34-12
5-5-98

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Received
Solid Waste
Section

HDR

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Mr. Bobby Lutfy
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: Spring 1998 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. Lutfy:

HDR Engineering, Inc. of North Carolina (HDR) is hereby submitting, on behalf of the City of Winston-Salem Utilities Division, the ground-water analytical results for the Spring 1998 round of ground-water sampling at the C&D Landfill located in Forsyth County, North Carolina.

Ground-water samples were collected from all on-site detection monitoring wells (MW-1R, MW-2R, MW-3, MW-4R, MW-5R, MW-6, and MW-7) on May 5, 1998, for Appendix I volatile organic compound (VOC) analysis as well as for the eight RCRA metals. A trip and equipment blank were also included for QA/QC purposes. Field measurements of pH, specific conductance, and temperature were also recorded during presampling well purging. These measurements were recorded on field forms, which have been attached to the Report of Laboratory Analysis.

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 barium, chromium, lead, and one occurrence of arsenic 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-2R, MW-3, MW-4R, MW-5R, MW-6, and MW-7 was detected at concentrations which slightly exceed the 2L ground-water standard of 0.015 mg/l. Likewise, chromium was detected in MW-4R, MW-5R, and MW-7 at concentrations which slightly exceed the 2L ground-water standard of 0.05 mg/l. As reflected by the Presampling Well Purging forms, the presence of these trace metal detections is due to the slight lingering well turbidity in each well.

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of North Carolina

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Turbidity should decrease as purging and sampling of the wells continue. No volatile organic compounds were detected in any of the ground-water monitoring wells (including the equipment blank). A trace of ethylbenzene was detected in the trip blank but not in any of the monitoring well samples. The complete Report of Laboratory Analysis for this round of sampling at the Winston-Salem C&D Landfill is attached at the end of this letter (including the Chain-of-Custody Record and field purging forms). Table 1-1 attached to this report summarizes the results of all sampling events performed to date at the landfill.

If you have any questions or comments concerning the information summarized in this letter or on the attached analytical data report, please do not hesitate to contact me at (704) 338-6832.

Sincerely,

HDR Engineering, Inc. of North Carolina

John R. Isham

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)
Presampling Well Purging Forms
Phase I Ground-Water Monitoring Well Locations

cc: Barry Shearin, 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
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	0.224	0.18	0.10	0.29	0.10
Cadmium	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	<0.010	0.006	0.003	0.011	0.049
Lead	0.006	<0.005	<0.005	0.012	<0.005
Mercury	0.0018	0.0002	<00002	<0.0002	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.001	<0.005	<0.005	<0.005	<0.002
Methyl Chloride	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5
Acetone	<100	<100	<100	<100	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5
Methyl Iodide	<5	<5	<5	<5	<5
Acrylonitrile	<100	<100	<100	<100	<100
Dichloromethane	<5	<5	<5	<5	<5
Carbon Disulfide	23	<5	<5	<5	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5
Vinyl Acetate	<50	<50	<50	<50	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5
Bromochloromethane	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5
Dibromomethane	<5	<5	<5	<5	<5
Bromodichloromethane	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5
2-Hexanone	<50	<50	<50	<50	<50
Dibromochloromethane	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	<5	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5
Xylenes (total)	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	<5	<5	<5	<5	<5

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

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

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

ANALYT

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
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	0.595	0.72	0.28	0.65	0.85
Cadmium	0.007	<0.001	<0.001	<0.001	<0.001
Chromium	0.021	0.047	<0.002	0.055	0.13
Lead	0.017	0.016	0.012	0.029	0.043
Mercury	0.0017	0.0003	<0.0002	<0.0002	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.001	<0.005	0.006	<0.005	<0.002
Methyl Chloride	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5
Acetone	<100	<100	<100	<100	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5
Methyl Iodide	<5	<5	<5	<5	<5
Acrylonitrile	<100	<100	<100	<100	<100
Dichloromethane	<5	<5	<5	<5	<5
Carbon Disulfide	<5	<5	<5	<5	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5
Vinyl Acetate	<50	<50	<50	<50	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5
Bromochloromethane	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5
Dibromomethane	<5	<5	<5	<5	<5
Bromodichloromethane	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5
2-Hexanone	<50	<50	<50	<50	<50
Dibromochloromethane	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	<5	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5
Xylenes (total)	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	<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
Arsenic	<0.005	<0.005	<0.005	<0.005	0.005
Barium	1.00	0.62	0.33	0.61	0.82
Cadmium	<0.010	<0.001	<0.001	<0.001	<0.001
Chromium	0.096	0.043	0.070	0.016	0.17
Lead	0.019	0.020	0.014	0.031	0.069
Mercury	0.0008	<0.0002	<0.0002	<0.0002	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.001	<0.005	<0.005	<0.005	<0.002
Methyl Chloride	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5
Acetone	<100	<100	<100	<100	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5
Methyl Iodide	<5	<5	<5	<5	<5
Acrylonitrile	<100	<100	<100	<100	<100
Dichloromethane	<5	<5	<5	<5	<5
Carbon Disulfide	<5	<5	<5	<5	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5
Vinyl Acetate	<50	<50	<50	<50	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5
Bromochloromethane	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5
Dibromomethane	<5	<5	<5	<5	<5
Bromodichloromethane	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5
2-Hexanone	<50	<50	<50	<50	<50
Dibromochloromethane	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	<5	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5
Xylenes (total)	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	<5	<5	<5	<5	<5

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

Parameter	1/17/96	10/24/96	5/13/97	10/30/97	5/5/98
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	1.40	0.59	0.30	0.26	0.36
Cadmium	<0.010	<0.001	<0.001	<0.001	<0.001
Chromium	0.012	0.010	0.021	0.014	0.033
Lead	0.018	0.011	0.014	0.014	0.020
Mercury	0.0014	<0.0002	<0.0002	<0.0002	<0.0002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.001	<0.005	<0.005	<0.005	<0.002
Methyl Chloride	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5
Acetone	<100	<100	<100	<100	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5
Methyl Iodide	<5	<5	<5	<5	<5
Acrylonitrile	<100	<100	<100	<100	<100
Dichloromethane	<5	<5	<5	<5	<5
Carbon Disulfide	<5	<5	<5	<5	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5
Vinyl Acetate	<50	<50	<50	<50	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5
Bromochloromethane	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5
Dibromomethane	<5	<5	<5	<5	<5
Bromodichloromethane	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5
2-Hexanone	<50	<50	<50	<50	<50
Dibromochloromethane	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	<5	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5
Xylenes (total)	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	<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
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	1.93	0.97	0.75	1.8	1.2
Cadmium	<0.010	<0.001	<0.001	<0.001	<0.001
Chromium	0.028	0.021	0.18	0.41	0.43
Lead	0.017	0.006	0.023	0.053	0.038
Mercury	0.0014	0.0004	<0.0002	0.0002	<0.002
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005
Silver	<0.001	<0.005	<0.005	<0.005	<0.002
Methyl Chloride	<10	<10	<10	<10	<10
Vinyl Chloride	<10	<10	<10	<10	<10
Bromomethane	<10	<10	<10	<10	<10
Chloroethane	<10	<10	<10	<10	<10
Trichlorofluoromethane	<5	<5	<5	<5	<5
Acetone	<100	<100	<100	<100	<100
1,1-Dichloroethene	<5	<5	<5	<5	<5
Methyl Iodide	<5	<5	<5	<5	<5
Acrylonitrile	<100	<100	<100	<100	<100
Dichloromethane	<5	<5	<5	<5	<5
Carbon Disulfide	<5	<5	<5	<5	<5
Trans-1,1-Dichloroethene	<5	<5	<5	<5	<5
1,1-Dichloroethane	<5	<5	<5	<5	<5
Vinyl Acetate	<50	<50	<50	<50	<50
Methyl Ethyl Ketone	<100	<100	<100	<100	<100
Cis-1,2-Dichloroethene	<5	<5	<5	<5	<5
Chloroform	<5	<5	<5	<5	<5
Bromochloromethane	<5	<5	<5	<5	<5
1,1,1-Trichloroethane	<5	<5	<5	<5	<5
1,2-Dichloroethane	<5	<5	<5	<5	<5
Carbon Tetrachloride	<5	<5	<5	<5	<5
Benzene	<5	<5	<5	<5	<5
Trichloroethene	<5	<5	<5	<5	<5
1,2-Dichloroporpane	<5	<5	<5	<5	<5
Dibromomethane	<5	<5	<5	<5	<5
Bromodichloromethane	<5	<5	<5	<5	<5
4-Methyl-2-Pentanone	<50	<50	<50	<50	<50
Cis-1,3-Dichloropropene	<5	<5	<5	<5	<5
Toluene	<5	<5	<5	<5	<5
Trans-1,3-Dichloro-1-Propene	<5	<5	<5	<5	<5
1,1,2-Trichloroethane	<5	<5	<5	<5	<5
2-Hexanone	<50	<50	<50	<50	<50
Dibromochloromethane	<5	<5	<5	<5	<5
Tetrachloroethylene	<5	<5	<5	<5	<5
1,2-Dibromoethane	<5	<5	<5	<5	<5
Chlorobenzene	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	<5	<5	<5	<5	<5
Ethylbenzene	<5	<5	<5	<5	<5
Xylenes (total)	<5	<5	<5	<5	<5
Styrene	<5	<5	<5	<5	<5
Bromoform	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	<5	<5	<5	<5	<5
1,2,3-Trichloropropane	<5	<5	<5	<5	<5
Trans-1,4-Dichloro-2-Butene	<5	<5	<5	<5	<5
1,4-Dichlorobenzene	<5	<5	<5	<5	<5
1,2-Dichlorobenzene	<5	<5	<5	<5	<5
1,2-Dibromo-3-Chloropropane	<5	<5	<5	<5	<5

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HDR
CHARLOTTE, NC

May 21, 1998

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

RE: PACE Project No. 680506.500
Client Reference: 00162-090-018/Winston-Salem C&D Landfill

Dear Mr. Isham:

Enclosed is the report of laboratory analyses for samples received May 06, 1998.

