34-12
11-19-99

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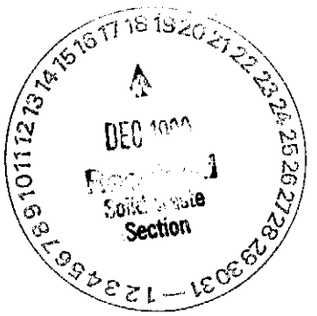
December 6, 1999

HDR

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



Re: Fall 1999 Semiannual Ground-Water Sampling Analytical Results
Winston-Salem Construction and Demolition Landfill (#34-12)
Forsyth County, North Carolina
HDR Project No. 00162-090-018

Dear Mr. Rose:

HDR Engineering, Inc. of the Carolinas (HDR) is hereby submitting, on behalf of the City of Winston-Salem Utilities Division (City), the ground-water analytical results for the Fall 1999 results of ground-water sampling at the C&D Landfill located in Forsyth County, North Carolina.

Ground-water samples were collected from on-site detection monitoring wells MW-1R, MW-2R, MW-3R, MW-4R, MW-5R, MW-6R, and MW-7 on November 19 and 20, 1999, for the eight RCRA metals and Appendix I volatile organic compound (VOC) analysis. Trip and equipment blanks were also included for QA/QC purposes. Field measurements of pH, specific conductance, and temperature were also recorded during pre-sampling well purging. These measurements were recorded on field forms, which have been attached to the Report of Laboratory Analysis. Monitoring well construction record drawings for each monitoring well sampled are attached to this submittal.

Based on past ground-water flow characteristics for the site, ground-water monitoring well MW-1R is hydraulically upgradient of the landfill and is therefore considered as "background" for the site.

The metals arsenic, barium, chromium, lead, and mercury were detected in the ground water during this round of sampling. The concentrations detected were low and are reflective of the naturally-occurring trace metals typically present in the saprolite of this region. Lead in MW-3R and MW-4R was detected at concentrations which slightly exceed the 2L ground-water standard of 0.015 mg/l. Likewise, chromium was detected in MW-4R and MW-7 at concentrations which slightly exceed the 2L ground-water standard of 0.05 mg/l. As reflected by the Pre-sampling Well Purging forms, the presence of these trace metal detections is due to the slight lingering well turbidity in each well. However, the recent redevelopment of the ground-water wells seems to have reduced the level of turbidity in each well as reflected by the slightly lower trace metal concentrations.

Data OK

HDR Engineering, Inc.
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[redacted]

The Report of Laboratory Analysis for this sampling event at the Winston-Salem C&D Landfill is attached to this letter (including the Chain-of-Custody Record and field purging forms). Table 1-1 is also attached to this report and summarizes the results of all sampling events performed to date at the landfill. The results of this recent sampling event indicate that the existing ground-water monitoring well network at the landfill, with the recent installation of monitoring wells MW-3R and MW-6R, is adequate to provide representative ground-water quality data and release detection determination for the Old Salisbury Road landfill.

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) 338-6832.

Sincerely,

HDR Engineering, Inc. of the Carolinas

John R. Isham, P.G.
Project Hydrogeologist

JRI/nt

Attachments: Table 1-1, Summary of Ground-Water Analytical Results
Report of Laboratory Analysis (w/Chain-of-Custody Record)
Pre-sampling Well Purging Forms
Monitoring Well Construction Record Drawings
Ground-Water Monitoring Well Locations

cc: Ed Gibson, Winston-Salem Utilities Division

TABLE 1-1
Summary of Ground-Water Analytical Results
Winston-Salem C&D Landfill
MW-1R

Parameter	1/17/96	10/24/96	5/13/97	10/30/97	5/5/98	11/5/98	6/2/99	11/19/99
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	0.224	0.18	0.10	0.29	0.10	0.16	0.15	0.13
Cadmium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	<0.010	0.006	0.003	0.011	0.049	0.012	0.0078	0.0052
Lead	0.006	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005
Mercury	0.0018	0.0002	<00002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.001	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002
Methyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5	<5	<10	<10
Acetone	<100	<100	<100	<100	<100	<100	<100	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	<5	<5	<5	<5	<5	<5	<5	<5
Acrylonitrile	<100	<100	<100	<100	<100	<100	<100	<100
Dichloromethane	<5	<5	<5	<5	<5	<5	13	<5
Carbon Disulfide	23	<5	<5	<5	<5	28	<5	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	<50	<50	<50	<50	<50	<50	<50	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100	<100	<100	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5	<5	<5	<5
Dibromomethane	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50	<50	<50	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5	<5	<5
Xylenes (total)	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	<5	<5	<5	<5	<5	<5	<5	<5

TABLE 1-1
Summary of Ground-Water Analytical Results
Winston-Salem C&D Landfill
MW-2R

Parameter	1/17/96	10/24/96	5/13/97	10/30/97	5/5/98	11/5/98	6/2/99	11/20/99
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005
Barium	0.35	0.16	0.20	0.34	0.19	1.1	0.15	0.12
Cadmium	<0.010	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	0.012	0.009	0.004	0.043	0.034	0.21	0.0078	0.014
Lead	0.026	0.008	0.014	0.031	0.019	0.068	<0.005	0.0069
Mercury	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.005	<0.005	0.006	<0.005	<0.002	<0.002	<0.002	<0.002
Methyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5	<5	<10	<10
Acetone	<100	<100	<100	<100	<100	<100	<100	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	<5	<5	<5	<5	<5	<5	<5	<5
Acrylonitrile	<100	<100	<100	<100	<100	<100	<100	<100
Dichloromethane	<5	<5	<5	<5	<5	<5	13	<5
Carbon Disulfide	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	<50	<50	<50	<50	<50	<50	<50	<50
Methyl Ethyl Ketone	86	<100	<100	<100	<100	<100	<100	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5	<5	<5	<5
Dibromomethane	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50	<50	<50	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5	<5	<5
Xylenes (total)	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	<5	<5	<5	<5	<5	<5	<5	<5

TABLE 1-1
Summary of Ground-Water Analytical Results
Winston-Salem C&D Landfill
MW-3/3R

Parameter	1/17/96	10/24/96	5/13/97	10/30/97	5/5/98	11/5/98	6/2/99	11/20/99
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-----	0.0059
Barium	1.23	0.79	0.80	0.62	0.86	1.4	-----	0.052
Cadmium	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	-----	<0.001
Chromium	0.009	0.020	0.028	0.016	0.025	0.077	-----	0.024
Lead	0.015	0.015	0.027	0.026	0.032	0.039	-----	0.040
Mercury	0.0007	<0.0002	<0.0002	0.0002	<0.0002	<0.0002	-----	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-----	<0.005
Silver	<0.001	<0.005	<0.005	<0.005	<0.002	<0.002	-----	<0.002
Methyl Chloride	<10	<10	<10	<10	<10	<10	-----	<10
Vinyl Chloride	<10	<10	<10	<10	<10	<10	-----	<10
Bromomethane	<10	<10	<10	<10	<10	<10	-----	<10
Chloroethane	<10	<10	<10	<10	<10	<10	-----	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5	<5	-----	<10
Acetone	<100	<100	<100	<100	<100	<100	-----	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	-----	<5
Methyl Iodide	<5	<5	<5	<5	<5	<5	-----	<5
Acrylonitrile	<100	<100	<100	<100	<100	<100	-----	<100
Dichloromethane	<5	<5	<5	<5	<5	<5	-----	<5
Carbon Disulfide	<5	<5	<5	<5	<5	<5	-----	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	-----	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5	-----	<5
Vinyl Acetate	<50	<50	<50	<50	<50	<50	-----	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100	<100	-----	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5	<5	-----	<5
Chloroform	<5	<5	<5	<5	<5	<5	-----	<5
Bromochloromethane	<5	<5	<5	<5	<5	<5	-----	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5	-----	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	-----	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5	<5	-----	<5
Benzene	<5	<5	<5	<5	<5	<5	-----	<5
Trichloroethene	<5	<5	<5	<5	<5	<5	-----	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5	<5	-----	<5
Dibromomethane	<5	<5	<5	<5	<5	<5	-----	<5
Bromodichloromethane	<5	<5	<5	<5	<5	<5	-----	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50	<50	-----	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	-----	<5
Toluene	<5	<5	<5	<5	<5	<5	-----	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5	<5	-----	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5	-----	<5
2-Hexanone	<50	<50	<50	<50	<50	<50	-----	<50
Dibromochloromethane	<5	<5	<5	<5	<5	<5	-----	<5
Tetrachloroethylene	<5	<5	<5	<5	<5	<5	-----	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5	<5	-----	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5	-----	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	-----	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5	-----	<5
Xylenes (total)	<5	<5	<5	<5	<5	<5	-----	<5
Styrene	<5	<5	<5	<5	<5	<5	-----	<5
Bromoform	<5	<5	<5	<5	<5	<5	-----	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	-----	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5	<5	-----	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	-----	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	-----	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5	<5	-----	<5
1,2-Dibromo-3-Chloropropane	<5	<5	<5	<5	<5	<5	-----	<5

TABLE 1-1
Summary of Ground-Water Analytical Results
Winston-Salem C&D Landfill
MW-4R

Parameter	1/17/96	10/24/96	5/13/97	10/30/97	5/5/98	11/6/98	6/2/99	11/20/99
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0075
Barium	0.595	0.72	0.28	0.65	0.85	2.0	0.95	0.86
Cadmium	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	0.021	0.047	<0.002	0.055	0.13	0.30	0.11	[redacted]
Lead	0.017	0.016	0.012	0.029	0.043	0.076	0.050	[redacted]
Mercury	0.0017	0.0003	<0.0002	<0.0002	<0.0002	0.00021	<0.0002	0.00036
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.001	<0.005	0.006	<0.005	<0.002	<0.002	<0.002	<0.002
Methyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5	<5	<10	<10
Acetone	<100	<100	<100	<100	<100	<100	<100	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	<5	<5	<5	<5	<5	<5	<5	<5
Acrylonitrile	<100	<100	<100	<100	<100	<100	<100	<100
Dichloromethane	<5	<5	<5	<5	<5	<5	10	<5
Carbon Disulfide	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	<50	<50	<50	<50	<50	<50	<50	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100	<100	<100	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5	<5	<5	<5
Dibromomethane	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50	<50	<50	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5	<5	<5
Xylenes (total)	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	<5	<5	<5	<5	<5	<5	<5	<5

TABLE 1-1
Summary of Ground-Water Analytical Results
Winston-Salem C&D Landfill
MW-5R

Parameter	1/17/96	10/24/96	5/13/97	10/30/97	5/5/98	11/6/98	6/2/99	11/20/99
Arsenic	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005
Barium	1.00	0.62	0.33	0.61	0.82	0.48	0.24	0.20
Cadmium	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	0.096	0.043	0.070	0.016	0.17	0.096	0.038	0.029
Lead	0.019	0.020	0.014	0.031	0.069	0.029	0.016	0.0082
Mercury	0.0008	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.001	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002
Methyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5	<5	<10	<10
Acetone	<100	<100	<100	<100	<100	150	<100	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	<5	<5	<5	<5	<5	<5	<5	<5
Acrylonitrile	<100	<100	<100	<100	<100	<100	<100	<100
Dichloromethane	<5	<5	<5	<5	<5	<5	10	<5
Carbon Disulfide	<5	<5	<5	<5	<5	25	<5	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	<50	<50	<50	<50	<50	<50	<50	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100	<100	<100	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5	<5	<5	<5
Dibromomethane	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50	<50	<50	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5	<5	<5
Xylenes (total)	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	<5	<5	<5	<5	<5	<5	<5	<5

TABLE 1-1
Summary of Ground-Water Analytical Results
Winston-Salem C&D Landfill
MW-6/6R

Parameter	1/17/96	10/24/96	5/13/97	10/30/97	5/5/98	11/5/98	6/2/99	11/19/99
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-----	<0.005
Barium	1.40	0.59	0.30	0.26	0.36	0.16	-----	0.059
Cadmium	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	-----	<0.001
Chromium	0.012	0.010	0.021	0.014	0.033	0.012	-----	0.0028
Lead	0.018	0.011	0.014	0.014	0.020	<0.005	-----	<0.005
Mercury	0.0014	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-----	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-----	<0.005
Silver	<0.001	<0.005	<0.005	<0.005	<0.002	<0.002	-----	<0.002
Methyl Chloride	<10	<10	<10	<10	<10	<10	-----	<10
Vinyl Chloride	<10	<10	<10	<10	<10	<10	-----	<10
Bromomethane	<10	<10	<10	<10	<10	<10	-----	<10
Chloroethane	<10	<10	<10	<10	<10	<10	-----	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5	<5	-----	<10
Acetone	<100	<100	<100	<100	<100	<100	-----	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	-----	<5
Methyl Iodide	<5	<5	<5	<5	<5	<5	-----	<5
Acrylonitrile	<100	<100	<100	<100	<100	<100	-----	<100
Dichloromethane	<5	<5	<5	<5	<5	<5	-----	<5
Carbon Disulfide	<5	<5	<5	<5	<5	<5	-----	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	-----	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5	-----	<5
Vinyl Acetate	<50	<50	<50	<50	<50	<50	-----	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100	<100	-----	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5	<5	-----	<5
Chloroform	<5	<5	<5	<5	<5	<5	-----	<5
Bromochloromethane	<5	<5	<5	<5	<5	<5	-----	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5	-----	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	-----	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5	<5	-----	<5
Benzene	<5	<5	<5	<5	<5	<5	-----	<5
Trichloroethene	<5	<5	<5	<5	<5	<5	-----	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5	<5	-----	<5
Dibromomethane	<5	<5	<5	<5	<5	<5	-----	<5
Bromodichloromethane	<5	<5	<5	<5	<5	<5	-----	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50	<50	-----	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	-----	<5
Toluene	<5	<5	<5	<5	<5	<5	-----	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5	<5	-----	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5	-----	<5
2-Hexanone	<50	<50	<50	<50	<50	<50	-----	<50
Dibromochloromethane	<5	<5	<5	<5	<5	<5	-----	<5
Tetrachloroethylene	<5	<5	<5	<5	<5	<5	-----	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5	<5	-----	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5	-----	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	-----	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5	-----	<5
Xylenes (total)	<5	<5	<5	<5	<5	<5	-----	<5
Styrene	<5	<5	<5	<5	<5	<5	-----	<5
Bromoform	<5	<5	<5	<5	<5	<5	-----	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	-----	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5	<5	-----	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	-----	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	-----	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5	<5	-----	<5
1,2-Dibromo-3-Chloropropane	<5	<5	<5	<5	<5	<5	-----	<5

TABLE 1-1
Summary of Ground-Water Analytical Results
Winston-Salem C&D Landfill
MW-7

