) 271-2935. Submit the completed forms, with the notice of filing referenced by Section IX(3) of this form and a copy of the Compliance Report, direct to the New Hampshire Department of Justice/ Office of Attorney General, Environmental Protection Bureau, 33 Capital Street, Concord, NH 03301-6397. [Note: Copies of the completed disclosure forms should NOT be attached to this application when it is submitted to DES or to the host municipality, host solid waste management district and other effected entities, pursuant to Section IX(1) above. Only the NHDoJ/OAG should receive copies of the disclosure forms.]

## COMPLIANCE STATEMENT

The applicant shall certify that each of the statements listed in (1)-(8) below are true for each of the following individuals and entities:

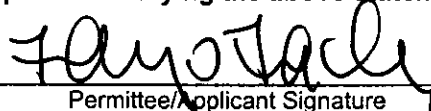
- the applicant;
- the facility owner;
- the facility operator;
- all individuals and entities holding 10% or more of the applicant's debt or equity;
- all of the applicant's officers, directors, and partners; and
- all individuals and entities having managerial, supervisory or substantial decisionmaking authority and responsibility for the management of facility operations or the activity(s) for which approval is being sought.

(1)	No individual or entity listed above has been convicted of or plead guilty or no contest to a felony in any state or federal court during the 5 years before the date of the application;
(2)	No individual or entity listed above has been convicted of or plead guilty or no contest to a misdemeanor for a violation of environmental statutes or rules in any state or federal court during the 5 years before the date of the application;
(3)	No individual or entity listed above has owned or operated any hazardous or solid waste facility which has been the subject of an administrative or judicial enforcement action for a violation of environmental statutes or rules during the 5 years before the date of the application;
(4)	No individual or entity listed above has been the subject of any administrative or judicial enforcement action for a violation of environmental statutes and rules during the 5 years before the date of the application;
(5)	All hazardous and solid waste facilities owned or operated in New Hampshire by any individual or entity listed above are in compliance with either:
(a)	All applicable environmental statutes, rules, and DES permit requirements; or
(b)	A DES approved schedule for achieving compliance therewith;
(6)	All individuals and entities listed above are in compliance with all civil and criminal penalty provisions of any outstanding consent agreement, settlement, or court order to which DES is a party;
(7)	All individuals and entities listed above have paid, or are in compliance with the payment schedule for any administrative fine assessed by DES; and
(8)	All individuals and entities listed above are in compliance with all terms and conditions under every administrative order, court order or settlement agreement relating to programs implemented by DES.

**Signature of the permittee/applicant certifying the above statements are true:**

Larry B. Lackey

Permittee/Applicant Name (Print Clearly or Type)



Permittee/Applicant Signature

12/3/99

Date

**\*See attached for City of Concord, NH Violation and letter of resolution**

### SECTION XI. PERMITTEE/APPLICANT SIGNATURE REQUIREMENTS

*The permittee/applicant must sign the following statement prior to submitting this application. All copies of the application filed with DES must bear the permittee's/applicant's ORIGINAL signature. If the permittee/applicant is not an individual, the application shall be signed by an individual duly authorized by the permittee/applicant.*

To the best of my knowledge and belief, the information and material submitted herewith is correct and complete. I understand that any approval granted by DES based on false and/or incomplete information shall be subject to revocation or suspension, and that administrative, civil or criminal penalties may also apply. I certify that this application is submitted on a complete and accurate form, as provided by DES, without alteration of the text.

Larry B. Lackey

Permittee/Applicant Name (Print Clearly or Type)



Permittee/Applicant Signature

12/3/99

Date

**SECTION XII. PROPERTY OWNER SIGNATURE**

*If the permittee and property owner are not the same, the property owner must also sign this form as follows. All copies of the application filed with DES must bear the property owner's ORIGINAL signature. If the property owner is not an individual, the application shall be signed by an individual duly authorized by the property owner.*

- |     |   |
|-----|---|
| (1) | I hereby affirm that the permittee/ applicant has the legal right to occupy and use the property on which the subject facility is or will be located for the purposes specified in this application.  |
| (2) | I hereby affirm that I shall grant access to the property for closure and post-closure monitoring of the subject facility and site as required by RSA 149-M and the <u>New Hampshire Solid Waste Rules</u> (Env-Wm 100 - 300 and Env-Wm 2100 - 3700), as amended. |