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

for Felicia C Grogan
Project Manager

Enclosures

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

May 21, 1998
PACE Project Number: 680506500

Attn: Mr. John Isham

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348800		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-1R		
Parameter	Units	PRL		METHOD	DATE ANALYZED
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Arsenic	mg/L	0.005	ND	206.2	05/13/98
Barium	mg/L	0.010	0.10	200.7	05/11/98
Cadmium	mg/L	0.001	ND	213.2	05/11/98
Chromium	mg/L	0.002	0.049	218.2	05/19/98
Lead	mg/L	0.005	ND	239.2	05/13/98
Mercury	mg/L	0.0002	ND	245.1	05/11/98
Selenium	mg/L	0.005	ND	270.2	05/11/98
Silver	mg/L	0.002	ND	272.2	05/13/98
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Methyl Chloride	ug/L	10	ND		05/19/98
Chloroethene (Vinyl chloride)	ug/L	10	ND		05/19/98
Bromomethane	ug/L	10	ND		05/19/98
Chloroethane	ug/L	10	ND		05/19/98
Trichlorofluoromethane	ug/L	5.0	ND		05/19/98
Acetone	ug/L	100	ND		05/19/98
1,1-Dichloroethene	ug/L	5.0	ND		05/19/98
Methyl iodide	ug/L	5.0	ND		05/19/98
Acrylonitrile	ug/L	100	ND		05/19/98
Dichloromethane	ug/L	5.0	ND		05/19/98
Carbon disulfide	ug/L	5.0	ND		05/19/98
trans-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
1,1-Dichloroethane	ug/L	5.0	ND		05/19/98
Vinyl acetate	ug/L	50	ND		05/19/98
Methyl ethyl ketone	ug/L	100	ND		05/19/98
cis-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
Chloroform	ug/L	5.0	ND		05/19/98

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Mr. John Isham
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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348800		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-1R		
Parameter	Units	PRL		METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Bromochloromethane	ug/L	5.0	ND		05/19/98
1,1,1-Trichloroethane	ug/L	5.0	ND		05/19/98
1,2-Dichloroethane	ug/L	5.0	ND		05/19/98
Carbon tetrachloride	ug/L	5.0	ND		05/19/98
Benzene	ug/L	5.0	ND		05/19/98
Trichloroethene	ug/L	5.0	ND		05/19/98
1,2-Dichloropropane	ug/L	5.0	ND		05/19/98
Dibromomethane	ug/L	5.0	ND		05/19/98
Bromodichloromethane	ug/L	5.0	ND		05/19/98
4-Methyl-2-pentanone (MIBK)	ug/L	50	ND		05/19/98
cis-1,3-Dichloropropene	ug/L	5.0	ND		05/19/98
Toluene	ug/L	5.0	ND		05/19/98
trans-1,3-Dichloro-1-propene	ug/L	5.0	ND		05/19/98
1,1,2-Trichloroethane	ug/L	5.0	ND		05/19/98
2-Hexanone	ug/L	50	ND		05/19/98
Dibromochloromethane	ug/L	5.0	ND		05/19/98
Tetrachloroethylene	ug/L	5.0	ND		05/19/98
1,2-Dibromoethane	ug/L	5.0	ND		05/19/98
Chlorobenzene	ug/L	5.0	ND		05/19/98
1,1,1,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
Ethylbenzene	ug/L	5.0	ND		05/19/98
Xylenes, (total)	ug/L	5.0	ND		05/19/98
Styrene	ug/L	5.0	ND		05/19/98
Bromoform	ug/L	5.0	ND		05/19/98
1,1,2,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
1,2,3-Trichloropropane	ug/L	5.0	ND		05/19/98
trans-1,4-Dichloro-2-butene	ug/L	5.0	ND		05/19/98
1,4-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dibromo-3-chloropropane	ug/L	5.0	ND		05/19/98
Surrogate - Dibromofluoromethane	%		86		05/19/98

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Mr. John Isham
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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348800		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-1R		
Parameter	Units	PRL		METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Surrogate - 1,2-Dichloroethane-d4	%		73 Q3		05/19/98
Surrogate - Toluene-d8	%		93		05/19/98
Surrogate - 4-Bromofluorobenzene	%		104		05/19/98

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Mr. John Isham
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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348818		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-2R		
Parameter	Units	PRL		METHOD	DATE ANALYZED
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Arsenic	mg/L	0.005	ND	206.2	05/13/98
Barium	mg/L	0.010	0.19	200.7	05/11/98
Cadmium	mg/L	0.001	ND	213.2	05/11/98
Chromium	mg/L	0.002	0.034	218.2	05/19/98
Lead	mg/L	0.005	0.019	239.2	05/13/98
Mercury	mg/L	0.0002	ND	245.1	05/11/98
Selenium	mg/L	0.005	ND	270.2	05/11/98
Silver	mg/L	0.002	ND	272.2	05/13/98
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Methyl Chloride	ug/L	10	ND		05/19/98
Chloroethene (Vinyl chloride)	ug/L	10	ND		05/19/98
Bromomethane	ug/L	10	ND		05/19/98
Chloroethane	ug/L	10	ND		05/19/98
Trichlorofluoromethane	ug/L	5.0	ND		05/19/98
Acetone	ug/L	100	ND		05/19/98
1,1-Dichloroethene	ug/L	5.0	ND		05/19/98
Methyl iodide	ug/L	5.0	ND		05/19/98
Acrylonitrile	ug/L	100	ND		05/19/98
Dichloromethane	ug/L	5.0	ND		05/19/98
Carbon disulfide	ug/L	5.0	ND		05/19/98
trans-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
1,1-Dichloroethane	ug/L	5.0	ND		05/19/98
Vinyl acetate	ug/L	50	ND		05/19/98
Methyl ethyl ketone	ug/L	100	ND		05/19/98
cis-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
Chloroform	ug/L	5.0	ND		05/19/98
Bromochloromethane	ug/L	5.0	ND		05/19/98
1,1,1-Trichloroethane	ug/L	5.0	ND		05/19/98
1,2-Dichloroethane	ug/L	5.0	ND		05/19/98

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Mr. John Isham
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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348818		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-2R		
Parameter	Units	PRL		METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Carbon tetrachloride	ug/L	5.0	ND		05/19/98
Benzene	ug/L	5.0	ND		05/19/98
Trichloroethene	ug/L	5.0	ND		05/19/98
1,2-Dichloropropane	ug/L	5.0	ND		05/19/98
Dibromomethane	ug/L	5.0	ND		05/19/98
Bromodichloromethane	ug/L	5.0	ND		05/19/98
4-Methyl-2-pentanone (MIBK)	ug/L	50	ND		05/19/98
cis-1,3-Dichloropropene	ug/L	5.0	ND		05/19/98
Toluene	ug/L	5.0	ND		05/19/98
trans-1,3-Dichloro-1-propene	ug/L	5.0	ND		05/19/98
1,1,2-Trichloroethane	ug/L	5.0	ND		05/19/98
2-Hexanone	ug/L	50	ND		05/19/98
Dibromochloromethane	ug/L	5.0	ND		05/19/98
Tetrachloroethylene	ug/L	5.0	ND		05/19/98
1,2-Dibromoethane	ug/L	5.0	ND		05/19/98
Chlorobenzene	ug/L	5.0	ND		05/19/98
1,1,1,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
Ethylbenzene	ug/L	5.0	ND		05/19/98
Xylenes, (total)	ug/L	5.0	ND		05/19/98
Styrene	ug/L	5.0	ND		05/19/98
Bromoform	ug/L	5.0	ND		05/19/98
1,1,2,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
1,2,3-Trichloropropane	ug/L	5.0	ND		05/19/98
trans-1,4-Dichloro-2-butene	ug/L	5.0	ND		05/19/98
1,4-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dibromo-3-chloropropane	ug/L	5.0	ND		05/19/98
Surrogate - Dibromofluoromethane	%		92		05/19/98
Surrogate - 1,2-Dichloroethane-d4	%		82		05/19/98
Surrogate - Toluene-d8	%		94		05/19/98
Surrogate - 4-Bromofluorobenzene	%		101		05/19/98

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Mr. John Isham
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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348826		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-3		
Parameter	Units	PRL		METHOD	DATE ANALYZED
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Arsenic	mg/L	0.005	ND	206.2	05/13/98
Barium	mg/L	0.010	0.86	200.7	05/11/98
Cadmium	mg/L	0.001	ND	213.2	05/11/98
Chromium	mg/L	0.002	0.025	218.2	05/19/98
Lead	mg/L	0.005	0.032	239.2	05/13/98
Mercury	mg/L	0.0002	ND	245.1	05/11/98
Selenium	mg/L	0.005	ND	270.2	05/11/98
Silver	mg/L	0.002	ND	272.2	05/13/98
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Methyl Chloride	ug/L	10	ND		05/19/98
Chloroethene (Vinyl chloride)	ug/L	10	ND		05/19/98
Bromomethane	ug/L	10	ND		05/19/98
Chloroethane	ug/L	10	ND		05/19/98
Trichlorofluoromethane	ug/L	5.0	ND		05/19/98
Acetone	ug/L	100	ND		05/19/98
1,1-Dichloroethene	ug/L	5.0	ND		05/19/98
Methyl iodide	ug/L	5.0	ND		05/19/98
Acrylonitrile	ug/L	100	ND		05/19/98
Dichloromethane	ug/L	5.0	ND		05/19/98
Carbon disulfide	ug/L	5.0	ND		05/19/98
trans-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
1,1-Dichloroethane	ug/L	5.0	ND		05/19/98
Vinyl acetate	ug/L	50	ND		05/19/98
Methyl ethyl ketone	ug/L	100	ND		05/19/98
cis-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
Chloroform	ug/L	5.0	ND		05/19/98
Bromochloromethane	ug/L	5.0	ND		05/19/98
1,1,1-Trichloroethane	ug/L	5.0	ND		05/19/98
1,2-Dichloroethane	ug/L	5.0	ND		05/19/98

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Mr. John Isham

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348826		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-3		
Parameter	Units	PRL		METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Carbon tetrachloride	ug/L	5.0	ND		05/19/98
Benzene	ug/L	5.0	ND		05/19/98
Trichloroethene	ug/L	5.0	ND		05/19/98
1,2-Dichloropropane	ug/L	5.0	ND		05/19/98
Dibromomethane	ug/L	5.0	ND		05/19/98
Bromodichloromethane	ug/L	5.0	ND		05/19/98
4-Methyl-2-pentanone (MIBK)	ug/L	50	ND		05/19/98
cis-1,3-Dichloropropene	ug/L	5.0	ND		05/19/98
Toluene	ug/L	5.0	ND		05/19/98
trans-1,3-Dichloro-1-propene	ug/L	5.0	ND		05/19/98
1,1,2-Trichloroethane	ug/L	5.0	ND		05/19/98
2-Hexanone	ug/L	50	ND		05/19/98
Dibromochloromethane	ug/L	5.0	ND		05/19/98
Tetrachloroethylene	ug/L	5.0	ND		05/19/98
1,2-Dibromoethane	ug/L	5.0	ND		05/19/98
Chlorobenzene	ug/L	5.0	ND		05/19/98
1,1,1,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
Ethylbenzene	ug/L	5.0	ND		05/19/98
Xylenes, (total)	ug/L	5.0	ND		05/19/98
Styrene	ug/L	5.0	ND		05/19/98
Bromoform	ug/L	5.0	ND		05/19/98
1,1,2,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
1,2,3-Trichloropropane	ug/L	5.0	ND		05/19/98
trans-1,4-Dichloro-2-butene	ug/L	5.0	ND		05/19/98
1,4-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dibromo-3-chloropropane	ug/L	5.0	ND		05/19/98
Surrogate - Dibromofluoromethane	%		91		05/19/98
Surrogate - 1,2-Dichloroethane-d4	%		87		05/19/98
Surrogate - Toluene-d8	%		91		05/19/98
Surrogate - 4-Bromofluorobenzene	%		100		05/19/98

