Fac/Perm/Co ID #	Date	Doc ID#
BC	6/4/98	DIN

Avery Co.

- Were supposed to upgrade monitoring system as part of closure requirements.
- no SW - need this because LF waste is @ edge of creek & have had SW "hits".

ENGINEERING TECTONICS, P.A.
GEOTECHNICAL & ENVIRONMENTAL ENGINEERS
P.O. Box I, Winston-Salem, NC 27108 (910) 724-6994

06-01
3-4-97

ENGINEERING TECTONICS, P.A.
GEOTECHNICAL & ENVIRONMENTAL ENGINEERS
P.O. Box I, Winston-Salem, NC 27108 (910) 724-6994

RECEIVED
Solid Waste
APR 22 1997
MANAGEMENT DIV.

April 18, 1997

North Carolina Department of Environment, Health and Natural Resources
Solid Waste Division
PO Box 27687
Raleigh, North Carolina 27611-7687

Fac/Perm/Co ID #	Date	Doc ID#
BC	6/4/06	DIN

Attention: Mr. Bill Myers

Subject: Groundwater Sampling Report
Avery County Landfill
Newland, North Carolina
Project No. 90-247.01-E

Mr. Myers:

On March 4, 1997 Engineering Tectonics, P.A. (ETPA) personnel mobilized to the Avery County Landfill in Newland, North Carolina to sample three (3) groundwater monitoring wells, MW-1, MW-2, and MW-3. A copy of the report for this sampling event is attached.

If you have any questions concerning the above, please contact me at (910) 724-6994 or (800) 394-8807. Thank you.

Sincerely,

ENGINEERING TECTONICS, P.A.

Dan Bowser
Geologist

cc: Randall Fletcher, Avery County Manager

Enc.

Groundwater Sampling Report

Avery County Landfill

Newland, North Carolina

Project No. 90-247.01-E

Prepared for:

Avery County
PO Box 356
Newland, North Carolina 28657

Prepared by:

Engineering Tectonics, P.A.
Winston-Salem, North Carolina

April 18, 1997

Groundwater Monitoring Well Sampling

On [redacted], Engineering Tectonics, P.A. (ETPA) personnel mobilized to the Avery County Landfill to sample three groundwater monitoring wells (MW-1 through MW-3). Groundwater monitoring wells MW-1, MW-2, and MW-3 were located and sampled as per the subject site's North Carolina Department of Environment Health and Natural Resource (NCDEHNR) permit. Depth to water was measured in each monitoring well, and each well was developed prior to sampling with a new disposable Teflon bailer. A minimum of three volumes of water was purged from each well, and water samples collected according to EPA sampling protocols. The samples were packed on ice, and sent to an analytical laboratory, using EPA approved chain of custody procedures. The samples were submitted for analysis using EPA method 8270, EPA method 8240, BOD, COD, specific conductance, chloride, fluoride, nitrate, pH, TDS, TOC, TOX, sulfate, arsenic, barium, cadmium, chromium, copper, iron , lead, mercury, selenium, manganese, silver, and zinc.

Water Levels

Static water levels were measured as 9.42, 4.88, and 4.78 feet for monitoring wells MW-1, MW-2, and MW-3 respectively.

Laboratory Results

Laboratory results for groundwater samples are presented in Tables 1, 2, and 3. Copies of the laboratory results are included in Attachment A

Limitations

This report has been prepared for the exclusive use of **Avery County** for specific application to the subject site. The report was prepared in accordance with generally accepted standards of practice for environmental services. No other warranty, either expressed or implied, is made. This report is not to be reproduced, either in whole or in part, without written consent from ENGINEERING TECTONICS, P.A.

Our on-site observations pertain only to specific locations, at specific times, on specific dates. Our observations and conclusions do not reflect variations in unverified and/or subsurface conditions that may exist at or between sampling and/or observation locations, or at times other than those represented by our observations.

In providing this report, ENGINEERING TECTONICS, P.A. does not assume any responsibilities of the party, or parties, deemed legally responsible for the subject site. It is not the responsibility of ENGINEERING TECTONICS, P.A. to report our findings to any other person or persons, including conditions that may present a potential danger to public health, safety, or the environment, as may be required by law.

Certification

I certify this 18th day of April, 1997 this report was prepared by me or under my direct supervision.

by: Dan Bowser
Project Geologist

reviewed by: Alan Barry Nelson, P.G.
Senior Hydrogeologist

NORTH CAROLINA LICENSED SEAL 165 GEOLOGIST ALAN BARRY NELSON

Tables

Table 1

Avery County Landfill
Groundwater Monitoring Well Laboratory Results

Analysis	MW-1 *	MW-2	MW-3	2L Standard
[redacted] 5 day	<2	[redacted]	5	
[redacted]	[redacted]	[redacted]	[redacted]	
Specific Conductivity	194 umhos/cm	122 umhos/cm	135 umhos/cm	
Chloride	24.4	16.0	8.20	250
Fluoride	<0.1	<0.1	<0.1	2.0
Nitrate	0.65	.48	0.74	10.0
pH	5.8 standard units	6.0 standard units	6.0 standard units	6.5-8.5
TDS	159	104	124	na
[redacted]	[redacted]	5.4	6.1	na
TOX	<0.05	0.05	<0.05	na
Sulfate	<10	<10	<10	250
Arsenic	<0.010	<0.010	<0.010	0.05
Barium	.348	0.056	0.113	2.0
Cadmium	0.002	<0.002	<0.002	0.005
Chromium	<0.005	<0.005	<0.005	0.05
Copper	0.028	0.077	0.007	1.0
[redacted]	[redacted]	[redacted]	[redacted]	0.3
[redacted]	[redacted]	0.012	0.012	0.015
Mercury	0.0005	<0.0002	<0.0002	0.0011
Selenium	<0.010	<0.010	<0.010	0.05
[redacted]	[redacted]	[redacted]	[redacted]	0.05
Silver	<0.005	<0.005	<0.005	0.018
Zinc	0.077	0.015	0.021	2.1

