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RESULTS OF WATER QUALITY  
SAMPLING  
ALAMANCE COUNTY LANDFILL  
APRIL 1992

01-01



PREPARED FOR  
ALAMANCE COUNTY

MAY 14, 1992

BAIN, PALMER & ASSOCIATES, INC.  
2641-G RANDLEMAN ROAD GREENSBORO, NC 27406  
(919) 272-9713

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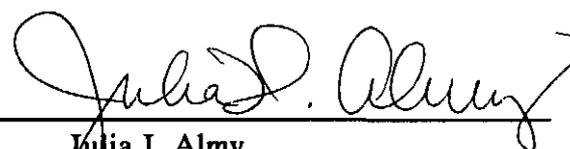


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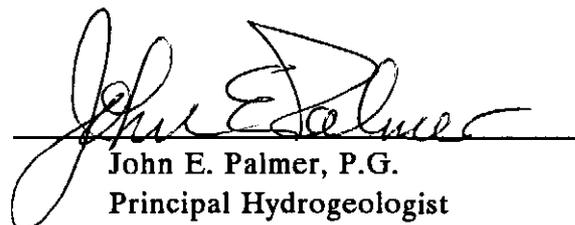
I hereby certify this 14th day of May 1992, that this report was prepared by me or under my direct supervision.



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Julia I. Almy  
Geologist

Technical review performed by:



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**RESULTS OF WATER QUALITY SAMPLING  
ALAMANCE COUNTY LANDFILL  
APRIL 1992**

**EXECUTIVE SUMMARY**

Eleven monitoring wells and two stream locations at the Alamance County Landfill were sampled in April 1992. All sampling was conducted according to North Carolina Solid Waste Management Guidelines.

Results from the eleven monitoring well samples show most concentrations to be well below North Carolina State guidelines. A few exceptions occur for Barium (Ba), Cadmium (Cd), Chromium (Cr), Fluoride (F), Iron (Fe), Lead (Pb), Manganese (Mn), Mercury (Hg), Total Dissolved Solids (TDS), Total Organic Halide (TOX) and for pH in some wells. However, Iron (Fe) and Manganese (Mn) are above guidelines in all wells.

Results from the two surface water samples collected from Haw Creek, upstream and downstream of the landfill, show concentrations of Copper (Cu), Iron (Fe), and Total Organic Carbon (TOC) above the North Carolina State Guidelines for Surface Waters only for the upstream sample.

**INTRODUCTION**

Bain, Palmer & Associates, Inc. was contracted by Alamance County, NC to conduct the annual sampling of eleven ground water monitoring wells and two stream sites at the perimeter of the Alamance County Landfill. The landfill is a Solid Waste Management Facility located south of I-40 approximately one and a half miles east of Highway 54 and southeast of Swepsonville in Alamance County, NC. Figure 1 is a topographic map of the site area showing all sample locations.

## SCOPE OF WORK

The annual sampling task includes sampling eleven monitoring wells and a nearby stream (upgradient and downgradient) for Total Organic Halides (TOX), Total Dissolved Solids (TDS), Total Organic Carbon (TOC), Chemical Oxygen Demand (COD), Biological Oxygen Demand (BOD), Arsenic, Barium, Cadmium, Chloride, Chromium, Copper, Fluoride, Iron, Zinc, Lead, Manganese, Mercury, Nitrate, Selenium, Silver, Sulfates, pH and Conductivity.

## METHODS EMPLOYED

### Monitoring Well Sampling

Ground water sampling took place on Monday and Wednesday, April 20 and 22, 1992. Eleven monitoring wells were sampled. Representatives from Bain, Palmer & Associates, Inc. opened each well and took static water level readings from the top edge of the PVC casing. The bottom of each well was then sounded from the same point in order to determine the volume of water in the well (these data are included as Appendix A, Ground Water Sampling Field Data Sheets). The calculated volume was then tripled to predict the minimum volume to be purged from each well before sampling could take place. A teflon bailer cleaned according to State requirements and fresh polypropylene rope were used in each well to extract the required well volumes. Samples were then collected in laboratory cleaned and supplied glassware, packed on ice, and placed under chain-of-custody. At the end of each day's sampling, samples were taken to the local bus station for overnight shipping in order to arrive at the lab by the next morning. All analyses were conducted by Central Virginia Laboratories and Consultants (CVLC) in Lynchburg, Virginia, a North Carolina certified laboratory.

### **Stream Sampling**

The stream samples were collected from a stream that flows around the southeast corner of the site. An upstream water sample (US-6) was collected at a point northeast of MW-6. The downstream sample (DS-3) was collected from the stream just west of MW-3, at the southern edge of the landfill property. Both stream samples were analyzed for the same parameters as the groundwater samples.