**Larry B. Lackey**  
\_\_\_\_\_  
Property Owner Name (Print Clearly or Type)

\_\_\_\_\_  
Property Owner Signature

\_\_\_\_\_  
Date

S:\DATA\1705\99files\1201Type IB permit.wpd



City of Concord, New Hampshire

GENERAL SERVICES DEPARTMENT

125 Hall Street

03301-3228

JOE ANDREWS  
SUPERINTENDENT  
PUBLIC PROPERTIES

MICHAEL HANSCOM  
SUPERINTENDENT  
WASTE WATER PLANT

603-225-8691  
FAX: 603-224-2532

June 29, 1999

Mr. David E. Adams  
New England Waste Services  
3 Pitkin Court  
Montpelier, VT 05602

Subject: Violation of Industrial Discharge Permit -  
North Country Environmental Services (NCES) Landfill Leachate

Dear Mr. Adams:

In your most recent monthly report dated June 11, 1999, we have noted the exceedances of your facility's industrial discharge permit limit for total BOD loading (pounds per day) for stage 1, phase 1 (S1P1) NCES leachate delivered on 05/06/99 to the Hall St. WWTF.

Please notify us as soon as possible when analytical testing results indicate an exceedance of your discharge permit limits. We received the report that contained the high BOD results on 06/15/99. The BOD results on the 05/06/99 leachate sample, as indicated by your testing laboratory, were generated by acceptable practices and procedures. We would all have been very worried if the 05/13/99 NCES, S1P1 leachate sample also generated another unusually high, unexplainable but reportable, BOD result...and we were not notified as soon as possible. Protecting our biological wastewater treatment process from process control upsets is our top priority.

Would you please notify Scitest Laboratory Services to mail me copies of all worksheets that were used in the sampling and BOD testing procedures for the 05/06/99 NCES S1P1 leachate sample (including chain-of-custody forms).

If you have any questions, please call me at (603) 225-8691. Thank you for your cooperation.

Sincerely,

Jon A. Bushold  
Laboratory Supervisor

JAB

cc: file\NCES6299  
Michael Hanscom  
John Forrestall



North Country Environmental  
Services, Inc.

16 State Street  
Montpelier, Vermont 05602

(802) 223-7220  
(802) 223-7128 Fax

6-29-99  
File copy  
DA

June 29, 1999

Mr. Rod Lamothe  
SciTest  
P.O. Box 339  
Randolph, VT 05060-0339

SENT VIA FACSIMILE TRANSMITTAL

RE: North Country Environmental Services, Inc. Landfill Leachate  
Stage 1, Phase 1 - May 6, 1999 and June 21, 1999

Dear Rod:

Per the attached letter, could you please mail copies of "all worksheets that were used in the sampling and BOD testing procedures for the 05/06/99 NCES S1P1 leachate sample (including chain-of-custody)" to Jon Bushold, Laboratory Supervisor - Concord Wastewater Treatment Facility, (address below) and me.

In addition, I spoke to Mr. Bushold today, immediately following receipt of the BOD results (>40,000 mg/l) for the Stage 1, Phase 1 leachate sample collected on June 21, 1999. The June 21, 1999 BOD result, like the May 6, 1999 BOD result discussed above, is inconsistent with historical BOD levels in Stage 1, Phase 1 leachate. The Concord Wastewater Treatment Facility has verbally requested that SciTest send the information discussed above also for the **June 21, 1999** sample.

The address for Jon Bushold is:  
City of Concord, NH  
General Services Department  
125 Hall Street  
Concord, NH 03301-3472

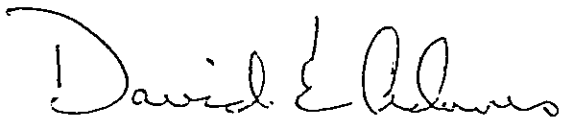
Thank you for your attention to this matter.