Parameter	1/17/96	10/24/96	5/13/97	10/30/97	5/5/98	11/6/98	6/2/99	11/20/99
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0098	<0.005
Barium	1.93	0.97	0.75	1.8	1.2	1.3	0.96	0.39
Cadmium	<0.010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	0.028	0.021	0.18	0.41	0.43	0.35	0.19	0.068
Lead	0.017	0.006	0.023	0.053	0.038	0.036	0.03	0.012
Mercury	0.0014	0.0004	<0.0002	0.0002	<0.002	<0.002	<0.0002	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.001	<0.005	<0.005	<0.005	<0.002	<0.002	<0.002	<0.002
Methyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5	<5	<10	<10
Acetone	<100	<100	<100	<100	<100	<100	<100	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
Methyl Iodide	<5	<5	<5	<5	<5	<5	<5	<5
Acrylonitrile	<100	<100	<100	<100	<100	<100	<100	<100
Dichloromethane	<5	<5	<5	<5	<5	<5	10	<5
Carbon Disulfide	<5	<5	<5	<5	<5	9	<5	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl Acetate	<50	<50	<50	<50	<50	<50	<50	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100	<100	<100	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5	<5	<5	<5
Bromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5	<5	<5	<5
Dibromomethane	<5	<5	<5	<5	<5	<5	<5	<5
Bromodichloromethane	<5	<5	<5	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50	<50	<50	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5	<5	<5	<5
2-Hexanone	<50	<50	<50	<50	<50	<50	<50	<50
Dibromochloromethane	<5	<5	<5	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5	<5	<5	<5
Xylenes (total)	<5	<5	<5	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5	<5	<5	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	<5	<5	<5	<5	<5	<5	<5	<5

Pace Analytical Services, Inc.
9800 Kincey Avenue, Suite 100
Huntersville, NC 28078
Tel: 704-875-9092
Fax: 704-875-9091

Pace Analytical

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DEC 6 1999
HDR ENGINEERING, INC.
OF THE CAROLINAS

December 03, 1999

Mr. John Isham
HDR Engineering
128 South Tryon Street
Suite 1400
Charlotte, NC 28202

RE: Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Dear Mr. Isham:

Enclosed are the results of analyses for sample(s) received by the laboratory on November 22, 1999. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Bonnie Hervey

Bonnie Hervey
Project Manager

Enclosures

Pace Analytical Services, Inc.
9800 Kincey Avenue, Suite 100
Huntersville, NC 28078
Tel: 704-875-9092
Fax: 704-875-9091

Pace Analytical

DATE: 12/03/99

HDR Engineering
128 South Tryon Street
Suite 1400
Charlotte, NC 28202

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Attn: Mr. John Isham
Phone: (704)338-1800

Solid results are reported on a dry weight basis

Pace Sample No: 92731009 Date Collected: 11/19/99 Matrix: Water
Client Sample ID: MW-1R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals by Trace ICP	Method: EPA 6010				Prep Method: EPA 3010		
Arsenic	ND	mg/l	0.005	11/23/99	TYM	7440-38-2	
Barium	0.13	mg/l	0.005	11/23/99	TYM	7440-39-3	
Cadmium	ND	mg/l	0.001	11/23/99	TYM	7440-43-9	
Chromium	0.0052	mg/l	0.002	11/23/99	TYM	7440-47-3	
Lead	ND	mg/l	0.005	11/23/99	TYM	7439-92-1	
Selenium	ND	mg/l	0.005	11/23/99	TYM	7782-49-2	
Silver	ND	mg/l	0.002	11/23/99	TYM	7440-22-4	
Date Digested				11/23/99			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	ND	mg/l	0.0002	12/02/99	TYM	7439-97-6	
GC/MS Volatiles							
GC/MS VOCs by 8260	Method: EPA 8260				Prep Method: EPA 8260		
Chloromethane	ND	ug/l	10	11/22/99	RPJ	74-87-3	
Vinyl Chloride	ND	ug/l	10	11/22/99	RPJ	75-01-4	
Bromomethane	ND	ug/l	10	11/22/99	RPJ	74-83-9	
Chloroethane	ND	ug/l	10	11/22/99	RPJ	75-00-3	
Trichlorofluoromethane	ND	ug/l	10	11/22/99	RPJ	75-69-4	
Acetone	ND	ug/l	100	11/22/99	RPJ	67-64-1	
1,1-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	75-35-4	
Iodomethane	ND	ug/l	5	11/22/99	RPJ	74-88-4	
Acrylonitrile	ND	ug/l	100	11/22/99	RPJ	107-13-1	
Methylene Chloride	ND	ug/l	5	11/22/99	RPJ	75-09-2	
Carbon Disulfide	ND	ug/l	5	11/22/99	RPJ	75-15-0	

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Pace Analytical Services, Inc.
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Pace Analytical

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731009 Date Collected: 11/19/99 Matrix: Water
Client Sample ID: MW-1R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
trans-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-60-5	
1,1-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	75-34-3	
Vinyl Acetate	ND	ug/l	50	11/22/99	RPJ	108-05-4	
2-Butanone	ND	ug/l	100	11/22/99	RPJ	78-93-3	
cis-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-59-2	
Chloroform	ND	ug/l	5	11/22/99	RPJ	67-66-3	
Bromochloromethane	ND	ug/l	5	11/22/99	RPJ	74-97-5	
1,1,1-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	71-55-6	
1,2-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	107-06-2	
Carbon Tetrachloride	ND	ug/l	5	11/22/99	RPJ	56-23-5	
Benzene	ND	ug/l	5	11/22/99	RPJ	71-43-2	
Trichloroethene	ND	ug/l	5	11/22/99	RPJ	79-01-6	
1,2-Dichloropropane	ND	ug/l	5	11/22/99	RPJ	78-87-5	
Dibromomethane	ND	ug/l	5	11/22/99	RPJ	74-95-3	
Bromodichloromethane	ND	ug/l	5	11/22/99	RPJ	75-27-4	
4-Methyl-2-Pentanone	ND	ug/l	50	11/22/99	RPJ	108-10-1	
cis-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-01-5	
Toluene	ND	ug/l	5	11/22/99	RPJ	108-88-3	
trans-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-02-6	
1,1,2-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	79-00-5	
2-Hexanone	ND	ug/l	50	11/22/99	RPJ	591-78-6	
Dibromochloromethane	ND	ug/l	5	11/22/99	RPJ	124-48-1	
Tetrachloroethene	ND	ug/l	5	11/22/99	RPJ	127-18-4	
1,2-Dibromoethane	ND	ug/l	5	11/22/99	RPJ	106-93-4	
Chlorobenzene	ND	ug/l	5	11/22/99	RPJ	108-90-7	
1,1,1,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	630-20-6	
Ethylbenzene	ND	ug/l	5	11/22/99	RPJ	100-41-4	
m&p-Xylene	ND	ug/l	10	11/22/99	RPJ	7816-60-0	
Styrene	ND	ug/l	5	11/22/99	RPJ	100-42-5	
o-Xylene (1,2-Dimethylbenzene)	ND	ug/l	5	11/22/99	RPJ	95-47-6	
Bromoform	ND	ug/l	5	11/22/99	RPJ	75-25-2	
1,1,2,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	79-34-5	
1,2,3-Trichloropropane	ND	ug/l	5	11/22/99	RPJ	96-18-4	
trans-1,4-Dichloro-2-Butene	ND	ug/l	5	11/22/99	RPJ	110-57-6	
1,4-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	106-46-7	
1,2-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	95-50-1	
1,2-Dibromo-3-Chloropropane	ND	ug/l	5	11/22/99	RPJ	96-12-8	
Dibromofluoromethane (S)	106	%		11/22/99	RPJ	1868-53-7	
1,2-Dichloroethane-d4 (S)	107	%		11/22/99	RPJ	17060-07-0	
Toluene-d8 (S)	104	%		11/22/99	RPJ	2037-26-5	

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Pace Analytical

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731009 Date Collected: 11/19/99 Matrix: Water
Client Sample ID: MW-1R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
4-Bromofluorobenzene (S)	100	%		11/22/99	RPJ	460-00-4	

