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

**Prepared by:**

**ENGINEERING TECTONICS, P.A.**
**Winston-Salem, North Carolina**

**May 24, 1996**

**Groundwater Monitoring Well Sampling**

On April 17, 1996 Engineering Tectonics personnel mobilized to the Avery County Landfill in Newland, North Carolina to sample three monitoring wells (MW-1, MW-2, and MW-3). 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 well volumes of water was purged from each well, and water samples were collected according to EPA groundwater sampling protocols.

These 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, magnesium, silver, and zinc.

**Water levels**

Static water levels were measured as 8.25, 5.32, and 5.15 feet for monitoring wells MW-1, MW-2, and MW-3 respectively.

**Laboratory Results**

Included in tables 1, 2, and 3 are the laboratory results of both sampling events for the above mentioned tests on the three groundwater monitoring wells at the Avery County Landfill in Newland, North Carolina. 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 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.

Prepared by: _____ Date: 5/24/96

J. Thomas Dade, Jr.
Project Geologist

Reviewed by: _____ Date: 5/24/96

Dan Bowser
Project Geologist

# TABLES

**Table 1**

| Analysis | MW-1 | MW-2 | MW-3 |
|---|---|---|---|
| BOD (Method 507) | 2.0 | 5.0 | 4.0 |
| COD | 93.5 | 19.2 | 27.6 |
| Specific Conductivity | 188 umhos | 143 umhos | 178 umhos |
| Chloride | 25.4 | 20.7 | 12.1 |
| Fluoride | 0.19 | <0.1 | 0.12 |
| Nitrate | 0.40 | 0.22 | 0.35 |
| pH | 6.1 | 6.1 | 6.2 |
| TDS | 128.0 | 92.0 | 109.0 |
| TOC | 4.78 | 3.51 | 4.57 |
| TOX | 0.169 | 0.080 | 0.057 |
| Sulfate | <10 | <10 | <10 |
| Arsenic | <0.010 | <0.010 | <0.010 |
| Barium | 0.266 | 0.086 | 0.093 |
| Cadmium | <0.002 | <0.002 | <0.002 |
| Chromium | <0.005 | <0.005 | <0.005 |
| Copper | 0.013 | 0.222 | <0.002 |
| Iron | 28.0 | 21.9 | 48.9 |
| Lead | <0.010 | <0.010 | <0.010 |
| Mercury | <0.0002 | <0.0002 | <0.0002 |
| Selenium | <0.010 | <0.010 | <0.010 |
| Magnesium | 4.57 | 2.94 | 2.84 |
| Silver | <0.005 | <0.005 | <0.005 |
| Zinc | 0.038 | 0.019 | 0.018 |

Results are presented parts per million (ppm) unless specified

**Table 2**
**EPA Method 8240**

| Compound | MW-1 | MW-2 | MW-3 |
|---|---|---|---|
| Acrolein | BDL | BDL | BDL |
| Acrylonitrile | BDL | BDL | BDL |
| Benzene | 1.5 | BDL | 1.4 |
| Bromodichloromethane | BDL | BDL | BDL |
| Bromoethane | BDL | BDL | BDL |
| | | | |
| Carbon tetrachloride | BDL | BDL | BDL |
| Chlorobenzene | BDL | BDL | BDL |
| Chlorodibromomethane | BDL | BDL | BDL |
| Chloroethane | 5.0 | 59.0 | 3.5 |
| 2-Chlorothyl vinyl ether | BDL | BDL | BDL |
| | | | |
| Chloroform | BDL | BDL | BDL |
| Chloromethane | BDL | BDL | BDL |
| m-Dichlorobenzene | 1.5 | BDL | BDL |
| o-Dichlorobenzene | BDL | BDL | BDL |
| p-Dichlorobenzene | BDL | BDL | BDL |
| | | | |
| 1,1-Dichloroethane | 1.9 | 120.0 | 1.2 |
| cis-1,2-Dichloroethene | 2.5 | 1.6 | 2.8 |
| 1,1-Dichloroethylene | BDL | 3.2 | BDL |
| Trans-1,2-Dichloroethyl | BDL | BDL | BDL |
| Dichloroemethane | BDL | BDL | BDL |
| | | | |
| 1,2-Dichloropropane | BDL | BDL | BDL |
| cis-1,3-Dichloropropene | BDL | BDL | BDL |
| Ethel Benzene | BDL | BDL | BDL |
| 1,1,2,2-Tetrachloroetha | BDL | BDL | BDL |
| Tetrachloroethylene | BDL | BDL | BDL |
| | | | |
| Toluene | BDL | 7.2 | BDL |
| Tribromomethane | BDL | BDL | BDL |
| 1,1,1-Trichloroethane | BDL | 2.2 | BDL |
| 1,1,2-Trichloroethane | BDL | BDL | BDL |
| Trichloroethylene | BDL | BDL | BDL |
| | | | |
| Vinyl Chloride | BDL | 6.3 | BDL |