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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348834		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-4R		
Parameter	Units	PRL		METHOD	DATE ANALYZED
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Arsenic	mg/L	0.005	ND	206.2	05/13/98
Barium	mg/L	0.010	0.85	200.7	05/11/98
Cadmium	mg/L	0.001	ND	213.2	05/11/98
Chromium	mg/L	0.008	0.13	218.2	05/19/98
Lead	mg/L	0.005	0.043	239.2	05/13/98
Mercury	mg/L	0.0002	ND	245.1	05/11/98
Selenium	mg/L	0.005	ND	270.2	05/11/98
Silver	mg/L	0.002	ND	272.2	05/13/98
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Methyl Chloride	ug/L	10	ND		05/19/98
Chloroethene (Vinyl chloride)	ug/L	10	ND		05/19/98
Bromomethane	ug/L	10	ND		05/19/98
Chloroethane	ug/L	10	ND		05/19/98
Trichlorofluoromethane	ug/L	5.0	ND		05/19/98
Acetone	ug/L	100	ND		05/19/98
1,1-Dichloroethene	ug/L	5.0	ND		05/19/98
Methyl iodide	ug/L	5.0	ND		05/19/98
Acrylonitrile	ug/L	100	ND		05/19/98
Dichloromethane	ug/L	5.0	ND		05/19/98
Carbon disulfide	ug/L	5.0	ND		05/19/98
trans-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
1,1-Dichloroethane	ug/L	5.0	ND		05/19/98
Vinyl acetate	ug/L	50	ND		05/19/98
Methyl ethyl ketone	ug/L	100	ND		05/19/98
cis-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
Chloroform	ug/L	5.0	ND		05/19/98
Bromochloromethane	ug/L	5.0	ND		05/19/98
1,1,1-Trichloroethane	ug/L	5.0	ND		05/19/98
1,2-Dichloroethane	ug/L	5.0	ND		05/19/98

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Mr. John Isham
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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348834		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-4R		
Parameter	Units	PRL		METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Carbon tetrachloride	ug/L	5.0	ND		05/19/98
Benzene	ug/L	5.0	ND		05/19/98
Trichloroethene	ug/L	5.0	ND		05/19/98
1,2-Dichloropropane	ug/L	5.0	ND		05/19/98
Dibromomethane	ug/L	5.0	ND		05/19/98
Bromodichloromethane	ug/L	5.0	ND		05/19/98
4-Methyl-2-pentanone (MIBK)	ug/L	50	ND		05/19/98
cis-1,3-Dichloropropene	ug/L	5.0	ND		05/19/98
Toluene	ug/L	5.0	ND		05/19/98
trans-1,3-Dichloro-1-propene	ug/L	5.0	ND		05/19/98
1,1,2-Trichloroethane	ug/L	5.0	ND		05/19/98
2-Hexanone	ug/L	50	ND		05/19/98
Dibromochloromethane	ug/L	5.0	ND		05/19/98
Tetrachloroethylene	ug/L	5.0	ND		05/19/98
1,2-Dibromoethane	ug/L	5.0	ND		05/19/98
Chlorobenzene	ug/L	5.0	ND		05/19/98
1,1,1,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
Ethylbenzene	ug/L	5.0	ND		05/19/98
Xylenes, (total)	ug/L	5.0	ND		05/19/98
Styrene	ug/L	5.0	ND		05/19/98
Bromoform	ug/L	5.0	ND		05/19/98
1,1,2,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
1,2,3-Trichloropropane	ug/L	5.0	ND		05/19/98
trans-1,4-Dichloro-2-butene	ug/L	5.0	ND		05/19/98
1,4-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dibromo-3-chloropropane	ug/L	5.0	ND		05/19/98
Surrogate - Dibromofluoromethane	%		96		05/19/98
Surrogate - 1,2-Dichloroethane-d4	%		89		05/19/98
Surrogate - Toluene-d8	%		90		05/19/98
Surrogate - 4-Bromofluorobenzene	%		106		05/19/98

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Mr. John Isham
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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348842		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-5R		
Parameter	Units	PRL		METHOD	DATE ANALYZED
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Arsenic	mg/L	0.005	0.005	206.2	05/13/98
Barium	mg/L	0.010	0.82	200.7	05/11/98
Cadmium	mg/L	0.001	ND	213.2	05/18/98
Chromium	mg/L	0.008	0.17	218.2	05/19/98
Lead	mg/L	0.005	0.069	239.2	05/13/98
Mercury	mg/L	0.0002	ND	245.1	05/11/98
Selenium	mg/L	0.005	ND	270.2	05/11/98
Silver	mg/L	0.002	ND	272.2	05/13/98
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Methyl Chloride	ug/L	10	ND		05/19/98
Chloroethene (Vinyl chloride)	ug/L	10	ND		05/19/98
Bromomethane	ug/L	10	ND		05/19/98
Chloroethane	ug/L	10	ND		05/19/98
Trichlorofluoromethane	ug/L	5.0	ND		05/19/98
Acetone	ug/L	100	ND		05/19/98
1,1-Dichloroethene	ug/L	5.0	ND		05/19/98
Methyl iodide	ug/L	5.0	ND		05/19/98
Acrylonitrile	ug/L	100	ND		05/19/98
Dichloromethane	ug/L	5.0	ND		05/19/98
Carbon disulfide	ug/L	5.0	ND		05/19/98
trans-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
1,1-Dichloroethane	ug/L	5.0	ND		05/19/98
Vinyl acetate	ug/L	50	ND		05/19/98
Methyl ethyl ketone	ug/L	100	ND		05/19/98
cis-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
Chloroform	ug/L	5.0	ND		05/19/98
Bromochloromethane	ug/L	5.0	ND		05/19/98
1,1,1-Trichloroethane	ug/L	5.0	ND		05/19/98
1,2-Dichloroethane	ug/L	5.0	ND		05/19/98

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Mr. John Isham
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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348842		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-5R		
Parameter	Units	PRL		METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Carbon tetrachloride	ug/L	5.0	ND		05/19/98
Benzene	ug/L	5.0	ND		05/19/98
Trichloroethene	ug/L	5.0	ND		05/19/98
1,2-Dichloropropane	ug/L	5.0	ND		05/19/98
Dibromomethane	ug/L	5.0	ND		05/19/98
Bromodichloromethane	ug/L	5.0	ND		05/19/98
4-Methyl-2-pentanone (MIBK)	ug/L	50	ND		05/19/98
cis-1,3-Dichloropropene	ug/L	5.0	ND		05/19/98
Toluene	ug/L	5.0	ND		05/19/98
trans-1,3-Dichloro-1-propene	ug/L	5.0	ND		05/19/98
1,1,2-Trichloroethane	ug/L	5.0	ND		05/19/98
2-Hexanone	ug/L	50	ND		05/19/98
Dibromochloromethane	ug/L	5.0	ND		05/19/98
Tetrachloroethylene	ug/L	5.0	ND		05/19/98
1,2-Dibromoethane	ug/L	5.0	ND		05/19/98
Chlorobenzene	ug/L	5.0	ND		05/19/98
1,1,1,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
Ethylbenzene	ug/L	5.0	ND		05/19/98
Xylenes, (total)	ug/L	5.0	ND		05/19/98
Styrene	ug/L	5.0	ND		05/19/98
Bromoform	ug/L	5.0	ND		05/19/98
1,1,2,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
1,2,3-Trichloropropane	ug/L	5.0	ND		05/19/98
trans-1,4-Dichloro-2-butene	ug/L	5.0	ND		05/19/98
1,4-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dibromo-3-chloropropane	ug/L	5.0	ND		05/19/98
Surrogate - Dibromofluoromethane	%		93		05/19/98
Surrogate - 1,2-Dichloroethane-d4	%		88		05/19/98
Surrogate - Toluene-d8	%		92		05/19/98
Surrogate - 4-Bromofluorobenzene	%		96		05/19/98

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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348850		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-6		
Parameter	Units	PRL		METHOD	DATE ANALYZED
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Arsenic	mg/L	0.005	ND	206.2	05/13/98
Barium	mg/L	0.010	0.36	200.7	05/11/98
Cadmium	mg/L	0.001	ND	213.2	05/18/98
Chromium	mg/L	0.002	0.033	218.2	05/19/98
Lead	mg/L	0.005	0.020	239.2	05/13/98
Mercury	mg/L	0.0002	ND	245.1	05/11/98
Selenium	mg/L	0.005	ND	270.2	05/11/98
Silver	mg/L	0.002	ND	272.2	05/13/98
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Methyl Chloride	ug/L	10	ND		05/19/98
Chloroethene (Vinyl chloride)	ug/L	10	ND		05/19/98
Bromomethane	ug/L	10	ND		05/19/98
Chloroethane	ug/L	10	ND		05/19/98
Trichlorofluoromethane	ug/L	5.0	ND		05/19/98
Acetone	ug/L	100	ND		05/19/98
1,1-Dichloroethene	ug/L	5.0	ND		05/19/98
Methyl iodide	ug/L	5.0	ND		05/19/98
Acrylonitrile	ug/L	100	ND		05/19/98
Dichloromethane	ug/L	5.0	ND		05/19/98
Carbon disulfide	ug/L	5.0	ND		05/19/98
trans-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
1,1-Dichloroethane	ug/L	5.0	ND		05/19/98
Vinyl acetate	ug/L	50	ND		05/19/98
Methyl ethyl ketone	ug/L	100	ND		05/19/98
cis-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
Chloroform	ug/L	5.0	ND		05/19/98
Bromochloromethane	ug/L	5.0	ND		05/19/98
1,1,1-Trichloroethane	ug/L	5.0	ND		05/19/98
1,2-Dichloroethane	ug/L	5.0	ND		05/19/98

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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348850		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-6		
Parameter	Units	PRL		METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Carbon tetrachloride	ug/L	5.0	ND		05/19/98
Benzene	ug/L	5.0	ND		05/19/98
Trichloroethene	ug/L	5.0	ND		05/19/98
1,2-Dichloropropane	ug/L	5.0	ND		05/19/98
Dibromomethane	ug/L	5.0	ND		05/19/98
Bromodichloromethane	ug/L	5.0	ND		05/19/98
4-Methyl-2-pentanone (MIBK)	ug/L	50	ND		05/19/98
cis-1,3-Dichloropropene	ug/L	5.0	ND		05/19/98
Toluene	ug/L	5.0	ND		05/19/98
trans-1,3-Dichloro-1-propene	ug/L	5.0	ND		05/19/98
1,1,2-Trichloroethane	ug/L	5.0	ND		05/19/98
2-Hexanone	ug/L	50	ND		05/19/98
Dibromochloromethane	ug/L	5.0	ND		05/19/98
Tetrachloroethylene	ug/L	5.0	ND		05/19/98
1,2-Dibromoethane	ug/L	5.0	ND		05/19/98
Chlorobenzene	ug/L	5.0	ND		05/19/98
1,1,1,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
Ethylbenzene	ug/L	5.0	ND		05/19/98
Xylenes, (total)	ug/L	5.0	ND		05/19/98
Styrene	ug/L	5.0	ND		05/19/98
Bromoform	ug/L	5.0	ND		05/19/98
1,1,2,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
1,2,3-Trichloropropane	ug/L	5.0	ND		05/19/98
trans-1,4-Dichloro-2-butene	ug/L	5.0	ND		05/19/98
1,4-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dibromo-3-chloropropane	ug/L	5.0	ND		05/19/98
Surrogate - Dibromofluoromethane	%		92		05/19/98
Surrogate - 1,2-Dichloroethane-d4	%		75		05/19/98
Surrogate - Toluene-d8	%		88		05/19/98
Surrogate - 4-Bromofluorobenzene	%		100		05/19/98