Results are presented in parts per million (ppm) unless specified

Table 2

Avery County Landfill
EPA Method 8240

Compound	MW-1	MW-2	MW-3	2l Standard
Acetone	BDL	BDL	BDL	700 ppb
Acrolein	BDL	BDL	BDL	
Acrylonitrile	BDL	BDL	BDL	
Benzene	BDL	BDL	BDL	1 ppb
Bromodichloromethane	BDL	BDL	BDL	
Bromoform	BDL	BDL	BDL	
Bromomethane	BDL	BDL	BDL	
2-Butanone	BDL	BDL	BDL	
Carbon Disulfide	BDL	BDL	BDL	
Carbon tetrachloride	BDL	BDL	BDL	0.3 ppb
Chlorobenzene	BDL	BDL	BDL	50 ppb
Chloroethane	BDL	10	BDL	
2-Chloro ethyl vinyl ether	BDL	BDL	BDL	
Chloroform	BDL	BDL	BDL	.19 ppb
Chloromethane	BDL	BDL	BDL	
Dibromochloromethane	BDL	BDL	BDL	
Dibromomethane	BDL	BDL	BDL	
1,4-Dichloro-2-Butane	BDL	BDL	BDL	
Dichlorodifluoromethane	BDL	BDL	BDL	1400 ppb
1,2-Dichlorobenzene	BDL	BDL	BDL	
1,3-Dichlorobenzene	BDL	BDL	BDL	
1,4-Dichlorobenzene	BDL	BDL	BDL	
1,1-Dichloroethane	BDL	4.7	BDL	700 ppb
1,2-Dichloroethane	BDL	BDL	BDL	.38 ppb
1,1-Dichloroethene	BDL	BDL	BDL	
cis-1,2-Dichloroethene	1.5	BDL	2.0	
trans-1,2-Dichloroethene	BDL	BDL	BDL	
1,2-Dichloropropane	BDL	BDL	BDL	.56 ppb
cis-1,3-Dichloropropene	BDL	BDL	BDL	
Trans-1,3-Dichloropropene	BDL	BDL	BDL	
Ethanol	BDL	BDL	BDL	
Ethylbenzene	BDL	BDL	BDL	29 ppb
Ethyl Methacrylate	BDL	BDL	BDL	
2-Hexanone	BDL	BDL	BDL	
Iodomethane	BDL	BDL	BDL	
Methylene Chloride	BDL	BDL	BDL	5 ppb

BDL = below detectable limit

Table 2 (cont.)

Avery County Landfill
EPA Method 8240

Compound	MW-1	MW-2	MW-3	2l Standard
4-Methyl-2-Pentanone	BDL	BDL	BDL	
Styrene	BDL	BDL	BDL	100 ppb
1,1,2,2-tetrachloroethane	BDL	BDL	BDL	
Tetrachloroethylene	BDL	BDL	BDL	
Toluene	BDL	BDL	BDL	1000 ppb
1,1,1-Trichloroethane	BDL	BDL	BDL	
1,1,2-Trichloroethane	BDL	BDL	BDL	
Trichloroethylene	BDL	BDL	BDL	
Trichlorofluoromethane	BDL	BDL	BDL	2100 ppb
Vinyl Chloride	BDL	BDL	BDL	.015 ppb
Xylene (total)	BDL	BDL	BDL	530 ppb

BDL = below detectable limit

Table 3

Avery County Landfill
EPA Method 8270

Compound	MW-1	MW-2	MW-3	2l Standard
Acenaphthene	BDL	BDL	BDL	
Acenaphthylene	BDL	BDL	BDL	
Aniline	BDL	BDL	BDL	
Anthracene	BDL	BDL	BDL	
Benzidine	BDL	BDL	BDL	
Benzoic Acid	BDL	BDL	BDL	
Benzo(a)Anthracene	BDL	BDL	BDL	
Benzo(b)Fluoranthene	BDL	BDL	BDL	
Benzo(k)Fluoranthene	BDL	BDL	BDL	
Benzo(g,h,i)Perylene	BDL	BDL	BDL	
Benzo(a)Pyrene	BDL	BDL	BDL	
Benzyl Alcohol	BDL	BDL	BDL	
Bis(2-Chloroethoxy)Methane	BDL	BDL	BDL	
Bis(2-Chloroethyl)Ether	BDL	BDL	BDL	
Bis(2-Chloroisopropyl)Ether	BDL	BDL	BDL	
Bis(2-Ethylhexyl)Phthalate	BDL	10	51	
4-Bromophenyl Phenyl Ether	BDL	BDL	BDL	
Butyl Benzyl Phthalate	BDL	BDL	BDL	100 ppb
4-Chloroaniline	BDL	BDL	BDL	
1-Chloronapthalene	BDL	BDL	BDL	
2-Chloronaphthalene	BDL	BDL	BDL	
4-Chloro-3-Methyl Phenol	BDL	BDL	BDL	
2-Chlorophenol	BDL	BDL	BDL	.1 ppb
4-Chlorophenol Phenyl Ether	BDL	BDL	BDL	
Chrysene	BDL	BDL	BDL	
Dibenz(a,h)Anthracene	BDL	BDL	BDL	
Dibenzofuran	BDL	BDL	BDL	
Di-N-Butylphthalate	BDL	BDL	BDL	
1,3-Dichlrobenzene	BDL	BDL	BDL	620 ppb
1,4-Dichlrobenzene	BDL	BDL	BDL	75 ppb
1,2-Dichlrobenzene	BDL	BDL	BDL	620 pppb
3,3-Dichlorobenzidine	BDL	BDL	BDL	
2,4-Dichorophenol	BDL	BDL	BDL	
2,6-Dichorophenol	BDL	BDL	BDL	
Diethylphthalate	BDL	BDL	BDL	5000 ppb