### **RESULTS**

The results of the laboratory analysis are included as Tables 1 and 2, and complete lab reports as Appendix B.

#### **Ground Water**

The ground water sample analyses revealed concentrations of ten different parameters that are either above or outside the range of North Carolina State Guidelines in one or more of the eleven wells sampled. Iron and Manganese levels were above State Guidelines in all of the wells. MW-3, MW-7B, and MW-9 all show concentrations of Barium and Chromium above the State Guidelines. Only MW-3 showed an elevated level of Cadmium. The MW-2 Fluoride concentration was at the State Guideline. TOX, TDS and Mercury were detected in elevated concentrations in MW-4, TDS was also high in MW-9 (nearly twice the State Guideline). The pH level of 5.5 for MW-8B was outside the Guideline range of 6.5 to 8.5, being slightly more acidic.

#### **Surface Water**

Only the upstream sample (US-6) reflected elevated concentrations of the various constituents. US-6 had elevated Copper, Iron and TOC levels. The downstream sample

showed all constituent concentrations to be below State Guidelines for this portion of Haw Creek, downstream of State Highway 54 (classification = C, nutrient sensitive).

#### **REFERENCES**

State Guidelines for both the ground water and surface water samples were determined using the North Carolina Administrative Code, Title 15, Department of Environment, Health and Natural Resources Division of Environmental Management Subchapter 2L Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina Sections .0100, .0200, and .0300 (December 1, 1989); and the Administrative Code Section: 15A NCAC 2B .0200 - Classifications and Water Quality Standards Applicable to Surface Waters of North Carolina (January 1, 1990); both from the Environmental Management Commission, Raleigh, North Carolina. State and Regional Water Quality personnel were consulted in determining guidelines for parameters with no given standards.

TABLE 2  
SURFACE WATER  
RESULTS OF ANALYSIS

Parameter	Well No.	US-6	DS-3	State Guidelines Surface Water
Arsenic, Total		<0.001	<0.001	0.05
Barium, Total		0.045	0.041	No Std
Biochemical Oxygen Demand (5d)		3.0	3.0	5.0
Cadmium, Total		0.0003	0.0002	0.002
Chemical Oxygen Demand		55.0	8.0	No Std <sup>1</sup>
Chloride		7.0	9.0	230
Chromium, Total		0.011	0.006	0.050
Copper, Total		0.015	0.003	0.007
Fluoride		<0.1	0.1	1.8
Iron, Total		3.1	0.86	1.0
Lead, Total		<0.001	0.004	0.025
Manganese, Total		0.203	0.148	No Std
Mercury, Total		<0.0002	<0.0002	0.000012
Nitrate as N		1.0	<1.0	No Std
Selenium, Total		<0.001	<0.001	0.005
Silver, Total		<0.0002	<0.0002	0.00006
Sulfate		5.0	45.0	No Std
Total Dissolved Solids		111	85.0	No Std <sup>2</sup>
Total Organic Carbon		12.9	3.35	No Std <sup>2</sup>
Total Organic Carbon		12.9	3.34	No Std <sup>2</sup>
Total Organic Carbon		13.0	3.37	No Std <sup>2</sup>
Total Organic Carbon		12.9	3.32	No Std <sup>2</sup>
Total Organic Halide		0.012	0.008	No Std <sup>2</sup>
Total Organic Halide		0.016	0.005	No Std <sup>2</sup>
Total Organic Halide		0.014	0.007	No Std <sup>2</sup>
Total Organic Halide		0.013	0.008	No Std <sup>2</sup>
Zinc, Total		<0.005	<0.005	0.050
Conductivity (uMHOs)		59.0	99.0	No Std <sup>2</sup>
pH (units)		8.0	8.0	6.0-9.0

Notes:

Haw Creek surface water down-stream of Highway 54 is classified: C; nutrient sensitive.

Shaded blocks denote concentrations at or above North Carolina State Guidelines for this constituent.

All results are given in mg/L (parts per million) unless otherwise specified.

No Std<sup>1</sup> - Chemical Oxygen Demand (COD) has no set standard - comparison with upstream values as background is only guide.

No Std<sup>2</sup> - Total Dissolved Solids (TDS), Total Organic Carbon (TOC), Total Organic Halides (TOX), and Conductivity: there are no set standards for these constituents in surface water. Unofficial levels of concern are: TDS = 500 mg/L, TOC = 10 mg/l, TOX = 0.1 mg/L, and Conductivity = 1000uMHOs.