Mr. Rod Lamothe  
June 29, 1999  
Page 2 of 2

Sincerely,

NORTH COUNTRY ENVIRONMENTAL SERVICES, INC.



David E. Adams, P.E., Sr. Project Manager  
Permits, Compliance & Engineering

Enclosure

cc: Jon A. Bushold, Concord Wastewater Treatment Facility  
Michael Hanscom, Concord Wastewater Treatment Facility  
James W. Bohlig, North Country Environmental Services, Inc.  
Larry B. Lackey, North Country Environmental Services, Inc.  
Lenny Wing, North Country Environmental Services, Inc.  
Donald Monahan, North Country Environmental Services, Inc.  
Sherry St. Onge, New England Waste Services, Inc.

[C:\Casella\Leachate\NCES\Letter-R.Lamothe, BOD results worksheets to Concord.doc]

## **SECTION 11 - LEACHATE MANAGEMENT PLAN**

This rewrite of the NCES landfill Leachate Management Plan has been prepared to consider the 1999/2000 Leachate Consolidation Project.

### **11.1 Leachate generation**

The quantity of leachate generated and the estimated maximum leachate head on the primary liner were evaluated using the U.S. EPA Hydrogeologic Evaluation of Landfill Performance (HELP) MODEL, Version 2. This computer model accepts climatologic, soil, and design input parameters to model the movement of water over and through the landfill. The model is capable of accounting for the effects of surface storage, runoff, infiltration, percolation, evapotranspiration, soil moisture storage, and lateral drainage. Version 2 of the HELP model includes a synthetic weather generator to produce climatological parameters for 139 cities in the United States. For the evaluation of the NCES landfill, the climatological parameters provided for Mt. Washington, New Hampshire were conditioned with mean monthly precipitation and temperature data for Bethlehem, New Hampshire to synthetically generate the required climatological input.

The leachate collection system has been constructed to provide for efficient collection of leachate and to limit the maximum anticipated head on the liner to less than 12 inches. The quantity of leachate generated varies during operation. During initial filling in a cell, there is a limited amount of waste material to absorb and buffer the generation of the leachate. Nearly all precipitation incident to the cell becomes leachate during initial cell operation. As filling progresses above surrounding grades, the leachate generation rate is reduced due to runoff from the cover soils and the moisture holding capacity of the refuse.

### **11.2 Stage I Leachate Collection and Removal System**

Stage I consists of four phases, each having independent leachate collection and removal systems. Each of these systems is similar with the exception of Phase I which has a gravity primary and secondary removal system. Phases II, III and IV each have vertical risers installed in the primary pumps. Secondary sumps have side slope riser piping for leachate removal.

All four phases have 15,000-gallon primary leachate storage tanks and 10,000-gallon secondary leachate storage tanks. An additional 20,000-gallon storage tank was previously utilized as a contingency tank for Stage I, Phase IV. The former contingency tank now serves as the Loadout Tank for leachate generated in Stages I and II. All tanks are steel dual walled underground storage tanks (UST).

Leachate in the primary and secondary collection systems of Phase I drains by gravity through piping to the storage tanks. In the event that there is a large

volume of leachate being received in the primary storage tank, the tank is equipped with a high level alarm and an overflow to the secondary storage tank.

Phases II, III and IV all have submersible pumps in their risers within the primary sumps. Leachate is pumped from the sumps to the respective primary storage tanks. These phases all have submersible pumps in their secondary sumps, which pump to their respective secondary leachate storage tanks through sideslope sump riser piping.

The primary leachate collection sumps in Phase II, III and IV are equipped with controls to provide an audio and visual indication that the leachate level in the sump is within about 1 foot of the base liner surrounding the sump. The piping from the primary collection manhole to the holding tank consists of prefabricated double-walled 1-1/4 inch HDPE pipe. The pipe is located in a 40-foot deep trench above the synthetic membrane component of the cap. This location will allow for maintenance and repair of the pipe and provide protection against frost. NCES personnel measure leachate levels in each phase's storage tanks on a daily basis. The Phase I primary leachate collection sump has no controls as leachate leaves its sump by gravity through piping to a 15,000 gallon UST.