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Pace Analytical

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731017 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: MW-2R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals by Trace ICP	Method: EPA 6010				Prep Method: EPA 3010		
Arsenic	ND	mg/l	0.005	11/23/99	TYM	7440-38-2	
Barium	0.12	mg/l	0.005	11/23/99	TYM	7440-39-3	
Cadmium	ND	mg/l	0.001	11/23/99	TYM	7440-43-9	
Chromium	0.014	mg/l	0.002	11/23/99	TYM	7440-47-3	
Lead	0.0069	mg/l	0.005	11/23/99	TYM	7439-92-1	
Selenium	ND	mg/l	0.005	11/23/99	TYM	7782-49-2	
Silver	ND	mg/l	0.002	11/23/99	TYM	7440-22-4	
Date Digested				11/23/99			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	ND	mg/l	0.0002	12/02/99	TYM	7439-97-6	
GC/MS Volatiles							
GC/MS VOCs by 8260	Method: EPA 8260				Prep Method: EPA 8260		
Chloromethane	ND	ug/l	10	11/22/99	RPJ	74-87-3	
Vinyl Chloride	ND	ug/l	10	11/22/99	RPJ	75-01-4	
Bromomethane	ND	ug/l	10	11/22/99	RPJ	74-83-9	
Chloroethane	ND	ug/l	10	11/22/99	RPJ	75-00-3	
Trichlorofluoromethane	ND	ug/l	10	11/22/99	RPJ	75-69-4	
Acetone	ND	ug/l	100	11/22/99	RPJ	67-64-1	
1,1-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	75-35-4	
Iodomethane	ND	ug/l	5	11/22/99	RPJ	74-88-4	
Acrylonitrile	ND	ug/l	100	11/22/99	RPJ	107-13-1	
Methylene Chloride	ND	ug/l	5	11/22/99	RPJ	75-09-2	
Carbon Disulfide	ND	ug/l	5	11/22/99	RPJ	75-15-0	
trans-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-60-5	
1,1-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	75-34-3	
Vinyl Acetate	ND	ug/l	50	11/22/99	RPJ	108-05-4	
2-Butanone	ND	ug/l	100	11/22/99	RPJ	78-93-3	
cis-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-59-2	
Chloroform	ND	ug/l	5	11/22/99	RPJ	67-66-3	
Bromochloromethane	ND	ug/l	5	11/22/99	RPJ	74-97-5	
1,1,1-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	71-55-6	
1,2-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	107-06-2	
Carbon Tetrachloride	ND	ug/l	5	11/22/99	RPJ	56-23-5	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731017 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: MW-2R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Benzene	ND	ug/l	5	11/22/99	RPJ	71-43-2	
Trichloroethene	ND	ug/l	5	11/22/99	RPJ	79-01-6	
1,2-Dichloropropane	ND	ug/l	5	11/22/99	RPJ	78-87-5	
Dibromomethane	ND	ug/l	5	11/22/99	RPJ	74-95-3	
Bromodichloromethane	ND	ug/l	5	11/22/99	RPJ	75-27-4	
4-Methyl-2-Pentanone	ND	ug/l	50	11/22/99	RPJ	108-10-1	
cis-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-01-5	
Toluene	ND	ug/l	5	11/22/99	RPJ	108-88-3	
trans-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-02-6	
1,1,2-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	79-00-5	
2-Hexanone	ND	ug/l	50	11/22/99	RPJ	591-78-6	
Dibromochloromethane	ND	ug/l	5	11/22/99	RPJ	124-48-1	
Tetrachloroethene	ND	ug/l	5	11/22/99	RPJ	127-18-4	
1,2-Dibromoethane	ND	ug/l	5	11/22/99	RPJ	106-93-4	
Chlorobenzene	ND	ug/l	5	11/22/99	RPJ	108-90-7	
1,1,1,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	630-20-6	
Ethylbenzene	ND	ug/l	5	11/22/99	RPJ	100-41-4	
m&p-Xylene	ND	ug/l	10	11/22/99	RPJ	7816-60-0	
Styrene	ND	ug/l	5	11/22/99	RPJ	100-42-5	
o-Xylene (1,2-Dimethylbenzene)	ND	ug/l	5	11/22/99	RPJ	95-47-6	
Bromoform	ND	ug/l	5	11/22/99	RPJ	75-25-2	
1,1,2,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	79-34-5	
1,2,3-Trichloropropane	ND	ug/l	5	11/22/99	RPJ	96-18-4	
trans-1,4-Dichloro-2-Butene	ND	ug/l	5	11/22/99	RPJ	110-57-6	
1,4-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	106-46-7	
1,2-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	95-50-1	
1,2-Dibromo-3-Chloropropane	ND	ug/l	5	11/22/99	RPJ	96-12-8	
Dibromofluoromethane (S)	105	%		11/22/99	RPJ	1868-53-7	
1,2-Dichloroethane-d4 (S)	105	%		11/22/99	RPJ	17060-07-0	
Toluene-d8 (S)	100	%		11/22/99	RPJ	2037-26-5	
4-Bromofluorobenzene (S)	98	%		11/22/99	RPJ	460-00-4	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731025 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: MW-3R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals by Trace ICP	Method: EPA 6010				Prep Method: EPA 3010		
Arsenic	0.0059	mg/l	0.005	11/23/99	TYM	7440-38-2	
Barium	0.52	mg/l	0.005	11/23/99	TYM	7440-39-3	
Cadmium	ND	mg/l	0.001	11/23/99	TYM	7440-43-9	
Chromium	0.024	mg/l	0.002	11/23/99	TYM	7440-47-3	
Lead	0.04	mg/l	0.005	11/23/99	TYM	7439-92-1	
Selenium	ND	mg/l	0.005	11/23/99	TYM	7782-49-2	
Silver	ND	mg/l	0.002	11/23/99	TYM	7440-22-4	
Date Digested				11/23/99			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	ND	mg/l	0.0002	12/02/99	TYM	7439-97-6	
GC/MS Volatiles							
GC/MS VOCs by 8260	Method: EPA 8260				Prep Method: EPA 8260		
Chloromethane	ND	ug/l	10	11/22/99	RPJ	74-87-3	
Vinyl Chloride	ND	ug/l	10	11/22/99	RPJ	75-01-4	
Bromomethane	ND	ug/l	10	11/22/99	RPJ	74-83-9	
Chloroethane	ND	ug/l	10	11/22/99	RPJ	75-00-3	
Trichlorofluoromethane	ND	ug/l	10	11/22/99	RPJ	75-69-4	
Acetone	ND	ug/l	100	11/22/99	RPJ	67-64-1	
1,1-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	75-35-4	
Iodomethane	ND	ug/l	5	11/22/99	RPJ	74-88-4	
Acrylonitrile	ND	ug/l	100	11/22/99	RPJ	107-13-1	
Methylene Chloride	ND	ug/l	5	11/22/99	RPJ	75-09-2	
Carbon Disulfide	ND	ug/l	5	11/22/99	RPJ	75-15-0	
trans-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-60-5	
1,1-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	75-34-3	
Vinyl Acetate	ND	ug/l	50	11/22/99	RPJ	108-05-4	
2-Butanone	ND	ug/l	100	11/22/99	RPJ	78-93-3	
cis-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-59-2	
Chloroform	ND	ug/l	5	11/22/99	RPJ	67-66-3	
Bromochloromethane	ND	ug/l	5	11/22/99	RPJ	74-97-5	
1,1,1-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	71-55-6	
1,2-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	107-06-2	
Carbon Tetrachloride	ND	ug/l	5	11/22/99	RPJ	56-23-5	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731025 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: MW-3R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Benzene	ND	ug/l	5	11/22/99	RPJ	71-43-2	
Trichloroethene	ND	ug/l	5	11/22/99	RPJ	79-01-6	
1,2-Dichloropropane	ND	ug/l	5	11/22/99	RPJ	78-87-5	
Dibromomethane	ND	ug/l	5	11/22/99	RPJ	74-95-3	
Bromodichloromethane	ND	ug/l	5	11/22/99	RPJ	75-27-4	
4-Methyl-2-Pentanone	ND	ug/l	50	11/22/99	RPJ	108-10-1	
cis-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-01-5	
Toluene	ND	ug/l	5	11/22/99	RPJ	108-88-3	
trans-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-02-6	
1,1,2-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	79-00-5	
2-Hexanone	ND	ug/l	50	11/22/99	RPJ	591-78-6	
Dibromochloromethane	ND	ug/l	5	11/22/99	RPJ	124-48-1	
Tetrachloroethene	ND	ug/l	5	11/22/99	RPJ	127-18-4	
1,2-Dibromoethane	ND	ug/l	5	11/22/99	RPJ	106-93-4	
Chlorobenzene	ND	ug/l	5	11/22/99	RPJ	108-90-7	
1,1,1,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	630-20-6	
Ethylbenzene	ND	ug/l	5	11/22/99	RPJ	100-41-4	
m&p-Xylene	ND	ug/l	10	11/22/99	RPJ	7816-60-0	
Styrene	ND	ug/l	5	11/22/99	RPJ	100-42-5	
o-Xylene (1,2-Dimethylbenzene)	ND	ug/l	5	11/22/99	RPJ	95-47-6	
Bromoform	ND	ug/l	5	11/22/99	RPJ	75-25-2	
1,1,2,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	79-34-5	
1,2,3-Trichloropropane	ND	ug/l	5	11/22/99	RPJ	96-18-4	
trans-1,4-Dichloro-2-Butene	ND	ug/l	5	11/22/99	RPJ	110-57-6	
1,4-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	106-46-7	
1,2-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	95-50-1	
1,2-Dibromo-3-Chloropropane	ND	ug/l	5	11/22/99	RPJ	96-12-8	
Dibromofluoromethane (S)	104	%		11/22/99	RPJ	1868-53-7	
1,2-Dichloroethane-d4 (S)	105	%		11/22/99	RPJ	17060-07-0	
Toluene-d8 (S)	99	%		11/22/99	RPJ	2037-26-5	
4-Bromofluorobenzene (S)	98	%		11/22/99	RPJ	460-00-4	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731033 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: MW-4R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals by Trace ICP	Method: EPA 6010				Prep Method: EPA 3010		
Arsenic	0.0075	mg/l	0.005	11/23/99	TYM	7440-38-2	
Barium	0.86	mg/l	0.005	11/23/99	TYM	7440-39-3	
Cadmium	ND	mg/l	0.001	11/23/99	TYM	7440-43-9	
Chromium	0.06	mg/l	0.002	11/23/99	TYM	7440-47-3	
Lead	0.04	mg/l	0.005	11/23/99	TYM	7439-92-1	
Selenium	ND	mg/l	0.005	11/23/99	TYM	7782-49-2	
Silver	ND	mg/l	0.002	11/23/99	TYM	7440-22-4	
Date Digested				11/23/99			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	0.00036	mg/l	0.0002	12/02/99	TYM	7439-97-6	
GC/MS Volatiles							
GC/MS VOCs by 8260	Method: EPA 8260				Prep Method: EPA 8260		
Chloromethane	ND	ug/l	10	11/22/99	RPJ	74-87-3	
Vinyl Chloride	ND	ug/l	10	11/22/99	RPJ	75-01-4	
Bromomethane	ND	ug/l	10	11/22/99	RPJ	74-83-9	
Chloroethane	ND	ug/l	10	11/22/99	RPJ	75-00-3	
Trichlorofluoromethane	ND	ug/l	10	11/22/99	RPJ	75-69-4	
Acetone	ND	ug/l	100	11/22/99	RPJ	67-64-1	
1,1-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	75-35-4	
Iodomethane	ND	ug/l	5	11/22/99	RPJ	74-88-4	
Acrylonitrile	ND	ug/l	100	11/22/99	RPJ	107-13-1	
Methylene Chloride	ND	ug/l	5	11/22/99	RPJ	75-09-2	
Carbon Disulfide	ND	ug/l	5	11/22/99	RPJ	75-15-0	
trans-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-60-5	
1,1-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	75-34-3	
Vinyl Acetate	ND	ug/l	50	11/22/99	RPJ	108-05-4	
2-Butanone	ND	ug/l	100	11/22/99	RPJ	78-93-3	
cis-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-59-2	
Chloroform	ND	ug/l	5	11/22/99	RPJ	67-66-3	
Bromochloromethane	ND	ug/l	5	11/22/99	RPJ	74-97-5	
1,1,1-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	71-55-6	
1,2-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	107-06-2	
Carbon Tetrachloride	ND	ug/l	5	11/22/99	RPJ	56-23-5	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731033 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: MW-4R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Benzene	ND	ug/l	5	11/22/99	RPJ	71-43-2	
Trichloroethene	ND	ug/l	5	11/22/99	RPJ	79-01-6	
1,2-Dichloropropane	ND	ug/l	5	11/22/99	RPJ	78-87-5	
Dibromomethane	ND	ug/l	5	11/22/99	RPJ	74-95-3	
Bromodichloromethane	ND	ug/l	5	11/22/99	RPJ	75-27-4	
4-Methyl-2-Pentanone	ND	ug/l	50	11/22/99	RPJ	108-10-1	
cis-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-01-5	
Toluene	ND	ug/l	5	11/22/99	RPJ	108-88-3	
trans-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-02-6	
1,1,2-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	79-00-5	
2-Hexanone	ND	ug/l	50	11/22/99	RPJ	591-78-6	
Dibromochloromethane	ND	ug/l	5	11/22/99	RPJ	124-48-1	
Tetrachloroethene	ND	ug/l	5	11/22/99	RPJ	127-18-4	
1,2-Dibromoethane	ND	ug/l	5	11/22/99	RPJ	106-93-4	
Chlorobenzene	ND	ug/l	5	11/22/99	RPJ	108-90-7	
1,1,1,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	630-20-6	
Ethylbenzene	ND	ug/l	5	11/22/99	RPJ	100-41-4	
m&p-Xylene	ND	ug/l	10	11/22/99	RPJ	7816-60-0	
Styrene	ND	ug/l	5	11/22/99	RPJ	100-42-5	
o-Xylene (1,2-Dimethylbenzene)	ND	ug/l	5	11/22/99	RPJ	95-47-6	
Bromoform	ND	ug/l	5	11/22/99	RPJ	75-25-2	
1,1,2,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	79-34-5	
1,2,3-Trichloropropane	ND	ug/l	5	11/22/99	RPJ	96-18-4	
trans-1,4-Dichloro-2-Butene	ND	ug/l	5	11/22/99	RPJ	110-57-6	
1,4-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	106-46-7	
1,2-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	95-50-1	
1,2-Dibromo-3-Chloropropane	ND	ug/l	5	11/22/99	RPJ	96-12-8	
Dibromofluoromethane (S)	107	%		11/22/99	RPJ	1868-53-7	
1,2-Dichloroethane-d4 (S)	109	%		11/22/99	RPJ	17060-07-0	
Toluene-d8 (S)	102	%		11/22/99	RPJ	2037-26-5	
4-Bromofluorobenzene (S)	99	%		11/22/99	RPJ	460-00-4	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731041 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: MW-5R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals by Trace ICP	Method: EPA 6010				Prep Method: EPA 3010		
Arsenic	ND	mg/l	0.005	11/23/99	TYM	7440-38-2	
Barium	0.20	mg/l	0.005	11/23/99	TYM	7440-39-3	
Cadmium	ND	mg/l	0.001	11/23/99	TYM	7440-43-9	
Chromium	0.029	mg/l	0.002	11/23/99	TYM	7440-47-3	
Lead	0.0082	mg/l	0.005	11/23/99	TYM	7439-92-1	
Selenium	ND	mg/l	0.005	11/23/99	TYM	7782-49-2	
Silver	ND	mg/l	0.002	11/23/99	TYM	7440-22-4	
Date Digested				11/23/99			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	ND	mg/l	0.0002	12/02/99	TYM	7439-97-6	
GC/MS Volatiles							
GC/MS VOCs by 8260	Method: EPA 8260				Prep Method: EPA 8260		
Chloromethane	ND	ug/l	10	11/22/99	RPJ	74-87-3	
Vinyl Chloride	ND	ug/l	10	11/22/99	RPJ	75-01-4	
Bromomethane	ND	ug/l	10	11/22/99	RPJ	74-83-9	
Chloroethane	ND	ug/l	10	11/22/99	RPJ	75-00-3	
Trichlorofluoromethane	ND	ug/l	10	11/22/99	RPJ	75-69-4	
Acetone	ND	ug/l	100	11/22/99	RPJ	67-64-1	
1,1-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	75-35-4	
Iodomethane	ND	ug/l	5	11/22/99	RPJ	74-88-4	
Acrylonitrile	ND	ug/l	100	11/22/99	RPJ	107-13-1	
Methylene Chloride	ND	ug/l	5	11/22/99	RPJ	75-09-2	
Carbon Disulfide	ND	ug/l	5	11/22/99	RPJ	75-15-0	
trans-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-60-5	
1,1-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	75-34-3	
Vinyl Acetate	ND	ug/l	50	11/22/99	RPJ	108-05-4	
2-Butanone	ND	ug/l	100	11/22/99	RPJ	78-93-3	
cis-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-59-2	
Chloroform	ND	ug/l	5	11/22/99	RPJ	67-66-3	
Bromochloromethane	ND	ug/l	5	11/22/99	RPJ	74-97-5	
1,1,1-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	71-55-6	
1,2-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	107-06-2	
Carbon Tetrachloride	ND	ug/l	5	11/22/99	RPJ	56-23-5	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731041 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: MW-5R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Benzene	ND	ug/l	5	11/22/99	RPJ	71-43-2	
Trichloroethene	ND	ug/l	5	11/22/99	RPJ	79-01-6	
1,2-Dichloropropane	ND	ug/l	5	11/22/99	RPJ	78-87-5	
Dibromomethane	ND	ug/l	5	11/22/99	RPJ	74-95-3	
Bromodichloromethane	ND	ug/l	5	11/22/99	RPJ	75-27-4	
4-Methyl-2-Pentanone	ND	ug/l	50	11/22/99	RPJ	108-10-1	
cis-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-01-5	
Toluene	ND	ug/l	5	11/22/99	RPJ	108-88-3	
trans-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-02-6	
1,1,2-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	79-00-5	
2-Hexanone	ND	ug/l	50	11/22/99	RPJ	591-78-6	
Dibromochloromethane	ND	ug/l	5	11/22/99	RPJ	124-48-1	
Tetrachloroethene	ND	ug/l	5	11/22/99	RPJ	127-18-4	
1,2-Dibromoethane	ND	ug/l	5	11/22/99	RPJ	106-93-4	
Chlorobenzene	ND	ug/l	5	11/22/99	RPJ	108-90-7	
1,1,1,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	630-20-6	
Ethylbenzene	ND	ug/l	5	11/22/99	RPJ	100-41-4	
m&p-Xylene	ND	ug/l	10	11/22/99	RPJ	7816-60-0	
Styrene	ND	ug/l	5	11/22/99	RPJ	100-42-5	
o-Xylene (1,2-Dimethylbenzene)	ND	ug/l	5	11/22/99	RPJ	95-47-6	
Bromoform	ND	ug/l	5	11/22/99	RPJ	75-25-2	
1,1,2,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	79-34-5	
1,2,3-Trichloropropane	ND	ug/l	5	11/22/99	RPJ	96-18-4	
trans-1,4-Dichloro-2-Butene	ND	ug/l	5	11/22/99	RPJ	110-57-6	
1,4-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	106-46-7	
1,2-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	95-50-1	
1,2-Dibromo-3-Chloropropane	ND	ug/l	5	11/22/99	RPJ	96-12-8	
Dibromofluoromethane (S)	110	%		11/22/99	RPJ	1868-53-7	
1,2-Dichloroethane-d4 (S)	111	%		11/22/99	RPJ	17060-07-0	
Toluene-d8 (S)	107	%		11/22/99	RPJ	2037-26-5	
4-Bromofluorobenzene (S)	103	%		11/22/99	RPJ	460-00-4	

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Client Project ID: W-S Landfill C&D

