KO 1141

MECKLENBURG COUNTY

Land Use and Environmental Services Agency

November 20, 2006

Mr. Ethan Brown
North Carolina Department of Environment
and Natural Resources
Division of Waste Management
Groundwater Compliance Unit
Mail Service Center 1646
Raleigh, NC 27699-1646

Received
NOV 2006
Solid Waste
Section

Subject: Holbrooks Road Landfill Permit 60-02
Semi-annual Monitoring Results

Dear Mr. Brown:

Please find enclosed the laboratory report and spreadsheets for the closed Holbrooks Road Landfill September 2006 water quality monitoring event. Samples were collected from fifteen (15) monitoring wells (HRW-7, HRW-8, HRW-9, HRW-10, HRW-11R, HRW-12, HRW-13, HRW-14, HRW-15 HRW-16, HRW-17, HRW-18, HRW-19, HRW-20 and HRW-21) and three (3) surface-water sampling locations (HRSW-2, HRSW-3 and HRSW-4). Samples were analyzed for metals and volatile organic compounds ("VOCs") in accordance with the approved Sampling and Analysis Plan dated March 3, 2003. Field measurements of temperature, pH, and specific conductivity were made at each sampling location using a calibrated instrument. Additionally, measurements of dissolved oxygen were made at each surface-water sampling location.

The Excel spreadsheet transmitted to you by e-mail is labeled to reflect the units that are used for reporting. Detection levels and applicable standards have been included for all sampling locations. Surface water standards listed are the water quality standards established for freshwater classification for aquatic life as outlined in 15A NCAC 2B "Classification and Water Quality Standards Applicable to Surface Waters of North Carolina". Groundwater standards listed are the standards outlined in 15A NCAC 2L "Classification of Water Quality Standards applicable to the Groundwaters of North Carolina". The sample results and standards are reported in the same units. Results exceeding water quality standards are highlighted in the spreadsheet in yellow for ease of identification.

Groundwater samples:

VOCs were detected in samples collected from six monitoring wells (HRW-7, HRW-9, HRW-12, HRW-13, HRW-17 and, HRW-18). The number and concentrations of VOC's detected in samples collected from HRW-7, HRW-12 & HRW-17 are generally consistent with historical ranges of detection. The number and concentration of VOCs detected in HRW-13 and HRW-18 declined. The table below summarizes VOC's detected. Results shown in bold exceed the 2L Standard.

The number of VOCs detected in HRW-13 declined from five to two compared with the September 2005 monitoring results. Three VOCs, 1,4-Dichlorobenzene, Chloroethane and 1,2-Dichloropropane, were not detected in HRW-13 this sampling event. The remaining two VOCs, 1,1-Dichloroethane and cis-1,2-Dichloroethene, were detected below the 2L Standard. No VOCs were detected above the 2L Standard in the sample collected from HRW-13

The number of VOC's detected in the sample collected from HRW-18 declined from seven to six. Trichloroethylene, usually detected above the 2L Standard in HRW-18, and 1,4-Dichlorobenzene were not detected this sampling event. Chloroethane was detected for the first time. Vinyl Chloride and Benzene were detected above the 2L Standard.

Well ID	Volatile Constituent	Concentration (ppb)	2L Standard (ppb)
HRW-7	cis-1,2-Dichloroethene	13	70
	Trichloroethylene	**10**	**2.8**
HRW-9	1,2-Dichlorobenzene	6	620
	1,4-Dichlorobenzene	5	75
	1,1-Dichloroethane	44	700
	cis-1,2-Dichloroethene	**86**	**70**
	Methylene Chloride	**20**	**4.6**
	Tetrachlorethene	**7**	**0.7**
	Trichloroethene	**16**	**2.8**
	Trichlorofluoromethane	29	2,100
	Vinyl Chloride	**10**	**0.015**
HRW-12	1,1-Dichloroethane	9	700
	Chlorobenzene	7	50
HRW-13	1,1-Dichloroethane	32	700
	Cis-1,2-Dichloroethene	10	70
HRW-17	1,1-Dichloroethane	31	700
	Cis-1,2-Dichloroethene	7	70
HRW-18	**Benzene**	**12**	**1**
	Chloroethane	11	2,800
	1,1-Dichloroethane	63	700
	cis-1,2-Dichloroethene	5	70
	Trichlorfluoromethane	34	2,100
	Vinyl Chloride	**31**	**0.015**

Cadmium detected at 45 ug/l in the sample collected from HRW-7 is the only metal detected above the 2L standard for any of the samples collected this event. Cadmium first detected in HRW-7 in the September 2004 sample previously ranged from 3.6 ug/l to 13 ug/l.

Field-measured parameters for groundwater samples are summarized in the table below. Temperatures measured ranged from a low of 14.4° Celsius in HRW-9 to a high of 18.6° Celsius in HRW-10. Measurements of pH ranged from a low of 6.1 in wells HRW-11R and HRW-12 to a high of 6.8 in HRW-19. Measurements of pH were more acidic than the 2L Standard range of 6.5 to 8.5 standard units in wells HRW-8, HRW-9, HRW-11R, HRW-12R, HRW-13, HRW-16, HRW-17, HRW-18, HRW-19, HRW-20 and background well HRW-21. Specific conductivity measurements ranged from a low of 151 umho/cm in wells HRW-8 and HRW-14 to a high of 2,310 umho/cm in well HRW-12.

Sample Location	Temp. °C	pH	Specific Conductivity umho/cm
HRW-7	17.3	6.5	614
HRW-8	15.4	**6.3**	151
HRW-9	14.4	**6.3**	712
HRW-10	18.6	6.6	720
HRW-11R	16.9	**6.1**	826
HRW-12	16.7	**6.1**	2,310
HRW-13	16.9	**6.3**	274
HRW-14	14.7	6.5	151
HRW-15	16.0	6.7	167
HRW-16	16.9	**6.4**	253
HRW-17	14.6	**6.4**	1,056
HRW-18	16.9	**6.2**	1,304
HRW-19	15.7	**6.4**	216
HRW-20	15.4	**6.4**	205
HRW-21	16.0	**6.3**	467

Surface-water samples:
No metals or VOCs were detected in any of the three surface-water sampling locations (HRSW-2, HRSW-3 and HRSW-4). All field-measured parameters were within the established regulatory limits and consistent with historical measurements. The table below summarizes field-measured parameters for surface-water samples.

Sample Location	Temp. °C	pH	Specific Conductivity	Dissolved Oxygen
HRSW-2	16.8	7.1	232 umho/cm	7.98 mg/l
HRSW-4	16.5	7.2	229 umho/cm	8.66 mg/l
HRSW-3	16.1	7.0	238 umho/cm	8.58 mg/l

Please call me at (704) 336-5454 if you have any questions regarding this report.

Sincerely,

Dennis F. Tyndall, P.G.
Hydrogeologist
Groundwater and Wastewater Services

NORTH CAROLINA LICENSED SEAL 1845 GEOLOGIST DENNIS F. TYNDALL

Enclosures: September 2006 Holbrooks Road Landfill Sampling Event Analytical Report

cc: Joe Hack, Q.E.P, Mecklenburg County LUESA, Solid Waste Management

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