Leachate collected in Phase II, III and IV secondary sumps are pumped into 10,000-gallon secondary leachate holding tanks. The secondary pumps are activated when leachate levels rise to the top of the secondary line elevation adjacent to the sump. In addition to the automatic leachate level controls, NCES personnel measure leachate levels in the secondary storage tanks on a daily basis.

### **11.3 Stage II Leachate Collection and Removal Systems**

Primary and secondary leachate collection systems have been constructed in Stage II. The primary leachate collection system constructed above the primary 60-mil HDPE liner in Phase I consists of geonet overlain by a 10-ounce nonwoven geotextile which is in turn overlain by 18 inches of select sand. In Phase II, drainage geocomposite was provided over the primary liner and overlain by 18 inches of select sand. The geonet or drainage geocomposite and select sand provide media through which leachate flows to collection piping located at the down gradient end of each phase. The piping consists of 7-inch SDR-17 HDPE pipe surrounded by 1½" crushed stone wrapped in 16-ounce nonwoven geotextile. The pipe in Phase II is 8 inch SDR-17 HPDE.

The secondary leachate collection system was constructed over the secondary 60-mil HDPE liner and consists of geonet overlain by 10-ounce nonwoven geotextile or drainage geocomposite and 12 inches of select sand in base areas and geonet or drainage geocomposite on sideslopes for phases I and II, respectively. Secondary leachate collection pipe consisting of 6 inch or 8 inch SDR-17 HDPE was provided in the secondary system of Phase I and II, respectively.



The base grades in Phase I and II slope at a minimum of 2 percent to the northeast toward the leachate collection piping. In each phase, the collection pipe is bedded in 1½ inch crushed stone wrapped in 16 ounce nonwoven geotextile and drains to a leachate collection sump. The collection pipe in the secondary system is located beneath the primary pipe. The secondary leachate collection pipe drains to a sump located below the primary sump. The minimum slope of the leachate pipe is 0.0075 percent. At that slope, the pipe has the capacity to transmit about 300 gallons per minute (gpm). The crushed stone surrounding the pipe provides additional flow capacity.

Cleanouts are provided at both ends of the primary and secondary leachate collection pipes. The cleanouts provide access to the pipes for cleaning and video inspections, if necessary. A boot seal is provided where the secondary cleanout passes through the primary liner.

The leachate pumps are set to operate when the leachate level is equivalent to or less than the liner grade adjacent to the sump. The leachate from Phases I and II is pumped through dual-walled pipe to two 20,000-gallon StiP3 underground tanks (UST's) configured in series. The Stage II leachate storage tanks are located to the west of Stage II in the vicinity of the Stage I leachate storage tanks and the leachate Loadout Tank. The pumps provide for a capacity of at least 50 gallons per minute (gpm). Pump controls are set so that the pumps will shut off when the leachate level is about three to six inches above the top of the pump so that leachate is not pumped below the intake of the pump. The pump controls also shut the pumps off and activate an alarm in the event that the two 20,000 gallon tanks are filled to 80 percent of capacity. The quantity of leachate pumped is monitored using flow meters. Monitoring of the dual wall force main is conducted on a weekly basis at the manway, see inspection sheet in appendix for listing.

## **11.4 Leachate Storage Tanks And Pumping Schedule**

### **11.4.1 Primary Leachate Management**

Daily procedures used to monitor and operate the primary leachate management systems for Stages I and II are as follows:

1. Leachate is proactively managed each day that the facility is open business. Secondary and primary pumps are automatically operated and checked on a daily basis. (The Stage I, Phase I primary and secondary leachate system is different from the other phases in that gravity flow of leachate to the Phase I storage tanks precludes the use of pumps.)
2. Each morning, NCES staff determines the depth of leachate at the primary storage tank in Phases I, II, III and IV through physical measurement of the depth with a calibrated measuring rod. The depth of leachate in the Leachate Loadout tank is similarly also measured on a daily basis.