Pace Sample No: 92731058 Date Collected: 11/19/99 Matrix: Water
Client Sample ID: MW-6R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals by Trace ICP	Method: EPA 6010				Prep Method: EPA 3010		
Arsenic	ND	mg/l	0.005	11/23/99	TYM	7440-38-2	
Barium	0.059	mg/l	0.005	11/23/99	TYM	7440-39-3	
Cadmium	ND	mg/l	0.001	11/23/99	TYM	7440-43-9	
Chromium	0.0028	mg/l	0.002	11/23/99	TYM	7440-47-3	
Lead	ND	mg/l	0.005	11/23/99	TYM	7439-92-1	
Selenium	ND	mg/l	0.005	11/23/99	TYM	7782-49-2	
Silver	ND	mg/l	0.002	11/23/99	TYM	7440-22-4	
Date Digested				11/23/99			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	ND	mg/l	0.0002	12/02/99	TYM	7439-97-6	
GC/MS Volatiles							
GC/MS VOCs by 8260	Method: EPA 8260				Prep Method: EPA 8260		
Chloromethane	ND	ug/l	10	11/22/99	RPJ	74-87-3	
Vinyl Chloride	ND	ug/l	10	11/22/99	RPJ	75-01-4	
Bromomethane	ND	ug/l	10	11/22/99	RPJ	74-83-9	
Chloroethane	ND	ug/l	10	11/22/99	RPJ	75-00-3	
Trichlorofluoromethane	ND	ug/l	10	11/22/99	RPJ	75-69-4	
Acetone	ND	ug/l	100	11/22/99	RPJ	67-64-1	
1,1-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	75-35-4	
Iodomethane	ND	ug/l	5	11/22/99	RPJ	74-88-4	
Acrylonitrile	ND	ug/l	100	11/22/99	RPJ	107-13-1	
Methylene Chloride	ND	ug/l	5	11/22/99	RPJ	75-09-2	
Carbon Disulfide	ND	ug/l	5	11/22/99	RPJ	75-15-0	
trans-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-60-5	
1,1-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	75-34-3	
Vinyl Acetate	ND	ug/l	50	11/22/99	RPJ	108-05-4	
2-Butanone	ND	ug/l	100	11/22/99	RPJ	78-93-3	
cis-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-59-2	
Chloroform	ND	ug/l	5	11/22/99	RPJ	67-66-3	
Bromochloromethane	ND	ug/l	5	11/22/99	RPJ	74-97-5	
1,1,1-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	71-55-6	
1,2-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	107-06-2	
Carbon Tetrachloride	ND	ug/l	5	11/22/99	RPJ	56-23-5	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731058 Date Collected: 11/19/99 Matrix: Water
Client Sample ID: MW-6R Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Benzene	ND	ug/l	5	11/22/99	RPJ	71-43-2	
Trichloroethene	ND	ug/l	5	11/22/99	RPJ	79-01-6	
1,2-Dichloropropane	ND	ug/l	5	11/22/99	RPJ	78-87-5	
Dibromomethane	ND	ug/l	5	11/22/99	RPJ	74-95-3	
Bromodichloromethane	ND	ug/l	5	11/22/99	RPJ	75-27-4	
4-Methyl-2-Pentanone	ND	ug/l	50	11/22/99	RPJ	108-10-1	
cis-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-01-5	
Toluene	ND	ug/l	5	11/22/99	RPJ	108-88-3	
trans-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-02-6	
1,1,2-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	79-00-5	
2-Hexanone	ND	ug/l	50	11/22/99	RPJ	591-78-6	
Dibromochloromethane	ND	ug/l	5	11/22/99	RPJ	124-48-1	
Tetrachloroethene	ND	ug/l	5	11/22/99	RPJ	127-18-4	
1,2-Dibromoethane	ND	ug/l	5	11/22/99	RPJ	106-93-4	
Chlorobenzene	ND	ug/l	5	11/22/99	RPJ	108-90-7	
1,1,1,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	630-20-6	
Ethylbenzene	ND	ug/l	5	11/22/99	RPJ	100-41-4	
m&p-Xylene	ND	ug/l	10	11/22/99	RPJ	7816-60-0	
Styrene	ND	ug/l	5	11/22/99	RPJ	100-42-5	
o-Xylene (1,2-Dimethylbenzene)	ND	ug/l	5	11/22/99	RPJ	95-47-6	
Bromoform	ND	ug/l	5	11/22/99	RPJ	75-25-2	
1,1,2,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	79-34-5	
1,2,3-Trichloropropane	ND	ug/l	5	11/22/99	RPJ	96-18-4	
trans-1,4-Dichloro-2-Butene	ND	ug/l	5	11/22/99	RPJ	110-57-6	
1,4-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	106-46-7	
1,2-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	95-50-1	
1,2-Dibromo-3-Chloropropane	ND	ug/l	5	11/22/99	RPJ	96-12-8	
Dibromofluoromethane (S)	107	%		11/22/99	RPJ	1868-53-7	
1,2-Dichloroethane-d4 (S)	107	%		11/22/99	RPJ	17060-07-0	
Toluene-d8 (S)	104	%		11/22/99	RPJ	2037-26-5	
4-Bromofluorobenzene (S)	99	%		11/22/99	RPJ	460-00-4	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731066 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: MW-7 Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals by Trace ICP	Method: EPA 6010				Prep Method: EPA 3010		
Arsenic	ND	mg/l	0.005	11/23/99	TYM	7440-38-2	
Barium	0.39	mg/l	0.005	11/23/99	TYM	7440-39-3	
Cadmium	ND	mg/l	0.001	11/23/99	TYM	7440-43-9	
Chromium	0.062	mg/l	0.002	11/23/99	TYM	7440-47-3	
Lead	0.012	mg/l	0.005	11/23/99	TYM	7439-92-1	
Selenium	ND	mg/l	0.005	11/23/99	TYM	7782-49-2	
Silver	ND	mg/l	0.002	11/23/99	TYM	7440-22-4	
Date Digested				11/23/99			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	ND	mg/l	0.0002	12/02/99	TYM	7439-97-6	
GC/MS Volatiles							
GC/MS VOCs by 8260	Method: EPA 8260				Prep Method: EPA 8260		
Chloromethane	ND	ug/l	10	11/22/99	RPJ	74-87-3	
Vinyl Chloride	ND	ug/l	10	11/22/99	RPJ	75-01-4	
Bromomethane	ND	ug/l	10	11/22/99	RPJ	74-83-9	
Chloroethane	ND	ug/l	10	11/22/99	RPJ	75-00-3	
Trichlorofluoromethane	ND	ug/l	10	11/22/99	RPJ	75-69-4	
Acetone	ND	ug/l	100	11/22/99	RPJ	67-64-1	
1,1-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	75-35-4	
Iodomethane	ND	ug/l	5	11/22/99	RPJ	74-88-4	
Acrylonitrile	ND	ug/l	100	11/22/99	RPJ	107-13-1	
Methylene Chloride	ND	ug/l	5	11/22/99	RPJ	75-09-2	
Carbon Disulfide	ND	ug/l	5	11/22/99	RPJ	75-15-0	
trans-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-60-5	
1,1-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	75-34-3	
Vinyl Acetate	ND	ug/l	50	11/22/99	RPJ	108-05-4	
2-Butanone	ND	ug/l	100	11/22/99	RPJ	78-93-3	
cis-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-59-2	
Chloroform	ND	ug/l	5	11/22/99	RPJ	67-66-3	
Bromochloromethane	ND	ug/l	5	11/22/99	RPJ	74-97-5	
1,1,1-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	71-55-6	
1,2-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	107-06-2	
Carbon Tetrachloride	ND	ug/l	5	11/22/99	RPJ	56-23-5	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731066 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: MW-7 Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Benzene	ND	ug/l	5	11/22/99	RPJ	71-43-2	
Trichloroethene	ND	ug/l	5	11/22/99	RPJ	79-01-6	
1,2-Dichloropropane	ND	ug/l	5	11/22/99	RPJ	78-87-5	
Dibromomethane	ND	ug/l	5	11/22/99	RPJ	74-95-3	
Bromodichloromethane	ND	ug/l	5	11/22/99	RPJ	75-27-4	
4-Methyl-2-Pentanone	ND	ug/l	50	11/22/99	RPJ	108-10-1	
cis-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-01-5	
Toluene	ND	ug/l	5	11/22/99	RPJ	108-88-3	
trans-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-02-6	
1,1,2-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	79-00-5	
2-Hexanone	ND	ug/l	50	11/22/99	RPJ	591-78-6	
Dibromochloromethane	ND	ug/l	5	11/22/99	RPJ	124-48-1	
Tetrachloroethene	ND	ug/l	5	11/22/99	RPJ	127-18-4	
1,2-Dibromoethane	ND	ug/l	5	11/22/99	RPJ	106-93-4	
Chlorobenzene	ND	ug/l	5	11/22/99	RPJ	108-90-7	
1,1,1,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	630-20-6	
Ethylbenzene	ND	ug/l	5	11/22/99	RPJ	100-41-4	
m&p-Xylene	ND	ug/l	10	11/22/99	RPJ	7816-60-0	
Styrene	ND	ug/l	5	11/22/99	RPJ	100-42-5	
o-Xylene (1,2-Dimethylbenzene)	ND	ug/l	5	11/22/99	RPJ	95-47-6	
Bromoform	ND	ug/l	5	11/22/99	RPJ	75-25-2	
1,1,2,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	79-34-5	
1,2,3-Trichloropropane	ND	ug/l	5	11/22/99	RPJ	96-18-4	
trans-1,4-Dichloro-2-Butene	ND	ug/l	5	11/22/99	RPJ	110-57-6	
1,4-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	106-46-7	
1,2-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	95-50-1	
1,2-Dibromo-3-Chloropropane	ND	ug/l	5	11/22/99	RPJ	96-12-8	
Dibromofluoromethane (S)	106	%		11/22/99	RPJ	1868-53-7	
1,2-Dichloroethane-d4 (S)	109	%		11/22/99	RPJ	17060-07-0	
Toluene-d8 (S)	100	%		11/22/99	RPJ	2037-26-5	
4-Bromofluorobenzene (S)	98	%		11/22/99	RPJ	460-00-4	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731082 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: FB Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Metals							
Metals by Trace ICP	Method: EPA 6010				Prep Method: EPA 3010		
Arsenic	ND	mg/l	0.005	11/23/99	TYM	7440-38-2	
Barium	0.014	mg/l	0.005	11/23/99	TYM	7440-39-3	
Cadmium	ND	mg/l	0.001	11/23/99	TYM	7440-43-9	
Chromium	ND	mg/l	0.002	11/23/99	TYM	7440-47-3	
Lead	ND	mg/l	0.005	11/23/99	TYM	7439-92-1	
Selenium	ND	mg/l	0.005	11/23/99	TYM	7782-49-2	
Silver	ND	mg/l	0.002	11/23/99	TYM	7440-22-4	
Date Digested				11/23/99			
Mercury in Water	Method: EPA 7470				Prep Method: EPA 7470		
Mercury	0.00025	mg/l	0.0002	12/02/99	TYM	7439-97-6	
GC/MS Volatiles							
GC/MS VOCs by 8260	Method: EPA 8260				Prep Method: EPA 8260		
Chloromethane	ND	ug/l	10	11/22/99	RPJ	74-87-3	
Vinyl Chloride	ND	ug/l	10	11/22/99	RPJ	75-01-4	
Bromomethane	ND	ug/l	10	11/22/99	RPJ	74-83-9	
Chloroethane	ND	ug/l	10	11/22/99	RPJ	75-00-3	
Trichlorofluoromethane	ND	ug/l	10	11/22/99	RPJ	75-69-4	
Acetone	ND	ug/l	100	11/22/99	RPJ	67-64-1	
1,1-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	75-35-4	
Iodomethane	ND	ug/l	5	11/22/99	RPJ	74-88-4	
Acrylonitrile	ND	ug/l	100	11/22/99	RPJ	107-13-1	
Methylene Chloride	ND	ug/l	5	11/22/99	RPJ	75-09-2	
Carbon Disulfide	ND	ug/l	5	11/22/99	RPJ	75-15-0	
trans-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-60-5	
1,1-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	75-34-3	
Vinyl Acetate	ND	ug/l	50	11/22/99	RPJ	108-05-4	
2-Butanone	ND	ug/l	100	11/22/99	RPJ	78-93-3	
cis-1,2-Dichloroethene	ND	ug/l	5	11/22/99	RPJ	156-59-2	
Chloroform	ND	ug/l	5	11/22/99	RPJ	67-66-3	
Bromochloromethane	ND	ug/l	5	11/22/99	RPJ	74-97-5	
1,1,1-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	71-55-6	
1,2-Dichloroethane	ND	ug/l	5	11/22/99	RPJ	107-06-2	
Carbon Tetrachloride	ND	ug/l	5	11/22/99	RPJ	56-23-5	

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Pace Sample No: 92731082 Date Collected: 11/20/99 Matrix: Water
Client Sample ID: FB Date Received: 11/22/99

Parameters	Results	Units	PRL	Analyzed	Analyst	CAS#	Footnotes
Benzene	ND	ug/l	5	11/22/99	RPJ	71-43-2	
Trichloroethene	ND	ug/l	5	11/22/99	RPJ	79-01-6	
1,2-Dichloropropane	ND	ug/l	5	11/22/99	RPJ	78-87-5	
Dibromomethane	ND	ug/l	5	11/22/99	RPJ	74-95-3	
Bromodichloromethane	ND	ug/l	5	11/22/99	RPJ	75-27-4	
4-Methyl-2-Pentanone	ND	ug/l	50	11/22/99	RPJ	108-10-1	
cis-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-01-5	
Toluene	ND	ug/l	5	11/22/99	RPJ	108-88-3	
trans-1,3-Dichloropropene	ND	ug/l	5	11/22/99	RPJ	10061-02-6	
1,1,2-Trichloroethane	ND	ug/l	5	11/22/99	RPJ	79-00-5	
2-Hexanone	ND	ug/l	50	11/22/99	RPJ	591-78-6	
Dibromochloromethane	ND	ug/l	5	11/22/99	RPJ	124-48-1	
Tetrachloroethene	ND	ug/l	5	11/22/99	RPJ	127-18-4	
1,2-Dibromoethane	ND	ug/l	5	11/22/99	RPJ	106-93-4	
Chlorobenzene	ND	ug/l	5	11/22/99	RPJ	108-90-7	
1,1,1,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	630-20-6	
Ethylbenzene	ND	ug/l	5	11/22/99	RPJ	100-41-4	
m&p-Xylene	ND	ug/l	10	11/22/99	RPJ	7816-60-0	
Styrene	ND	ug/l	5	11/22/99	RPJ	100-42-5	
o-Xylene (1,2-Dimethylbenzene)	ND	ug/l	5	11/22/99	RPJ	95-47-6	
Bromoform	ND	ug/l	5	11/22/99	RPJ	75-25-2	
1,1,2,2-Tetrachloroethane	ND	ug/l	5	11/22/99	RPJ	79-34-5	
1,2,3-Trichloropropane	ND	ug/l	5	11/22/99	RPJ	96-18-4	
trans-1,4-Dichloro-2-Butene	ND	ug/l	5	11/22/99	RPJ	110-57-6	
1,4-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	106-46-7	
1,2-Dichlorobenzene	ND	ug/l	5	11/22/99	RPJ	95-50-1	
1,2-Dibromo-3-Chloropropane	ND	ug/l	5	11/22/99	RPJ	96-12-8	
Dibromofluoromethane (S)	108	%		11/22/99	RPJ	1868-53-7	
1,2-Dichloroethane-d4 (S)	109	%		11/22/99	RPJ	17060-07-0	
Toluene-d8 (S)	106	%		11/22/99	RPJ	2037-26-5	
4-Bromofluorobenzene (S)	102	%		11/22/99	RPJ	460-00-4	

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Pace Analytical

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
(S)	Surrogate

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QUALITY CONTROL DATA

HDR Engineering
128 South Tryon Street
Suite 1400
Charlotte, NC 28202

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Attn: Mr. John Isham
Phone: (704)338-1800

QC Batch ID: 19777
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: GC/MS VOCs by 8260
Associated Pace Samples: 92731009 92731017 92731025 92731033 92731041 92731058 92731066 92731082

METHOD BLANK: 92731116
Associated Pace Samples: 92731009 92731017 92731025 92731033 92731041 92731058 92731066 92731082

Parameter	Units	Method Blank Result	PRL	Footnotes
Chloromethane	ug/l	ND	10	
Vinyl Chloride	ug/l	ND	10	
Bromomethane	ug/l	ND	10	
Chloroethane	ug/l	ND	10	
Trichlorofluoromethane	ug/l	ND	10	
1,1-Dichloroethene	ug/l	ND	5	
Methylene Chloride	ug/l	ND	5	
trans-1,2-Dichloroethene	ug/l	ND	5	
1,1-Dichloroethane	ug/l	ND	5	
cis-1,2-Dichloroethene	ug/l	ND	5	
Chloroform	ug/l	ND	5	
Bromochloromethane	ug/l	ND	5	
1,1,1-Trichloroethane	ug/l	ND	5	
1,2-Dichloroethane	ug/l	ND	5	
Carbon Tetrachloride	ug/l	ND	5	
Benzene	ug/l	ND	5	
Trichloroethene	ug/l	ND	5	
1,2-Dichloropropane	ug/l	ND	5	
Dibromomethane	ug/l	ND	5	
Bromodichloromethane	ug/l	ND	5	
Toluene	ug/l	ND	5	
1,1,2-Trichloroethane	ug/l	ND	5	
Dibromochloromethane	ug/l	ND	5	

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QUALITY CONTROL DATA

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

METHOD BLANK: 92731116
Associated Pace Samples:
92731009 92731017 92731025 92731033 92731041 92731058 92731066 92731082

Parameter	Units	Method Blank Result	PRL	Footnotes
Tetrachloroethene	ug/l	ND	5	
1,2-Dibromoethane	ug/l	ND	5	
Chlorobenzene	ug/l	ND	5	
1,1,1,2-Tetrachloroethane	ug/l	ND	5	
Ethylbenzene	ug/l	ND	5	
m&p-Xylene	ug/l	ND	10	
Styrene	ug/l	ND	5	
o-Xylene (1,2-Dimethylbenzene)	ug/l	ND	5	
Bromoform	ug/l	ND	5	
1,1,2,2-Tetrachloroethane	ug/l	ND	5	
1,2,3-Trichloropropane	ug/l	ND	5	
1,4-Dichlorobenzene	ug/l	ND	5	
1,2-Dichlorobenzene	ug/l	ND	5	
1,2-Dibromo-3-Chloropropane	ug/l	ND	5	
Dibromofluoromethane (S)	%	101		
1,2-Dichloroethane-d4 (S)	%	104		
Toluene-d8 (S)	%	97		
4-Bromofluorobenzene (S)	%	96		