All concentrations in ppb (parts per billion)
BDL=below detectable limit

**Table 3**
**EPA Method 8270**

| Compound | MW-1 | MW-2 | MW-3 |
|---|---|---|---|
| Acenaphthene | BDL | BDL | BDL |
| Acenaphthylene | BDL | BDL | BDL |
| Anthracene | BDL | BDL | BDL |
| Benzidine | 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 |
| Bis(2-Chloroethoxy)Metha | BDL | BDL | BDL |
| | | | |
| Bis(2-Chloroethyl)Ether | BDL | BDL | BDL |
| Bis(2-Chloroisopropyl)Ethe | BDL | BDL | BDL |
| Bis(2-Ethylhexyl)Phthalate | BDL | BDL | BDL |
| 4-Bromophenyl Phenyl Eth | BDL | BDL | BDL |
| Butyl Benzyl Phthalate | BDL | BDL | BDL |
| | | | |
| p-Chloro-Cresol | BDL | BDL | BDL |
| 2-Chloronaphthalene | BDL | BDL | BDL |
| 2-Chlorophenol | BDL | BDL | BDL |
| 4-Chlorophenol Phenyl Eth | BDL | BDL | BDL |
| Chrysene | BDL | BDL | BDL |
| | | | |
| Dibenz(a,h)Anthracene | BDL | BDL | BDL |
| Di-N-Butylphthalate | BDL | BDL | BDL |
| 3,3-Dichlorobenzidine | BDL | BDL | BDL |
| 2,4-Dichorophenol | BDL | BDL | BDL |
| Diethylphthalate | 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 |
| Di-N-Ootylphthalate | BDL | BDL | BDL |
| 1,2-Diphenylhydrazine | BDL | BDL | BDL |
| Di-n-Propylnitrosamine | BDL | BDL | BDL |
| Fluoranthene | BDL | BDL | BDL |
| | | | |
| Fluorene | BDL | BDL | BDL |
| Hexachlorobutadiens | BDL | BDL | BDL |
| Hexachlorothane | BDL | BDL | BDL |

**Table 3 Continued**

| Compound | MW-1 | MW-2 | MW-3 |
|---|---|---|---|
| Indeno(1,2,3-od)Pyrene | BDL | BDL | BDL |
| Isophorone | BDL | BDL | BDL |
| Naphthalene | BDL | BDL | BDL |
| Nitrobenzene | BDL | BDL | BDL |
| 2-Nitrophenol | BDL | BDL | BDL |
| | | | |
| 4-Nitrophenol | BDL | BDL | BDL |
| N-Nitrosodimethylamine | BDL | BDL | BDL |
| N-Nitrosodiphenylamine | BDL | BDL | BDL |
| Pentachlorophenol | BDL | BDL | BDL |
| | | | |
| Phenanthrene | BDL | BDL | BDL |
| Phenol | BDL | BDL | BDL |
| Pyrene | BDL | BDL | BDL |
| 1,2,3-Trichlorobenzene | BDL | BDL | BDL |
| | | | |
| 2,4,6-Trichlorophenol | BDL | BDL | BDL |