# BAIN, PALMER & ASSOCIATES, INC.

Environmental Consultants

## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 22, 1992

Source/Well MW-1

Time 9:00 am to 9:30 am

Sampled by Julia I. Almy

Weather Cloudy, 60's

### GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 24.18 ft.
- 2) Depth to well bottom from measuring point 33.29 ft.
- 3) Height of water column 9.11 ft.
- 4) Measuring point description Top of PVC Casing

### WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h) 1.48 gal.
- 2) Volume of water removed prior to sampling 5 gal.
- 3) Was well pumped DRY? (circle one) YES  NO

### FIELD ANALYSIS

- 1) Temperature 16.5°C
- 2) Specific Conductance 90 μMHOs
- 3) pH 7.5
- 4) Physical Appearance and Odor Light brown, silty, no odor

# BAIN, PALMER & ASSOCIATES, INC.

Environmental Consultants

## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 20, 1992

Source/Well MW-2

Time 11:45 am to 12:15 pm

Sampled by Kevin Metheny

Weather Cloudy, 60-70°

### GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 24.98 ft.
- 2) Depth to well bottom from measuring point 29.18 ft.
- 3) Height of water column 4.20 ft.
- 4) Measuring point description Top of PVC Casing

### WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h) .6846 gal.
- 2) Volume of water removed prior to sampling 2.0 gal.
- 3) Was well pumped DRY? (circle one)  YES  NO

### FIELD ANALYSIS

- 1) Temperature 18°C
- 2) Specific Conductance 99  $\mu$ MHOs
- 3) pH 7.5
- 4) Physical Appearance and Odor Light brown, silty, no odor

# BAIN, PALMER & ASSOCIATES, INC.

Environmental Consultants

## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 20, 1992

Source/Well MW-3

Time 12:15 pm to 12:30 pm

Sampled by Wes Scarlett

Weather Partly Cloudy - 75°F

## GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 10.24 ft.
- 2) Depth to well bottom from measuring point 24.00 ft.
- 3) Height of water column 13.76 ft.
- 4) Measuring point description Top of PVC Casing

## WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h) 2.25 gal.
- 2) Volume of water removed prior to sampling 7.5 gal.
- 3) Was well pumped DRY? (circle one) YES   NO

## FIELD ANALYSIS

- 1) Temperature 14°C
- 2) Specific Conductance 75 μMHOs
- 3) pH 7
- 4) Physical Appearance and Odor Orange brown, silty, no odor

# BAIN, PALMER & ASSOCIATES, INC.

Environmental Consultants

## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 20, 1992

Source/Well MW-4

Time 3:04 pm to 4:00 pm

Sampled by Julia I. Almy

Weather Cloudy - 60-70°F

## GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 35.29 ft.
- 2) Depth to well bottom from measuring point 49.94 ft.
- 3) Height of water column 14.65 ft.
- 4) Measuring point description Top of PVC Casing

## WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h) 2.39 gal.
- 2) Volume of water removed prior to sampling 13.0 gal.
- 3) Was well pumped DRY? (circle one) YES  NO

## FIELD ANALYSIS

- 1) Temperature 16°C
- 2) Specific Conductance 379  $\mu$ MHOs
- 3) pH 7
- 4) Physical Appearance and Odor Light orange brown, silty, no odor

# BAIN, PALMER & ASSOCIATES, INC.

Environmental Consultants

## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 20, 1992

Source/Well MW-5

Time 4:30 pm to 5:00 pm

Sampled by Julia I. Almy

Weather Hot, Cloudy, 70s

## GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 15.31 ft.
- 2) Depth to well bottom from measuring point 19.29 ft.
- 3) Height of water column 3.98 ft.
- 4) Measuring point description Top of PVC Casing

## WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h) .65 gal.
- 2) Volume of water removed prior to sampling .65 gal.
- 3) Was well pumped DRY? (circle one)  YES NO

## FIELD ANALYSIS

- 1) Temperature 15°C
- 2) Specific Conductance 140  $\mu$ MHOs
- 3) pH 7.5
- 4) Physical Appearance and Odor Silty, light brown

# BAIN, PALMER & ASSOCIATES, INC.

Environmental Consultants

## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 22, 1992

Source/Well MW-6

Time 9:00 am to 10:00 am

Sampled by Kevin Metheny

Weather Overcast, 60-70°F

### GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 20.93 ft.
- 2) Depth to well bottom from measuring point 52.54 ft.
- 3) Height of water column 31.61 ft.
- 4) Measuring point description Top of PVC Casing

### WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h) 5 gal.
- 2) Volume of water removed prior to sampling 17.2 gal.
- 3) Was well pumped DRY? (circle one) YES   NO