LABORATORY CONTROL SAMPLE: 92728112

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Chloromethane	ug/l	50	42.10	84.2	
Vinyl Chloride	ug/l	50	37.93	75.9	
Bromomethane	ug/l	50	38.59	77.2	
Chloroethane	ug/l	50	41.44	82.9	
Trichlorofluoromethane	ug/l	50	40.50	81.0	
Acetone	ug/l	100	113.5	113	
1,1-Dichloroethene	ug/l	50	44.46	88.9	
Iodomethane	ug/l	100	77.61	77.6	
Acrylonitrile	ug/l	500	408.6	81.7	
Methylene Chloride	ug/l	50	42.41	84.8	
Carbon Disulfide	ug/l	100	84.68	84.7	
trans-1,2-Dichloroethene	ug/l	50	41.54	83.1	

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QUALITY CONTROL DATA

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

LABORATORY CONTROL SAMPLE: 92728112

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
1,1-Dichloroethane	ug/l	50	40.28	80.6	
Vinyl Acetate	ug/l	100	47.30	47.3	1
2-Butanone	ug/l	100	84.95	85.0	
cis-1,2-Dichloroethene	ug/l	50	39.84	79.7	
Chloroform	ug/l	50	38.69	77.4	
Bromochloromethane	ug/l	50	39.03	78.1	
1,1,1-Trichloroethane	ug/l	50	40.00	80.0	
1,2-Dichloroethane	ug/l	50	38.58	77.2	
Carbon Tetrachloride	ug/l	50	39.88	79.8	
Benzene	ug/l	50	39.47	78.9	
Trichloroethene	ug/l	50	37.87	75.7	
1,2-Dichloropropane	ug/l	50	38.01	76.0	
Dibromomethane	ug/l	50	37.10	74.2	
Bromodichloromethane	ug/l	50	37.23	74.5	
4-Methyl-2-Pentanone	ug/l	100	81.79	81.8	
cis-1,3-Dichloropropene	ug/l	50	37.66	75.3	
Toluene	ug/l	50	39.68	79.4	
trans-1,3-Dichloropropene	ug/l	50	37.48	75.0	
1,1,2-Trichloroethane	ug/l	50	37.22	74.4	
2-Hexanone	ug/l	100	84.06	84.1	
Dibromochloromethane	ug/l	50	36.37	72.7	
Tetrachloroethene	ug/l	50	37.04	74.1	
1,2-Dibromoethane	ug/l	50	36.64	73.3	
Chlorobenzene	ug/l	50	36.19	72.4	
1,1,1,2-Tetrachloroethane	ug/l	50	36.24	72.5	
Ethylbenzene	ug/l	50	38.75	77.5	
m&p-Xylene	ug/l	100	75.99	76.0	
Styrene	ug/l	50	37.55	75.1	
o-Xylene (1,2-Dimethylbenzene)	ug/l	50	36.90	73.8	
Bromoform	ug/l	50	36.77	73.5	
1,1,2,2-Tetrachloroethane	ug/l	50	37.60	75.2	
1,2,3-Trichloropropane	ug/l	50	36.99	74.0	
trans-1,4-Dichloro-2-Butene	ug/l	50	33.50	67.0	1
1,4-Dichlorobenzene	ug/l	50	35.83	71.7	
1,2-Dichlorobenzene	ug/l	50	35.69	71.4	
1,2-Dibromo-3-Chloropropane	ug/l	50	38.05	76.1	
Dibromofluoromethane (S)				102	
1,2-Dichloroethane-d4 (S)				103	
Toluene-d8 (S)				100	
4-Bromofluorobenzene (S)				99	

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QUALITY CONTROL DATA

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

SAMPLE DUPLICATE: 92728104

Parameter	Units	92725092	Dup. Result	RPD	Footnotes
Chloromethane	ug/l	ND	ND	NC	
Vinyl Chloride	ug/l	ND	ND	NC	
Bromomethane	ug/l	ND	ND	NC	
Chloroethane	ug/l	ND	ND	NC	
Trichlorofluoromethane	ug/l	ND	ND	NC	
1,1-Dichloroethene	ug/l	ND	ND	NC	
Methylene Chloride	ug/l	ND	ND	NC	
trans-1,2-Dichloroethene	ug/l	ND	ND	NC	
1,1-Dichloroethane	ug/l	ND	ND	NC	
cis-1,2-Dichloroethene	ug/l	ND	ND	NC	
Chloroform	ug/l	5.700	5.000	0	
Bromochloromethane	ug/l	ND	ND	NC	
1,1,1-Trichloroethane	ug/l	ND	ND	NC	
1,2-Dichloroethane	ug/l	ND	ND	NC	
Carbon Tetrachloride	ug/l	ND	ND	NC	
Benzene	ug/l	ND	ND	NC	
Trichloroethene	ug/l	ND	ND	NC	
1,2-Dichloropropane	ug/l	ND	ND	NC	
Dibromomethane	ug/l	ND	ND	NC	
Bromodichloromethane	ug/l	ND	ND	NC	
Toluene	ug/l	6.900	6.100	12	
1,1,2-Trichloroethane	ug/l	ND	ND	NC	
Dibromochloromethane	ug/l	ND	ND	NC	
Tetrachloroethene	ug/l	ND	ND	NC	
1,2-Dibromoethane	ug/l	ND	ND	NC	
Chlorobenzene	ug/l	ND	ND	NC	
1,1,1,2-Tetrachloroethane	ug/l	ND	ND	NC	
Ethylbenzene	ug/l	ND	ND	NC	
m&p-Xylene	ug/l	ND	ND	NC	
Styrene	ug/l	ND	ND	NC	
o-Xylene (1,2-Dimethylbenzene)	ug/l	ND	ND	NC	
Bromoform	ug/l	ND	ND	NC	
1,1,2,2-Tetrachloroethane	ug/l	ND	ND	NC	
1,2,3-Trichloropropane	ug/l	ND	ND	NC	
1,4-Dichlorobenzene	ug/l	ND	ND	NC	
1,2-Dichlorobenzene	ug/l	ND	ND	NC	
1,2-Dibromo-3-Chloropropane	ug/l	ND	ND	NC	
Dibromofluoromethane (S)	%	104	103	0	
1,2-Dichloroethane-d4 (S)	%	106	105	0	
Toluene-d8 (S)	%	102	101	0	
4-Bromofluorobenzene (S)	%	100	98	0	

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QUALITY CONTROL DATA

HDR Engineering
128 South Tryon Street
Suite 1400
Charlotte, NC 28202

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Attn: Mr. John Isham
Phone: (704)338-1800

QC Batch ID: 19867
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: Metals by Trace ICP
Associated Pace Samples: 92731009 92731017 92731025 92731033 92731041 92731058 92731066 92731082

METHOD BLANK: 92731900
Associated Pace Samples: 92731009 92731017 92731025 92731033 92731041 92731058 92731066 92731082

Parameter	Units	Method Blank Result	PRL	Footnotes
Arsenic	mg/l	ND	0.005	
Barium	mg/l	ND	0.005	
Cadmium	mg/l	ND	0.001	
Chromium	mg/l	ND	0.002	
Lead	mg/l	ND	0.005	
Selenium	mg/l	ND	0.005	
Silver	mg/l	ND	0.002	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 92731918 92731926

Parameter	Units	92716653	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Arsenic	mg/l	0.002910	0.2500	0.2630	104	0.2440	96.4	8	
Barium	mg/l	0.02980	0.2500	0.2920	105	0.2810	100	4	
Cadmium	mg/l	0	0.2500	0.2520	101	0.2360	94.4	7	
Chromium	mg/l	0.02260	0.2500	0.2930	108	0.2820	104	4	
Lead	mg/l	0.006240	0.2500	0.2510	97.9	0.2370	92.3	6	
Selenium	mg/l	0	0.2500	0.2550	102	0.2300	92.0	10	
Silver	mg/l	0	0.2500	0.2640	106	0.2490	99.6	6	

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QUALITY CONTROL DATA

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

LABORATORY CONTROL SAMPLE: 92731942

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Arsenic	mg/l	0.2500	0.2660	106	
Barium	mg/l	0.2500	0.2620	105	
Cadmium	mg/l	0.2500	0.2570	103	
Chromium	mg/l	0.2500	0.2690	108	
Lead	mg/l	0.2500	0.2510	100	
Selenium	mg/l	0.2500	0.2650	106	
Silver	mg/l	0.2500	0.2610	104	

SAMPLE DUPLICATE: 92731934

Parameter	Units	92716661	Dup. Result	RPD	Footnotes
Arsenic	mg/l	0.01500	0.01500	3	
Barium	mg/l	0.1500	0.1500	3	
Cadmium	mg/l	ND	ND	NC	
Chromium	mg/l	0.05300	0.05600	4	
Lead	mg/l	0.02600	0.02700	5	
Selenium	mg/l	ND	ND	NC	
Silver	mg/l	ND	ND	NC	

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QUALITY CONTROL DATA

HDR Engineering
128 South Tryon Street
Suite 1400
Charlotte, NC 28202

Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

Attn: Mr. John Isham
Phone: (704)338-1800

QC Batch ID: 19946
QC Batch Method: EPA 7470
Analysis Method: EPA 7470
Analysis Description: Mercury in Water
Associated Pace Samples: 92731009 92731017 92731025 92731033 92731041 92731058 92731066 92731082

METHOD BLANK: 92734870
Associated Pace Samples: 92731009 92731017 92731025 92731033 92731041 92731058 92731066 92731082

Parameter	Units	Method Blank Result	PRL	Footnotes
Mercury	mg/l	ND	0.0002	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 92734888 92734896

Parameter	Units	92723899	Spike Conc.	Matrix Spike Result	Spike % Rec	Matrix Sp. Dup. Result	Spike Dup % Rec	RPD	Footnotes
Mercury	mg/l	0	0.0050	0.003090	61.8	0.003410	68.2	10	2,2

LABORATORY CONTROL SAMPLE: 92734912

Parameter	Units	Spike Conc.	LCS Result	Spike % Rec	Footnotes
Mercury	mg/l	0.0050	0.005010	100	

SAMPLE DUPLICATE: 92734904

Parameter	Units	92723790	Dup. Result	RPD	Footnotes
Mercury	mg/l	ND	ND	NC	

Laboratory Certification IDs
NC Wastewater 12
NC Drinking Water 37706
SC 99006

REPORT OF LABORATORY ANALYSIS

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Laboratory Certification IDs
KY Drinking Water 90090
TN UST List
VA Drinking Water 213

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Pace Project Number: 9210309
Client Project ID: W-S Landfill C&D

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
RPD	Relative Percent Difference
(S)	Surrogate
[1]	The surrogate and/or spike recovery was outside acceptance limits.
[2]	The spike recovery was outside acceptance limits for the MS and /or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

498398

Page: 1 of 1

Required Client Information: Section A

Company: HDR Engineering
Address: 128 S. Tryon, #1400
Charlotte, NC 28202
Phone: 704-338-1800 Fax: 704-338-6760

Required Client Information: Section B

Report To: John Isham
Invoice To:
P.O.: 00162-090-019-08
Project Name: W-S C&D
Project Number:

Client Information (Check quote/contract):
Requested Due Date: TAT:

* Under 14 day turnaround subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.
Turn Around Time (TAT) in calender days.

To Be Completed by Pace Analytical and Client: Section C

Quote Reference:
Project Manager:
Project #:
Profile #:
Requested Analysis:

Section D Required Client Information:

SAMPLE ID

One character per box.
(A–Z, 0–9 / .–)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
WATER	WT
SOIL	SL
OIL	OL
WIPE	WP
AIR	AR
TISSUE	TS
OTHER	OT

ITEM #	SAMPLE ID	MATRIX CODE	DATE COLLECTED mm / dd / yy	TIME COLLECTED hh:mm	# Containers	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Landfill Appt VOCs	RCRA Total Metals	Remarks / Lab ID
1	MW-1R	WT	11/19/99	9:50A	6							✓		N.C. C&D Landfill Groundwater Monitoring Parameters
2	MW-2R	"	11/20/99	8:45A	6							✓		
3	MW-3R	"	11/20/99	9:25A	6							✓		
4	MW-4R	"	11/20/99	10:35A	6							✓		
5	MW-5R	"	11/20/99	11:15A	6							✓		
6	MW-6R	"	11/19/99	10:45A	6							✓		
7	MW-7	"	11/20/99	10:00A	6							✓		
8	FB	"	11/20/99	11:30A	6							✓		
9														
10														
11														
12														

Sample Condition		Sample Notes	Item No.	Relinquished By / Company	Date	Time	Accepted By / Company	Date	Time
Temp in °C:	11.9			Curtis M. Ivey / HDR	11/22/99	1:00P	S. Martin	11/22	1:00 P
Received on ICE:	(Y) / N								
Sealed Cooler:	Y / (N)								
Samples Intact:	(Y) / N								

Additional Comments:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Curtis M. Ivey
SIGNATURE of SAMPLER: Curtis M. Ivey
DATE Signed: (MM / DD / YY) 11/22/99

SEE REVERSE SIDE FOR INSTRUCTIONS

PRE-SAMPLING
WELL PURGING

PROJECT Winston-Salem CSP
PROJECT NUMBER 00162-090-018-08
WELL NUMBER MW-1R
DATE 11/19/99 PAGE 1 OF 1
WELL INSIDE DIAMETER 2 INCHES
AIR TEMPERATURE (FAHRENHEIT) _____
DEPTH OF BOTTOM ~~62.10~~ 63 FEET
WEATHER CONDITIONS _____
LENGTH OF GRAVEL PACK — FEET
HNU/OVA READING NA
DIAMETER OF GRAVEL PACK — INCHES
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED [redacted]

FLUSHING

WATER LEVEL BEFORE 38.95'
WATER LEVEL AFTER
TIME BEGIN FLUSHING
TIME END FLUSHING
ESTIMATED VOLUME FLUSHING (gal)
WELL VOLUMES REMOVED

WITHDRAWAL OF WELL VOLUMES

WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
	1	2	3	4
NA				
9:05 AM				
9:50 AM				
0	3.92	7.84	11.76	15.68
0				

FIELD ANALYSIS

WATER TEMPERATURE (°C)	15.0	15.0	15.1	
SAMPLE (pH)	4.98	5.06	5.19	
SAMPLE CONDUCTIVITY (umhos/cm)	86	84	86	
BUFFER BEFORE				
BUFFER AFTER				
ODOR				
COLOR				
OTHER				

COMMENTS

Sampled:

App. I VOCs & Eight RCRA Metals

WELL VOLUME CALCULATIONS (1cf = 7.48 gal)
$\pi r^2 \times h$ = WELL VOLUME IN FT^3
π = 3.14
r = RADIUS IN INCHES/12 = RADIUS IN FEET
h = HEIGHT OF WATER COLUMN IN WELL IN FEET
CONVERSION FROM FT^3 TO GALLONS = 7.48 gal/ft^3