BDL=below detectable limit

# Attachment A

# Analytical Results

# WATER TECHNOLOGY AND CONTROLS, INC.

*Water Treatment Chemistries & Environmental Laboratory*

May 8, 1996

Mr. Tommy Dade
Engineering Tectonics
P.O. Box I
Winston-Salem, North Carolina 27108

Dear Mr. Dade:

Enclosed are TOC and TOX results for the following samples:

| W.O.# | Sample | Date |
|---|---|---|
| 04189601A | MW-1 | 4/17/96 |
| 04189602A | MW-2 | 4/17/96 |
| 04189603A | MW-3 | 4/17/96 |

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. Tommy Dade |
| Date Sample Rcvd: | 04/18/96 |
| Report Date: | 05/08/96 |
| WT&C Number: | 04189601A |
| Sample: | MW-1 4/17/96 |

| PARAMETER | RESULTS |
|---|---|
| Total Organic Carbon (TOC) | 4.78 mg/l |
| Total Organic Halide (TOX) | 0.169 mg/l |

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

| | |
|---|---|
| Customer: | Engineering Tectonics |
| Contact Person: | Mr. Tommy Dade |
| Date Sample Rcvd: | 04/18/96 |
| Report Date: | 05/08/96 |
| WT&C Number: | 04189602A |
| Sample: | MW-2 Grab 4/17/96 |

| PARAMETER | RESULTS |
|---|---|
| Total Organic Carbon (TOC) | 3.51 mg/l |
| Total Organic Halide (TOX) | 0.080 mg/l |

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

| | |
|---|---|
| Customer: | Engineering Tectonics |
| Contact Person: | Mr. Tommy Dade |
| Date Sample Rcvd: | 04/18/96 |
| Report Date: | 05/08/96 |
| WT&C Number: | 04189603A |
| Sample: | MW-3 4/17/96 |

| PARAMETER | RESULTS |
|---|---|
| Total Organic Carbon (TOC) | 4.57 mg/l |
| Total Organic Halide (TOX) | 0.057 mg/l |

ENVIRONMENT 1
3909 Beryl Road
Raleigh, NC 27607
Telephone: (919) 834-4984
Fax: (919) 834-6497
NC/WW Cert.#: 067

# Laboratory Report

--- Prepared for ---



MIKE VAUGHN
WATER TECHNOLOGY&CONTROLS,INC
642 TAMCO ROAD
REIDSVILLE, NC 27320

Report Date: 5/06/96
Date Received: 4/19/96

Work Order #: 9604-19023

Cust. Code: WA4748
Cust. P.O.#:5790

Project ID:
Project Info: GROUND WATER/ MONITORING WELLS

| Sample ID | Date Sampled | Time Sampled | Matrix | Condition |
|---|---|---|---|---|
| 041801 GRAB 4/17 | 4/17/96 | 15:00 | GW | |

| Test Performed | Method | Results | Tech | Date Analyzed | Qual |
|---|---|---|---|---|---|
| Total Organic Carbon | EPA 9060 | 4.78 mg/L | CD | 4/25/96 | |
| Total Organic Halides | EPA 9020 | 0.169 mg/L | OC | 5/01/96 | |

| Sample ID | Date Sampled | Time Sampled | Matrix | Condition |
|---|---|---|---|---|
| 041802 GRAB 4/17 | 4/17/96 | 15:00 | GW | |

| Test Performed | Method | Results | Tech | Date Analyzed | Qual |
|---|---|---|---|---|---|
| Total Organic Carbon | EPA 9060 | 3.51 mg/L | CD | 4/25/96 | |
| Total Organic Halides | EPA 9020 | 0.080 mg/L | OC | 5/01/96 | |

| Sample ID | Date Sampled | Time Sampled | Matrix | Condition |
|---|---|---|---|---|
| 041803 GRAB 4/17 | 4/17/96 | 16:00 | GW | |

| Test Performed | Method | Results | Tech | Date Analyzed | Qual |
|---|---|---|---|---|---|
| Total Organic Carbon | EPA 9060 | 4.57 mg/L | CD | 4/25/96 | |
| Total Organic Halides | EPA 9020 | 0.057 mg/L | OC | 5/01/96 | |