3. A programmable logic controller controls the process of transferring leachate from any of the Stage I or II leachate storage tanks to the leachate Loadout Tank. The controller is programmed to pump a pre-determined volume of leachate from each phase's storage tank to the leachate Loadout Tank. The tank (phase) specific volume of leachate pumped is input to the controller on a routine basis (generally bi-weekly) by NCES personnel based on the strength (BOD/COD) of leachate generated in each phase. The controller is configured such that pumps will not be activated if the leachate Loadout Tank is full. While the system is designed to operate automatically, it may also be operated in a manual mode.
4. In the manual mode, based on the measured amount of leachate in a primary storage tank, the leachate pumping system may be manually actuated to pump leachate from a primary storage tank to the leachate Loadout Tank. Pumping of leachate from the Loadout Tank to a Tanker Truck for off-site disposal is initiated manually by NCES personnel.
5. Throughout the leachate pumping process during tanker loading, there are two persons monitoring the activities. One is located on top of the tanker and one at the Central Control Building which houses the controls for the Loadout pump. Personnel are located at these positions to ensure that discharge of leachate to the ground during the loading process does not occur.
6. The level of leachate in the leachate Loadout Tank is monitored daily. As required by the accumulation of leachate, a call is placed by the Facility Manager to schedule a tanker truck for removal of stored leachate to a wastewater treatment facility.
7. The leachate system operator completes a daily pumping report indicating the pre- and post-pumping levels in each of the tanks monitored and managed during the day. The daily pumping report also presents the time of the day in which the pumping of any particular sump or tank occurred.
8. Liquid levels in the sumps are measured using a submersible water level transducer. Leachate head levels in the sumps are monitored via the pump control system. The Stage II controls have digital read-out to permit direct read-out of leachate head levels. The pumps are set to activate when the leachate level is equivalent to the liner grade adjacent to the sump. Therefore, under routine operating conditions, there would not be excess head on the liner. The pump controls are monitored on a daily basis to determine that the system is operating and to monitor the leachate head in the sump.

#### **11.4.2 Secondary Leachate Management**

Daily procedures used to monitor and operate the secondary leachate management systems for Stages I and II are as follows:

1. The automatic pumping system pumps liquid from the secondary liner sump for each Phase into the secondary leachate storage tanks for that phase (excluding Stage I, Phase I which is a gravity system).
2. The level of leachate in the secondary storage tanks is monitored daily. As required by the accumulation of leachate, a call will be placed by the Facility Manager to schedule a tanker truck for removal of stored leachate to the wastewater treatment facility. (Note: The secondary storage tanks are not piped to the leachate Loadout Tank. Secondary leachate is transferred to the Tanker Truck directly from the individual secondary storage tanks.)
3. Daily, the Facility Manager calculates the average leachate production rate determined from the daily total amount of liquid pumped into the secondary storage tank.
4. On a monthly basis, the Facility Manager calculates the average leakage rate from an average of the daily pumping rates determined above and the contributory area to the flow.
5. If it is determined that the calculated monthly rate exceeds 25 gallons per contributory acre per day, it will be reported to NHDES within 1 working day of the rate identification.

#### **11.4.3 Contingency Storm Event**

Solid Waste Rules require that provisions be made to remove and store leachate generated by the 100-year storm event. For Bethlehem, New Hampshire, the 100-year 24-hours storm event is equivalent to about six inches of precipitation. The Solid Waste Rules state that.

- a. At least 15 percent of the volume of leachate generated by the 100-year event be stored within storage units outside the landfill or within sumps within the landfill; and
- b. The remainder of the quantity of leachate may be temporarily stored on the liner within the landfill provided that the storage which results in more than one foot of head is limited to a period of 7 days or less.

The rate at which leachate is produced in active landfill cells after the first few lifts are placed is typically about 200 to 400 gallons per acre per day. The rate varies gradually as a result of precipitation events due to the "buffering" capacity of the waste. The contingency event occurs when waste placement is just beginning



in a cell. The critical time period has passed for Stage II as filling has progressed above surrounding grades. Therefore, the typical leachate production rate for Stage II may be in the range of 2,000 to 3,000 gallons per day. At that rate, a single 20,000-gallon storage tank provides sufficient capacity for Stage II. Stage II currently has 40,000 gallons of storage capacity. Furthermore, the newly designated 20,000-gallon leachate Loadout tank provides further capacity for leachate during a storm event.

