



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

September 8, 2008

John Gay, E.I.
North Country Environmental Services, Inc.
3 Pitkin Court
Montpelier, Vermont 05602

**SUBJECT: Type 1B and II Permit Modification Applications, North Country
Environmental Services Landfill, Stage IV PHASE II, 581 Trudeau Road,
Bethlehem, New Hampshire/Permit #DES-SW-SP-03-002**

Dear Mr. Gay:

The New Hampshire Department of Environmental Services, Waste Management Division (Department) has completed a technical review of the submitted applications and provides the following comments and requests for information:

A. Asbestos Records and Plan

The locations and elevations of the two northerly asbestos disposal sites, labeled as Asbestos EI 1376 and Asbestos EI 1365 on the Asbestos Disposal Location Site Plan, do not appear to correspond with the burial location plans.

B. Plan Sheets

1. The 4-inch thickness of the screened till layer located beneath the 40 mil geomembrane on Sheet A-2, Detail 7 does not agree with the 6-inch thickness shown on other details.
2. Sheet A-2, Detail 1 shows the 12-inch drainage sand layer increasing to an 18-inch layer. Is this correct?
3. Sheet B-2 references details on Sheet B-2. However, the details are located on Sheet B-3. In addition, some of the detail references on Sheet B-3 are not correct.
4. The thicknesses of various materials (select sand, crushed stone, etc.) on Sheets C-16 and C-17 are not clearly specified.
5. Sheets C-19 to C-23 show 12-inches of select sand over the riser pipes on the Pump Station 1 Back Elevation, but on the side elevations it shows 12-inches of till over the riser pipes. Which type of material is proposed?
6. The proposed design of the eastern berm and a portion of the western berm places the liner under the berm (see Tensar Sheets 33 and 34) which potentially allows gas to migrate through the berm and leachate to seep under the berm. This is different than the proposed design of a portion of the western berm as shown on Tensar Sheet 35 which properly configures the liner to contain leachate and prevent gas migration through the berm.

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C. Specifications

1. Section 02930 does not contain information regarding seeding of the berm. Also, this section contains references to the "City's representative," which is confusing.
2. Section 11310, paragraph 3.2.A refers to Section 15212, but this section was not included in the specifications.

D. Groundwater Management and Release Detection Permit Issues

There are several instances in which groundwater monitoring conducted under the facility's Groundwater Management and Release Detection Permit #GWP-198704033-B-005 (GWRD Permit) has detected volatile organic compounds (VOCs) and bromide above established background concentrations, thus indicating that contaminants have been released. Under the terms and conditions of the GWRD permit, the source of the releases must be determined and the impacts remediated. Although NCES has suggested that releases are the result of leachate spills involving past leachate handling systems and practices, and are not due to an ongoing release(s) from the landfill, there is insufficient information to fully support such a conclusion and some of the available data also appear to be inconsistent with such a conclusion.

Key issues relating to these detections of VOCs and bromide are outlined below:

1. Remedial Action Plan for Activities Near Well Couplets MW-402 and MW-403

Volatile organic compounds (VOCs) and bromide continue to be detected at low levels, but above established background concentrations in well MW-402U, and they have historically been detected in MW-403L. Because these wells are located in the vicinity of the existing leachate loading, storage and transfer areas, NCES contends that the contamination is the result of releases from the leachate handling system, including accidental spills and other past handling practices, and is not due to an ongoing release at the landfill. The remedial action work that NCES has proposed to undertake (as summarized below) in the vicinity of MW-402 and MW-403 is based on that assumption, but until the work is completed and performance expectations are met, the Department is unable to conclude that leachate handling system activities are the sole source of this contamination.

The facility's GWRD Permit required submittal of a scope of work for remedial activities near monitoring well couplets MW-402 and MW-403 and the existing leachate loading areas in order to address the detection of VOCs above established background concentrations, specifically in well MW-402U. See Section Env-Or 703.15 of the New Hampshire Code of Administrative Rules Env-Or 700, *GROUNDWATER RELEASE DETECTION PERMITS*, for required elements of the requested Corrective Action Plan.

In response to this requirement, on June 8, 2007, NCES submitted a work plan entitled "Work Plan, Remedial Activities of Soil Potentially Impacted By Leachate, Leachate

Management Modification and Improvements," prepared by CMA Engineers and dated May 2007. NCES proposed to implement this work plan in conjunction with the proposed Stage IV Phase II landfill construction. However, in correspondence dated July 31, 2007, the Department directed NCES to initiate the work plan independent of the construction of Stage IV Phase II, based on the fact that several VOCs were detected in well MW-402U in the April 2007 sampling event. In response, on September 19, 2007, NCES submitted an alternative work plan entitled, "Work Plan, Remedial Activities of Soil Potentially Impacted By Leachate, Alternative Leachate Management Modifications and Improvements," prepared by CMA Engineers, and dated September 2007 (Work Plan). On May 28, 2008, when the Department approved the Type II Permit Modification Application for the Leachate Management Improvements, NCES was directed to proceed with the Work Plan.