---- Continued on Next Page ----

# WATER TECHNOLOGY AND CONTROLS, INC.

*Water Treatment Chemistries & Environmental Laboratory*

May 2, 1996

Mr. Tommy Dade
Engineering Tectonics
P.O. Box I
Winston-Salem, North Carolina 27108

Dear Mr. Dade:

Enclosed are results for your MW-1, MW2, and MW3 samples taken on 4/17/96.

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. Tommy Dade |
| Date Sample Rcvd: | 04/18/96 |
| Report Date: | 05/02/96 |
| WT&C Number: | 04189601A |
| Sample: | MW-1 4/17/96 |
| Project: | #90-24701 |

| PARAMETER | RESULTS |
|---|---|
| BOD, 5Day | 2 mg/l |
| COD | 93.5 mg/l |
| pH | 6.1 |
| Total Dissolved Solids | 128 mg/l |
| Chloride | 25.4 mg/l |
| Fluoride | 0.19 mg/l |
| Nitrate Nitrogen | 0.40 mg/l |
| Sulfate | <10 mg/l |
| Arsenic, total | <0.010 mg/l |
| Barium, total | 0.266 mg/l |
| Cadmium, total | <0.002 mg/l |
| Chromium, total | <0.005 mg/l |
| Copper, total | 0.013 mg/l |
| Iron, total | 28.0 mg/l |
| Lead, total | <0.010 mg/l |
| Magnesium, total | 4.57 mg/l |
| Mercury, total | <0.0002 mg/l |
| Selenium, total | <0.010 mg/l |
| Silver, total | <0.005 mg/l |
| Zinc, total | 0.038 mg/l |
| Specific Conductance | 188 umho |

Total Organic Carbon (TOC) - will follow as soon as available
Total Organic Halide (TOX) - will follow as soon as available

| | |
|---|---|
| 8270 | attached |
| 8240 | attached |

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

| | |
|---|---|
| Customer: | Engineering Tectonics |
| Contact Person: | Mr. Tommy Dade |
| Date Sample Rcvd: | 04/18/96 |
| Report Date: | 05/02/96 |
| WT&C Number: | 04189602A |
| Sample: | MW-2 Grab 4/17/96 |
| Project: | #90-24701 |

| PARAMETER | RESULTS |
|---|---|
| BOD, 5Day | 5 mg/l |
| COD | 19.2 mg/l |
| pH | 6.1 |
| Total Dissolved Solids | 92 mg/l |
| Chloride | 20.7 mg/l |
| Fluoride | <0.1 mg/l |
| Nitrate Nitrogen | 0.22 mg/l |
| Sulfate | <10 mg/l |
| Arsenic, total | <0.010 mg/l |
| Barium, total | 0.086 mg/l |
| Cadmium, total | <0.002 mg/l |
| Chromium, total | <0.005 mg/l |
| Copper, total | 0.222 mg/l |
| Iron, total | 21.9 mg/l |
| Lead, total | <0.010 mg/l |
| Magnesium, total | 2.94 mg/l |
| Mercury, total | <0.0002 mg/l |
| Selenium, total | <0.010 mg/l |
| Silver, total | <0.005 mg/l |
| Zinc, total | 0.019 mg/l |
| Specific Conductance | 143 umho |