The leachate generation rates in Stage I are significantly lower than that of Stage II since a large portion of Stage I is capped. The existing tank volume for Stage I is sufficient to handle leachate generated during a 100-year storm event.

### **11.5 Leak Detection and Location Systems**

A secondary leachate collection system is provided beneath the entire facility. This system is continuous beneath the landfill. The quantity of leachate pumped from the secondary system will be monitored. In the event that the average flow exceeds 25 gpd/ac for 30 days, measures required by NH Solid Waste Rules will be implemented.

### **11.6 Leachate System Maintenance**

NCES personnel perform the inspection of the leachate collection system on a regular basis. Leachate management facilities require regular inspection and maintenance. Each phase of the landfill has a separate collection system which may be monitored/inspected separately. At the "downstream" end of the main leachate pipes, separate manholes have been installed for access/inspection of the primary leachate pipes in Stage I and the secondary pipes. In addition, clean-outs are provided at both ends of the primary and secondary leachate collection pipes. Pumps are inspected and maintained and the sump areas are inspected to evaluate the leachate collection system performance. Necessary repairs are made and pipes are cleaned by rotary snake or air jet from the clean-outs or as necessary.

On a daily basis, NCES personnel inspect the manholes in Stage I for flow, evidence of obstructions to flow, and siltation. If any unusual conditions are observed, the operator will assess and take appropriate action.

On at least an annual basis and otherwise more frequently if siltation is observed, the primary leachate main is hydraulically flushed with sewer pipe jetting equipment. NCES contracts with a commercial pipeline utility maintenance firm for this service. If evidence of siltation persists, conditions will be assessed, and a more frequent program of hydraulic cleaning will be initiated.

On at least a monthly basis, all leachate pumps and piping are inspected and maintained in accordance with the manufacturer's recommendations. For each primary leachate tank which is in service, duplicate (redundant) pumps will be in place. Both pumps will be inspected and maintained in this schedule.

## **11.7 Leachate Disposal**

When required, the company or an outside contractor hauls leachate from the NCES facility to the treatment facility. Leachate generated in each phase of the landfill that is shipped off-site is processed at an off-site wastewater treatment facility. A manifest procedure is used to verify disposal of the material at the agreed location.

NCES has a number of off-site disposal locations available for regular disposal. The selection of a disposal site is normally a function of transportation and disposal costs. The facilities at which leachate from the NCES landfill may be hauled include the following:

1. Concord Waste Water Treatment Facility in Concord, NH.
2. Montpelier Waste Water Treatment Facility, Montpelier, VT.
3. Plattsburgh Waste Water Treatment Facility in Plattsburgh, NY.
4. Dupont Environmental, Deepwater, NJ.
5. United Industrial, Meriden, CT.
6. Mattabasset District Wastewater Treatment Facility, Cromwell, Connecticut.
7. Palmer Water Pollution Control Facility in Palmer, Massachusetts.

Permits are in place for Concord, Montpelier, Plattsburgh, and Palmer and available for review upon your request.

## **11.8 Leachate Testing**

Leachate is removed from the primary storage tanks or sumps for each phase of the facility and analyzed on a quarterly, triannual, and annual basis. This testing is done in the months of February, April, July and November.

Leachate from the primary collection system of each phase of the landfill is tested to track leachate quality. Various parameters are reported as required by New Hampshire Solid Waste Rules, wastewater treatment plants, and other applicable regulatory agencies.

Standard Register®  
 NEW ENGLAND WASTE SERVICES, INC. P.O. BOX 866 RUTLAND VT 05702  
 Check No. - 14097 VENDOR NO. 20401

(802) 775-0325

Check Date - 12/03/99

Stub 1 of 1

INVOICE NUMBER	DATE	DESCRIPTION	GROSS AMOUNT	DEDUCTIONS	AMOUNT PAID
12/01/99 C	120199	Application Fee	100.00		100.00
			100.00		100.00

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North Country Environmental Services, Inc.  
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 P.O. Box 866 Rutland, Vermont 05702  
 (802) 775-0325

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NEW ENGLAND WASTE SERVICES, INC.  
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