### FIELD ANALYSIS

- 1) Temperature 16°C
- 2) Specific Conductance 135  $\mu$ MHOs
- 3) pH 7.5
- 4) Physical Appearance and Odor Clear with oily sheen on top

# BAIN, PALMER & ASSOCIATES, INC.

Environmental Consultants

## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 22, 1992

Source/Well MW-7A

Time 10:35 am to 1:00 pm

Sampled by Kevin Metheny

Weather Cloudy, 65°F

## GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 23.40 ft.
- 2) Depth to well bottom from measuring point 63.20 ft.
- 3) Height of water column 39.80 ft.
- 4) Measuring point description Top of PVC Casing

## WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h) 6.49 gal.
- 2) Volume of water removed prior to sampling 20.0 gal.
- 3) Was well pumped DRY? (circle one) YES   NO

## FIELD ANALYSIS

- 1) Temperature 15.5°C
- 2) Specific Conductance 110 μMHOs
- 3) pH 7.5
- 4) Physical Appearance and Odor Light tan, silty, no odor, faint sheen

# BAIN, PALMER & ASSOCIATES, INC.

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## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 22, 1992

Source/Well MW-7B

Time 10:35 am to 1:00 pm

Sampled by Kevin Metheny

Weather Cloudy, 65°F

## GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 21.11 ft.
- 2) Depth to well bottom from measuring point 32.45 ft.
- 3) Height of water column 11.34 ft.
- 4) Measuring point description Top of PVC Casing

## WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h) 1.85 gal.
- 2) Volume of water removed prior to sampling 5.75 gal.
- 3) Was well pumped DRY? (circle one) YES  NO

## FIELD ANALYSIS

- 1) Temperature 15°C
- 2) Specific Conductance 75 μMHOs
- 3) pH 7.5
- 4) Physical Appearance and Odor Brown, silty, no odor

# BAIN, PALMER & ASSOCIATES, INC.

Environmental Consultants

## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 22, 1992

Source/Well MW-8A

Time 3:30 pm to 4:30 pm

Sampled by Julia I. Almy

Weather Cloudy, 70's

### GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 22.13 ft.
- 2) Depth to well bottom from measuring point 63.39 ft.
- 3) Height of water column 41.26 ft.
- 4) Measuring point description Top of PVC Casing

### WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h) 6.73 gal.
- 2) Volume of water removed prior to sampling 21 gal.
- 3) Was well pumped DRY? (circle one) YES   NO

### FIELD ANALYSIS

- 1) Temperature 15.5°C
- 2) Specific Conductance 50  $\mu$ MHOs
- 3) pH 6.6
- 4) Physical Appearance and Odor Slightly cloudy

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Environmental Consultants

## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 22, 1992

Source/Well MW-8B

Time 3:30 pm to 4:30 pm

Sampled by Kevin Metheny

Weather Sunny, 75°F

## GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 21.42 ft.
- 2) Depth to well bottom from measuring point 25.69 ft.
- 3) Height of water column 4.27 ft.
- 4) Measuring point description Top of PVC Casing

## WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h) 0.69 gal.
- 2) Volume of water removed prior to sampling 2.5 gal.
- 3) Was well pumped DRY? (circle one) YES   NO

## FIELD ANALYSIS

- 1) Temperature 17°C
- 2) Specific Conductance 30 μMHOs
- 3) pH 5.5
- 4) Physical Appearance and Odor Light tan

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## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 22, 1992

Source/Well MW-9

Time 11:30 am to 12:30 pm

Sampled by Julia I. Almy

Weather Cloudy, 60-70°F

### GROUNDWATER ELEVATION

- 1) Depth to water from measuring point 16.97 ft.
- 2) Depth to well bottom from measuring point 27.10 ft.
- 3) Height of water column 10.13 ft.
- 4) Measuring point description Top of PVC Casing

### WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h)1.65 gal.
- 2) Volume of water removed prior to sampling 9.0 gal.
- 3) Was well pumped DRY? (circle one) YES   NO

### FIELD ANALYSIS

- 1) Temperature 16.5°C
- 2) Specific Conductance 60  $\mu$ MHOs
- 3) pH 7.5
- 4) Physical Appearance and Odor Light brown, silty, no odor

# BAIN, PALMER & ASSOCIATES, INC.

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## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 22, 1992

Source/Well US-6

Time 1:15 pm to 1:20 pm

Sampled by Julia I. Almy

Weather Sunny, 70°F

### GROUNDWATER ELEVATION

- 1) Depth to water from measuring point          ft.
- 2) Depth to well bottom from measuring point          ft.
- 3) Height of water column          ft.
- 4) Measuring point description Upstream near MW-6

### WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h)          gal.
- 2) Volume of water removed prior to sampling          gal.
- 3) Was well pumped DRY? (circle one)      YES       NO

### FIELD ANALYSIS

- 1) Temperature         17.5°C
- 2) Specific Conductance         59 μMHOs
- 3) pH         8
- 4) Physical Appearance and Odor Muddy

# BAIN, PALMER & ASSOCIATES, INC.

Environmental Consultants

## GROUNDWATER SAMPLING FIELD DATA

Location Alamance Co. Landfill

Date April 20, 1992

Source/Well DS-3

Time 12:50 pm to 1:00 pm

Sampled by Wes Scarlett

Weather Cloudy, 60s

## GROUNDWATER ELEVATION

- 1) Depth to water from measuring point surface ft.
- 2) Depth to well bottom from measuring point - ft.
- 3) Height of water column - ft.
- 4) Measuring point description Downstream near MW-3

## WELL PURGING AND SAMPLE COLLECTION

- 1) Volume of water in well
  - a) 2" well . . . . (v = 0.163 x h)
  - b) 4" well . . . . (v = 0.651 x h)- gal.
- 2) Volume of water removed prior to sampling - gal.
- 3) Was well pumped DRY? (circle one) YES  NO

## FIELD ANALYSIS

- 1) Temperature 20.5°C
- 2) Specific Conductance 99 µMHOs
- 3) pH 8.0
- 4) Physical Appearance and Odor Green brown, clear

ANALYSIS RESULTS  
FOR  
ALAMANCE COUNTY LANDFILL

May 11, 1992

Prepared For:

Bain, Palmer and Associates, Inc.  
2641-G Randleman Road  
Greensboro, North Carolina 27406

Prepared By:

Central Virginia Laboratories & Consultants, Inc.  
2418 Langhorne Road  
Lynchburg, Virginia 24501  
(804) 847-2852

CVLC Page 1  
Bain, Palmer and Associates, Inc.  
May 11, 1992

Alamance County Landfill

SAMPLE IDENTIFICATION: CVLC #4627 CUSTOMER: MW - 2

SAMPLE COLLECTED: 04/20/92 1300 hours  
SAMPLE RELINQUISHED: 04/20/92 2000 hours  
SAMPLE RECEIVED: 04/21/92 1600 hours

ANALYSIS

RESULTS (mg/l)

Arsenic, Total	<0.001
Barium, Total	0.276
Biochemical Oxygen Demand (5d)	<2
Cadmium, Total	0.0029
Chemical Oxygen Demand	70
Chloride	12
Chromium, Total	0.041
Copper, Total	0.028
Fluoride	2.0
Iron, Total	32
Lead, Total	0.009
Manganese, Total	0.529
Mercury, Total	<0.0002
Nitrate as N	<1
Selenium, Total	<0.001
Silver, Total	0.0004
Sulfate	4
Total Dissolved Solids	163
Total Organic Carbon	1.29
Total Organic Carbon	1.36
Total Organic Carbon	1.39
Total Organic Carbon	1.39
Total Organic Halide	0.024
Total Organic Halide	0.023
Total Organic Halide	0.025
Total Organic Halide	0.022
Zinc, Total	0.088

CVLC Page 2  
Bain, Palmer and Associates, Inc.  
May 11, 1992

Alamance County Landfill

SAMPLE IDENTIFICATION: CVLC #4628 CUSTOMER: MW - 3

SAMPLE COLLECTED: 04/20/92 1230 hours  
SAMPLE RELINQUISHED: 04/20/92 2000 hours  
SAMPLE RECEIVED: 04/21/92 1600 hours

ANALYSIS

RESULTS (mg/l)

Arsenic, Total	<0.001
Barium, Total	2.46
Biochemical Oxygen Demand (5d)	<2
Cadmium, Total	0.007
Chemical Oxygen Demand	170
Chloride	12
Chromium, Total	0.255
Copper, Total	0.443
Fluoride	<0.1
Iron, Total	400
Lead, Total	0.030
Manganese, Total	5.07
Mercury, Total	0.0008
Nitrate as N	1
Selenium, Total	<0.001
Silver, Total	0.0017
Sulfate	7
Total Dissolved Solids	160
Total Organic Carbon	1.99
Total Organic Carbon	2.02
Total Organic Carbon	1.95
Total Organic Carbon	2.26
Total Organic Halide	<0.005
Total Organic Halide	<0.005
Total Organic Halide	<0.005
Total Organic Halide	0.006
Zinc, Total	0.731

