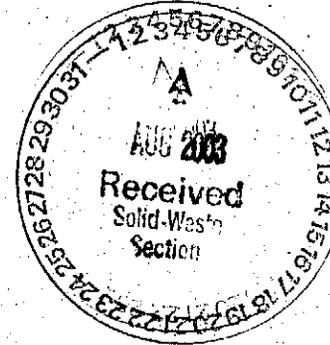


Fac/Perm/Co ID # <i>PC</i>	Date <i>5/18/03</i>	Doc ID# DIN
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34-12
5-29-03

July 30, 2003



Mr. Larry Rose
North Carolina Department of Environment
and Natural Resources (NCDENR)
Division of Solid Waste Management
Solid Waste Section
P. O. Box 27687
Raleigh, NC 27611-7687

Re: Spring 2003 Semiannual Groundwater Sampling Analytical
and Landfill Gas Monitoring Results
Winston-Salem Construction and Demolition (C&D) Landfill (No. 34-12)
Forsyth County, North Carolina
HDR Project No. 00162-3925-018

Dear Mr. Rose:

HDR Engineering, Inc. of the Carolinas (HDR), on behalf of the Winston-Salem City/County Utility Commission (the City), is hereby submitting the groundwater analytical and landfill gas monitoring results for the Spring 2003 monitoring period (January through June 2003) at the C&D Landfill (the Landfill) located in Forsyth County, North Carolina.

Groundwater samples were collected from on-site detection monitoring wells MW-1R, MW-2R, MW-3R, MW-4, MW-5R, MW-6R, MW-7, and MW-8 on May 29, 2003, for the eight Resource Conservation and Recovery Act (RCRA) metals and Appendix I volatile organic compound (VOC) analysis. A trip blank was also included for Quality Assurance/Quality Control (QA/QC) purposes. Field measurements of pH, specific conductance, temperature, and redox potential (Eh) were also recorded during presampling well purging. These measurements were recorded on field forms, which will be sent upon request (in an effort to reduce report size, as requested, these forms are not included). Based on past groundwater flow characteristics for the site, groundwater monitoring well MW-1R is hydraulically upgradient of the Landfill and, therefore, is considered as "background" for the site.

In addition, landfill gas monitoring was performed from the six permanent methane gas monitoring stations (MM-1 through MM-6) located around the perimeter of Phase I of the Landfill. Methane stations MM-2 and MM-4 are nested monitoring stations, while all other stations are constructed as a single monitoring point.

Mr. Larry Rose
July 30, 2003
Page 2

The metal concentrations detected are reflective of the naturally-occurring trace metals typically present in the saprolite of this region and are consistent with historical sampling results from the site. In addition, the trace metal concentrations for this period were below their respective 2L groundwater standards at all the groundwater monitoring wells. The presence of these trace metal detections is due to the slight lingering well turbidity in each well.

No VOCs were detected this period in any of the groundwater monitoring wells.

The Report of Laboratory Analysis for this sampling event at the Landfill is attached to this letter (on a floppy disk as requested). Table 1 is also attached to this report summarizing the results of all sampling events performed to date at the Landfill. The results of this recent sampling event indicate that the existing groundwater monitoring well network at the Landfill is adequate to provide representative groundwater quality data and release detection determination for the Landfill.

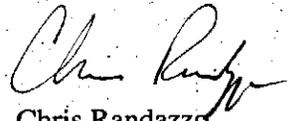
No trace of methane was detected in the on-site methane monitoring stations. A copy of the Perimeter Gas Probe Monitoring Field Data Form is attached to this submittal.

HDR is currently addressing comments on the construction permit application for Phases IV, V, and VI made by NCDENR in a letter dated May 28, 2003.

If you have any questions or comments concerning the information summarized in this letter or in the attached analytical data report, please do not hesitate to contact me at (704) 338-6777.

Sincerely,

HDR Engineering, Inc. of the Carolinas



Chris Randazzo
Staff Geologist

CR/jvd

Attachments: Table 1 – Summary of Groundwater Analytical Results
Perimeter Gas Probe Monitoring Field Data Form
Report of Laboratory Analysis (on floppy disk)
Groundwater and Methane Gas Monitoring Well Locations

cc: Edward Gibson, PE, Winston-Salem City/County Utility Commission (w/ hard copy of laboratory sheets)

File

**TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS**

Parameter	11/78	10/79	10/80	10/81	10/82	10/83	10/84	10/85	10/86	10/87	10/88	10/89	10/90	10/91	10/92	10/93	10/94
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0058	ND	ND	ND
Barium	0.224	0.18	0.1	0.29	0.1	0.16	0.15	0.13	0.11	0.15	0.087	0.28	0.13	0.1	0.12		
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	ND	0.006	0.003	0.011	0.049	0.012	0.0078	0.0052	ND	0.0066	0.0066	0.022	0.005	0.0023	0.0043		
Lead	0.006	ND	ND	0.012	ND	ND	ND	ND	ND	ND	ND	ND	0.01	ND	ND	ND	ND
Mercury	0.0023	0.0002	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Iodide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichloromethane	ND	ND	ND	ND	ND	ND	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	23	ND	ND	ND	ND	28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Acetate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21	ND	ND	ND	ND
Trans-1,3-Dichloro-1-Propene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

See footnotes at end of tables.

**TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS**

Parameter	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0059	ND	0.031	0.018	0.0084	0.0074	ND	ND
Barium	1.23	0.79	0.8	0.62	0.86	1.4	ND	ND	0.052	0.3	1.5	0.95	0.4	0.37	0.013	0.22	
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Chromium	0.009	0.02	0.028	0.016	0.025	ND	ND	ND	0.024	ND	ND	0.05	0.019	0.015	ND	ND	
Lead	0.015	0.015	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Mercury	0.0007	ND	ND	0.0002	ND	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Methyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Methyl Iodide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Dichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Trans-1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Vinyl Acetate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Bromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Dibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Trans-1,3-Dichloro-1-Propene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

See footnotes at end of tables.

**TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS**

Arsenic	ND	ND	ND	ND	ND	ND	ND	0.0075	ND	ND	0.0056	0.012	ND	ND	ND
Barium	0.595	0.72	0.28	0.65	0.85	2	0.95	0.86	0.57	0.35	0.55	0.9	0.061	0.086	0.094
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	0.021	0.047	ND	ND	ND	ND	ND	ND	0.028	0.038	ND	ND	0.005	0.0055	
Lead	ND	0.012	ND	ND	ND	ND	ND	0.0095	0.0081	0.014	ND	ND	0.006	0.0053	
Mercury	0.0003	ND	ND	ND	0.00021	ND	0.00036	ND	NA	ND	NA	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	0.006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Iodide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichloromethane	ND	ND	ND	ND	ND	ND	10	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Acetate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,3-Dichloro-1-Propene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

See footnotes at end of tables.

**TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS**

Parameter	11/2002	5/1/02	5/1/02	11/2002	5/1/02	11/2002	5/1/02	11/2002	5/1/02	11/2002	5/1/02	11/2002	5/1/02	11/2002	5/1/02	11/2002	5/1/02
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.016	ND	ND	ND
Barium	1.4	0.59	0.3	0.26	0.36	0.16	-----	0.059	0.082	0.041	0.062	0.53	0.18	0.041	0.024	ND	ND
Cadmium	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Chromium	0.012	0.01	0.021	0.014	0.033	0.012	-----	0.0028	ND	0.0026	0.0041	-----	0.026	0.0032	ND	ND	ND
Lead	-----	0.011	0.014	0.014	-----	ND	-----	ND	0.0058	ND	-----	-----	0.0076	ND	ND	ND	ND
Mercury	ND	ND	ND	ND	ND	ND	-----	ND	ND	NA	ND	NA	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Silver	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Methyl Chloride	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Vinyl Chloride	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Bromomethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Chloroethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Acetone	ND	ND	ND	ND	ND	ND	-----	ND	ND								
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Methyl Iodide	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Acrylonitrile	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Dichloromethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Carbon Disulfide	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Trans-1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Vinyl Acetate	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Chloroform	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Bromochloromethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Benzene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Trichloroethene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Dibromomethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Bromodichloromethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Toluene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Trans-1,3-Dichloro-1-Propene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
2-Hexanone	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Dibromochloromethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Chlorobenzene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Ethylbenzene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Xylenes (total)	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Styrene	ND	ND	ND	ND	ND	ND	-----	ND	ND								
Bromoform	ND	ND	ND	ND	ND	ND	-----	ND	ND								

See footnotes at end of tables.

**TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS**

Arsenic	ND	ND	ND	ND	ND	ND	ND	0.0098	ND	ND	0.045	0.016	0.017	ND	ND	ND
Barium	1.93	0.97	0.75	1.8	1.2	1.3	0.96	0.39	0.36	0.045	0.016	0.017	0.084	0.21	0.13	0.13
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	1.3	0.084	0.21	0.13
Chromium	0.028	0.021							0.0025					0.0068	0.032	0.017
Lead	0.014	0.006						0.012	0.0087					0.006	0.006	0.0053
Mercury	0.0014	0.0004	ND	0.0002	ND	ND	ND	ND	ND	NA	ND	NA	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0026	ND	ND	ND
Methyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Iodide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrile	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichloromethane	ND	ND	ND	ND	ND	ND	10	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	ND	ND	ND	ND	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Acetate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Ethyl Ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,3-Dichloro-1-Propene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

See footnotes at end of tables.