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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348869		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-7		
Parameter	Units	PRL		METHOD	DATE ANALYZED
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Arsenic	mg/L	0.005	ND	206.2	05/13/98
Barium	mg/L	0.010	1.2	200.7	05/11/98
Cadmium	mg/L	0.001	ND	213.2	05/18/98
Chromium	mg/L	0.020	0.43	218.2	05/19/98
Lead	mg/L	0.005	0.038	239.2	05/13/98
Mercury	mg/L	0.0002	ND	245.1	05/11/98
Selenium	mg/L	0.005	ND	270.2	05/11/98
Silver	mg/L	0.002	ND	272.2	05/13/98
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Methyl Chloride	ug/L	10	ND		05/19/98
Chloroethene (Vinyl chloride)	ug/L	10	ND		05/19/98
Bromomethane	ug/L	10	ND		05/19/98
Chloroethane	ug/L	10	ND		05/19/98
Trichlorofluoromethane	ug/L	5.0	ND		05/19/98
Acetone	ug/L	100	ND		05/19/98
1,1-Dichloroethene	ug/L	5.0	ND		05/19/98
Methyl iodide	ug/L	5.0	ND		05/19/98
Acrylonitrile	ug/L	100	ND		05/19/98
Dichloromethane	ug/L	5.0	ND		05/19/98
Carbon disulfide	ug/L	5.0	ND		05/19/98
trans-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
1,1-Dichloroethane	ug/L	5.0	ND		05/19/98
Vinyl acetate	ug/L	50	ND		05/19/98
Methyl ethyl ketone	ug/L	100	ND		05/19/98
cis-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
Chloroform	ug/L	5.0	ND		05/19/98
Bromochloromethane	ug/L	5.0	ND		05/19/98
1,1,1-Trichloroethane	ug/L	5.0	ND		05/19/98
1,2-Dichloroethane	ug/L	5.0	ND		05/19/98

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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348869		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			MW-7		
Parameter	Units	PRL		METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Carbon tetrachloride	ug/L	5.0	ND		05/19/98
Benzene	ug/L	5.0	ND		05/19/98
Trichloroethene	ug/L	5.0	ND		05/19/98
1,2-Dichloropropane	ug/L	5.0	ND		05/19/98
Dibromomethane	ug/L	5.0	ND		05/19/98
Bromodichloromethane	ug/L	5.0	ND		05/19/98
4-Methyl-2-pentanone (MIBK)	ug/L	50	ND		05/19/98
cis-1,3-Dichloropropene	ug/L	5.0	ND		05/19/98
Toluene	ug/L	5.0	ND		05/19/98
trans-1,3-Dichloro-1-propene	ug/L	5.0	ND		05/19/98
1,1,2-Trichloroethane	ug/L	5.0	ND		05/19/98
2-Hexanone	ug/L	50	ND		05/19/98
Dibromochloromethane	ug/L	5.0	ND		05/19/98
Tetrachloroethylene	ug/L	5.0	ND		05/19/98
1,2-Dibromoethane	ug/L	5.0	ND		05/19/98
Chlorobenzene	ug/L	5.0	ND		05/19/98
1,1,1,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
Ethylbenzene	ug/L	5.0	ND		05/19/98
Xylenes, (total)	ug/L	5.0	ND		05/19/98
Styrene	ug/L	5.0	ND		05/19/98
Bromoform	ug/L	5.0	ND		05/19/98
1,1,2,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
1,2,3-Trichloropropane	ug/L	5.0	ND		05/19/98
trans-1,4-Dichloro-2-butene	ug/L	5.0	ND		05/19/98
1,4-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dibromo-3-chloropropane	ug/L	5.0	ND		05/19/98
Surrogate - Dibromofluoromethane	%		86		05/19/98
Surrogate - 1,2-Dichloroethane-d4	%		82		05/19/98
Surrogate - Toluene-d8	%		91		05/19/98
Surrogate - 4-Bromofluorobenzene	%		103		05/19/98

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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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

Parameter	Units	PRL	Equipment Blank	METHOD	DATE ANALYZED
PACE Sample Number:			92 0348877		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:					
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Arsenic	mg/L	0.005	ND	206.2	05/13/98
Barium	mg/L	0.010	ND	200.7	05/11/98
Cadmium	mg/L	0.001	ND	213.2	05/18/98
Chromium	mg/L	0.002	0.002	218.2	05/19/98
Lead	mg/L	0.005	ND	239.2	05/13/98
Mercury	mg/L	0.0002	ND	245.1	05/11/98
Selenium	mg/L	0.005	ND	270.2	05/11/98
Silver	mg/L	0.002	ND	272.2	05/13/98
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Methyl Chloride	ug/L	10	ND		05/19/98
Chloroethene (Vinyl chloride)	ug/L	10	ND		05/19/98
Bromomethane	ug/L	10	ND		05/19/98
Chloroethane	ug/L	10	ND		05/19/98
Trichlorofluoromethane	ug/L	5.0	ND		05/19/98
Acetone	ug/L	100	ND		05/19/98
1,1-Dichloroethene	ug/L	5.0	ND		05/19/98
Methyl iodide	ug/L	5.0	ND		05/19/98
Acrylonitrile	ug/L	100	ND		05/19/98
Dichloromethane	ug/L	5.0	ND		05/19/98
Carbon disulfide	ug/L	5.0	ND		05/19/98
trans-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
1,1-Dichloroethane	ug/L	5.0	ND		05/19/98
Vinyl acetate	ug/L	50	ND		05/19/98
Methyl ethyl ketone	ug/L	100	ND		05/19/98
cis-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
Chloroform	ug/L	5.0	ND		05/19/98
Bromochloromethane	ug/L	5.0	ND		05/19/98
1,1,1-Trichloroethane	ug/L	5.0	ND		05/19/98
1,2-Dichloroethane	ug/L	5.0	ND		05/19/98

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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348877		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			Equipment		
Parameter	Units	PRL	Blank	METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Carbon tetrachloride	ug/L	5.0	ND		05/19/98
Benzene	ug/L	5.0	ND		05/19/98
Trichloroethene	ug/L	5.0	ND		05/19/98
1,2-Dichloropropane	ug/L	5.0	ND		05/19/98
Dibromomethane	ug/L	5.0	ND		05/19/98
Bromodichloromethane	ug/L	5.0	ND		05/19/98
4-Methyl-2-pentanone (MIBK)	ug/L	50	ND		05/19/98
cis-1,3-Dichloropropene	ug/L	5.0	ND		05/19/98
Toluene	ug/L	5.0	ND		05/19/98
trans-1,3-Dichloro-1-propene	ug/L	5.0	ND		05/19/98
1,1,2-Trichloroethane	ug/L	5.0	ND		05/19/98
2-Hexanone	ug/L	50	ND		05/19/98
Dibromochloromethane	ug/L	5.0	ND		05/19/98
Tetrachloroethylene	ug/L	5.0	ND		05/19/98
1,2-Dibromoethane	ug/L	5.0	ND		05/19/98
Chlorobenzene	ug/L	5.0	ND		05/19/98
1,1,1,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
Ethylbenzene	ug/L	5.0	ND		05/19/98
Xylenes, (total)	ug/L	5.0	ND		05/19/98
Styrene	ug/L	5.0	ND		05/19/98
Bromoform	ug/L	5.0	ND		05/19/98
1,1,2,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
1,2,3-Trichloropropane	ug/L	5.0	ND		05/19/98
trans-1,4-Dichloro-2-butene	ug/L	5.0	ND		05/19/98
1,4-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dibromo-3-chloropropane	ug/L	5.0	ND		05/19/98
Surrogate - Dibromofluoromethane	%		91		05/19/98
Surrogate - 1,2-Dichloroethane-d4	%		84		05/19/98
Surrogate - Toluene-d8	%		88		05/19/98
Surrogate - 4-Bromofluorobenzene	%		103		05/19/98

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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348885		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			Trip		
Parameter	Units	PRL	Blank	METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
Methyl Chloride	ug/L	10	ND		05/19/98
Chloroethene (Vinyl chloride)	ug/L	10	ND		05/19/98
Bromomethane	ug/L	10	ND		05/19/98
Chloroethane	ug/L	10	ND		05/19/98
Trichlorofluoromethane	ug/L	5.0	ND		05/19/98
Acetone	ug/L	100	ND		05/19/98
1,1-Dichloroethene	ug/L	5.0	ND		05/19/98
Methyl iodide	ug/L	5.0	ND		05/19/98
Acrylonitrile	ug/L	100	ND		05/19/98
Dichloromethane	ug/L	5.0	ND		05/19/98
Carbon disulfide	ug/L	5.0	ND		05/19/98
trans-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
1,1-Dichloroethane	ug/L	5.0	ND		05/19/98
Vinyl acetate	ug/L	50	ND		05/19/98
Methyl ethyl ketone	ug/L	100	ND		05/19/98
cis-1,2-Dichloroethene	ug/L	5.0	ND		05/19/98
Chloroform	ug/L	5.0	ND		05/19/98
Bromochloromethane	ug/L	5.0	ND		05/19/98
1,1,1-Trichloroethane	ug/L	5.0	ND		05/19/98
1,2-Dichloroethane	ug/L	5.0	ND		05/19/98
Carbon tetrachloride	ug/L	5.0	ND		05/19/98
Benzene	ug/L	5.0	ND		05/19/98
Trichloroethene	ug/L	5.0	ND		05/19/98
1,2-Dichloropropane	ug/L	5.0	ND		05/19/98
Dibromomethane	ug/L	5.0	ND		05/19/98
Bromodichloromethane	ug/L	5.0	ND		05/19/98
4-Methyl-2-pentanone (MIBK)	ug/L	50	ND		05/19/98
cis-1,3-Dichloropropene	ug/L	5.0	ND		05/19/98
Toluene	ug/L	5.0	ND		05/19/98
trans-1,3-Dichloro-1-propene	ug/L	5.0	ND		05/19/98
1,1,2-Trichloroethane	ug/L	5.0	ND		05/19/98

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May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

PACE Sample Number:			92 0348885		
Date Collected:			05/05/98		
Date Received:			05/06/98		
Client Sample ID:			Trip		
Parameter	Units	PRL	Blank	METHOD	DATE ANALYZED
ORGANIC ANALYSIS					
APPENDIX I, LANDFILL VOLATILES				8260	
2-Hexanone	ug/L	50	ND		05/19/98
Dibromochloromethane	ug/L	5.0	ND		05/19/98
Tetrachloroethylene	ug/L	5.0	ND		05/19/98
1,2-Dibromoethane	ug/L	5.0	ND		05/19/98
Chlorobenzene	ug/L	5.0	ND		05/19/98
1,1,1,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
Ethylbenzene	ug/L	5.0	5.2		05/19/98
Xylenes, (total)	ug/L	5.0	ND		05/19/98
Styrene	ug/L	5.0	ND		05/19/98
Bromoform	ug/L	5.0	ND		05/19/98
1,1,2,2-Tetrachloroethane	ug/L	5.0	ND		05/19/98
1,2,3-Trichloropropane	ug/L	5.0	ND		05/19/98
trans-1,4-Dichloro-2-butene	ug/L	5.0	ND		05/19/98
1,4-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dichlorobenzene	ug/L	5.0	ND		05/19/98
1,2-Dibromo-3-chloropropane	ug/L	5.0	ND		05/19/98
Surrogate - Dibromofluoromethane	%		88		05/19/98
Surrogate - 1,2-Dichloroethane-d4	%		86		05/19/98
Surrogate - Toluene-d8	%		90		05/19/98
Surrogate - 4-Bromofluorobenzene	%		104		05/19/98

These data have been reviewed and are approved for release.