BDL = below detectable limit

Table 3(cont.)

Avery County Landfill
EPA Method 8270

Compound	MW-1	MW-2	MW-3	2l Standard
A, A-Dimethylphenethylamine	BDL	BDL	BDL	
2,4-Dimethylphenol	BDL	BDL	BDL	
Dimethylphthalate	BDL	BDL	BDL	
4,6-Dinitro-2-Mehtylphenol	BDL	BDL	BDL	
2,4-Dinitrophenol	BDL	BDL	BDL	
2,4-Dinitrotoluene	BDL	BDL	BDL	
2,6-Dinitrotoluene	BDL	BDL	BDL	
Diphenylamine	BDL	BDL	BDL	
Di-N-Octylphthalate	BDL	BDL	BDL	
Fluoranthene	BDL	BDL	BDL	
Fluorene	BDL	BDL	BDL	280 ppb
Hexachlrobenzene	BDL	BDL	BDL	.02 ppb
Hexachlorobutadiene	BDL	BDL	BDL	
Hexachlorocyclopentadiene	BDL	BDL	BDL	
Hexachloroethane	BDL	BDL	BDL	
Indeno(1,2,3-od)Pyrene	BDL	BDL	BDL	
Isophorone	BDL	BDL	BDL	
2-Mehylnaphthalene	BDL	BDL	BDL	
2-Methylphenol	BDL	BDL	BDL	
4-Methylphenol	BDL	BDL	BDL	
Naphthalene	BDL	BDL	BDL	21 ppb
2-Nitroaniline	BDL	BDL	BDL	
3-Nitroaniline	BDL	BDL	BDL	
4-Nitroaniline	BDL	BDL	BDL	
Nitrobenzene	BDL	BDL	BDL	
2-Nitrophenol	BDL	BDL	BDL	
4-Nitrophenol	BDL	BDL	BDL	
N-Nitroso-Di-N-Butylamine	BDL	BDL	BDL	
N-Nitrosodimethylamine	BDL	BDL	BDL	
N-Nitrosodiphenylamine	BDL	BDL	BDL	

BDL = below detectable limit

Table 3(cont.)

Avery County Landfill
EPA Method 8270

Compound	MW-1	MW-2	MW-3	2l Standard
N-Nitrosodipropylamine	BDL	BDL	BDL	
Pentachlorophenol	BDL	BDL	BDL	
Phenanthrene	BDL	BDL	BDL	210 ppb
Phenol	BDL	BDL	BDL	300 ppb
Pyrene	BDL	BDL	BDL	
1,2,4,5-Tetrachlorobenzene	BDL	BDL	BDL	
2,3,4,6-Tetrachlorophenol	BDL	BDL	BDL	-
1,2,4-Trichlorobenzene	BDL	BDL	BDL	
2,4,5-Trichlorophenol	BDL	BDL	BDL	
2,4,6-Trichlorophenol	BDL	BDL	BDL	

BDL=below detectable limit

Attachment A
Laboratory Results

WATER TECHNOLOGY AND CONTROLS, INC.

Water Treatment Chemistries & Environmental Laboratory

Lab cert. # 165

April 7, 1997

Mr. Dan Bowser
Engineering Tectonics
P.O. Box I
Winston-Salem, North Carolina 27108

Dear Mr. Bowser:

Enclosed are results for your Monitoring Well samples taken on March 4, 1997.

If you have any questions concerning these data please contact me.