**TABLE 1
HISTORICAL GROUNDWATER ANALYTICAL RESULTS**

Arsenic		0.046	0.036	<i>ND</i>	<i>ND</i>	<i>ND</i>
Barium				0.15	0.048	0.077
Cadmium	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Chromium				0.023	0.002	0.0038
Lead				<i>ND</i>	<i>ND</i>	0.0067
Mercury	<i>NA</i>	<i>ND</i>	<i>NA</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Selenium	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Silver	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Methyl Chloride	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Vinyl Chloride	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Bromomethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Chloroethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Trichlorofluoromethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Acetone	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
1,1-Dichloroethene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Methyl Iodide	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Acrylonitrile	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Dichloromethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Carbon Disulfide	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Trans-1,1-Dichloroethene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
1,1-Dichloroethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Vinyl Acetate	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Methyl Ethyl Ketone	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Cis-1,2-Dichloroethene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Chloroform	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Bromochloromethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
1,1,1-Trichloroethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
1,2-Dichloroethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Carbon Tetrachloride	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Benzene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Trichloroethene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
1,2-Dichloropropane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Dibromomethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Bromodichloromethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
4-Methyl-2-Pentanone	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Cis-1,3-Dichloropropene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Toluene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Trans-1,3-Dichloro-1-Propene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
1,1,2-Trichloroethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
2-Hexanone	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Dibromochloromethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Tetrachloroethylene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
1,2-Dibromoethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Chlorobenzene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
1,1,1,2-Tetrachloroethane	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Ethylbenzene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Xylenes (total)	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>
Styrene	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>	<i>ND</i>

NA - Not Available
ND - Non Detect

All metals in ppm, all organics in ppb.
Bold numbers indicate detections.
Highlighted cells indicate exceedances in 2L Standards.

**PERIMETER GAS PROBE MONITORING
FIELD DATA FORM**

Date: 5/29/2003	Inspector: C.Randazzo	Site Name: Old Salisbury Road C&D Landfill	Instrument: GEM-500		
Temperature @ Start: <u>62°F</u>		Weather: Cloudy/Rain	Legend: T = Trace CO ₂ = Carbon Dioxide W = Water NA = No reading taken LEL = Lower explosive limit		
Temperature @ End: <u>66°F</u>		Barometric Pressure: <u>NA</u>			
MM #	Time	Methane (%)	CO ₂ (%)	Oxygen (%)	Remarks
1	1200	0	0.7	19.9	
2S	1115	0	3.3	17.1	
2D	1115	0	2.9	17.2	
3	0900	0	0.1	20.9	
4S	0830	0	3.2	17.5	Air blew out when cap removed
4D	0830	0	3.5	17.6	Air blew out when cap removed
5	1015	0	0.5	19.9	
6	1050	0	4.3	16.5	