Margaret S. Harding
Manager, Laboratory Operations

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FOOTNOTES
for pages 1 through 19

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

ND	Not detected at or above the PRL.
PRL	PACE Reporting Limit
Q3	Recovery falls outside quality control limits.

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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

Arsenic
Batch: 92 72825
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	PRL	Method Blank	920348745	Duplicate of 92 0348745	RPI
Arsenic	mg/L	0.005	ND	ND	ND	NC

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	PRL	920348761	Spike	Spike Recv	Spike Dupl Recv	RPI
Arsenic	mg/L	0.005	ND	0.025	111%	108%	3%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	PRL	Reference Value	Recv	Dupl Recv	RPD
Arsenic	mg/L	0.005	0.025	104%	98%	6%

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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

Cadmium
Batch: 92 72733
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	PRL	Method Blank	920347587	Duplicate of 92 0347587	RP
Cadmium	mg/L	0.001	ND	ND	ND	NC

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	PRL	920347595	Spike	Spike Recv	Spike Dupl Recv	RP
Cadmium	mg/L	0.001	ND	0.003	124%	124%	0

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	PRL	Reference Value	Recv	Dupl Recv	RPD
Cadmium	mg/L	0.001	0.003	100%	100%	0

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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

Cadmium
Batch: 92 72926
Samples: 92 0348842, 92 0348850, 92 0348869, 92 0348877

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	PRL	Method Blank	920351746	Duplicate of 92 0351746	RP
Cadmium	mg/L	0.001	ND	ND	ND	NC

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	PRL	920348842 MW-5R	Spike	Spike Recv	Spike Dupl Recv	RP
Cadmium	mg/L	0.001	ND	0.003	125%	124%	1

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	PRL	Reference Value	Recv	Dupl Recv	RPD
Cadmium	mg/L	0.001	0.003	112%	107%	5

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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

Chromium
Batch: 92 73031
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	PRL	Method Blank	920348800 MW-1R	Duplicate of 92 0348800	RPD
Chromium	mg/L	0.002	ND	0.049	0.050	2

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	PRL	920348818 MW-2R	Spike	Spike Recv	Spike Dupl Recv	RPD
Chromium	mg/L	0.002	0.034	0.025	72% MI	74% MI	3

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	PRL	Reference Value	Recv	Dupl Recv	RPD
Chromium	mg/L	0.002	0.025	111%	109%	2

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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

Lead
Batch: 92 72799
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	PRL	Method Blank	920350189	Duplicate of 92 0350189	RPD
Lead	mg/L	0.005	ND	ND	ND	NC

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	PRL	920350200	Spike	Spike Recv	Spike Dupl Recv	RPD
Lead	mg/L	0.005	ND	0.025	62% MI	57% MI	8%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	PRL	Reference Value	Recv	Dupl Recv	RPD
Lead	mg/L	0.005	0.025	111%	110%	1%

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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

Mercury
Batch: 92 72701
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	PRL	Method Blank	920348818 MW-2R	Duplicate of 92 0348818	RPI
Mercury	mg/L	0.0002	ND	ND	ND	NC

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	PRL	920346874	Spike	Spike Recv	Spike Dupl Recv	RPI
Mercury	mg/L	0.0002	ND	0.00500	113%	111%	2

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	PRL	Reference Value	Recv	Dupl Recv	RPD
Mercury	mg/L	0.0002	0.00500	107%	104%	3

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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

Selenium
Batch: 92 72710
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	PRL	Method Blank	920344162	Duplicate of 92 0344162	RPD
Selenium	mg/L	0.005	ND	ND	ND	NC

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	PRL	920344170	Spike	Spike Recv	Spike Dupl Recv	RPD
Selenium	mg/L	0.005	ND	0.025	106%	104%	2%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	PRL	Reference Value	Recv	Dupl Recv	RPD
Selenium	mg/L	0.005	0.025	100%	98%	2%

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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

Silver
Batch: 92 72801
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	PRL	Method Blank	920348800 MW-1R	Duplicate of 92 0348800	RPD
Silver	mg/L	0.002	ND	ND	ND	NC

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	PRL	920348818 MW-2R	Spike	Spike Recv	Spike Dupl Recv	RPD
Silver	mg/L	0.002	ND	0.010	90%	92%	2%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	PRL	Reference Value	Recv	Dupl Recv	RPD
Silver	mg/L	0.002	0.010	105%	104%	1%

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Mr. John Isham
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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

ICP QUALITY CONTROL
Batch: 92 72704
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877

METHOD BLANK AND SAMPLE DUPLICATE:

Parameter	Units	PRL	Method Blank	920349580	Duplicate of 92 0349580	RPD
Magnesium	mg/L	0.20		0.90	0.88	2
Aluminum	mg/L	0.10	ND			
Antimony	mg/L	0.20	ND			
Arsenic	mg/L	0.50	ND			
Barium	mg/L	0.010	ND			
Beryllium	mg/L	0.010	ND			
Boron	mg/L	0.10	ND			
Cadmium	mg/L	0.010	ND			
Calcium	mg/L	0.10	ND			
Chromium	mg/L	0.010	ND			
Cobalt	mg/L	0.010	ND			
Copper	mg/L	0.010	ND			
Iron	mg/L	0.050	ND			
Lead	mg/L	0.10	ND			
Magnesium	mg/L	0.20	ND			
Manganese	mg/L	0.010	ND			
Molybdenum	mg/L	0.05	ND			
Nickel	mg/L	0.05	ND			
Potassium	mg/L	1.0	ND			
Selenium	mg/L	0.50	ND			
Silver	mg/L	0.050	ND			
Sodium	mg/L	0.20	ND			
Thallium	mg/L	0.50	ND			
Tin	mg/L	0.20	ND			
Titanium	mg/L	0.010	ND			
Vanadium	mg/L	0.010	ND			
Zinc	mg/L	0.010	ND			

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Mr. John Isham
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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

ICP QUALITY CONTROL
Batch: 92 72704
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	PRL	920350189	Spike	Spike Recv	Spike Dupl Recv	RPD
Aluminum	mg/L	0.10	7.11	50	100%	100%	0%
Barium	mg/L	0.010	0.032	1.0	102%	102%	0%
Beryllium	mg/L	0.010	ND	1.0	101%	101%	0%
Boron	mg/L	0.10	0.24	1.0	99%	100%	1%
Cadmium	mg/L	0.010	ND	1.0	99%	100%	1%
Calcium	mg/L	0.10	32	50	96%	96%	0%
Chromium	mg/L	0.010	ND	1.0	99%	99%	0%
Cobalt	mg/L	0.010	ND	1.0	98%	98%	0%
Copper	mg/L	0.010	0.62	1.0	96%	95%	1%
Iron	mg/L	0.050	0.20	25	96%	97%	1%
Lead	mg/L	0.10	ND	2.0	97%	98%	1%
Magnesium	mg/L	0.20	1.7	25	102%	102%	0%
Manganese	mg/L	0.010	ND	1.0	100%	100%	0%
Molybdenum	mg/L	0.05	ND	1.0	98%	99%	1%
Nickel	mg/L	0.05	ND	1.0	97%	98%	1%
Potassium	mg/L	1.0	5.9	50	109%	106%	3%
Selenium	mg/L	0.50	ND	2.0	101%	103%	2%
Silver	mg/L	0.050	ND	1.0	89%	91%	2%
Sodium	mg/L	0.20	17	50	106%	104%	2%
Thallium	mg/L	0.50	ND	2.0	100%	100%	0%
Titanium	mg/L	0.010	ND	1.0	101%	101%	0%
Vanadium	mg/L	0.010	ND	1.0	101%	101%	0%
Zinc	mg/L	0.010	0.056	2.0	97%	98%	1%

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	PRL	Reference Value	Recv	Dupl Recv	RPD
Aluminum	mg/L	0.10	50	98%	99%	1%
Barium	mg/L	0.010	1.0	100%	100%	0%
Beryllium	mg/L	0.010	1.0	100%	100%	0%
Boron	mg/L	0.10	1.0	99%	100%	1%

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Mr. John Isham
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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

ICP QUALITY CONTROL
Batch: 92 72704
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	PRL	Reference Value	Recv	Dupl Recv	RPD
Cadmium	mg/L	0.010	1.0	99%	98%	1%
Calcium	mg/L	0.10	50	97%	97%	0%
Chromium	mg/L	0.010	1.0	99%	99%	0%
Cobalt	mg/L	0.010	1.0	98%	98%	0%
Copper	mg/L	0.010	1.0	96%	96%	0%
Iron	mg/L	0.050	25	96%	96%	0%
Lead	mg/L	0.10	2.0	99%	98%	1%
Magnesium	mg/L	0.20	25	101%	101%	0%
Manganese	mg/L	0.010	1.0	99%	99%	0%
Molybdenum	mg/L	0.05	1.0	98%	98%	0%
Nickel	mg/L	0.05	1.0	98%	96%	2%
Potassium	mg/L	1.0	50	105%	106%	1%
Selenium	mg/L	0.50	2.0	101%	99%	2%
Silver	mg/L	0.050	1.0	103%	101%	2%
Sodium	mg/L	0.20	50	103%	104%	1%
Thallium	mg/L	0.50	2.0	99%	100%	1%
Titanium	mg/L	0.010	1.0	100%	100%	0%
Vanadium	mg/L	0.010	1.0	100%	100%	0%
Zinc	mg/L	0.010	2.0	98%	98%	0%

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Mr. John Isham
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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

APPENDIX I, LANDFILL VOLATILES
Batch: 92 73128
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877, 92 0348885

METHOD BLANK:

Parameter	Units	PRL	Method Blank
Methyl Chloride	ug/L	10	ND
Chloroethene (Vinyl chloride)	ug/L	10	ND
Bromomethane	ug/L	10	ND
Chloroethane	ug/L	10	ND
Trichlorofluoromethane	ug/L	5.0	ND
Acetone	ug/L	100	ND
1,1-Dichloroethene	ug/L	5.0	ND
Methyl iodide	ug/L	5.0	ND
Acrylonitrile	ug/L	100	ND
Dichloromethane	ug/L	5.0	ND
Carbon disulfide	ug/L	5.0	ND
trans-1,2-Dichloroethene	ug/L	5.0	ND
1,1-Dichloroethane	ug/L	5.0	ND
Vinyl acetate	ug/L	50	ND
Methyl ethyl ketone	ug/L	100	ND
cis-1,2-Dichloroethene	ug/L	5.0	ND
Chloroform	ug/L	5.0	ND
Bromochloromethane	ug/L	5.0	ND
1,1,1-Trichloroethane	ug/L	5.0	ND
1,2-Dichloroethane	ug/L	5.0	ND
Carbon tetrachloride	ug/L	5.0	ND
Benzene	ug/L	5.0	ND
Trichloroethene	ug/L	5.0	ND
1,2-Dichloropropane	ug/L	5.0	ND
Dibromomethane	ug/L	5.0	ND
Bromodichloromethane	ug/L	5.0	ND
4-Methyl-2-pentanone (MIBK)	ug/L	50	ND
cis-1,3-Dichloropropene	ug/L	5.0	ND
Toluene	ug/L	5.0	ND
trans-1,3-Dichloro-1-propene	ug/L	5.0	ND
1,1,2-Trichloroethane	ug/L	5.0	ND