WELL RADIUS = 1.0 IN/12 = 0.0833 FT
h = ~~62.10~~ 63 (WELL DEPTH) − 38.95 (DEPTH TO WATER) = 24.05 FT
3.14 × 0.00694 (r^2) × h = _____ FT^3 × 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 3.92

WELLPURG.DWG

PRE-SAMPLING
WELL PURGING

PROJECT Winston-Salem C&D

WELL NUMBER MW-2R

WELL INSIDE DIAMETER 2 INCHES

DEPTH OF BOTTOM 24.7 FEET

LENGTH OF GRAVEL PACK — FEET

DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018-08

DATE 11/20/99 PAGE 1 OF 1

AIR TEMPERATURE (FAHRENHEIT)

WEATHER CONDITIONS

HNU/OVA READING NA

METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED

Polyethylene Disposable Bailer

WITHDRAWAL OF WELL VOLUMES

FLUSHING	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
WATER LEVEL BEFORE 10.55		1	2	3	4
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	8:15 AM				
TIME END FLUSHING	8:45 AM				
ESTIMATED VOLUME FLUSHING (gal)		2.31	4.62	6.93	
WELL VOLUMES REMOVED					

Bailed nearly dry at 3 well volumes

FIELD ANALYSIS					
WATER TEMPERATURE (°C)		15.0	15.0	15.0	
SAMPLE (pH)		4.60	4.64	4.72	
SAMPLE CONDUCTIVITY (umhos/cm)		71	72	72	
BUFFER BEFORE					
BUFFER AFTER					
ODOR					
COLOR					
OTHER					

COMMENTS

Sampled:

App. I VOCs & Eight RCRA Metals

WELL VOLUME CALCULATIONS (1cf = 7.48 gal)

$\pi r^2 \times h$ = WELL VOLUME IN FT^3

π = 3.14

r = RADIUS IN INCHES/12 = RADIUS IN FEET

h = HEIGHT OF WATER COLUMN IN WELL IN FEET

CONVERSION FROM FT^3 TO GALLONS = 7.48 gal/ft^3

WELL RADIUS = 1.0 IN/12 = 0.0833 FT

h = 24.7 (WELL DEPTH) − 10.55 (DEPTH TO WATER) = 14.15 FT

3.14 X 0.00694 (r^2) X h = _____ FT^3 X 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 2.31

WELLPURG.DWG

PRE-SAMPLING
WELL PURGING

PROJECT Winston-Salem C&D
WELL NUMBER MW-3R
WELL INSIDE DIAMETER 2 INCHES
DEPTH OF BOTTOM 30.7 FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018-08
DATE 11/20/99 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT) _____
WEATHER CONDITIONS _____
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
Polyethylene Disposable Bailer

WITHDRAWAL OF WELL VOLUMES

FLUSHING

	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
		1	2	3	4
WATER LEVEL BEFORE	23.37'				
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	9:00 AM				
TIME END FLUSHING	9:25 AM			Bailed to <18"	
ESTIMATED VOLUME FLUSHING (gal)		1.20	2.40 after	3.60 2 volumes	
WELL VOLUMES REMOVED					

FIELD ANALYSIS

WATER TEMPERATURE (°C)	14.2	14.0	14.0	
SAMPLE (pH)	5.02	5.06	5.10	
SAMPLE CONDUCTIVITY (umhos/cm)	130	120	120	
BUFFER BEFORE				
BUFFER AFTER				
ODOR				
COLOR				
OTHER				

COMMENTS

Sampled:

App. I VOCs & Eight RCRA Metals

WELL VOLUME CALCULATIONS (1cf = 7.48 gal)
$\pi r^2 \times h$ = WELL VOLUME IN FT^3
π = 3.14
r = RADIUS IN INCHES/12 = RADIUS IN FEET
h = HEIGHT OF WATER COLUMN IN WELL IN FEET
CONVERSION FROM FT^3 TO GALLONS = 7.48 gal/ft^3

WELL RADIUS = 1.0 IN/12 = 0.0833 FT
h = 30.7 (WELL DEPTH) − 23.37 (DEPTH TO WATER) = 7.33 FT
3.14 × 0.00694 (r^2) × h = _____ FT^3 × 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 1.20

WELLPURG.DWG

PRE-SAMPLING
WELL PURGING

PROJECT Winston-Salem CSP
WELL NUMBER MW-4R
WELL INSIDE DIAMETER 2 INCHES
DEPTH OF BOTTOM 22.3 FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018-08
DATE 11/20/99 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT)
WEATHER CONDITIONS
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
Polyethylene Disposable Bailer

FLUSHING

WATER LEVEL BEFORE 9.17'
WATER LEVEL AFTER
TIME BEGIN FLUSHING
TIME END FLUSHING
ESTIMATED VOLUME FLUSHING (gal)
WELL VOLUMES REMOVED

WITHDRAWAL OF WELL VOLUMES

WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
	1	2	3	4
NA				
10:10 AM				
10:35 AM				
	2.14	4.28	6.42	

FIELD ANALYSIS

WATER TEMPERATURE (°C)	15.7	15.7	15.7	
SAMPLE (pH)	5.28	5.36	5.43	
SAMPLE CONDUCTIVITY (umhos/cm)	160	170	170	
BUFFER BEFORE				
BUFFER AFTER				
ODOR				
COLOR				
OTHER				

COMMENTS

Sampled:

App. I VOCs & Eight RCRA Metals

WELL VOLUME CALCULATIONS (1cf = 7.48 gal)
$\pi r^2 \times h$ = WELL VOLUME IN FT^3
π = 3.14
WELL RADIUS = 1.0 IN/12 = 0.0833 FT
h = 22.3 (WELL DEPTH) − 9.17 (DEPTH TO WATER) = 13.13 FT
3.14 X 0.00694 (r^2) X h = ____ FT^3 X 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 2.14

r = RADIUS IN INCHES/12 = RADIUS IN FEET
h = HEIGHT OF WATER COLUMN IN WELL IN FEET
CONVERSION FROM FT^3 TO GALLONS = 7.48 gal/ft^3

WELLPURG.DWG

PRE-SAMPLING
WELL PURGING

PROJECT Winston-Salem C&D
WELL NUMBER MW-5R
WELL INSIDE DIAMETER 2 INCHES
DEPTH OF BOTTOM 32.1 FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018-08
DATE 11/20/99 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT) _____
WEATHER CONDITIONS _____
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
Polyethylene Disposable Bailer

WITHDRAWAL OF WELL VOLUMES

	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
FLUSHING		1	2	3	4
WATER LEVEL BEFORE	12.07'				
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	10:40 AM				
TIME END FLUSHING	11:15 AM				
ESTIMATED VOLUME FLUSHING (gal)		3.26	6.52	9.78	
WELL VOLUMES REMOVED					
FIELD ANALYSIS					
WATER TEMPERATURE (°C)		15.8	15.5	15.5	
SAMPLE (pH)		5.46	5.49	5.48	
SAMPLE CONDUCTIVITY (umhos/cm)		165	165	165	
BUFFER BEFORE					
BUFFER AFTER					
ODOR					
COLOR					
OTHER					

COMMENTS

Sampled:

App. I VOCs & Eight RCRA Metals

WELL VOLUME CALCULATIONS (1cf = 7.48 gal)
$\pi r^2 \times h$ = WELL VOLUME IN FT^3
π = 3.14
r = RADIUS IN INCHES/12 = RADIUS IN FEET
h = HEIGHT OF WATER COLUMN IN WELL IN FEET
CONVERSION FROM FT^3 TO GALLONS = 7.48 gal/ft^3

WELL RADIUS = 1.0 IN/12 = 0.0833 FT
h = 32.1 (WELL DEPTH) − 12.07 (DEPTH TO WATER) = 20.03 FT
3.14 X 0.00694 (r^2) X h = _____ FT^3 X 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 3.26

WELLPURG.DWG

PRE-SAMPLING
WELL PURGING

PROJECT Winston-Salem C&D
WELL NUMBER MW-6R
WELL INSIDE DIAMETER 2 INCHES
DEPTH OF BOTTOM 62.6 FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018-08
DATE 11/19/99 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT) _____
WEATHER CONDITIONS _____
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
Polyethylene Disposable Bailer

WITHDRAWAL OF WELL VOLUMES

FLUSHING	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
		1	2	3	4
WATER LEVEL BEFORE 49.42'	NA				
WATER LEVEL AFTER					
TIME BEGIN FLUSHING	10:10 AM				
TIME END FLUSHING	10:45 AM				
ESTIMATED VOLUME FLUSHING (gal)		2.15	4.30	6.45	
WELL VOLUMES REMOVED					

FIELD ANALYSIS				
WATER TEMPERATURE (°C)		14.0	14.0	14.0	
SAMPLE (pH)		5.30	5.35		
SAMPLE CONDUCTIVITY (umhos/cm)		62	62	64	
BUFFER BEFORE					
BUFFER AFTER					
ODOR					
COLOR					
OTHER					

COMMENTS

Sampled:

App. I VOCs & Eight RCRA Metals

WELL VOLUME CALCULATIONS (1cf = 7.48 gal)
$\pi r^2 \times h$ = WELL VOLUME IN FT^3
π = 3.14
WELL RADIUS = 1.0 IN/12 = 0.0833 FT
h = 62.6 (WELL DEPTH) − 49.47 (DEPTH TO WATER) = 13.18 FT
3.14 × 0.00694 (r^2) × h = _____ FT^3 × 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 2.5

r = RADIUS IN INCHES/12 = RADIUS IN FEET
h = HEIGHT OF WATER COLUMN IN WELL IN FEET
CONVERSION FROM FT^3 TO GALLONS = 7.48 gal/ft^3

WELLPURG.DWG

PRE-SAMPLING
WELL PURGING

PROJECT Winston-Salem CSP
PROJECT NUMBER 00162-090-018-08
WELL NUMBER MW-7
DATE 11/20/99 PAGE 1 OF 1
WELL INSIDE DIAMETER 2 INCHES
AIR TEMPERATURE (FAHRENHEIT) _____
DEPTH OF BOTTOM 49.6 FEET
WEATHER CONDITIONS _____
LENGTH OF GRAVEL PACK — FEET
HNU/OVA READING NA
DIAMETER OF GRAVEL PACK — INCHES
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
Polyethylene Disposable Bailer

WITHDRAWAL OF WELL VOLUMES

FLUSHING	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
	1	2	3	4	
WATER LEVEL BEFORE 36.00					
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	9:30 AM				
TIME END FLUSHING	10:00 AM				
ESTIMATED VOLUME FLUSHING (gal)	2.22	4.44	6.66		
WELL VOLUMES REMOVED					

FIELD ANALYSIS

WATER TEMPERATURE (°C)	14.1	14.0	14.0	
SAMPLE (pH)	5.33	5.29	5.28	
SAMPLE CONDUCTIVITY (umhos/cm)	84	82	82	
BUFFER BEFORE				
BUFFER AFTER				
ODOR				
COLOR				
OTHER				

COMMENTS

Sampled:

App. I VOCs & Eight RCRA Metals

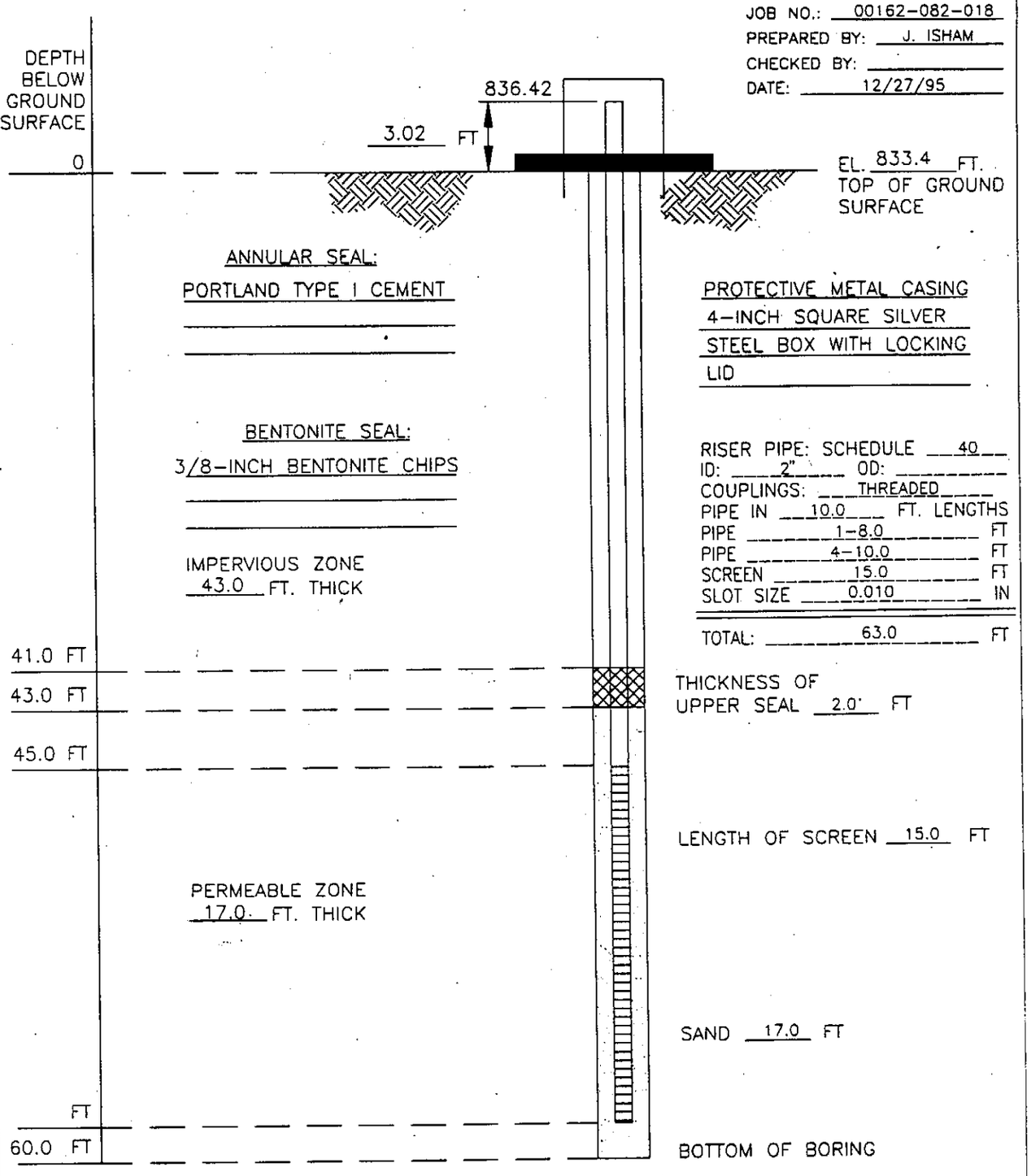
WELL VOLUME CALCULATIONS (1cf = 7.48 gal)
$\pi r^2 \times h$ = WELL VOLUME IN FT^3
π = 3.14
WELL RADIUS = 1.0 IN/12 = 0.0833 FT
h = 49.6 (WELL DEPTH) − 36.00 (DEPTH TO WATER) = 13.6 FT
3.14 X 0.00694 (r^2) X h = _____ FT^3 X 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 7.22

r = RADIUS IN INCHES/12 = RADIUS IN FEET
h = HEIGHT OF WATER COLUMN IN WELL IN FEET
CONVERSION FROM FT^3 TO GALLONS = 7.48 gal/ft^3

WELLPURG.DWG

MONITORING WELL INSTALLATION DIAGRAM

LOCATION: WINSTON-SALEM C&D
WELL NO.: MW-1R
BORING NO.:
JOB NO.: 00162-082-018
PREPARED BY: J. ISHAM
CHECKED BY:
DATE: 12/27/95



REMARKS: ALL MEASUREMENTS TO THE NEAREST 0.1 FT.

