



The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**



**Thomas S. Burack, Commissioner**

December 23, 2008

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

**SUBJECT:** Bethlehem – North Country Environmental Services Landfill, 581 Trudeau Road  
DES Site # 198704033, Project RSN # 1737

Response to September 10, 2008 NHDES Comment Letter, prepared by North Country Environmental Services, Inc., dated October 13, 2008 (DES Electronic Document ID # 4143113)

Dear Mr. Gay:

This letter has been prepared to provide the Department of Environmental Services' (Department) comments to North Country Environmental Services, Inc.'s (NCES) proposed groundwater performance standards as contained in the subject submittal. In our correspondence of September 10, 2008, the Department noted that while soil sampling plan and performance standards were included in NCES' September 2007, Corrective Action Plan, groundwater performance standards were absent.

Section Env-Or 703.15 (a) of the New Hampshire Code of Administrative Rules Env-Or 700, *Groundwater Release Detection Permits* lists the requirements for the corrective action plan:

1. Inspection and audit of activities and procedures at the facility to determine possible sources;
2. Remediation of the source of the exceedance;
3. Further groundwater investigation;
4. Modification of the facility operation as needed to eliminate the cause of the exceedance;
5. Treatment of the waste stream as needed to eliminate the cause of the exceedance;
6. Groundwater restoration;
7. If the facility cannot be modified to eliminate the cause of the exceedance, or if the groundwater cannot be restored or remediated, a schedule of activities that will be implemented for facility closure.

In accordance with Env-Or 703.15 (c) the Department shall approve the corrective action plan if the Department determines that the plan is reasonably designed to:

1. Achieve compliance with background concentrations;
2. Eliminate any future discharges of regulated contaminants to groundwater; and
3. Protect human health and the environment.

Groundwater and soil sampling plans and performance standards are needed as part of the Corrective Action Plan to identify the source(s) of VOCs and bromide that are present above background concentrations, confirm that the source(s) have been successfully remediated and determine that groundwater quality is restored to background conditions.

In response to the information submitted by NCES, the Department has the following comments:

**Proposed Groundwater Performance Standards Near Well Couplets MW-402 and MW-403:**

The Department agrees in concept with monthly monitoring until sampling confirms that a downward temporal trend is established. However, due to the variability of the water quality data, more than two consecutive rounds will be required to determine that there is a downward trend in VOCs and bromide concentrations. As indicated above, groundwater quality must be restored to background concentrations. During implementation of the corrective action plan, the Department may be able to conclude that the source has been identified and effectively remediated, but continued groundwater monitoring under the Corrective Action Plan would still be required until groundwater quality is restored to background concentrations for VOCs and bromide. Depending upon the information collected during the remediation of the area in the vicinity of the leachate collection system and whether a source area (e.g. contaminated soil) is discovered and removed, NCES may need to install one or more additional monitoring wells in that area to monitor groundwater quality. The Department expects that such additional monitoring well(s) would provide valuable information on the effectiveness of the remedial action.

The Department does not concur that 0.4 mg/L of bromide is the appropriate target concentration to demonstrate that background has been achieved. NCES will need to look at individual well histories to see what the actual background concentrations were in the affected wells. In previous discussions between NCES and the Department, we agreed that background bromide concentrations at the site ranged between 0.1 and 0.4 mg/L, not that 0.4 mg/L should be identified as the background concentration to be applied to all wells. Future monitoring results will be reviewed closely to assess trends.

**Proposed Groundwater Performance Standards Well B-913M:**

As with the proposal for well couplets MW-402 and MW-403, the Department agrees in concept to monthly monitoring until sampling confirms that a downward temporal trend is established. However, because of water quality variability, more than two consecutive rounds will be required to demonstrate this.

The Department does not concur that 0.4 mg/L of bromide is the appropriate target concentration to demonstrate that background has been achieved. NCES will need to look at the individual well history to see what the actual background concentration range was in this affected well and that should be the target goal to establish that concentrations have returned to background conditions that are specific to each well. Future monitoring results will be reviewed closely to assess trends in water quality over time.

**Proposed Groundwater Performance Standards for Wells B-919U, B-921M, and B-921U:**

We do not have sufficient information to agree with your conclusion that the dichlorodifluoromethane detections in B-919U and B-921M are related to the historical occurrence of this compound in the former unlined landfill area located upgradient of these wells. As such, a decreasing trend of dichlorodifluoromethane (DCDFM) in wells B-919U and B-921M needs to be confirmed. If a decreasing trend does not continue, further evaluation of the presence of this compound will be required.

With regard to bromide in B-921U, future data will need to be closely evaluated to demonstrate that the cause of the bromide in this well is consistent with the construction-related release scenario presented by NCES. If a downward trend toward the background concentration range previously shown for this well is not demonstrated by future sampling results (2 years of data), then further evaluation of the presence of bromide in this well/area will need to be provided.

**Proposed Groundwater Performance Standards for Well B-304UR:**

With regard to bromide in B-304UR, no additional information has been provided that explains the occurrence of elevated bromide in this well. Rather, NCES proposes to increase the sampling frequency to monthly for bromide until two consecutive rounds of sampling confirm that the bromide levels have dropped below 0.4 mg/L.

Due to the variability of the water quality data, more than two consecutive rounds will be required before the Department can conclude that there is a downward trend in bromide concentrations. Further, the Department notes that the July 2006 and November 2006 sampling data for this well indicate bromide at concentrations of .269 mg/L and .251 mg/L, respectively. As such, the target background concentration for this well should be less than the proposed 0.4 mg/L value.

The elevated bromide can indicate a potential release. Therefore in order to characterize the groundwater in this well and determine the source of the bromide release, the Department requests that analysis for VOCs be added to the monthly sampling. Future data will need to be closely evaluated to demonstrate that the cause of the bromide in this well is not the result of a landfill liner leak/failure.

**Conclusion**

Consistent with the requirements of a corrective action plan under the groundwater release detection permit rules (Env-Or 700) and in accordance with the site's Groundwater Management and Release Detection Permit GWP-198704033-B-005, the final groundwater performance

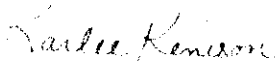
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standards for the release detection wells must be defined as background concentrations. In addition, both soil and groundwater data are needed to identify the source of each exceedance of the background concentrations for VOCs and bromide, and to confirm that the source(s) of the exceedances have been effectively remediated. If proposed activities in the Corrective Action Plan do not achieve the performance standards, then further work will be required in accordance with Env-Or 703.15 (a).

Revised groundwater performance standards that address the comments above shall be submitted to the Department within 60 days. The revised groundwater performance standards shall be incorporated into a comprehensive work plan that specifies both soil and groundwater sampling plan performance standards.

If you have any questions regarding this letter, please contact either of us directly at the Department's Site Remediation Programs.

Sincerely,



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