Sincerely,

Mike Vaughan

Mike Vaughan
Laboratory Supervisor

Offices: 106-A South Walnut Circle • P.O. Box 8808 • Greensboro, N.C. 27419 • (910) 852-0802
Laboratory: 642 Tamco Road • Reidsville, N.C. 27320 • (910) 342-4748

WATER TECHNOLOGY AND CONTROLS, INC.
Environmental Laboratory
642 Tamco Rd., Reidsville, N.C. 27320
(919) 342-4748

Customer: Engineering Tectonics

Contact Person: Mr. Dan Bowser
Date Sample Rcvd: 03/05/97
Report Date: 04/07/97
WT&C Number: 03059716A
Sample: MW-1 3/4/97

PARAMETER	RESULTS
BOD, 5Day	<2 mg/l
COD	32.1 mg/l
pH	5.8
Total Dissolved Solids	159 mg/l
Chloride	24.4 mg/l
Fluoride	<0.1 mg/l
Nitrate Nitrogen	0.65 mg/l
Total Organic Carbon (TOC)	15 mg/l
Total Organic Halide (TOX)	<0.05 mg/l
Sulfate	<10 mg/l
Arsenic, total	<0.010 mg/l
Barium, total	0.348 mg/l
Cadmium, total	0.002 mg/l
Chromium, total	<0.005 mg/l
Copper, total	0.028 mg/l
Iron, total	63.7 mg/l
Lead, total	0.020 mg/l
Manganese, total	5.30 mg/l
Mercury, total	0.0005 mg/l
Selenium, total	<0.010 mg/l
Silver, total	<0.005 mg/l
Zinc, total	0.077 mg/l
Conductivity	194 umhos/cm
8270 Test	attached
8240 Test	attached

Water Technology and Controls, Inc.
Water Treatment Chemistries Environmental Laboratory
Reidsville, North Carolina 27320
(910) 342-4748

Client:	Engineering Tectonics	WT&C ID:	03059716
Project:	8240	Analysis:	03/11/97
Client Sample ID:	MW-1	Analyst:	FAP
Sample Collection:	03/04/97 1300		

SW846-8240 VOLATILE ORGANICS

Parameter	Result		
Benzene	< 1 ug/L	cis-1,3-Dichloropropene	< 1 ug/L
Bromobenzene	< 1 ug/L	trans-1,3-Dichloropropene	< 1 ug/L
Bromodichloromethane	< 1 ug/L	Ethyl benzene	< 1 ug/L
Bromoform	< 1 ug/L	Hexachlorobutadiene	< 1 ug/L
Bromomethane	< 5 ug/L	Isopropylbenzene	< 1 ug/L
2-Butanone (MEK)	< 10 ug/L	p-Isopropyltoluene	< 1 ug/L
n-Butylbenzene	< 1 ug/L	Methylene chloride	< 1 ug/L
sec-Butylbenzene	< 1 ug/L	Naphthalene	< 1 ug/L
tert-Butylbenzene	< 1 ug/L	n-Propylbenzene	< 1 ug/L
Carbon Tetrachloride	< 1 ug/L	Styrene	< 1 ug/L
Chlorobenzene	< 1 ug/L	1,1,1,2-Tetrachloroethane	< 1 ug/L
Chloroethane	< 5 ug/L	1,1,2,2-Tetrachloroethane	< 1 ug/L
Chloroform	< 1 ug/L	Tetrachloroethene	< 1 ug/L
Chloromethane	< 5 ug/L	Toluene	< 1 ug/L
2-Chlorotoluene	< 1 ug/L	1,1,1-Trichloroethane	< 1 ug/L
4-Chlorotoluene	< 1 ug/L	1,1,2-Trichloroethane	< 1 ug/L
Dibromochloromethane	< 1 ug/L	Trichloroethene	< 1 ug/L
1,2-Dibromo-3-chloropropane	< 1 ug/L	1,2,3-Trichlorobenzene	< 1 ug/L
1,2-Dibromoethane (EDB)	< 1 ug/L	1,2,4-Trichlorobenzene	< 1 ug/L
Dibromomethane	< 1 ug/L	1,2,3-Trichloropropane	< 1 ug/L
Dichlorodifluoromethane	< 5 ug/L	Trichlorofluoromethane	< 1 ug/L
1,1-Dichloroethane	< 1 ug/L	1,2,4-Trimethylbenzene	< 1 ug/L
1,2-Dichloroethane	< 1 ug/L	1,3,5-Trimethylbenzene	< 1 ug/L
1,4-Dichlorobenzene	< 1 ug/L	Vinyl chloride	< 5 ug/L
1,2-Dichlorobenzene	< 1 ug/L	Xylenes (total)	< 1 ug/L
1,3-Dichlorobenzene	< 1 ug/L		
1,1-Dichloroethene	< 1 ug/L		
cis-1,2-Dichloroethene	**1.5 ug/L**		
trans-1,2-Dichloroethene	< 1 ug/L		
1,2-Dichloropropane	< 1 ug/L		
1,3-Dichloropropane	< 1 ug/L		
2,2-Dichloropropane	< 1 ug/L		
1,1-Dichloropropene	< 1 ug/L		
1,2-Dichloropropene	< 1 ug/L		

Water Technology and Controls, Inc.
Water Treatment Chemistries and Environmental Laboratory
Reidsville, North Carolina 27320
(910) 342-4748

Client:	Engineering Tectonics	WT&C ID:	03059716
Project:	Organics	Analysis:	03/14/97
Client Sample ID:	MW-1	Extraction:	03/05/97
Sample Collection:	03/04/97 1300	Analyst:	FAP