Total Organic Carbon (TOC) - will follow as soon as available
Total Organic Halide (TOX) - will follow as soon as available

| | |
|---|---|
| 8270 | attached |
| 8240 | attached |

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

| | |
|---|---|
| Customer: | Engineering Tectonics |
| Contact Person: | Mr. Tommy Dade |
| Date Sample Rcvd: | 04/18/96 |
| Report Date: | 05/02/96 |
| WT&C Number: | 04189603A |
| Sample: | MW-3 4/17/96 |
| Project: | #90-24701 |

| PARAMETER | RESULTS |
|---|---|
| BOD, 5Day | 4 mg/l |
| COD | 27.6 mg/l |
| pH | 6.2 |
| Total Dissolved Solids | 109 mg/l |
| Chloride | 12.1 mg/l |
| Fluoride | 0.12 mg/l |
| Nitrate Nitrogen | 0.35 mg/l |
| Sulfate | <10 mg/l |
| Arsenic, total | <0.010 mg/l |
| Barium, total | 0.093 mg/l |
| Cadmium, total | <0.002 mg/l |
| Chromium, total | <0.005 mg/l |
| Copper, total | <0.002 mg/l |
| Iron, total | 48.9 mg/l |
| Lead, total | <0.010 mg/l |
| Magnesium, total | 2.84 mg/l |
| Mercury, total | <0.0002 mg/l |
| Selenium, total | <0.010 mg/l |
| Silver, total | <0.005 mg/l |
| Zinc, total | 0.018 mg/l |
| Specific Conductance | 178 umho |

Total Organic Carbon (TOC) - will follow as soon as available
Total Organic Halide (TOX) - will follow as soon as available

| | |
|---|---|
| 8270 | attached |
| 8240 | attached |

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

| | | | |
|---|---|---|---|
| Client: | Engineering Tectonics | WT&C ID: | 04189602 |
| Project: | 90-247.01 | Analysis: | 04/30/96 |
| Client Sample ID: | MW-2 | Extraction: | 04/24/96 |
| Sample Collection: | 04/17/96 1500 | Analyst: | MSC |

## 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 | | |

Cont # 165

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

| | | | |
|---|---|---|---|
| Client: | Engineering Tectonics | WT&C ID: | 04189601 |
| Project: | 90-247.01 | Analysis: | 04/30/96 |
| Client Sample ID: | MW-1 | Extraction: | 04/24/96 |
| Sample Collection: | 04/17/96 1500 | Analyst: | MSC |

## 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.
Water Treatment Chemistries Environmental Laboratory
Reidsville, North Carolina 27320
(910) 342-4748

| | | | |
|---|---|---|---|
| Client: | Engineering Tectonics | WT&C ID: | 04189601 |
| Project: | 90-247.01 | Analysis: | 05/01/96 |
| Client Sample ID: | MW-1 | Analyst: | MSC |
| Sample Collection: | 04/17/96 1500 | | |

## SW846-8240 VOLATILE ORGANICS

| Parameter | Result |
|---|---|
| **Benzene** | **1.5 ug/L** |
| Bromodichloromethane | < 1 ug/L |
| Bromoform | < 1 ug/L |
| Bromomethane | < 5 ug/L |
| Carbon Tetrachloride | < 1 ug/L |
| Chlorobenzene | < 1 ug/L |
| **Chloroethane** | **5 ug/L** |
| Chloroform | < 1 ug/L |
| Chloromethane | < 5 ug/L |
| Dibromochloromethane | < 1 ug/L |
| 1,2-Dibromoethane | < 1 ug/L |
| **1,1-Dichloroethane** | **1.9 ug/L** |
| 1,2-Dichloroethane | < 1 ug/L |
| **1,4-Dichlorobenzene** | **1.5 ug/L** |
| 1,2-Dichlorobenzene | < 1 ug/L |
| 1,3-Dichlorobenzene | < 1 ug/L |
| 1,1-Dichloroethene | < 1 ug/L |
| **cis-1,2-Dichloroethene** | **2.5 ug/L** |
| trans-1,2-Dichloroethene | < 1 ug/L |
| 1,2-Dichloropropene | < 1 ug/L |
| cis-1,3-Dichloropropene | < 1 ug/L |
| trans-1,3-Dichloropropene | < 1 ug/L |
| Ethyl benzene | < 1 ug/L |
| Methylene chloride | < 1 ug/L |
| 1,1,2,2-Tetrachloroethane | < 1 ug/L |
| Tetrachloroethene | < 1 ug/L |
| Toluene | < 1 ug/L |
| 1,1,1-Trichloroethane | < 1 ug/L |
| 1,1,2-Trichloroethane | < 1 ug/L |
| Trichloroethene | < 1 ug/L |
| Trichlorofluoromethane | < 5 ug/L |
| Vinyl chloride | < 5 ug/L |
| Total Xylenes | < 1 ug/L |

