

STATE OF NEW HAMPSHIRE

INTER-DEPARTMENT COMMUNICATION

DATE: July 10, 2008
AT(OFFICE): P&DRS



FROM: Wayne Wheeler, P.E.
Permitting & Design Review Section

SUBJECT: NCES

TO: Michael E. Guilfooy, P.E.
Administrator
Solid Waste Management Bureau

The following is a brief overview groundwater issues at NCES:

A. Groundwater Management and Release Detection Permit

1. The existing permit was issued November 9, 2007 and expires November 8, 2012. A copy of the permit is attached.
2. Special Condition #14 requests quarterly reports on the progress of remedial activities related to S-1 (the Main Seep) and flowage from S-1.
3. Special Condition #15 requests quarterly reports on the scheduling and progress of remedial activities near well couplets MW-402 and MW-403 and the present/former leachate loading area.
4. NCES's April 23, 2008 letter presents the first quarter progress report for Special Conditions 14 and 15.

B. Bromide in Leachate

1. Bromide is no longer being added to the landfill as a tracer.
2. The May 2008 monthly bromide report revealed concentrations of bromide in Stage III and Stage IV Phase 1 primary leachate system as 76 mg/l and 48 mg/l, respectively.
3. The May 2008 monthly bromide report revealed concentrations of bromide in Stage III and Stage IV Phase 1 secondary leachate system as 8.3 mg/l and 6.1 mg/l, respectively.

C. Bromide in Groundwater

1. A graph is attached which shows the concentration of bromide in various groundwater monitoring wells.
2. 0.4 mg/l is the background level of bromide. The Department sent a March 19, 2008 letter to NCES requiring the monthly sampling of bromide in wells B-921U and B-913M until the concentrations reach the background concentration range (0.1 to 0.4 mg/l).

D. VOCs

1. In the April 2008 sampling round, VOCs were detected in the groundwater samples from 8 monitoring wells (B-304UR, B-304DR, B-913M, B-919U, B-920M, B-921M, MW-402U, and MW-803).

2. In B-919U the VOC dichlorodifluoromethane (DCDFM) (only) was detected at a concentration of 7 ug/l. This concentration is lower than previously detected.
3. In B-921M the VOC DCDFM was detected at a concentration of 18.8 ug/l. This concentration is slightly higher than previously detected.

E. Arsenic

1. Arsenic was detected in wells MW-801 through MW-803, B-919M and B-914U. The arsenic concentrations in the samples from these locations are generally comparable to the prior results.
2. The arsenic concentration in B-919M sample (0.03 mg/l) is less than the most recent result for that location (0.51 mg/l) and is greater than the AGQS of 0.01 mg/l.
3. The concentration of arsenic reported in the B-914U sample (0.014 mg/l) is greater than the AGQS of 0.01 mg/l.

F. Manganese

1. Groundwater sampling locations include wells B-102S/D, B-103S/D, B-304DR, B-914U, B-921U, and MW-801 through MW803. The manganese detected in these samples fall generally within or near the high end of the range of typical observed for the recent historical samples from these locations, with the exception of well B-921, for which the April 2008 sample (3.0 mg/l) yielded the highest manganese concentration observed to date at that location.
2. The concentration of (total) manganese in the sample (S-1) collected from the area of emergent groundwater associated with the Main Seep (1.5 mg/l) also exceeded the AGQS. The manganese concentration (0.39 mg/l) reported for the surface water flow (SF-1) sample, collected a short distance downslope from S-1, is less than AGQS.

G. 1-4 Dioxane

Sampling of groundwater monitoring wells for 1-4 Dioxane will not start until 2009.

H. River Corridor

John Cotton and I researched the location of the NCES landfill Stage IV Phase 2 "expansion" (expansion consists of utilizing existing Stage IV capacity on the side slopes of the existing landfill by the use of reinforced earth berms) in relation to the Ammonoosuc River corridor and RSA 483:9-a. A portion of the NCES landfill expansion will be within the river corridor, but over 100 feet from the landward extent of the 500 year floodplain. A map showing the approximate location of the river corridor and landfill expansion is attached.

1. The Ammonoosuc River adjacent to the NCES landfill is designated as a rural river. The following information was received in response to an email to Steve Couture.

Yes, the segment of the Ammonoosuc in Bethlehem is classified as rural:

<http://www.gencourt.state.nh.us/rsa/html/L/483/483-15.htm>

XV. Ammonoosuc River:

(a) As a rural river from the White Mountain National Forest boundary near Lower Falls in Carroll to the Bethlehem-Littleton town line.

<http://www.gencourt.state.nh.us/rsa/html/L/483/483-9-a.htm>

483:9-a Rural River Protection. – The following protection measures shall apply to a river or segment designated as a rural river:

VII. Any new solid waste storage or treatment facility, as defined in RSA 149-M:4, IX shall be set back a minimum of 250 feet from the normal high water mark of a designated rural river or segment and shall be screened with a vegetative or other natural barrier to minimize visual impact, except:

(a) New solid waste landfills shall not be permitted within the corridor of a designated rural river or segment or less than 100 feet from the landward extent of the 500 year floodplain, whichever distance is greater, and shall be screened from the river with a vegetative or other natural barrier to minimize visual impact;

(b) New solid waste landfills may be permitted within the city of Rochester within the corridor of the segment defined in RSA 483:15, XIV(c), and if located in the river corridor shall be set back a minimum of 100 feet from the landward extent of the 500 year floodplain and shall be screened from the river with a vegetative or other natural barrier to minimize visual impact;

(c) Expansion of existing solid waste landfills shall not occur within the 500 year floodplain of a designated rural river or segment, and any expansion of such a landfill shall be set back a minimum of 100 feet from the landward extent of the 500 year floodplain and shall be screened from the river with a vegetative or other natural barrier to minimize visual impact;

2. "River corridor" means the river and the land area located within a distance of 1,320 feet of the normal high water mark or to the landward extent of the 100 year floodplain as designated by the Federal Emergency Management Agency, whichever distance is larger.
3. The Stage IV Phase II permit modification applications propose to use the capacity permitted for Stage IV within its existing waste footprint. A portion of this expansion will occur within the Ammonoosuc River corridor, but over 100 feet from the landward extent of the 500 year floodplain. (Note: The 500 year floodplain has been estimated as it was not shown on the FEMA floodplain maps; the landfill is located in the area designated "C" which is an area outside the 500 year flood.)