SW846-8270 SEMIVOLATILE ORGANICS

Parameter	Result	Parameter	Result
Acenaphthene	< 10 ug/L	Naphthalene	< 10 ug/L
Acenaphthylene	< 10 ug/L	Nitrobenzene	< 10 ug/L
Anthracene	< 10 ug/L	N-Nitrosodimethylamine	< 10 ug/L
Benzidine	< 50 ug/L	N-Nitrosodi-n-propylamine	< 10 ug/L
Benzo(a)anthracene	< 10 ug/L	N-Nitrosodiphenylamine	< 10 ug/L
Benzo(a)pyrene	< 10 ug/L	Phenanthrene	< 10 ug/L
Benzo(b)fluoranthene	< 10 ug/L	Pyrene	< 10 ug/L
Benzo(k)fluoranthene	< 10 ug/L	Pyridine	< 20 ug/L
Benzo(g,h,i)perylene	< 10 ug/L	1,2,4-Trichlorobenzene	< 10 ug/L
Benzyl butyl phthalate	< 10 ug/L		
Bis(2-chloroethoxy)methane	< 10 ug/L	4-Chloro-3-methylphenol	< 10 ug/L
Bis(2-chloroethyl)ether	< 10 ug/L	2-Chlorophenol	< 10 ug/L
Bis(2-chloroisopropyl)ether	< 10 ug/L	2,4-Dichlorophenol	< 10 ug/L
Bis(2-ethylhexyl)phthalate	< 10 ug/L	2,4-Dimethylphenol	< 10 ug/L
4-Bromophenyl phenyl ether	< 10 ug/L	2,4-Dinitrophenol	< 10 ug/L
2-Chloronaphthalene	< 10 ug/L	4,6-Dinitro-2-methylphenol	< 10 ug/L
4-Chlorophenyl phenyl ether	< 10 ug/L	2-Methylphenol (o-cresol)	< 10 ug/L
Chrysene	< 10 ug/L	3-Methylphenol (m-cresol)	< 10 ug/L
Dibenzo(a,h)anthracene	< 10 ug/L	4-Methylphenol (p-cresol)	< 10 ug/L
1,2-Dichlorobenzene	< 10 ug/L	2-Nitrophenol	< 50 ug/L
1,3-Dichlorobenzene	< 10 ug/L	4-Nitrophenol	< 50 ug/L
1,4-Dichlorobenzene	< 10 ug/L	Pentachlorophenol	< 50 ug/L
3,3'-Dichlorobenzidine	< 50 ug/L	Phenol	< 10 ug/L
Diethyl phthalate	< 10 ug/L	2,4,5-Trichlorophenol	< 10 ug/L
Dimethyl phthalate	< 10 ug/L	2,4,6-Trichlorophenol	< 10 ug/L
Di-n-butyl phthalate	< 10 ug/L		
2,4-Dinitrotoluene	< 10 ug/L		
2,6-Dinitrotoluene	< 10 ug/L		
Di-n-octyl phthalate	< 10 ug/L		
1,2-Diphenylhydrazine	< 10 ug/L		
Fluoranthene	< 10 ug/L		
Fluorene	< 10 ug/L		
Hexachlorobenzene	< 10 ug/L		
Hexachlorobutadiene	< 10 ug/L		
Hexachlorocyclopentadiene	< 10 ug/L		
Hexachloroethane	< 10 ug/L		
Indeno(1,2,3-cd)pyrene	< 10 ug/L		
Isophorone	< 10 ug/L		

WATER TECHNOLOGY AND CONTROLS, INC.
Environmental Laboratory
642 Tamco Rd., Reidsville, N.C. 27320
(919) 342-4748

Customer:	Engineering Tectonics
Contact Person:	Mr. Dan Bowser
Date Sample Rcvd:	03/05/97
Report Date:	04/07/97
WT&C Number:	03059717A
Sample:	MW-2 3/4/97

PARAMETER	RESULTS
BOD, 5Day	6 mg/l
COD	26.0 mg/l
pH	6.0
Total Dissolved Solids	104 mg/l
Chloride	16.0 mg/l
Fluoride	<0.1 mg/l
Nitrate Nitrogen	0.48 mg/l
Total Organic Carbon (TOC)	5.4 mg/l
Total Organic Halide (TOX)	0.05 mg/l
Sulfate	<10 mg/l
Arsenic, total	<0.010 mg/l
Barium, total	0.056 mg/l
Cadmium, total	<0.002 mg/l
Chromium, total	<0.005 mg/l
Copper, total	0.077 mg/l
Iron, total	23.6 mg/l
Lead, total	0.012 mg/l
Manganese, total	3.10 mg/l
Mercury, total	<0.0002 mg/l
Selenium, total	<0.010 mg/l
Silver, total	<0.005 mg/l
Zinc, total	0.015 mg/l
Conductivity	122 umhos/cm
8270 Test	attached
8240 Test	attached

Water Technology and Controls, Inc.
Water Treatment Chemistries Environmental Laboratory
Reidsville, North Carolina 27320
(910) 342-4748

Client:	Engineering Tectonics	WT&C ID:	03059717
Project:	8240	Analysis:	03/11/97
Client Sample ID:	MW-2	Analyst:	FAP
Sample Collection:	03/04/97 1400		