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

| | | | |
|---|---|---|---|
| Client: | Engineering Tectonics | WT&C ID: | 04189602 |
| Project: | 90-247.01 | Analysis: | 05/01/96 |
| Client Sample ID: | MW-2 | Analyst: | MSC |
| Sample Collection: | 04/17/96 1500 | | |

## SW846-8240 VOLATILE ORGANICS

| Parameter | Result |
|---|---|
| Benzene | < 1 ug/L |
| Bromodichloromethane | < 1 ug/L |
| Bromoform | < 1 ug/L |
| Bromomethane | < 5 ug/L |
| Carbon Tetrachloride | < 1 ug/L |
| Chlorobenzene | < 1 ug/L |
| **Chloroethane** | **59 ug/L** |
| Chloroform | < 1 ug/L |
| Chloromethane | < 5 ug/L |
| Dibromochloromethane | < 1 ug/L |
| 1,2-Dibromoethane | < 1 ug/L |
| **1,1-Dichloroethane** | **120 ug/L** |
| 1,2-Dichloroethane | < 1 ug/L |
| 1,4-Dichlorobenzene | < 1 ug/L |
| 1,2-Dichlorobenzene | < 1 ug/L |
| 1,3-Dichlorobenzene | < 1 ug/L |
| **1,1-Dichloroethene** | **3.2 ug/L** |
| **cis-1,2-Dichloroethene** | **1.6 ug/L** |
| trans-1,2-Dichloroethene | < 1 ug/L |
| 1,2-Dichloropropene | < 1 ug/L |
| cis-1,3-Dichloropropene | < 1 ug/L |
| trans-1,3-Dichloropropene | < 1 ug/L |
| Ethyl benzene | < 1 ug/L |
| Methylene chloride | < 1 ug/L |
| 1,1,2,2-Tetrachloroethane | < 1 ug/L |
| Tetrachloroethene | < 1 ug/L |
| **Toluene** | **7.2 ug/L** |
| **1,1,1-Trichloroethane** | **2.2 ug/L** |
| 1,1,2-Trichloroethane | < 1 ug/L |
| Trichloroethene | < 1 ug/L |
| Trichlorofluoromethane | < 5 ug/L |
| **Vinyl chloride** | **6.3 ug/L** |
| Total Xylenes | < 1 ug/L |

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

| | | | |
|---|---|---|---|
| Client: | Engineering Tectonics | WT&C ID: | 04189603 |
| Project: | 90-247.01 | Analysis: | 05/01/96 |
| Client Sample ID: | MW-3 | Analyst: | MSC |
| Sample Collection: | 04/17/96 1600 | | |