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Mr. John Isham
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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

APPENDIX I, LANDFILL VOLATILES
Batch: 92 73128
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877, 92 0348885

METHOD BLANK:

Parameter	Units	PRL	Method Blank
2-Hexanone	ug/L	50	ND
Dibromochloromethane	ug/L	5.0	ND
Tetrachloroethylene	ug/L	5.0	ND
1,2-Dibromoethane	ug/L	5.0	ND
Chlorobenzene	ug/L	5.0	ND
1,1,1,2-Tetrachloroethane	ug/L	5.0	ND
Ethylbenzene	ug/L	5.0	ND
Xylenes, (total)	ug/L	5.0	ND
Styrene	ug/L	5.0	ND
Bromoform	ug/L	5.0	ND
1,1,2,2-Tetrachloroethane	ug/L	5.0	ND
1,2,3-Trichloropropane	ug/L	5.0	ND
trans-1,4-Dichloro-2-butene	ug/L	5.0	ND
1,4-Dichlorobenzene	ug/L	5.0	ND
1,2-Dichlorobenzene	ug/L	5.0	ND
1,2-Dibromo-3-chloropropane	ug/L	5.0	ND
Surrogate - Dibromofluoromethane	%		88
Surrogate - 1,2-Dichloroethane-d4	%		80
Surrogate - Toluene-d8	%		96
Surrogate - 4-Bromofluorobenzene	%		98

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	PRL	920348800 MW-1R	Spike	Spike Recv	Spike Dupl Recv	RPD
1,1-Dichloroethene	ug/L	5.0	ND	50	90%	94%	4%
Benzene	ug/L	5.0	ND	50	102%	106%	4%
Trichloroethene	ug/L	5.0	ND	50	112%	116%	4%
Toluene	ug/L	5.0	ND	50	106%	104%	2%
Chlorobenzene	ug/L	5.0	ND	50	112%	112%	0%

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Mr. John Isham
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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

APPENDIX I, LANDFILL VOLATILES
Batch: 92 73128
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877, 92 0348885

LABORATORY CONTROL SAMPLE:

Parameter	Units	PRL	Reference Value	Recv
Methyl Chloride	ug/L	10	20	85%
Chloroethene (Vinyl chloride)	ug/L	10	20	90%
Bromomethane	ug/L	10	20	150%
Chloroethane	ug/L	10	20	100%
Trichlorofluoromethane	ug/L	5.0	20	110%
Acetone	ug/L	100	40	110%
1,1-Dichloroethene	ug/L	5.0	20	95%
Methyl iodide	ug/L	5.0	40	105%
Acrylonitrile	ug/L	100	200	100%
Dichloromethane	ug/L	5.0	20	90%
Carbon disulfide	ug/L	5.0	40	95%
trans-1,2-Dichloroethene	ug/L	5.0	20	100%
1,1-Dichloroethane	ug/L	5.0	20	100%
Vinyl acetate	ug/L	50	40	105%
Methyl ethyl ketone	ug/L	100	40	115%
cis-1,2-Dichloroethene	ug/L	5.0	20	110%
Chloroform	ug/L	5.0	20	115%
Bromochloromethane	ug/L	5.0	20	110%
1,1,1-Trichloroethane	ug/L	5.0	20	110%
1,2-Dichloroethane	ug/L	5.0	20	105%
Carbon tetrachloride	ug/L	5.0	20	75%
Benzene	ug/L	5.0	20	105%
Trichloroethene	ug/L	5.0	20	120%
1,2-Dichloropropane	ug/L	5.0	20	110%
Dibromomethane	ug/L	5.0	20	115%
Bromodichloromethane	ug/L	5.0	20	110%
4-Methyl-2-pentanone (MIBK)	ug/L	50	40	113%
cis-1,3-Dichloropropene	ug/L	5.0	20	120%
Toluene	ug/L	5.0	20	110%
trans-1,3-Dichloro-1-propene	ug/L	5.0	20	120%
1,1,2-Trichloroethane	ug/L	5.0	20	120%

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Mr. John Isham
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QUALITY CONTROL DATA

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

APPENDIX I, LANDFILL VOLATILES
Batch: 92 73128
Samples: 92 0348800, 92 0348818, 92 0348826, 92 0348834, 92 0348842
92 0348850, 92 0348869, 92 0348877, 92 0348885

LABORATORY CONTROL SAMPLE:

Parameter	Units	PRL	Reference Value	Recv
2-Hexanone	ug/L	50	40	118%
Dibromochloromethane	ug/L	5.0	20	130%
Tetrachloroethylene	ug/L	5.0	20	130%
1,2-Dibromoethane	ug/L	5.0	20	125%
Chlorobenzene	ug/L	5.0	20	135%
1,1,1,2-Tetrachloroethane	ug/L	5.0	20	145%
Ethylbenzene	ug/L	5.0	20	120%
Xylenes, (total)	ug/L	5.0	60	127%
Styrene	ug/L	5.0	20	135%
Bromoform	ug/L	5.0	20	120%
1,1,2,2-Tetrachloroethane	ug/L	5.0	20	140%
1,2,3-Trichloropropane	ug/L	5.0	20	140%
trans-1,4-Dichloro-2-butene	ug/L	5.0	20	140%
1,4-Dichlorobenzene	ug/L	5.0	20	130%
1,2-Dichlorobenzene	ug/L	5.0	20	135%
1,2-Dibromo-3-chloropropane	ug/L	5.0	20	135%

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FOOTNOTES
for pages 21 through 35

May 21, 1998
PACE Project Number: 680506500

Client Reference: 00162-090-018/Winston-Salem C&D Landfill

MI	Matrix interference.
NC	No calculation due to value below detection limit.
ND	Not detected at or above the PRL.
PRL	PACE Reporting Limit
RPD	Relative Percent Difference

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HDR

Suite 1400
128 S. Tryon Street
Charlotte, NC 28202-5001
704 338-6700

HDR Engineering, Inc.

613151
628 5065.0

Chain of Custody Record

Project No.: 00162-090-018

Project Name: WINSTON-SALEM C&D LANDFILL

Parameters: APPENDIX I VOCS, 8 RCRA METALS

☐ Environmental

Hazardous: ☒ Low ☐ Med ☐ High

Samplers: (Signature) John R. Isham

(Printed) JOHN R. ISHAM

Lab: Address: PACE ANALYTICAL, 9800 KINCEY AVE, STE 100, HUNTERSVILLE, NC 28078

Field Sample Number	Date	Time	Comp.	GRAB	Station Location	No. of Containers				Remarks
MW-1R	5/5	0900		X	MONITORING WELL	5	4	1	34280.0	HAND DELIVERED
MW-2R	5/5	1000		X	"	5	4	1	34281.6	USE LOW-LEVEL METAL DETECTION
MW-3	5/5	1515		X	"	5	4	1	34282.6	
MW-4R	5/5	1200		X	"	5	4	1	34283.4	
MW-5R	5/5	1630		X	"	5	4	1	34284.2	
MW-6	5/5	1050		X	"	5	4	1	34285.0	
MW-7	5/5	1420		X	"	5	4	1	34286.9	
EQUIPMENT BLK	5/5			X	BAILER	5	4	1	34287.7	
TRIP BLANK					COOLER	2	2		34288.5	
TEMP BLANK					COOLER	1				

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Relinquished By: (Signature)	Date	Time	Received By: (Signature)
John R. Isham	5/6	0800	[illegible]				
(Printed) JOHN R. ISHAM	HDR		(Printed) [illegible]	(Printed)			(Printed)

Relinquished By: (Signature)	Date	Time	Received for Laboratory By: (Signature)	Date	Time	Results to: SAME AS ABOVE
(Printed)			(Printed)			

Distribution: Original Plus One Accompanies Shipment (white and yellow); Copy to Coordinator Field Files (pink).

Sample and Analysis Data Entry Form - Modified Sample(s)

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

Client No : 613151
: Client Contact
: Address

704-338-1800 : Telephone No

Project No: 680506.500 Due Date: 5/20/98 Client P.O. No:
Project Manager: FCG Project Name: 00162-090-018/Winston-Salem
Manager's Name: Felicia C Grogan
Project Type:
QC Level: B Report Style: m
Desc:

Sample No: 92 034880.0 Collected Date: 5/05/98 Collected By: J ISHAM
Lab Rec'd Date: 5/06/98 Checked-In By: SNH Priority: 4
Due Date: 5/19/98 Sample Desc: MW-1R
Bottle Types: GV GV GV GV MU
Comnt: O-W CT-0900 Matrix: WATER

Analysis Abbr:	Name:
APPIVOC	APPENDIX I, LANDFILL VOLATILES
MET-DIG	Digestion, Metals Prep
AS-U	Arsenic
BA-N	Barium
CD-U	Cadmium
CR-U	Chromium
PB-U	Lead
HG-U	Mercury
SE-U	Selenium
AG-U	Silver

Sample No: 92 034881.8 Collected Date: 5/05/98 Collected By: J ISHAM
Lab Rec'd Date: 5/06/98 Checked-In By: SNH Priority: 4
Due Date: 5/19/98 Sample Desc: MW-2R
Bottle Types: GV GV GV GV MU
Comnt: O-W CT-1000 Matrix: WATER

Analysis Abbr:	Name:
APPIVOC	APPENDIX I, LANDFILL VOLATILES
MET-DIG	Digestion, Metals Prep
AS-U	Arsenic
BA-N	Barium
CD-U	Cadmium
CR-U	Chromium
PB-U	Lead
HG-U	Mercury
SE-U	Selenium
AG-U	Silver

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HDR
CHARLOTTE, NC

Pace Analytical reserves the right to return all samples at its discretion.

Sample and Analysis Data Entry Form - Modified Sample(s)

HDR Engineering
Mr. John Isham
Client No : 613151
: Client Contact
Project No: 680506.500 Due Date: 5/20/98 Client P.O. No:

Sample No: 92 034882.6 Collected Date: 5/05/98 Collected By: J ISHAM
Lab Rec'd Date: 5/06/98 Checked-In By: SNH Priority: 4
Due Date: 5/19/98 Sample Desc: MW-3
Bottle Types: GV GV GV GV MU
Comnt: O-W CT-1515 Matrix: WATER

Analysis Abbr:	Name:
APPIVOC	APPENDIX I, LANDFILL VOLATILES
MET-DIG	Digestion, Metals Prep
AS-U	Arsenic
BA-N	Barium
CD-U	Cadmium
CR-U	Chromium
PB-U	Lead
HG-U	Mercury
SE-U	Selenium
AG-U	Silver

Sample No: 92 034883.4 Collected Date: 5/05/98 Collected By: J ISHAM
Lab Rec'd Date: 5/06/98 Checked-In By: SNH Priority: 4
Due Date: 5/19/98 Sample Desc: MW-4R
Bottle Types: GV GV GV GV MU
Comnt: O-W CT-1200 Matrix: WATER

Analysis Abbr:	Name:
APPIVOC	APPENDIX I, LANDFILL VOLATILES
MET-DIG	Digestion, Metals Prep
AS-U	Arsenic
BA-N	Barium
CD-U	Cadmium
CR-U	Chromium
PB-U	Lead
HG-U	Mercury
SE-U	Selenium
AG-U	Silver

Sample No: 92 034884.2 Collected Date: 5/05/98 Collected By: J ISHAM
Lab Rec'd Date: 5/06/98 Checked-In By: SNH Priority: 4
Due Date: 5/19/98 Sample Desc: MW-5R
Bottle Types: GV GV GV GV MU
Comnt: O-W CT-1630 Matrix: WATER

Analysis Abbr:	Name:
APPIVOC	APPENDIX I, LANDFILL VOLATILES
MET-DIG	Digestion, Metals Prep
AS-U	Arsenic
BA-N	Barium
CD-U	Cadmium
CR-U	Chromium

Pace Analytical reserves the right to return all samples at its discretion.