SW846-8240 VOLATILE ORGANICS

Parameter	Result	Parameter	Result
Benzene	< 1 ug/L	cis-1,3-Dichloropropene	< 1 ug/L
Bromobenzene	< 1 ug/L	trans-1,3-Dichloropropene	< 1 ug/L
Bromodichloromethane	< 1 ug/L	Ethyl benzene	< 1 ug/L
Bromoform	< 1 ug/L	Hexachlorobutadiene	< 1 ug/L
Bromomethane	< 5 ug/L	Isopropylbenzene	< 1 ug/L
2-Butanone (MEK)	< 10 ug/L	p-Isopropyltoluene	< 1 ug/L
n-Butylbenzene	< 1 ug/L	Methylene chloride	< 1 ug/L
sec-Butylbenzene	< 1 ug/L	Naphthalene	< 1 ug/L
tert-Butylbenzene	< 1 ug/L	n-Propylbenzene	< 1 ug/L
Carbon Tetrachloride	< 1 ug/L	Styrene	< 1 ug/L
Chlorobenzene	< 1 ug/L	1,1,1,2-Tetrachloroethane	< 1 ug/L
Chloroethane	**10 ug/L**	1,1,2,2-Tetrachloroethane	< 1 ug/L
Chloroform	< 1 ug/L	Tetrachloroethene	< 1 ug/L
Chloromethane	< 5 ug/L	Toluene	< 1 ug/L
2-Chlorotoluene	< 1 ug/L	1,1,1-Trichloroethane	< 1 ug/L
4-Chlorotoluene	< 1 ug/L	1,1,2-Trichloroethane	< 1 ug/L
Dibromochloromethane	< 1 ug/L	Trichloroethene	< 1 ug/L
1,2-Dibromo-3-chloropropane	< 1 ug/L	1,2,3-Trichlorobenzene	< 1 ug/L
1,2-Dibromoethane (EDB)	< 1 ug/L	1,2,4-Trichlorobenzene	< 1 ug/L
Dibromomethane	< 1 ug/L	1,2,3-Trichloropropane	< 1 ug/L
Dichlorodifluoromethane	< 5 ug/L	Trichlorofluoromethane	< 1 ug/L
1,1-Dichloroethane	**4.7 ug/L**	1,2,4-Trimethylbenzene	< 1 ug/L
1,2-Dichloroethane	< 1 ug/L	1,3,5-Trimethylbenzene	< 1 ug/L
1,4-Dichlorobenzene	< 1 ug/L	Vinyl chloride	< 5 ug/L
1,2-Dichlorobenzene	< 1 ug/L	Xylenes (total)	< 1 ug/L
1,3-Dichlorobenzene	< 1 ug/L		
1,1-Dichloroethene	< 1 ug/L		
cis-1,2-Dichloroethene	< 1 ug/L		
trans-1,2-Dichloroethene	< 1 ug/L		
1,2-Dichloropropane	< 1 ug/L		
1,3-Dichloropropane	< 1 ug/L		
2,2-Dichloropropane	< 1 ug/L		
1,1-Dichloropropene	< 1 ug/L		
1,2-Dichloropropene	< 1 ug/L		

Water Technology and Controls, Inc.
Water Treatment Chemistries and Environmental Laboratory
Reidsville, North Carolina 27320
(910) 342-4748

Client:	Engineering Tectonics	WT&C ID:	03059717
Project:	Organics	Analysis:	03/14/97
Client Sample ID:	MW-2	Extraction:	03/05/97
Sample Collection:	03/04/97 1400	Analyst:	FAP

SW846-8270 SEMIVOLATILE ORGANICS

Parameter	Result
Acenaphthene	< 10 ug/L
Acenaphthylene	< 10 ug/L
Anthracene	< 10 ug/L
Benzidine	< 50 ug/L
Benzo(a)anthracene	< 10 ug/L
Benzo(a)pyrene	< 10 ug/L
Benzo(b)fluoranthene	< 10 ug/L
Benzo(k)fluoranthene	< 10 ug/L
Benzo(g,h,i)perylene	< 10 ug/L
Benzyl butyl phthalate	< 10 ug/L
Bis(2-chloroethoxy)methane	< 10 ug/L
Bis(2-chloroethyl)ether	< 10 ug/L
Bis(2-chloroisopropyl)ether	< 10 ug/L
Bis(2-ethylhexyl)phthalate	**10 ug/L**
4-Bromophenyl phenyl ether	< 10 ug/L
2-Chloronaphthalene	< 10 ug/L
4-Chlorophenyl phenyl ether	< 10 ug/L
Chrysene	< 10 ug/L
Dibenzo(a,h)anthracene	< 10 ug/L
1,2-Dichlorobenzene	< 10 ug/L
1,3-Dichlorobenzene	< 10 ug/L
1,4-Dichlorobenzene	< 10 ug/L
3,3'-Dichlorobenzidine	< 50 ug/L
Diethyl phthalate	< 10 ug/L
Dimethyl phthalate	< 10 ug/L
Di-n-butyl phthalate	< 10 ug/L
2,4-Dinitrotoluene	< 10 ug/L
2,6-Dinitrotoluene	< 10 ug/L
Di-n-octyl phthalate	< 10 ug/L
1,2-Diphenylhydrazine	< 10 ug/L
Fluoranthene	< 10 ug/L
Fluorene	< 10 ug/L
Hexachlorobenzene	< 10 ug/L
Hexachlorobutadiene	< 10 ug/L
Hexachlorocyclopentadiene	< 10 ug/L
Hexachloroethane	< 10 ug/L
Indeno(1,2,3-cd)pyrene	< 10 ug/L
Isophorone	< 10 ug/L