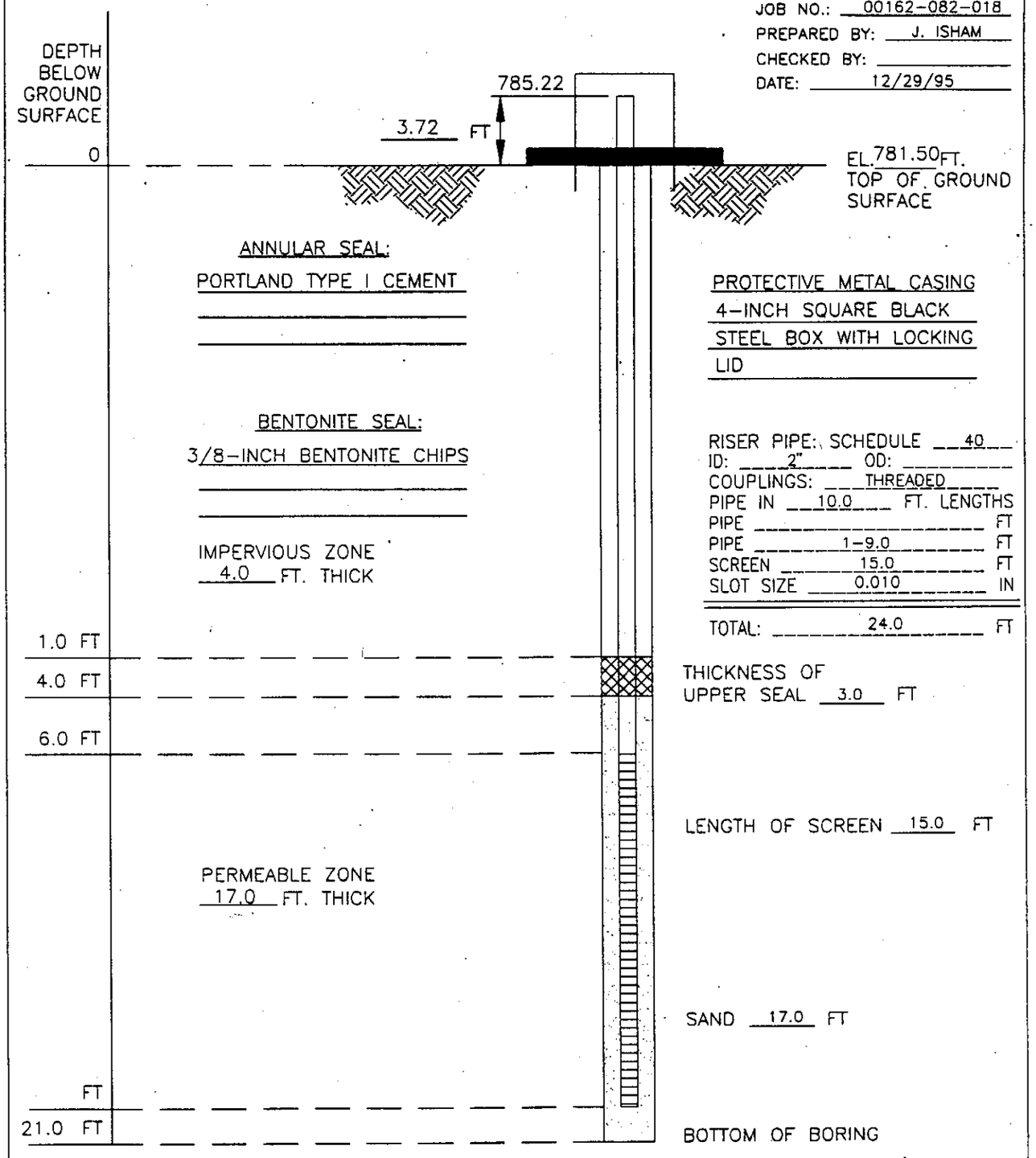
HDR

HDR Engineering, Inc.

FILENAME: MONITOR

MONITORING WELL INSTALLATION DIAGRAM

LOCATION: WINSTON-SALEM C&D
WELL NO.: MW-2R
BORING NO.:
JOB NO.: 00162-082-018
PREPARED BY: J. ISHAM
CHECKED BY:
DATE: 12/29/95



RISER PIPE: SCHEDULE 40
ID: 2" OD:
COUPLINGS: THREADED
PIPE IN 10.0 FT. LENGTHS
PIPE FT
PIPE 1-9.0 FT
SCREEN 15.0 FT
SLOT SIZE 0.010 IN

TOTAL: 24.0 FT

REMARKS: ALL MEASUREMENTS TO THE NEAREST 0.1 FT.

HDR Engineering, Inc.

FILENAME: MONITOR

Project No: 00162-090-018

Project: Winston-Salem C&D Landfill

Client: City of Winston-Salem

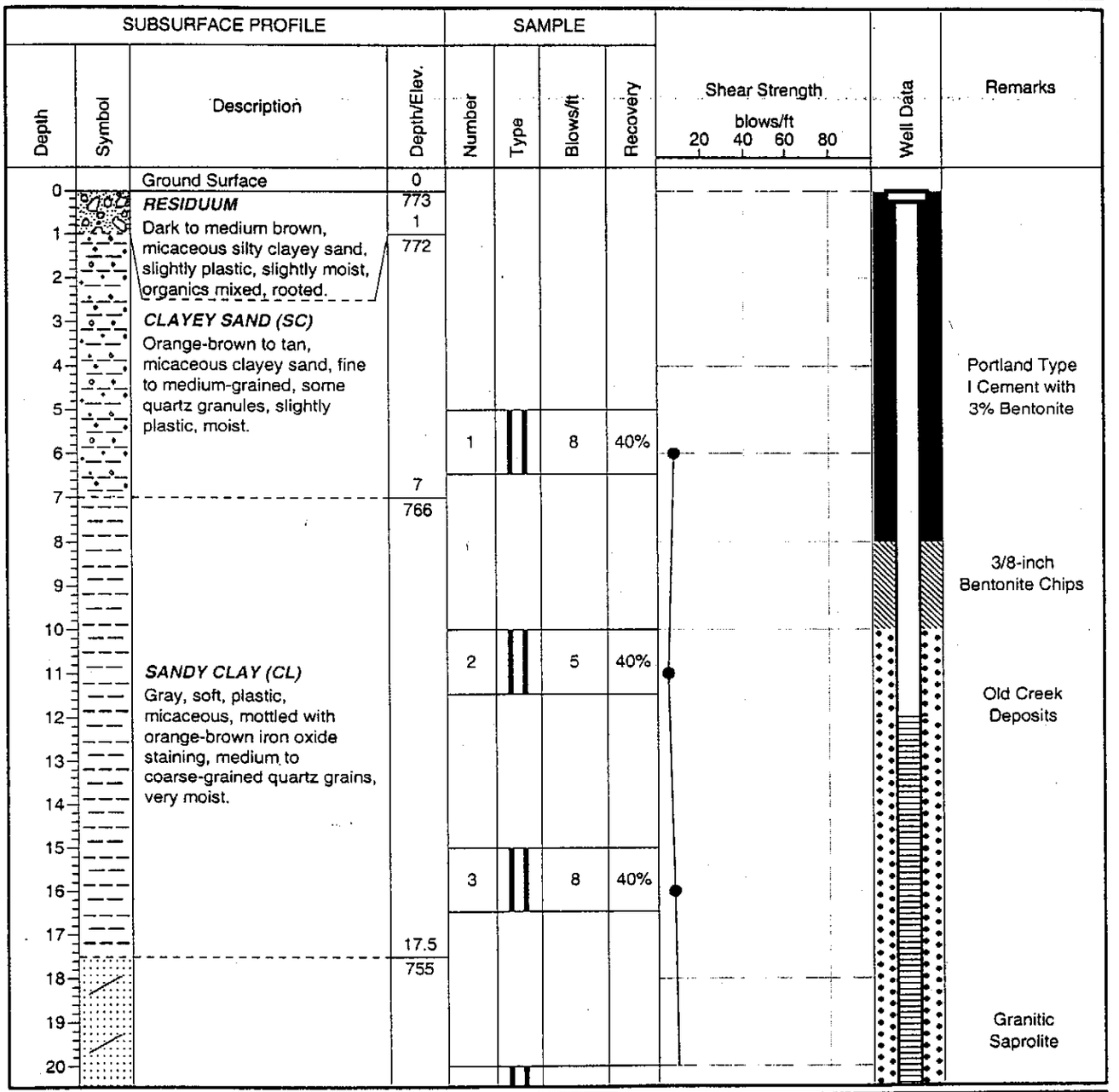
Location: Old Salisbury Road

Geologist Log B-3R (MW-3R)

Ground Elevation: 772.9' MSL

Geologist: John R. Isham, PG.

HDR



Drilled By: Engineering Tectonics, PA.

Drill Method: 4.25-inch ID HSA

Drill Date: July 7, 1999

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC. 28202

Hole Size 8-inch Diameter

Top-of-Casing 776.6' MSL

Project No: 00162-090-018

Project: Winston-Salem C&D Landfill

Client: City of Winston-Salem

Location: Old Salisbury Road

Geologist Log B-3R (MW-3R)

Ground Elevation: 772.9' MSL

Geologist: John R. Isham, PG.

HDR

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
21				4		9	50%			
22		***SILTY SAND (SM)*** Gray, white, and black, micaceous, medium-dense, fine to medium-grained, mottled with iron oxide staining, weak mineral alignment, very moist.								2-inch Diameter SCH 40 PVC 0.010-inch Slots
23										
24										
25										
26				5		18	50%			
27			27							
		End of Borehole	746							
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										

Drilled By: Engineering Tectonics, PA.

Drill Method: 4.25-inch ID HSA

Drill Date: July 7, 1999

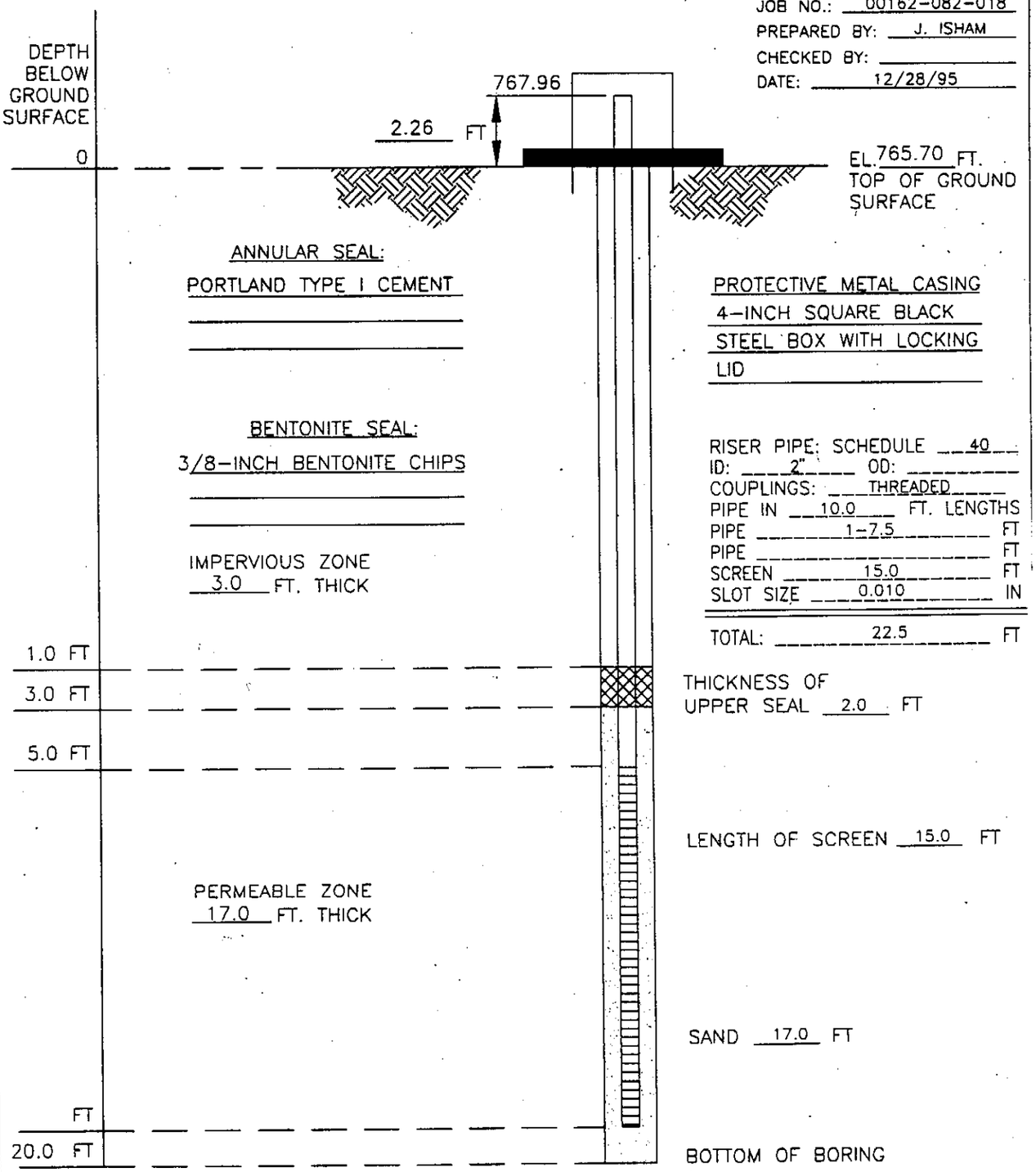
HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC. 28202

Hole Size 8-inch Diameter

Top-of-Casing 776.6' MSL

MONITORING WELL INSTALLATION DIAGRAM

LOCATION: WINSTON-SALEM C&D
WELL NO.: MW-4R
BORING NO.:
JOB NO.: 00162-082-018
PREPARED BY: J. ISHAM
CHECKED BY:
DATE: 12/28/95