Sample and Analysis Data Entry Form - Modified Sample(s)

HDR Engineering Client No : 613151
Mr. John Isham : Client Contact
Project No: 680506.500 Due Date: 5/20/98 Client P.O. No:

Sample No: 92 034884.2 Collected Date: 5/05/98 Collected By: J ISHAM
Lab Rec'd Date: 5/06/98 Checked-In By: SNH Priority: 4
Due Date: 5/19/98 Sample Desc: MW-5R
Bottle Types: GV GV GV GV MU
Comnt: O-W CT-1630 Matrix: WATER

Analysis Abbr:	Name:
PB-U	Lead
HG-U	Mercury
SE-U	Selenium
AG-U	Silver

Sample No: 92 034885.0 Collected Date: 5/05/98 Collected By: J ISHAM
Lab Rec'd Date: 5/06/98 Checked-In By: SNH Priority: 4
Due Date: 5/19/98 Sample Desc: MW-6
Bottle Types: GV GV GV GV MU
Comnt: O-W CT-1050 Matrix: WATER

Analysis Abbr:	Name:
APPIVOC	APPENDIX I, LANDFILL VOLATILES
MET-DIG	Digestion, Metals Prep
AS-U	Arsenic
BA-N	Barium
CD-U	Cadmium
CR-U	Chromium
PB-U	Lead
HG-U	Mercury
SE-U	Selenium
AG-U	Silver

Sample No: 92 034886.9 Collected Date: 5/05/98 Collected By: J ISHAM
Lab Rec'd Date: 5/06/98 Checked-In By: SNH Priority: 4
Due Date: 5/19/98 Sample Desc: MW-7
Bottle Types: GV GV GV GV MU
Comnt: O-W CT-1420 Matrix: WATER

Analysis Abbr:	Name:
APPIVOC	APPENDIX I, LANDFILL VOLATILES
MET-DIG	Digestion, Metals Prep
AS-U	Arsenic
BA-N	Barium
CD-U	Cadmium
CR-U	Chromium
PB-U	Lead
HG-U	Mercury
SE-U	Selenium
AG-U	Silver

Pace Analytical reserves the right to return all samples at its discretion.

Sample and Analysis Data Entry Form - Modified Sample(s)

HDR Engineering Client No : 613151
Mr. John Isham : Client Contact
Project No: 680506.500 Due Date: 5/20/98 Client P.O. No:

Sample No: 92 034887.7 Collected Date: 5/05/98 Collected By: J ISHAM
Lab Rec'd Date: 5/06/98 Checked-In By: SNH Priority: 4
Due Date: 5/19/98 Sample Desc: Equipment Blank
Bottle Types: GV GV GV GV MU
Comnt: O-W CT-? Matrix: WATER

Analysis Abbr:	Name:
APPIVOC	APPENDIX I, LANDFILL VOLATILES
MET-DIG	Digestion, Metals Prep
AS-U	Arsenic
BA-N	Barium
CD-U	Cadmium
CR-U	Chromium
PB-U	Lead
HG-U	Mercury
SE-U	Selenium
AG-U	Silver

Pace Analytical reserves the right to return all samples at its discretion.

Sample and Analysis Data Entry Form - New Sample(s)

HDR Engineering Client No : 613151
Mr. John Isham : Client Contact
Project No: 680506.500 Due Date: 5/20/98 Client P.O. No:

Sample No: 92 034888.5 Collected Date: 5/05/98 Collected By: J ISHAM
Lab Rec'd Date: 5/06/98 Checked-In By: SNH Priority: 4
Due Date: 5/19/98 Sample Desc: Trip Blank
Bottle Types: GV GV
Comnt: O-W Matrix: WATER

Analysis Abbr:	Name:
APPIVOC	APPENDIX I, LANDFILL VOLATILES

Pace Analytical reserves the right to return all samples at its discretion.

HDR
HDR Engineering, Inc.

PRE-SAMPLING WELL PURGING

PROJECT WINSTON-SALEM CCD
WELL NUMBER MW-1R
WELL INSIDE DIAMETER 2.0 INCHES
DEPTH OF BOTTOM ____ FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018
DATE 5/5/98 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT) 47°
WEATHER CONDITIONS SUNNY, DAMP, COOL
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
TEFLON BAILER

WITHDRAWAL OF WELL VOLUMES

	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
FLUSHING					
WATER LEVEL BEFORE	37.50				
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	0810				
TIME END FLUSHING	0853				
ESTIMATED VOLUME FLUSHING (gal)	0	3	6	9	13
WELL VOLUMES REMOVED	0	0.73	1.47	2.20	3.18
FIELD ANALYSIS					
WATER TEMPERATURE (°C)	14.9	14.7	14.7	14.8	14.8
SAMPLE (pH)	5.61	5.61	5.71	5.72	5.72
SAMPLE CONDUCTIVITY (umhos/cm)	120	140	140	140	140
BUFFER BEFORE	4.0	4.0	4.0	4.0	4.0
BUFFER AFTER	4.0	4.0	4.0	4.0	4.0
ODOR	NONE	NONE	NONE	NONE	NONE
COLOR	CLEAR	SL. CLOUDY	SAME	SAME	SAME
OTHER					

COMMENTS

SAMPLED: 0900

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 = 62.60 (WELL DEPTH) − 37.50 (DEPTH TO WATER) = 25.10 FT = h
3.14 × 0.0833 (r^2) × h = 0.547 FT^3 × 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 4.09

WELLPURG.DWG

HDR
HDR Engineering, Inc.

PRE-SAMPLING WELL PURGING

PROJECT WINSTON-SALEM C+D
WELL NUMBER MW-2R
WELL INSIDE DIAMETER 2.0 INCHES
DEPTH OF BOTTOM 24.90 FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018
DATE 5/5/98 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT) 52
WEATHER CONDITIONS SUNNY, COOL
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
TEFLON BAILER

WITHDRAWAL OF WELL VOLUMES

FLUSHING	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
WATER LEVEL BEFORE	10.00				
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	09:15				
TIME END FLUSHING	09:45				
ESTIMATED VOLUME FLUSHING (gal)	0	2	4	6	8
WELL VOLUMES REMOVED	0	0.82	1.65	2.47	3.29

FIELD ANALYSIS					
WATER TEMPERATURE (°C)	13.6	12.8	13.1	13.2	13.2
SAMPLE (pH)	5.13	5.81	5.85	5.86	5.85
SAMPLE CONDUCTIVITY (umhos/cm)	78	88	78	78	78
BUFFER BEFORE	4.0	4.0	4.0	4.0	4.0
BUFFER AFTER	4.0	4.0	4.0	4.0	4.0
ODOR	NONE	SL. SWAMPY	NONE	NONE	SAME
COLOR	CLEAR	LT YELLOW BROWN	SAME	BROWN	SAME
OTHER		SL. TURBID	SAME	TURBID	SAME
			GOING DRY		DRY

COMMENTS

SAMPLED: 10:00

WELL VOLUME CALCULATIONS (1cf = 7.48 gal)
$\pi r^2 \times h$ = WELL VOLUME IN FT^3
$\pi = 3.14$

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 = 24.90 (WELL DEPTH) − 10.00 (DEPTH TO WATER) = 14.90 FT = h
3.14 × 0.0833 (r^2) × h = 0.325 FT^3 × 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 2.43

WELLPURG.DWG

HDR
HDR Engineering, Inc.

PRE-SAMPLING WELL PURGING

PROJECT WINSTON-SALEM C&D
WELL NUMBER MW-3
WELL INSIDE DIAMETER 2.0 INCHES
DEPTH OF BOTTOM 43.25 FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018
DATE 5/5/98 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT) 65
WEATHER CONDITIONS SUNNY, COOL
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
TEFLON BAILER

WITHDRAWAL OF WELL VOLUMES

FLUSHING	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
WATER LEVEL BEFORE	34.45				
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	14:45				
TIME END FLUSHING	15:05				
ESTIMATED VOLUME FLUSHING (gal)	0	2	4	6	
WELL VOLUMES REMOVED	0	1.40	2.80	4.20	

FIELD ANALYSIS					
WATER TEMPERATURE (°C)	15.1	15.2	15.2	15.2	
SAMPLE (pH)	5.00	4.50	4.51	4.50	
SAMPLE CONDUCTIVITY (umhos/cm)	120	120	100	120	
BUFFER BEFORE	4.0	4.0	4.0	4.0	
BUFFER AFTER	4.0	4.0	4.0	4.0	
ODOR	NONE	NONE	Same	Same	
COLOR	CLEAR	Brown	Same	Same	
OTHER		TURBID	Same	Same	

COMMENTS

SAMPLED: 1515

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 = 43.25 (WELL DEPTH) − 34.45 (DEPTH TO WATER) = 8.80 FT = h
3.14 × 0.0833 (r^2) × h = 0.192 FT^3 × 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 1.43

WELLPURG.DWG

HDR
HDR Engineering, Inc.

PRE-SAMPLING WELL PURGING

PROJECT WINSTON-SALEM C&D
WELL NUMBER MW-4R
WELL INSIDE DIAMETER 2.0 INCHES
DEPTH OF BOTTOM 22.25 FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018
DATE 5/5/98 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT) 59°
WEATHER CONDITIONS SUNNY, COOL
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
TEFLON BAILER

WITHDRAWAL OF WELL VOLUMES

	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
FLUSHING					
WATER LEVEL BEFORE 0.99	9.50				
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	11:20				
TIME END FLUSHING	11:50				
ESTIMATED VOLUME FLUSHING (gal)	0	2	4	6	8
WELL VOLUMES REMOVED	0	0.96	1.92	2.88	3.85
FIELD ANALYSIS					
WATER TEMPERATURE (°C)	13.8	12.6	12.6	12.4	12.4
SAMPLE (pH)	5.59	5.15	5.12	5.13	5.14
SAMPLE CONDUCTIVITY (umhos/cm)	120	160	160	160	160
BUFFER BEFORE	4.0	4.0	4.0	4.0	4.0
BUFFER AFTER	4.0	4.0	4.0	4.0	4.0
ODOR	NONE	NONE	SAME	SAME	SAME
COLOR	CLEAR	BROWN	SAME	SAME	SAME
OTHER		TURBID	SAME	SAME	SAME

COMMENTS

SAMPLED: 1200

WELL VOLUME CALCULATIONS (1cf = 7.48 gal)
$\pi r^2 \times h$ = WELL VOLUME IN FT^3
$\pi = 3.14$

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 = 22.25 (WELL DEPTH) − 9.50 (DEPTH TO WATER) = 12.75 FT = h
3.14 × 0.0833 (r^2) × h = 0.278 FT^3 × 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 2.08

WELLPURG.DWG

HDR
HDR Engineering, Inc.