Parameter	Result
Naphthalene	< 10 ug/L
Nitrobenzene	< 10 ug/L
N-Nitrosodimethylamine	< 10 ug/L
N-Nitrosodi-n-propylamine	< 10 ug/L
N-Nitrosodiphenylamine	< 10 ug/L
Phenanthrene	< 10 ug/L
Pyrene	< 10 ug/L
Pyridine	< 20 ug/L
1,2,4-Trichlorobenzene	< 10 ug/L
4-Chloro-3-methylphenol	< 10 ug/L
2-Chlorophenol	< 10 ug/L
2,4-Dichlorophenol	< 10 ug/L
2,4-Dimethylphenol	< 10 ug/L
2,4-Dinitrophenol	< 10 ug/L
4,6-Dinitro-2-methylphenol	< 10 ug/L
2-Methylphenol (o-cresol)	< 10 ug/L
3-Methylphenol (m-cresol)	< 10 ug/L
4-Methylphenol (p-cresol)	< 10 ug/L
2-Nitrophenol	< 50 ug/L
4-Nitrophenol	< 50 ug/L
Pentachlorophenol	< 50 ug/L
Phenol	< 10 ug/L
2,4,5-Trichlorophenol	< 10 ug/L
2,4,6-Trichlorophenol	< 10 ug/L

WATER TECHNOLOGY AND CONTROLS, INC.
Environmental Laboratory
642 Tamco Rd., Reidsville, N.C. 27320
(919) 342-4748

Customer:	Engineering Tectonics
Contact Person:	Mr. Dan Bowser
Date Sample Rcvd:	03/05/97
Report Date:	04/07/97
WT&C Number:	03059718A
Sample:	MW-3 3/4/97

PARAMETER	RESULTS
BOD, 5Day	5 mg/l
COD	40.7 mg/l
pH	6.0
Total Dissolved Solids	124 mg/l
Chloride	8.20 mg/l
Fluoride	<0.1 mg/l
Nitrate Nitrogen	0.74 mg/l
Total Organic Carbon (TOC)	6.1 mg/l
Total Organic Halide (TOX)	<0.05 mg/l
Sulfate	<10 mg/l
Arsenic, total	<0.010 mg/l
Barium, total	0.113 mg/l
Cadmium, total	<0.002 mg/l
Chromium, total	<0.005 mg/l
Copper, total	0.007 mg/l
Iron, total	44.9 mg/l
Lead, total	0.012 mg/l
Manganese, total	5.30 mg/l
Mercury, total	<0.0002 mg/l
Selenium, total	<0.010 mg/l
Silver, total	<0.005 mg/l
Zinc, total	0.021 mg/l
Conductivity	135 umhos/cm
8270 Test	attached
8240 Test	attached

Water Technology and Controls, Inc.
Water Treatment Chemistries Environmental Laboratory
Reidsville, North Carolina 27320
(910) 342-4748

Client:	Engineering Tectonics	WT&C ID:	03059718
Project:	8240	Analysis:	03/11/97
Client Sample ID:	MW-3	Analyst:	FAP
Sample Collection:	03/04/97 1430		

SW846-8240 VOLATILE ORGANICS

Parameter	Result		
Benzene	< 1 ug/L	cis-1,3-Dichloropropene	< 1 ug/L
Bromobenzene	< 1 ug/L	trans-1,3-Dichloropropene	< 1 ug/L
Bromodichloromethane	< 1 ug/L	Ethyl benzene	< 1 ug/L
Bromoform	< 1 ug/L	Hexachlorobutadiene	< 1 ug/L
Bromomethane	< 5 ug/L	Isopropylbenzene	< 1 ug/L
2-Butanone (MEK)	< 10 ug/L	p-Isopropyltoluene	< 1 ug/L
n-Butylbenzene	< 1 ug/L	Methylene chloride	< 1 ug/L
sec-Butylbenzene	< 1 ug/L	Naphthalene	< 1 ug/L
tert-Butylbenzene	< 1 ug/L	n-Propylbenzene	< 1 ug/L
Carbon Tetrachloride	< 1 ug/L	Styrene	< 1 ug/L
Chlorobenzene	< 1 ug/L	1,1,1,2-Tetrachloroethane	< 1 ug/L
Chloroethane	< 5 ug/L	1,1,2,2-Tetrachloroethane	< 1 ug/L
Chloroform	< 1 ug/L	Tetrachloroethene	< 1 ug/L
Chloromethane	< 5 ug/L	Toluene	< 1 ug/L
2-Chlorotoluene	< 1 ug/L	1,1,1-Trichloroethane	< 1 ug/L
4-Chlorotoluene	< 1 ug/L	1,1,2-Trichloroethane	< 1 ug/L
Dibromochloromethane	< 1 ug/L	Trichloroethene	< 1 ug/L
1,2-Dibromo-3-chloropropane	< 1 ug/L	1,2,3-Trichlorobenzene	< 1 ug/L
1,2-Dibromoethane (EDB)	< 1 ug/L	1,2,4-Trichlorobenzene	< 1 ug/L
Dibromomethane	< 1 ug/L	1,2,3-Trichloropropane	< 1 ug/L
Dichlorodifluoromethane	< 5 ug/L	Trichlorofluoromethane	< 1 ug/L
1,1-Dichloroethane	< 1 ug/L	1,2,4-Trimethylbenzene	< 1 ug/L
1,2-Dichloroethane	< 1 ug/L	1,3,5-Trimethylbenzene	< 1 ug/L
1,4-Dichlorobenzene	< 1 ug/L	Vinyl chloride	< 5 ug/L
1,2-Dichlorobenzene	< 1 ug/L	Xylenes (total)	< 1 ug/L
1,3-Dichlorobenzene	< 1 ug/L		
1,1-Dichloroethene	< 1 ug/L		
cis-1,2-Dichloroethene	**2.0 ug/L**		
trans-1,2-Dichloroethene	< 1 ug/L		
1,2-Dichloropropane	< 1 ug/L		
1,3-Dichloropropane	< 1 ug/L		
2,2-Dichloropropane	< 1 ug/L		
1,1-Dichloropropene	< 1 ug/L		
1,2-Dichloropropene	< 1 ug/L		