## SW846-8240 VOLATILE ORGANICS

| Parameter | Result |
|---|---|
| **Benzene** | **1.4 ug/L** |
| Bromodichloromethane | < 1 ug/L |
| Bromoform | < 1 ug/L |
| Bromomethane | < 5 ug/L |
| Carbon Tetrachloride | < 1 ug/L |
| Chlorobenzene | < 1 ug/L |
| **Chloroethane** | **3.5 ug/L** |
| Chloroform | < 1 ug/L |
| Chloromethane | < 5 ug/L |
| Dibromochloromethane | < 1 ug/L |
| 1,2-Dibromoethane | < 1 ug/L |
| **1,1-Dichloroethane** | **1.2 ug/L** |
| 1,2-Dichloroethane | < 1 ug/L |
| 1,4-Dichlorobenzene | < 1 ug/L |
| 1,2-Dichlorobenzene | < 1 ug/L |
| 1,3-Dichlorobenzene | < 1 ug/L |
| 1,1-Dichloroethene | < 1 ug/L |
| **cis-1,2-Dichloroethene** | **2.8 ug/L** |
| trans-1,2-Dichloroethene | < 1 ug/L |
| 1,2-Dichloropropene | < 1 ug/L |
| cis-1,3-Dichloropropene | < 1 ug/L |
| trans-1,3-Dichloropropene | < 1 ug/L |
| Ethyl benzene | < 1 ug/L |
| Methylene chloride | < 1 ug/L |
| 1,1,2,2-Tetrachloroethane | < 1 ug/L |
| Tetrachloroethene | < 1 ug/L |
| Toluene | < 1 ug/L |
| 1,1,1-Trichloroethane | < 1 ug/L |
| 1,1,2-Trichloroethane | < 1 ug/L |
| Trichloroethene | < 1 ug/L |
| Trichlorofluoromethane | < 5 ug/L |
| Vinyl chloride | < 5 ug/L |
| Total Xylenes | < 1 ug/L |

Chain of Custody Record

| ☐ 122 Lyman Street<br>Asheville, NC 28801<br>(704)254-5169<br>FAX (704) 252-9711 | ☐ 410 New Salem Highway #106<br>Murfreesboro, TN 37129<br>(615) 848-6810<br>FAX (615) 848-6805 | ☐ 1491 Twilight Trail<br>Frankfort, KY 40601<br>(502) 223-0251<br>FAX (502) 875-8016 | ☐ 2003 North Pine Street<br>Lumberton, NC 28358<br>(910) 738-6190<br>FAX (910) 671-8837 | ☐ 263 Branchview Drive SE<br>Concord, NC 28025<br>(704) 786-3322<br>FAX (704) 786-2999 | ☐ 2500 Gateway Centre<br>Morrisville, NC 27560<br>(919) 380-9699<br>FAX (919) 380-9717 | ☐ 4875 Riverside Drive<br>Macon, GA 31210<br>(912) 757-0811<br>FAX (912) 757-0149 | ☐ 2082 Trade Ctr Way #103<br>Naples, FL 33942<br>(813) 597-6059<br>FAX (813) 597-7056 |
|---|---|---|---|---|---|---|---|

| | |
|---|---|
| Client: [illegible] Tailings | Project No.: [illegible] |
| Report Address: | Invoice Address: |
| | |
| Attn: T. Dade | Attn: T Dade |
| Phone No.: [illegible] | Sampled By: T. Dade |
| Fax No.: [illegible] | P.O. No: |

**TURNAROUND TIME**

☐ 24 Hours ☐ 48 Hours Date Needed: [illegible]

☐ 5 Days ☐ 10 Days ☐ Other [illegible]

**REQUESTED PARAMETERS**

**LAB CODE I.D.**

A = Asheville, NC
C = Concord, NC
D = Denver, CO
G = Macon,GA
K = Frankfort, KY
L = Lumberton, NC
M = Morrisville, NC
N = Naples, FL
S = Subcontracted
T = Murfreesboro, TN

| Sample ID | Date | Time | Comp/ Grab | Matrix | Preserv. | Containers | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | Some samples have |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | | extremely short holding |
| | | | | | | | | | | | | | | | | | times (24-48 hrs) |
| | | | | | | | | | | | | | | | | | please don't miss them. |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | Thanks |
| | | | | | | | | | | | | | | | | | Tony |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

| Lab Use Only | Custody Seal: ☐ Yes ☐ No ☐ N/A | Init Lab Temp. | Rec. Lab Temp |
|---|---|---|---|

COMMENTS: [illegible]

| | | | | | | |
|---|---|---|---|---|---|---|
| Relinquished By: [illegible] | Date [illegible] | Time | Received By: [illegible] | Date [illegible] | Time | State Samples Collected: |
| Relinquished By: | Date | Time | Received By: | Date | Time | |
| Relinquished By: | Date | Time | Received By: | Date | Time | |
| Relinquished By: | Date | Time | Received By: | Date | Time | |