STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

DATE: August 27, 1996

AT(OFFICE):Compliance Bureau

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AUG 27 1996
DEPARTMENT OF ENVIRONMENTAL SERVICES
SOLID WASTE COMPLIANCE SECTION

FROM: John Cotton, Hydrogeologist
Permit Application & Design Review Section

through John Regan, Supervisor
Groundwater Remediation & Permits Section
Groundwater Protection Bureau

SUBJECT: **BETHLEHEM - North Country Environmental Services (NCES) Landfill, Trudeau Road, Stormwater Management System (DES #870433)**

TO: PA&DRS File through Pamela H. Sprague, Supervisor
Permit Application & Design Review Section

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Richard S. Reed, Supervisor
Compliance Bureau

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I have reviewed the letters, dated 05/07/96 and 05/31/96, submitted to the Department in response to item 5 of the Department's letter, dated 05/01/96, to NCES. This letter included three requests:

1. A written explanation for the presence of the gray water in the stormwater management system.

2. Collection and analysis of two samples of the gray liquid from the ponded area below the outlet of detention pond #2.

3. Analytical results and a detailed explanation of this data.

Item 1. A short explanation of the presence of gray water in a ponded area in the stormwater management system below detention pond #2 was included in the NCES letter dated 05/07/96. NCES concluded "we believe the mucky water is a combination of several the thousand gallons of hydroseed mix and sediment that eroded from the side slopes, then settling out in the lower stormwater sedimentation basin and treatment swale." No additional consideration of source of gray water was included in the NCES letter to the Department, dated, May 31, 1996.

The conclusion presented does **not** provide a complete answer. If their conclusion is correct, then they need to provide an explanation of why liquid with material they attribute to erosion in October and early November 1995 was still present in the

drainage system at the end of April 1996. (How would this material and some stormwater from fall precipitation events remain in the drainage system while water from melting winter snow and spring rains preferentially flush through the drainage system during the spring?) Their conclusion does not accommodate the observation that the water in the ponded area was grayish and the water in detention pond #2 was brownish on April 30, 1996. (I heard that Bob Watts said the ponded water turned from grayish to brownish about 2 hours after the inspection team left on 4/30/96. This doesn't fit with an explanation of a fall induced event.) Their conclusion does not explain why the odor from the ponded area was described as similar to septage, while there was no odor at detention pond #2.

Items 2 and 3. Two liquid samples taken from below the outlet of pond #2, presumably from the ponded area were analyzed for all requested parameters except specific conductance. NCES did not submit a detailed explanation of the analytical data as requested.

A. Total Coliform Bacteria. In the two samples the presence of total coliform was measured at 46,000 and 24,000 MPN/100ml. The explanation for the coliform bacteria in the NCES letter to the Department, dated 05/31/96, stated, "A possible source of the elevated coliform could be runoff containing feces of birds and other animals.... In addition to runoff, there are generally several piles of animal feces found around the area in question."

In my opinion the abundance of coliform bacteria indicates a source other than wastes of birds and other wild animals. I referred to a Department document titled "Significance of Coliform Bacteria as a Measure of Water Pollution" (Adapted to New Hampshire conditions from a table set up by the Michigan Department of Public Health and the Michigan Stream Control Commission). In that document, coliform bacteria concentrations in the range of 240 to 2,400 MPN/100ml are normal for inland streams subjected to agricultural drainage and/or wild life. Concentrations in the range of 2,400 to 24,000 MPN/100ml are indicative of sewage pollution not far distant, and concentrations in the range of 24,000 to 240,000 MPN/ml are indicative of definite evidence of fresh sewage pollution. I have not looked into occurrence of coliform bacteria in municipal solid waste.

Unfortunately, the Department did not request that collected samples be analyzed for fecal coliform bacteria, and that samples be collected from detention pond #2 and analyzed. This transient event is over, and further assessment of this particular event is probably not warranted. However, for the record it may be appropriate to remind NCES that the Department thinks their explanation is week and incomplete. The Department may consider it desirable to require periodic analyses of stormwater for total and fecal coliform bacteria.

B. Volatile Organic Compounds and Drinking Water Metals. The two samples collected were analyzed for VOCs and metals on May 4, and one additional sample was analyzed for VOCs on May 17.

Three VOCs (acetone, MEK and 2-Hexanone) were present in all samples. The concentrations of MEK in all samples were above AGQS (contrary to the statement in the NCES letter, dated 05/31/96). Barium, cadmium and chromium were present in both samples analyzed on May 4. Concentrations of cadmium were 2 and 3 ug/L (AGQS is 5 ug/L).

NCES provided no explanation about the possible source(s) of the these contaminants. Presumably the source was not hydroseed mix or animal feces. The Department requests that NCES address this issue in the annual review of water quality data as required by the groundwater permit. This report is to be submitted by the end of September.

Whatever the source(s), the presence of the VOCs and metals are of concern. Some of the water in the drainage system infiltrates the ground and becomes groundwater. Therefore, there is a potential source of groundwater contamination. The Department requests that a shallow monitoring well be constructed as close to the outlet of pond #2 as possible. This well will become part of the release detection well network. The first two rounds of sampling will be analyzed for all parameters listed for the release detection wells. After reviewing these analytical results, the Department will decide if a single well provides adequate monitoring for the drainage system.

I understand that it is not appropriate for a groundwater permit to include requirements for sampling stormwater. It has been suggested that Jim Spaulding and Jeff Andrews review this matter. John Regan feels that this site should have a surface water permit and that sampling of stormwater be initiated.

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cc: Harry T. Stewart, P.E., GPB Administrator
GPB PM File