CVLC Page 3  
Bain, Palmer and Associates, Inc.  
May 11, 1992

Alamance County Landfill

SAMPLE IDENTIFICATION: CVLC #4629 CUSTOMER: MW - 4

SAMPLE COLLECTED: 04/20/92 1600 hours  
SAMPLE RELINQUISHED: 04/20/92 2000 hours  
SAMPLE RECEIVED: 04/21/92 1600 hours

ANALYSIS

RESULTS (mg/l)

Arsenic, Total	<0.001
Barium, Total	0.178
Biochemical Oxygen Demand (5d)	5
Cadmium, Total	0.0005
Chemical Oxygen Demand	88
Chloride	50
Chromium, Total	0.026
Copper, Total	0.144
Fluoride	0.1
Iron, Total	120
Lead, Total	0.024
Manganese, Total	1.98
Mercury, Total	0.0026
Nitrate as N	<1
Selenium, Total	<0.001
Silver, Total	0.0003
Sulfate	12
Total Dissolved Solids	573
Total Organic Carbon	3.20
Total Organic Carbon	3.20
Total Organic Carbon	3.21
Total Organic Carbon	3.18
Total Organic Halide	0.344
Total Organic Halide	0.289
Total Organic Halide	0.303
Total Organic Halide	0.330
Zinc, Total	0.169

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SAMPLE IDENTIFICATION: CVLC #4630      CUSTOMER: MW - 5

SAMPLE COLLECTED:      04/20/92    1710 hours  
SAMPLE RELINQUISHED:    04/20/92    2000 hours  
SAMPLE RECEIVED:        04/21/92    1600 hours

ANALYSIS

RESULTS (mg/l)

Chemical Oxygen Demand	230
Total Organic Carbon	6.22
Total Organic Carbon	6.39
Total Organic Carbon	6.29
Total Organic Carbon	6.32
Total Organic Halide	0.009
Total Organic Halide	0.009
Total Organic Halide	0.010
Total Organic Halide	0.009

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SAMPLE IDENTIFICATION: CVLC #4631      CUSTOMER: DS - 3

SAMPLE COLLECTED: 04/20/92 1300 hours  
SAMPLE RELINQUISHED: 04/20/92 2000 hours  
SAMPLE RECEIVED: 04/21/92 1600 hours

ANALYSIS

RESULTS (mg/l)

Arsenic, Total	<0.001
Barium, Total	0.041
Biochemical Oxygen Demand (5d)	3
Cadmium, Total	0.0002
Chemical Oxygen Demand	8
Chloride	9
Chromium, Total	0.006
Copper, Total	0.003
Fluoride	0.1
Iron, Total	0.86
Lead, Total	0.004
Manganese, Total	0.148
Mercury, Total	<0.0002
Nitrate as N	<1
Selenium, Total	<0.001
Silver, Total	<0.0002
Sulfate	45
Total Dissolved Solids	85
Total Organic Carbon	3.35
Total Organic Carbon	3.34
Total Organic Carbon	3.37
Total Organic Carbon	3.32
Total Organic Halide	0.008
Total Organic Halide	0.005
Total Organic Halide	0.007
Total Organic Halide	0.008
Zinc, Total	<0.005

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SAMPLE IDENTIFICATION: CVLC #4704 CUSTOMER: MW - 5

SAMPLE COLLECTED: 04/22/92 0900 hours  
SAMPLE RELINQUISHED: 04/22/92 2000 hours  
SAMPLE RECEIVED: 04/23/92 0930 hours

<u>ANALYSIS</u>	<u>RESULTS (mg/l)</u>
Arsenic, Total	0.002
Barium, Total	0.268
Biochemical Oxygen Demand (5d)	3
Cadmium, Total	0.0007
Chloride	12
Chromium, Total	0.048
Copper, Total	0.086
Fluoride	<0.1
Iron, Total	62
Lead, Total	0.020
Manganese, Total	0.86
Mercury, Total	<0.0002
Nitrate as N	1
Selenium, Total	<0.001
Silver, Total	0.0007
Sulfate	13
Total Dissolved Solids	106
Zinc, Total	0.113

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SAMPLE IDENTIFICATION: CVLC #4705 CUSTOMER: MW - 6

SAMPLE COLLECTED: 04/22/92 1000 hours  
SAMPLE RELINQUISHED: 04/22/92 2000 hours  
SAMPLE RECEIVED: 04/23/92 0930 hours