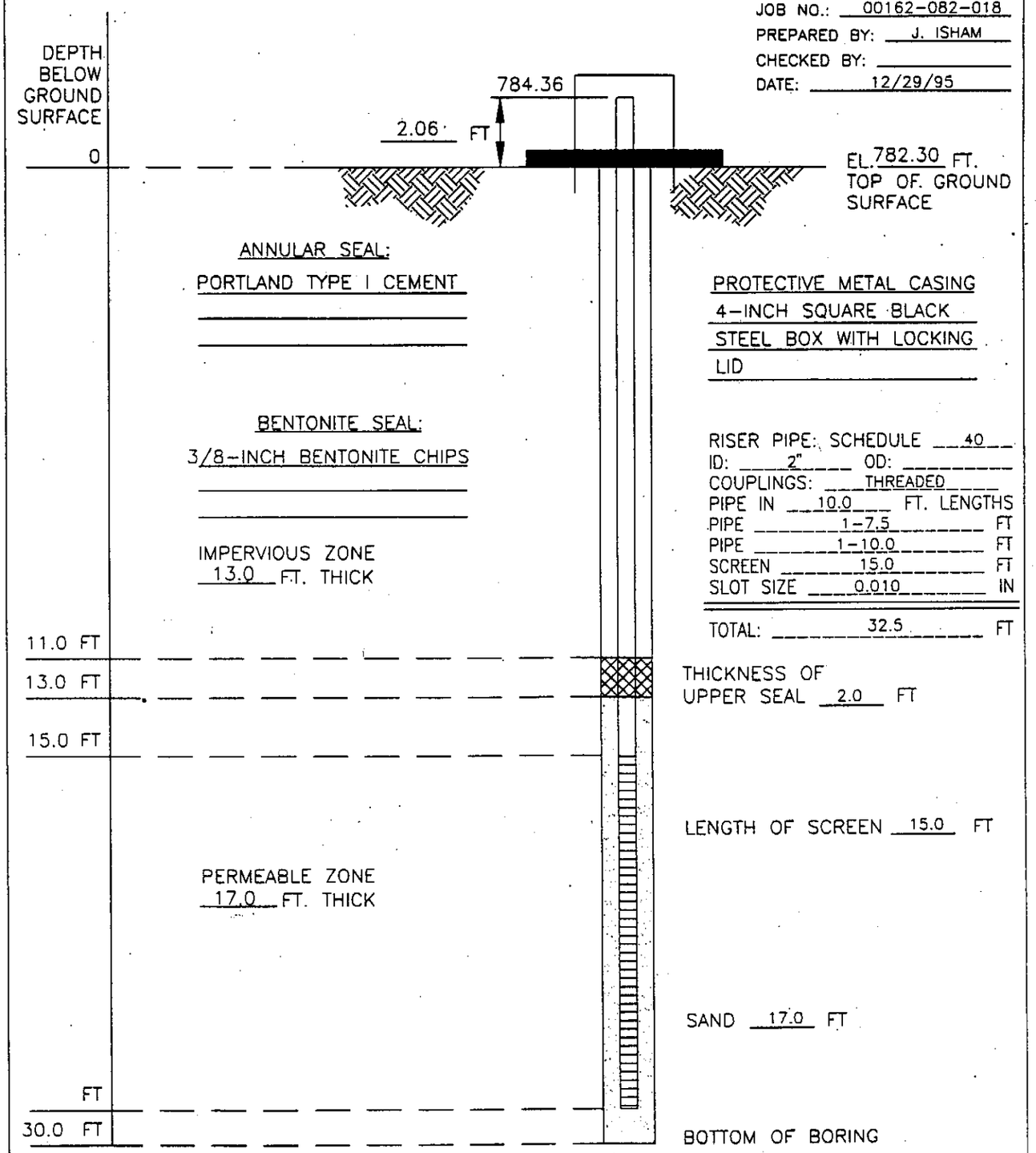
REMARKS: ALL MEASUREMENTS TO THE NEAREST 0.1 FT.

HDR Engineering, Inc.

FILENAME: MONITOR

MONITORING WELL INSTALLATION DIAGRAM

LOCATION: WINSTON-SALEM C&D
WELL NO.: MW-5R
BORING NO.:
JOB NO.: 00162-082-018
PREPARED BY: J. ISHAM
CHECKED BY:
DATE: 12/29/95



REMARKS: ALL MEASUREMENTS TO THE NEAREST 0.1 FT.

HDR

HDR Engineering, Inc.

FILENAME: MONITOR

Project No: 00162-090-018

Project: Winston-Salem C&D Landfill

Client: City of Winston-Salem

Location: Old Salisbury Road

Geologist Log B-6R (MW-6R)

Ground Elevation: 817.8' MSL

Geologist: John R. Isham, PG.

HDR

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
0		Ground Surface	0							
0–3		***RESIDUUM*** Tan to light brown sandy loam. ***SANDY SILT (ML)*** Orange-brown, micaceous, fine-grained quartz grains, dry.	818 / 3.5 / 814							
5				1		8	60%			
10				2		7	75%			Portland Type I Cement with 3% Bentonite
12–20		***SILTY SAND (SM)*** Tan to yellow-brown, micaceous, fine to coarse-grained quartz grains, weak mineral alignment (horizontal), iron oxide staining, mottled, dry.		3		8	75%			

Drilled By: Engineering Tectonics, PA.

Drill Method: 4.25-inch ID HSA

Drill Date: July 8, 1999

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC. 28202

Hole Size 8-inch Diameter

Top-of-Casing 820.4' MSL

Project No: 00162-090-018

Project: Winston-Salem C&D Landfill

Client: City of Winston-Salem

Location: Old Salisbury Road

Geologist Log B-6R (MW-6R)

Ground Elevation: 817.8' MSL

Geologist: John R. Isham, PG.

HDR

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Depth/Elev.	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft (20 40 60 80)	Well Data	Remarks
21		***SILTY SAND (SM)*** Tan to yellow-brown, micaceous, fine to coarse-grained quartz grains, weak mineral alignment (horizontal), iron oxide staining, mottled, dry.		4		12	80%			
22										
23			23 / 795							
24										Granitic Saprolite
25										
26				5		15	75%			
27										
28		***SILTY SAND (SM)*** Same as above, becoming mixed with partially weathered rock lenses, dry.								
29										
30										Portland Type I Cement with 3% Bentonite
31				6		27	75%			
32										
33										
34			34 / 784							
35		***SILTY SAND w/ GRAVEL*** White, to light gray and tan, micacous, mottled with iron oxide staining, fine to coarse-grained quartz, feldspar, mica, weak foliation as mineral alighment, dry.								
36				7		48	85%			
37										
38										
39										
40										

Drilled By: Engineering Tectonics, PA.

Drill Method: 4.25-inch ID HSA

Drill Date: July 8, 1999

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC. 28202

Hole Size 8-inch Diameter

Top-of-Casing 820.4' MSL

Project No: 00162-090-018

Project: Winston-Salem C&D Landfill

Client: City of Winston-Salem

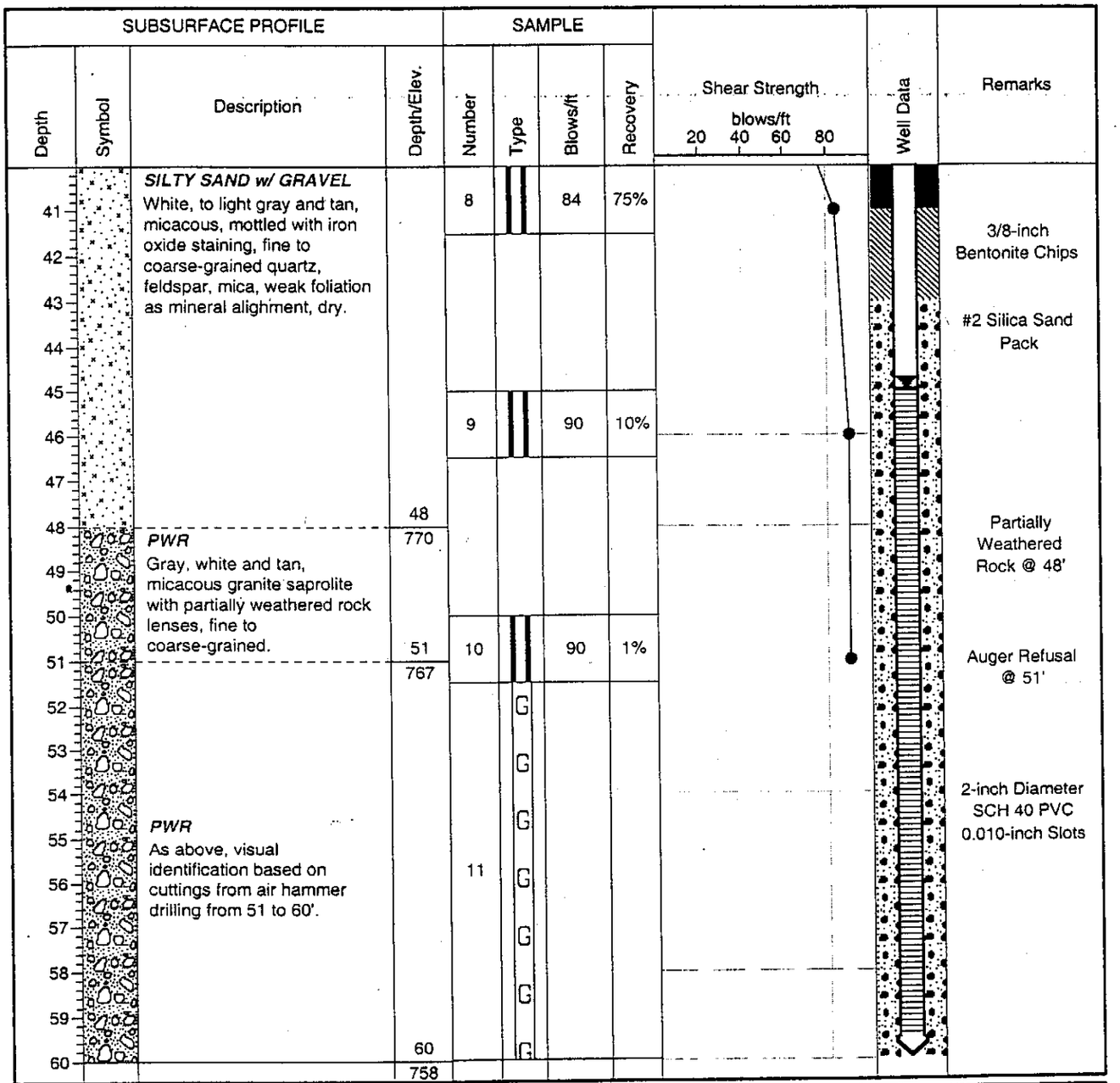
Location: Old Salisbury Road

Geologist Log B-6R (MW-6R)

Ground Elevation: 817.8' MSL

Geologist: John R. Isham, PG.

HDR



Drilled By: Engineering Tectonics, PA.

Drill Method: 4.25-inch ID HSA

Drill Date: July 8, 1999

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC. 28202

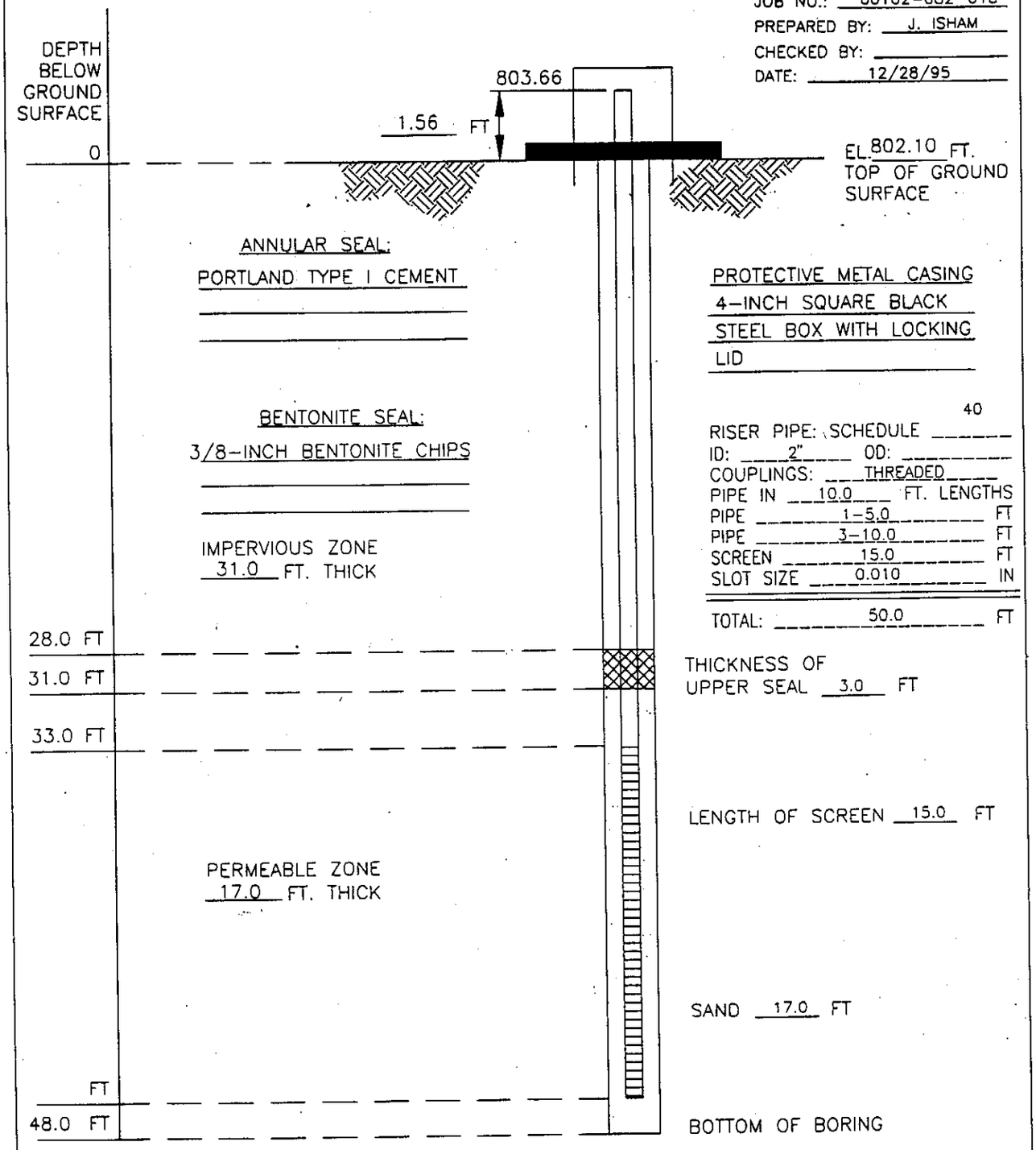
Hole Size 8-inch Diameter

Top-of-Casing 820.4' MSL

Sheet: 3 of 3

MONITORING WELL INSTALLATION DIAGRAM

LOCATION: WINSTON-SALEM C&D
WELL NO.: MW-7
BORING NO.:
JOB NO.: 00162-082-018
PREPARED BY: J. ISHAM
CHECKED BY:
DATE: 12/28/95



REMARKS: ALL MEASUREMENTS TO THE NEAREST 0.1 FT.

HDR Engineering, Inc.

FILENAME: MONITOR

LEGEND

——780——	PROPOSED CONTOURS
——840——	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
SB#2	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

HDR

HDR Engineering, Inc. of the Carolinas
Suite 1400
128 S. Tryon Street
Charlotte, NC 28202-5001
(704) 338-1800

No.	Revision	Date	By
C	ADDED METHANE GAS PROBES MM-1 TO MM-6	8/22/99	CRH
B	ADDED MW-3R, MW-8, AND MW-6R	8/16/99	CRH
A	ISSUED FOR APPROVAL		

Project Manager: J.C. READLING, P.E.
QA: C.A. WRIGHT, P.E.
Drawn By: J. CAUL

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	Project No.	Dwg. No.	Issue
APRIL 1999	0162-090-018	C-5	C
Scale: 1"=100'			