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DEPARTMENT OF ENVIRONMENTAL SERVICES
SOLID WASTE COMPLIANCE SECTION

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

DATE: August 4, 1998

AT(OFFICE): Permitting and Design Review Section

FROM: JC John Cotton, Hydrogeologist
through John Regan, Supervisor
Hazardous Waste Remediation Bureau

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PER DOJ/AMY MILLS
MM, 1.25.02

SUBJECT: **BETHLEHEM - North Country Environmental Services, Inc.; Trudeau Road Facility, Stage II/Phase II Type II Modification (DES #198704033)**

TO: P&DRS File through Pamela H. Sprague, Supervisor
Permitting and Design Review Section

Richard S. Reed, Administrator
Solid Waste Management Bureau

I have reviewed the "Technical Specifications for Stage II Phase II" prepared by Sanborn, Head & Associates, Inc. (SHA) for North Country Environmental Services, Inc. (NCES). This technical report is part of the submittal package dated July 20, 1998. Major comments relate to release detection monitoring and waste emplacement at perimeter berms.

Release Detection Monitoring

1. This submission does not include any information or proposals on how release detection monitoring is to be conducted. This is a critical element because all of Stage II is within the area of the former unlined landfill, and leachate from this unlined landfill has degraded groundwater quality. Removal of the waste in this unlined landfill resulted in large increases in VOC concentrations in groundwater. While there has been significant improvement in groundwater quality since 1994, as measured in the management wells, remaining VOCs complicate the ability to detect a potential leak from the double lined landfill.

2. Monitor wells MW-601U&L and MW-602-U&L (within the proposed Stage II Phase II area) were installed and have been monitored since July 1995 to determine groundwater quality beneath the former unlined landfill area and to provide short term monitoring of water quality improvement. The original plan was to decommission these wells if Stage II Phase II was constructed. The wells are scheduled for decommissioning as proposed on the Site Plans, Sheet 2, Note 3.

3. Because of degraded water quality in this area, bromide was required and is being used as a tracer in Stage II Phase I. Monitor wells MW-601U&L and MW-602U&L

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also have functioned as short term release detection wells.

4. The Department would consider release detection capability of both phases of Stage II considered as one entity through the continued use of bromide as a tracer (provided bromide is an effective tracer) in Stage II Phase II. Four or five additional shallow monitor wells installed close to the northwesterly and northeasterly sides of the liner system would provide early detection of a potential leak.

5. A vital component of the above detection plan would be the ability to monitor and record secondary liner flows on a daily basis separately for both Phase I and Phase II. If the tracer was detected in detection wells, then secondary liner flow records could be used to help identify which phase had the leak.

6. During a telephone conversation on July 31, 1998, Robert Watts agreed to have SHA address release detection aspects of Stage II Phase II.

7. The bottom line is that an effective tracer is a requirement for any release detection plan in this area where groundwater is degraded. The effectiveness of bromide must be established.

Bromide Tracer

1. The bromide application and leachate analytical data for December 1997 through June 1998 were received on July 30, 1998. Results indicate that the laboratory has recently experienced interference problems in analyzing for bromide. I stressed to Robert Watts on July 31, 1998 that these problems must quickly be resolved. Accurate analytical measurements of bromide concentrations in leachate must be assured for the continued use of bromide in Stage II Phase I and its potential use as a tracer in Stage II Phase II.

2. NCES must have SHA address the issue of why in leachate analyses to date essentially no bromide has been detected in the secondary leachate. Bromide is a very commonly used tracer because it is a very mobile ion with little tendency to be absorbed or adsorbed. If bromide isn't present in secondary leachate flow, it is not effective as a tracer.

Waste Emplacement at Perimeter Berms

1. Detail 6 on sheet 5 indicates that waste will extend to the top of perimeter berms similar to Stage I and Stage II Phase 1. This design has caused problems in the past when leachate breakouts and overfilling have resulted in contaminants reaching detention ponds and groundwater. While operational approval of this design was given for Stage II Phase I in 1996, the Department should consider not approving this design for Stage II Phase II.

2. The extent of problems associated with this design became evident at times through water quality results from the detention ponds.

3. Changes in design probably could be supported by Condition 4 of the Groundwater Management and Release Detection Permit, which states that the Department "reserves the right, under N.H. Admin. Rules, Env-Ws 410, to require additional hydrogeologic studies and/or remedial measures if information indicating the need for such work is received."

Other Items

1. Division 1: Summary of Work, Section 01010, page 2 - Item 1.03C. Also Division 2: Site Work, Section 02050, page 2 - Item 3.01C. Specify that damaged monitoring wells shall be repaired or replaced by a licensed New Hampshire Monitor Well Driller.

2. Division 2: Dust Control and Work Area Maintenance, Section 02050, page 1 - Item 2.01A. The Department should not allow water in the detention ponds to be used for dust control. Such use would introduce another variable with respect to potential sources of any contaminant(s) found on the surface or in the subsurface. The stated alternative water source is the hydrant north of Phase II; I don't know which hydrant is referred to nor what water source serves that hydrant.

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