<u>ANALYSIS</u>	<u>RESULTS (mg/l)</u>
Arsenic, Total	<0.001
Barium, Total	0.074
Biochemical Oxygen Demand (5d)	<2
Cadmium, Total	0.0018
Chemical Oxygen Demand	26
Chloride	4
Chromium, Total	0.023
Copper, Total	0.011
Fluoride	0.2
Iron, Total	3.1
Lead, Total	0.004
Manganese, Total	0.346
Mercury, Total	<0.0002
Nitrate as N	<1
Selenium, Total	<0.001
Silver, Total	<0.0002
Sulfate	8
Total Dissolved Solids	189
Total Organic Carbon	1.18
Total Organic Carbon	1.19
Total Organic Carbon	1.15
Total Organic Carbon	1.04
Total Organic Halide	<0.005
Zinc, Total	0.009

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SAMPLE IDENTIFICATION: CVLC #4706      CUSTOMER: MW - 1

SAMPLE COLLECTED: 04/22/92 0930 hours  
SAMPLE RELINQUISHED: 04/22/92 2000 hours  
SAMPLE RECEIVED: 04/23/92 0930 hours

<u>ANALYSIS</u>	<u>RESULTS (mg/l)</u>
Arsenic, Total	0.001
Barium, Total	0.614
Biochemical Oxygen Demand (5d)	<2
Cadmium, Total	0.0006
Chemical Oxygen Demand	260
Chloride	16
Chromium, Total	0.032
Copper, Total	0.034
Fluoride	<0.1
Iron, Total	47
Lead, Total	0.014
Manganese, Total	1.08
Mercury, Total	<0.0002
Nitrate as N	2
Selenium, Total	<0.001
Silver, Total	0.0005
Sulfate	<2
Total Dissolved Solids	92
Total Organic Carbon	1.29
Total Organic Carbon	1.36
Total Organic Carbon	1.39
Total Organic Carbon	1.39
Total Organic Halide	0.024
Total Organic Halide	0.023
Total Organic Halide	0.025
Total Organic Halide	0.022
Zinc, Total	0.192

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SAMPLE IDENTIFICATION: CVLC #4707 CUSTOMER: MW - 9

SAMPLE COLLECTED: 04/22/92 1430 hours  
SAMPLE RELINQUISHED: 04/22/92 2000 hours  
SAMPLE RECEIVED: 04/23/92 0930 hours

<u>ANALYSIS</u>	<u>RESULTS (mg/l)</u>
Arsenic, Total	0.001
Barium, Total	3.62
Biochemical Oxygen Demand (5d)	<2
Cadmium, Total	0.0015
Chemical Oxygen Demand	260
Chloride	19
Chromium, Total	0.59
Copper, Total	0.311
Fluoride	0.1
Iron, Total	510
Lead, Total	0.106
Manganese, Total	11.7
Mercury, Total	<0.0002
Nitrate as N	1
Selenium, Total	<0.001
Silver, Total	0.0007
Sulfate	4
Total Dissolved Solids	920
Total Organic Carbon	1.62
Total Organic Carbon	1.67
Total Organic Carbon	1.66
Total Organic Carbon	1.66
Total Organic Halide	<0.005
Total Organic Halide	0.005
Total Organic Halide	<0.005
Total Organic Halide	<0.005
Zinc, Total	1.43

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SAMPLE IDENTIFICATION: CVLC #4708 CUSTOMER: US - 6

SAMPLE COLLECTED: 04/22/92 1320 hours  
SAMPLE RELINQUISHED: 04/22/92 2000 hours  
SAMPLE RECEIVED: 04/23/92 0930 hours

ANALYSIS

RESULTS (mg/l)

Arsenic, Total	<0.001
Barium, Total	0.045
Biochemical Oxygen Demand (5d)	3
Cadmium, Total	0.0003
Chemical Oxygen Demand	55
Chloride	7
Chromium, Total	0.011
Copper, Total	0.015
Fluoride	<0.1
Iron, Total	3.1
Lead, Total	<0.001
Manganese, Total	0.203
Mercury, Total	<0.0002
Nitrate as N	1
Selenium, Total	<0.001
Silver, Total	<0.0002
Sulfate	5
Total Dissolved Solids	111
Total Organic Carbon	12.9
Total Organic Carbon	12.9
Total Organic Carbon	13.0
Total Organic Carbon	12.9
Total Organic Halide	0.012
Total Organic Halide	0.016
Total Organic Halide	0.014
Total Organic Halide	0.013
Zinc, Total	<0.005

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SAMPLE IDENTIFICATION: CVLC #4709 CUSTOMER: MW - 7A

SAMPLE COLLECTED: 04/22/92 1300 hours  
SAMPLE RELINQUISHED: 04/22/92 2000 hours  
SAMPLE RECEIVED: 04/23/92 0930 hours