PRE-SAMPLING WELL PURGING

PROJECT WINSTON-SALEM C&D
WELL NUMBER MW-5R
WELL INSIDE DIAMETER 2.0 INCHES
DEPTH OF BOTTOM 32.20 FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018
DATE 5/5/98 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT) 68
WEATHER CONDITIONS SUNNY/BREEZY
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
TEFLON BAILER

WITHDRAWAL OF WELL VOLUMES

	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
FLUSHING					
WATER LEVEL BEFORE	12.65				
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	15:45				
TIME END FLUSHING	16:15				
ESTIMATED VOLUME FLUSHING (gal)	0	2	4	8	10
WELL VOLUMES REMOVED	0	0.63	1.25	2.51	3.13
FIELD ANALYSIS					
WATER TEMPERATURE (°C)	13.4	13.0	13.0	13.0	13.0
SAMPLE (pH)	6.08	5.51	5.20	5.21	5.21
SAMPLE CONDUCTIVITY (umhos/cm)	180	180	180	180	180
BUFFER BEFORE	4.0	4.0	4.0	4.0	4.0
BUFFER AFTER	4.0	4.0	4.0	4.0	4.0
ODOR	None	None	None	None	None
COLOR	Clear	LT yellow	LT Brown	Brown	Same
OTHER			SL. TURBID	TURBID	Same

COMMENTS

Sampled: 15:30

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 = 32.20 (WELL DEPTH) − 12.65 (DEPTH TO WATER) = 19.55 FT = h
3.14 × 0.0833 (r^2) × h = 0.436 FT^3 × 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 3.29

WELLPURG.DWG

HDR
HDR Engineering, Inc.

PRE-SAMPLING WELL PURGING

PROJECT WINSTON-SALEM CID
WELL NUMBER MW-6
WELL INSIDE DIAMETER 2.0 INCHES
DEPTH OF BOTTOM 62.50 FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018
DATE 5/5/98 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT) 51°
WEATHER CONDITIONS SUNNY, COOL
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
TEFLON BAILER

WITHDRAWAL OF WELL VOLUMES

	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
FLUSHING					
WATER LEVEL BEFORE	50.10				
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	10:12				
TIME END FLUSHING	10:42				
ESTIMATED VOLUME FLUSHING (gal)	0	2	4	6	7
WELL VOLUMES REMOVED	0	0.99	1.98	2.97	3.47
FIELD ANALYSIS					
WATER TEMPERATURE (°C)	15.0	14.7	14.6	14.6	14.6
SAMPLE (pH)	5.68	5.55	5.57	5.58	5.58
SAMPLE CONDUCTIVITY (umhos/cm)	90	84	84	84	84
BUFFER BEFORE	4.0	4.0	4.0	4.0	4.0
BUFFER AFTER	4.0	4.0	4.0	4.0	4.0
ODOR	NONE	NONE	NONE	NONE	NONE
COLOR	CLEAR	LT BROWN	SAME	SAME	SAME
OTHER		SL. TURBID	SAME	SAME	SAME

COMMENTS

SAMPLED: 10:50

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 = 62.50 (WELL DEPTH) − 50.10 (DEPTH TO WATER) = 12.40 FT = h
3.14 x 0.0833 (r^2) x h = 0.270 FT^3 x 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 2.02

WELLPURG.DWG

HDR
HDR Engineering, Inc.

PRE-SAMPLING WELL PURGING

PROJECT WINSTON-SALEM C&D
WELL NUMBER MW-7
WELL INSIDE DIAMETER 2.0 INCHES
DEPTH OF BOTTOM 48.25 FEET
LENGTH OF GRAVEL PACK — FEET
DIAMETER OF GRAVEL PACK — INCHES

PROJECT NUMBER 00162-090-018
DATE 5/5/98 PAGE 1 OF 1
AIR TEMPERATURE (FAHRENHEIT) 60°
WEATHER CONDITIONS SUNNY, WARM
HNU/OVA READING NA
METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED
TEFLON BAILER

WITHDRAWAL OF WELL VOLUMES

	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
FLUSHING					
WATER LEVEL BEFORE	34.95				
WATER LEVEL AFTER	NA				
TIME BEGIN FLUSHING	13:40				
TIME END FLUSHING	14:10				
ESTIMATED VOLUME FLUSHING (gal)	0	2	4	6	8
WELL VOLUMES REMOVED	0	0.92	1.84	2.76	3.69
FIELD ANALYSIS					
WATER TEMPERATURE (°C)	15.4	14.4	14.3	14.3	14.3
SAMPLE (pH)	5.71	4.62	4.58	4.56	4.57
SAMPLE CONDUCTIVITY (umhos/cm)	140	120	120	120	120
BUFFER BEFORE	4.0	4.0	4.0	4.0	4.0
BUFFER AFTER	4.0	4.0	4.0	4.0	4.0
ODOR	NONE	NONE	Same	Same	Same
COLOR	CLEAR	BROWN	Same	Same	Same
OTHER		TURBID	Same	Same	Same

COMMENTS

Sampled - 14:20

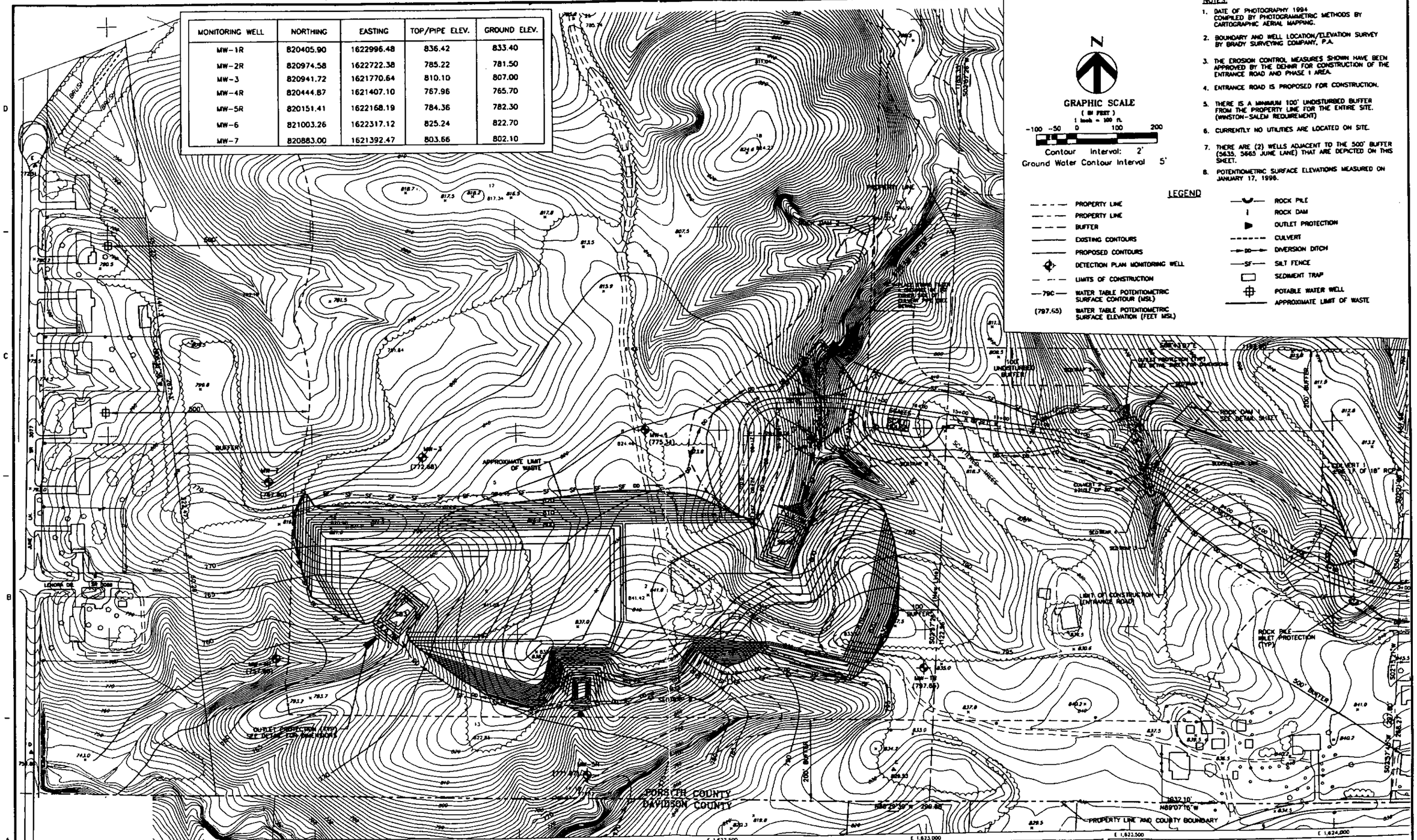
WELL VOLUME CALCULATIONS (1cf = 7.48 gal)
$\pi r^2 \times h$ = WELL VOLUME IN FT^3
π = 3.14

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 = 48.25 (WELL DEPTH) - 34.95 (DEPTH TO WATER) = 13.30 FT = h
3.14 x 0.0833 (r^2) x h = 0.290 FT^3 x 7.48 gal/FT^3 = 1 WELL VOLUME IN GAL = 2.17

WELLPURG.DWG

MONITORING WELL	NORTHING	EASTING	TOP/PIPE ELEV.	GROUND ELEV.
MW-1R	820405.90	1622996.48	836.42	833.40
MW-2R	820974.58	1622722.38	785.22	781.50
MW-3	820941.72	1621770.64	810.10	807.00
MW-4R	820444.87	1621407.10	767.96	765.70
MW-5R	820151.41	1622168.19	784.36	782.30
MW-6	821003.26	1622317.12	825.24	822.70
MW-7	820883.00	1621392.47	803.66	802.10



NOTES:

1. DATE OF PHOTOGRAPHY 1994 COMPILED BY PHOTOGRAMMETRIC METHODS BY CARTOGRAPHIC AERIAL MAPPING.
2. BOUNDARY AND WELL LOCATION/ELEVATION SURVEY BY BRADY SURVEYING COMPANY, P.A.
3. THE EROSION CONTROL MEASURES SHOWN HAVE BEEN APPROVED BY THE DENHR FOR CONSTRUCTION OF THE ENTRANCE ROAD AND PHASE I AREA.
4. ENTRANCE ROAD IS PROPOSED FOR CONSTRUCTION.
5. THERE IS A MINIMUM 100' UNDISTURBED BUFFER FROM THE PROPERTY LINE FOR THE ENTIRE SITE. (WINSTON-SALEM REQUIREMENT)
6. CURRENTLY NO UTILITIES ARE LOCATED ON SITE.
7. THERE ARE (2) WELLS ADJACENT TO THE 500' BUFFER (5635, 5665 JUNE LANE) THAT ARE DEPICTED ON THIS SHEET.
8. POTENTIOMETRIC SURFACE ELEVATIONS MEASURED ON JANUARY 17, 1996.

HDR

HDR Engineering, Inc.

Project Manager: J. READING, P.E.

Drawn By: D. CURRY

PROPOSED CONSTRUCTION AND DEMOLITION LANDFILL GROUND-WATER MONITORING PLAN

WINSTON-SALEM NORTH CAROLINA

PHASE I GROUND-WATER MONITORING WELL LOCATIONS

Date: JANUARY 1996

Scale: 1" = 100'

Project No.: 00182-082-018

Sheet No.: 1

P:\WINSLCD\GWMONLOC.DWG