Water Technology and Controls, Inc.
Water Treatment Chemistries and Environmental Laboratory
Reidsville, North Carolina 27320
(910) 342-4748

Client:	Engineering Tectonics	WT&C ID:	03059718
Project:	Organics	Analysis:	03/14/97
Client Sample ID:	MW-3	Extraction:	03/05/97
Sample Collection:	03/04/97 1430	Analyst:	FAP

SW846-8270 SEMIVOLATILE ORGANICS

Parameter	Result
Acenaphthene	<10 ug/L
Acenaphthylene	<10 ug/L
Anthracene	<10 ug/L
Benzidine	<50 ug/L
Benzo(a)anthracene	<10 ug/L
Benzo(a)pyrene	<10 ug/L
Benzo(b)fluoranthene	<10 ug/L
Benzo(k)fluoranthene	<10 ug/L
Benzo(g,h,i)perylene	<10 ug/L
Benzyl butyl phthalate	<10 ug/L
Bis(2-chloroethoxy)methane	<10 ug/L
Bis(2-chloroethyl)ether	<10 ug/L
Bis(2-chloroisopropyl)ether	<10 ug/L
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4-Bromophenyl phenyl ether	<10 ug/L
2-Chloronaphthalene	<10 ug/L
4-Chlorophenyl phenyl ether	<10 ug/L
Chrysene	<10 ug/L
Dibenzo(a,h)anthracene	<10 ug/L
1,2-Dichlorobenzene	<10 ug/L
1,3-Dichlorobenzene	<10 ug/L
1,4-Dichlorobenzene	<10 ug/L
3,3'-Dichlorobenzidine	<50 ug/L
Diethyl phthalate	<10 ug/L
Dimethyl phthalate	<10 ug/L
Di-n-butyl phthalate	<10 ug/L
2,4-Dinitrotoluene	<10 ug/L
2,6-Dinitrotoluene	<10 ug/L
Di-n-octyl phthalate	<10 ug/L
1,2-Diphenylhydrazine	<10 ug/L
Fluoranthene	<10 ug/L
Fluorene	<10 ug/L
Hexachlorobenzene	<10 ug/L
Hexachlorobutadiene	<10 ug/L
Hexachlorocyclopentadiene	<10 ug/L
Hexachloroethane	<10 ug/L
Indeno(1,2,3-cd)pyrene	<10 ug/L
Isophorone	<10 ug/L

Parameter	Result
Naphthalene	<10 ug/L
Nitrobenzene	<10 ug/L
N-Nitrosodimethylamine	<10 ug/L
N-Nitrosodi-n-propylamine	<10 ug/L
N-Nitrosodiphenylamine	<10 ug/L
Phenanthrene	<10 ug/L
Pyrene	<10 ug/L
Pyridine	<20 ug/L
1,2,4-Trichlorobenzene	<10 ug/L
4-Chloro-3-methylphenol	<10 ug/L
2-Chlorophenol	<10 ug/L
2,4-Dichlorophenol	<10 ug/L
2,4-Dimethylphenol	<10 ug/L
2,4-Dinitrophenol	<10 ug/L
4,6-Dinitro-2-methylphenol	<10 ug/L
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4-Methylphenol (p-cresol)	<10 ug/L
2-Nitrophenol	<50 ug/L
4-Nitrophenol	<50 ug/L
Pentachlorophenol	<50 ug/L
Phenol	<10 ug/L
2,4,5-Trichlorophenol	<10 ug/L
2,4,6-Trichlorophenol	<10 ug/L

642 Tamco Road
Reidsville, NC 27320
tel. (910)342-4748
fax. (910)342-1522

Chain of Custody Record

Engineering Tect.	724-6999 ext 107
Address: 1720 Vargrave street	Fax:
Attention: Dan Bowser	P.O.#:
Person Taking Sample: same	

If Composite?

Sample Location/ID#	Date 1	Time 1	Date 2	Time 2	Comp? Grab?	# of Conts.	Tests Required	On Ice?	pH OK?
MW-1	3/4/97	1:00					TOX, TOC, COD, 8270, 8240, cond., Cl^-, Fl, NO_3, ph TDS, sulfate, Metals, BOD	Yes	
MW-2	"	2:00							
MW-3	"	2:30							

all three samples

Lab Use Only

Comments: call (910) 403-5170 if problems or above # ext. 107

Relinquished by:	Date: 3/4/97	Time: ~4:06	Recieved by:	Date:	Time:
Relinquished by:	Date:	Time:	Recieved by:	Date:	Time:
Relinquished by:	Date:	Time:	Recieved @ lab by:	Date: 3/5/97	Time: 10:00AM