CMA Engineers has hypothesized that a source of the low level VOCs detected in well MW-402U could possibly be remnants of leachate accidentally released into the upgradient vadose zone soils when leachate was collected, stored and transferred in underground facilities in this area, and transferred to tank trucks at an above ground facility. The Work Plan calls for delineation of soils that might be impacted by leachate, and excavation and placement of any impacted soils in the landfill. The targeted soils are located adjacent to or below leachate handling, storage and transfer facilities that are scheduled to be removed and replaced with new systems at different locations in accordance with the above-cited plans that were approved on May 28, 2008. The Work Plan provides for removal of impacted soil above the water table that could be a source of downgradient groundwater contamination. Performance criteria for soils were discussed, but no performance criteria for groundwater are proposed in the Work Plan. Performance criteria must be established and achieved to demonstrate that the VOCs detected in this area are the result of poor leachate handling or piping issues and are not from an ongoing release, a liner leak, or other potential source.

2. Well B-913M

The source of bromide and tetrahydrofuran detected above background concentrations in well B-913M is not well understood. The bromide concentrations in this well significantly increased from 0.32 mg/l in May 2008 to 1.5 mg/L in June 2008. NCES, through its consultant Sanborn, Head and Associates (SHA), has since reported that the July sampling results for this well indicate bromide concentrations have dropped to 0.37 mg/L and that "...based on these findings, the June result for 913M (1.5 mg/L) appears anomalous." Although this may be true, additional sampling is required to demonstrate that the June results were in fact anomalous and do not indicate a release from within the landfill. A formal submission of an analysis of the data is required. In addition, if the concentrations remain elevated, NCES must prepare and submit a Corrective Action Plan in accordance with Env-Or 703.15. The Corrective Action Plan should include proposed performance standards.

Additionally, as noted in SHA's September 28, 2007 Annual Report, the compound tetrahydrofuran has been intermittently detected in well B-913M since the April 2006 sampling round, and an overall increasing trend above background concentrations is suggested by the data. SHA indicates that the most likely source for the VOCs found in this well is the leachate infrastructure. Currently, the GWRD Permit only requires sampling for VOCs in this well in April and November of each year. Under this sampling schedule, it would take considerable time to assess trends and to verify the effectiveness of remedial actions. The Work Plan submitted by NCEs in accordance with the GWRD Permit was required to address the presence of VOCs in groundwater in this general area of the site. If the leachate loading area is, in fact, the source for the VOCs and bromide in this well, then completing the remedial work in this area, including relocating and improving the leachate infrastructure and soil removal, should result in a decrease in VOC concentrations in this well, eventually causing them to return to background concentrations. Again, groundwater performance standards must be proposed by NCEs and approved by the Department in order for the success of this Corrective/Remedial Action Plan to be measured and evaluated.

3. Wells B-919U and B-921M

The VOC dichlorodifluoromethane has been detected at concentrations above background in wells B-921U and B-921M. The data from the April 2008 groundwater sampling round indicate that the concentration of this compound is increasing in well B-921M.

In addition, bromide continues to be detected in B-921U above background concentrations. The April 2008 results detected bromide at 1.7 mg/l. SHA's September 28, 2007 Annual Report indicates that the elevated concentrations of bromide in this monitoring well appear to be related to the short-term accidental leachate/storm water releases associated with Stage IV Phase I construction activities. Based on this belief, SHA further states that it anticipates that bromide concentrations at this location will likely decrease in the near future. However, the April 2008 results continue to show bromide at elevated concentrations. Further evaluation of conditions in this area of the site is needed to confirm that there is not an ongoing release.

4. Well B-304UR

The April 2008 sampling data for well B-304UR indicate bromide is present at a concentration of 0.48 mg/L. This is the highest observed concentration of bromide detected to date at this sampling location. Further evaluation of conditions in this area of the site is needed to confirm that there is not an ongoing release.

The Department looks forward to receiving NCEs's response to these technical comments. The Department may have additional technical comments based on information provided during the upcoming public hearing or public comment period.

John Gay, E.I.
North Country Environmental Services, Inc.
September 8, 2008
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If you have questions regarding this letter, please do not hesitate to contact me. If you have specific questions about the technical comments presented in Sections A, B, and C of this letter, please contact Wayne Wheeler, P.E. at (603) 271-5186. If you have specific questions about the technical comments presented in Section D, please contact Karlee Kenison, P.G, at (603) 271-6542.

Sincerely,



Michael J. Wimsatt, Director
Waste Management Division
Tel. No. (603) 271-1997
Fax No. (603) 271-2456
e-mail: michael.wimsatt@des.nh.gov

cc: Town of Bethlehem, Board of Selectmen
Town of Sugar Hill, Board of Selectmen
Town of Lancaster, Board of Selectmen
Town of Dalton, Board of Selectmen
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Environmental Services Landfill, Stage IV PHASE II, 581 Trudeau Road,
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Dear Mr. Gay:

Please find enclosed a corrected version of the subject technical comment letter that was issued by the New Hampshire Department of Environmental Services (Department) on September 8, 2008 under my signature. An error in the identification of a monitoring well in section D.3. of the original letter has been brought to the Department's attention. The enclosed letter, dated September 10, 2008, corrects the error. The remaining content of the new letter is identical to the September 8 letter in all respects. Please replace the September 8 letter with this corrected version and discard the original letter.

The Department regrets any confusion or inconvenience that its error may have caused. If you have any questions, please feel free to contact me.

Sincerely,

Michael J. Wimsatt, Director
Waste Management Division
Tel. No. (603) 271-1997
Fax No. (603) 271-2456
e-mail: michael.wimsatt@des.nh.gov

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