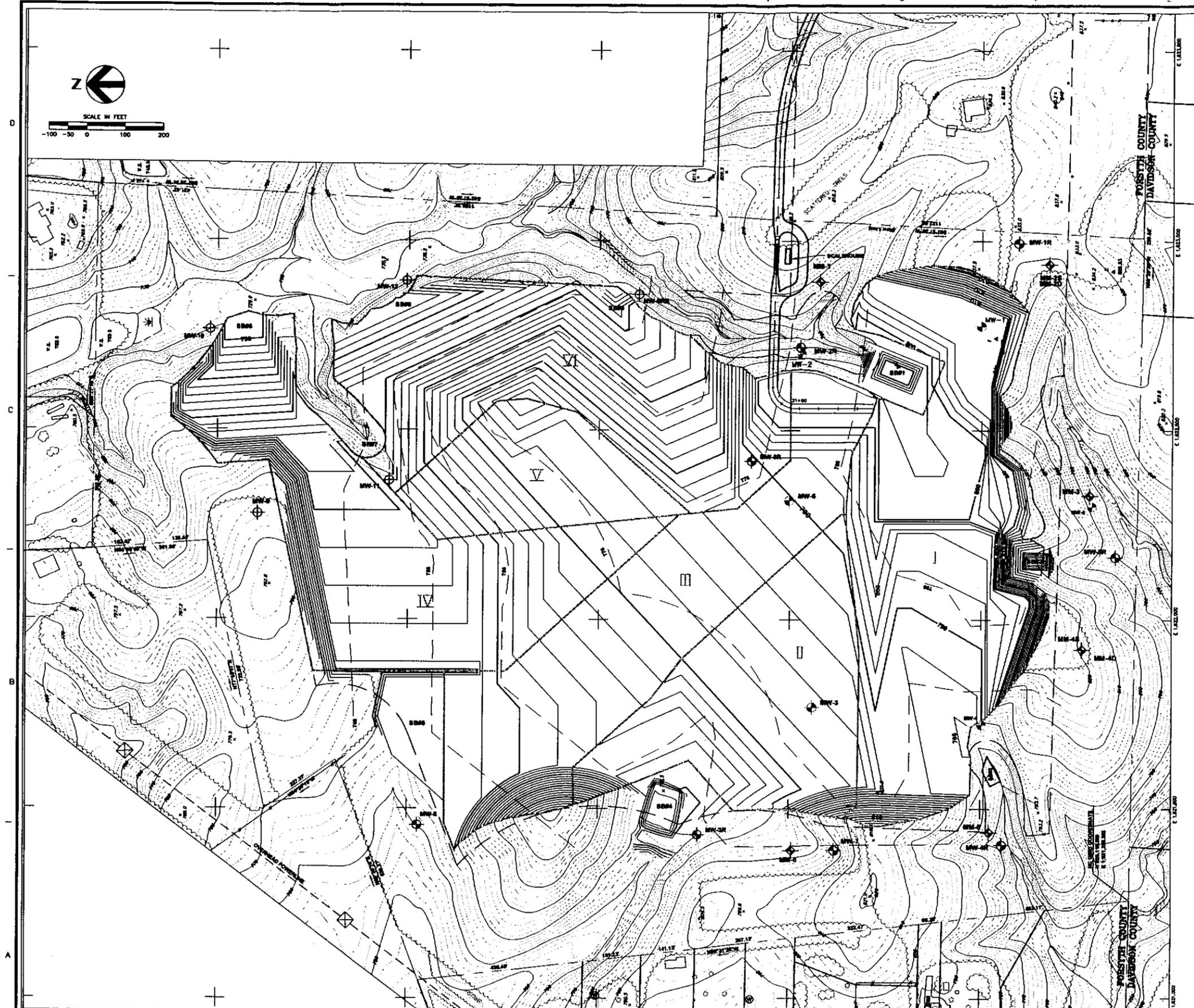
SCALE IN FEET
-100 -50 0 100 200

LEGEND

- 780 PROPOSED CONTOURS
- 810 EXISTING CONTOURS
- PROPERTY BOUNDARY
- COUNTY LINE
- STREAM
- POTENTIAL EXTENT OF WASTE
- PROPOSED PHASING BOUNDARY
- SEASONAL HIGH GROUND-WATER CONTOURS
- EXISTING GROUND-WATER MONITORING WELL
- EXISTING METHANE GAS MONITORING PROBE
- PROPOSED GROUND-WATER MONITORING WELL ("R" - DENOTES REPLACEMENT WELL)
- ABANDONED MONITORING WELLS
- PRIVATE WATER SUPPLY WELL
- SEDIMENTATION BASIN

NOTES

1. TOPOGRAPHIC INFORMATION PROVIDED BY CARTOGRAPHIC AERIAL MAPPING DATED NOVEMBER 12, 1993.
2. PROPERTY SURVEY TAKEN FROM DATA SUPPLIED BY BRADY SURVEYING, INC. DATED MARCH 15, 1994.
3. THIS DRAWING SHOWS ABANDONED, EXISTING AND PROPOSED MONITORING WELLS, AND METHANE GAS MONITORING PROBES.
4. S - DEPICTS SHALLOW
D - DEPICTS DEEP



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Charlotte, NC 28202-5001
(704) 334-1800

Rev.	Description	Date	By	Chk.	Appr.
A2	ADDED METHANE GAS PROBES MM-1 TO MM-8	9/22/99	GRH		
A1	ADDED MW-3R, MW-5, AND MW-8R	9/18/99	GRH		
A	ISSUED FOR APPROVAL				

Project Manager
J.C. READ, P.E.

Client
E.A. BRADY, P.E.

Author
J. CAR

OLD SALISBURY ROAD
CONSTRUCTION AND DEMOLITION LANDFILL
PHASE II AND III
CONSTRUCTION PLAN APPLICATION
WINSTON-SALEM NORTH CAROLINA

EXIST. AND PROP. GROUND-WATER
MONITORING WELL AND
METHANE GAS PROBE LOCATIONS

Date: APRIL 1999
Scale: 1"=100'
Project No.: 0162-090-018
Sheet No.: C-5
Total Sheets: A2