<u>ANALYSIS</u>	<u>RESULTS (mg/l)</u>
Arsenic, Total	<0.001
Barium, Total	0.083
Biochemical Oxygen Demand (5d)	<2
Cadmium, Total	0.0010
Chemical Oxygen Demand	35
Chloride	7
Chromium, Total	0.014
Copper, Total	0.032
Fluoride	0.1
Iron, Total	5.8
Lead, Total	0.005
Manganese, Total	0.118
Mercury, Total	<0.0002
Nitrate as N	<1
Selenium, Total	<0.001
Silver, Total	0.0002
Sulfate	5
Total Dissolved Solids	140
Total Organic Carbon	4.74
Total Organic Carbon	4.46
Total Organic Carbon	4.43
Total Organic Carbon	4.57
Total Organic Halide	0.018
Total Organic Halide	0.018
Total Organic Halide	0.021
Total Organic Halide	0.016
Zinc, Total	0.032

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SAMPLE IDENTIFICATION: CVLC #4710 CUSTOMER: MW - 7B

SAMPLE COLLECTED: 04/22/92 1300 hours  
SAMPLE RELINQUISHED: 04/22/92 2000 hours  
SAMPLE RECEIVED: 04/23/92 0930 hours

<u>ANALYSIS</u>	<u>RESULTS (mg/l)</u>
Arsenic, Total	<0.001
Barium, Total	1.08
Biochemical Oxygen Demand (5d)	<2
Cadmium, Total	0.0013
Chemical Oxygen Demand	150
Chloride	9
Chromium, Total	0.076
Copper, Total	0.084
Fluoride	<0.1
Iron, Total	140
Lead, Total	0.019
Manganese, Total	2.12
Mercury, Total	<0.0002
Nitrate as N	<1
Selenium, Total	<0.001
Silver, Total	0.0009
Sulfate	8
Total Dissolved Solids	94
Total Organic Carbon	<0.500
Total Organic Carbon	<0.500
Total Organic Carbon	<0.500
Total Organic Carbon	0.555
Total Organic Halide	0.005
Total Organic Halide	0.005
Total Organic Halide	0.006
Total Organic Halide	0.005
Zinc, Total	0.354

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SAMPLE IDENTIFICATION: CVLC #4711      CUSTOMER: MW - 8A

SAMPLE COLLECTED: 04/22/92 1630 hours  
SAMPLE RELINQUISHED: 04/22/92 2000 hours  
SAMPLE RECEIVED: 04/23/92 0930 hours

<u>ANALYSIS</u>	<u>RESULTS (mg/l)</u>
Arsenic, Total	<0.001
Barium, Total	0.034
Biochemical Oxygen Demand (5d)	<2
Cadmium, Total	0.0008
Chemical Oxygen Demand	21
Chloride	5
Chromium, Total	0.009
Copper, Total	0.013
Fluoride	<0.1
Iron, Total	2.3
Lead, Total	<0.001
Manganese, Total	0.096
Mercury, Total	<0.0002
Nitrate as N	1
Selenium, Total	<0.001
Silver, Total	0.0003
Sulfate	<2
Total Dissolved Solids	118
Total Organic Carbon	1.87
Total Organic Carbon	1.90
Total Organic Carbon	1.78
Total Organic Carbon	1.90
Total Organic Halide	0.021
Total Organic Halide	0.020
Total Organic Halide	0.021
Total Organic Halide	0.021
Zinc, Total	0.023

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SAMPLE IDENTIFICATION: CVLC #4712 CUSTOMER: MW - 8B

SAMPLE COLLECTED: 04/22/92 1630 hours  
SAMPLE RELINQUISHED: 04/22/92 2000 hours  
SAMPLE RECEIVED: 04/23/92 0930 hours

<u>ANALYSIS</u>	<u>RESULTS (mg/l)</u>
Arsenic, Total	<0.001
Barium, Total	0.341
Biochemical Oxygen Demand (5d)	<2
Cadmium, Total	0.0004
Chemical Oxygen Demand	61
Chloride	11
Chromium, Total	0.017
Copper, Total	0.016
Fluoride	<0.1
Iron, Total	35
Lead, Total	0.012
Manganese, Total	1.28
Mercury, Total	<0.0002
Nitrate as N	1
Selenium, Total	<0.001
Silver, Total	0.0007
Sulfate	5
Total Dissolved Solids	62
Total Organic Carbon	2.87
Total Organic Carbon	2.73
Total Organic Carbon	2.73
Total Organic Carbon	3.05
Total Organic Halide	<0.005
Zinc, Total	0.177