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SWEPSONVILLE LANDFILL
ALAMANCE COUNTY, NC

RESULTS OF WATER QUALITY SAMPLING
OCTOBER 1996

PREPARED FOR
ALAMANCE COUNTY

JANUARY 9, 1997

BPA Environmental & Engineering, Inc.

(910) 272-9713 2641-G Randleman Road, Greensboro, NC 27406

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I hereby certify this 9th day of January 1997, that this report was prepared by me or under my direct supervision.

Julia I. Geniac
Geologist

Technical review performed by:

E. W. Scarlett, Jr., P.G.
Principal

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SWEPSONVILLE LANDFILL
ALAMANCE COUNTY, NC
RESULTS OF WATER QUALITY SAMPLING
OCTOBER 1996

1.0 EXECUTIVE SUMMARY

Eleven monitoring wells and two stream locations at the Alamance County Swepsonville Landfill were sampled on October 14, 1996. All sampling was conducted according to North Carolina Solid Waste Management Guidelines. The samples were submitted to a North Carolina certified laboratory for testing using the Federal Appendix I list of constituents for detection monitoring plus mercury.

Results from the eleven monitoring well samples show that the concentrations of three inorganic constituents (cadmium in MW-3, chromium in MW-3 and MW-5, and lead in MW-5) exceeded the 15A NCAC 2L Standards for Class GA groundwater on the dates that samples were collected. Eight inorganic constituents (barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc) were detected in one or more of the monitoring well samples at concentrations that did not exceed the 2L Standards. Low concentrations of three inorganic constituents (beryllium, cobalt, and vanadium) were detected in one or more of the monitoring well samples; no 15A NCAC 2L Standards have been established for these constituents.

Concentrations of four volatile organic constituents (1,1 dichloroethene in MW-2, cis-1,2-dichloroethene in MW-4, tetrachloroethene in MW-2 and MW-4, and trichloroethene in MW-2 and MW-4) exceeded the 15A NCAC 2L Standards for Class GA groundwater on the dates that samples were collected. Two volatile organic constituents (1,1-dichloroethane and cis-1,2-dichloroethene) were detected in two monitoring well samples at concentrations that did not exceed 2L Standards.

No volatile organic or inorganic constituents were detected in the surface water samples collected from two locations on the creek that flows along the east/southeast boundary of the landfill disposal area.

2.0 INTRODUCTION

BPA Environmental & Engineering, Inc. was contracted by Alamance County, North Carolina to sample the ground and surface water at eleven monitoring wells and two surface water locations at the Swepsonville Landfill. The site location is shown on Figure 1.

3.0 SCOPE OF WORK

This sampling task included sampling eleven monitoring wells and two locations on a nearby stream for Federal Appendix I organic and inorganic constituents plus mercury as listed in 40 CFR, Part 258.

4.0 METHODS EMPLOYED

4.1 Monitoring Well Sampling

Groundwater sampling took place on October 14, 1996. The wells were purged by either removing a minimum of three (3) well volumes or purging the wells to dryness prior to obtaining water samples. The water samples were collected using properly decontaminated teflon bailers. All water samples were field checked for temperature, specific conductance, and pH. These data are summarized in Table 1. Field data sheets are included as Appendix A. Samples were placed in laboratory cleaned and supplied containers, packed on ice, and placed under chain-of-custody. Samples were shipped to the laboratory by a next day delivery service. All analyses were conducted by IEA, Inc., a North Carolina certified laboratory located in Cary, North Carolina. The monitoring well locations are shown on Figure 2.

4.2 Stream Sampling

Surface water sampling took place on October 14, 1996. Samples SW-1 and SW-2 were collected from a stream that flows along the east/southeast side of the Swepsonville Landfill. The stream samples were analyzed for the same parameters as the groundwater samples. The stream sample locations are shown on Figure 2.

5.0 RESULTS

The results of the laboratory analyses for Appendix I constituents in the groundwater and surface water are summarized in Tables 2 and 3, and the complete laboratory reports are included as Appendix B.

5.1 Groundwater

The groundwater sample analyses revealed seven constituents that had concentrations at or above 2L Standards in one or more of the wells. A summary of these analytical results is provided below.

- Cadmium was detected in MW-3 at 0.00833 ppm. The 2L Standard is 0.005 ppm.
- Chromium was detected in MW-3 at 0.0926 ppm and MW-5 at 0.145 ppm. The 2L Standard is 0.05 ppm.
- Lead was detected in MW-5 at 0.0362 ppm. The 2L Standard is 0.015 ppm.
- 1,1 Dichloroethene was detected in MW-2 at 7.0 ppb. The 2L Standard is 7.0 ppb.
- cis-1,2-Dichloroethene was detected in MW-4 at 310.0 ppb. The 2L Standard is 70.0 ppb.

- Tetrachloroethene was detected in MW-2 at 8.3 ppb, and MW-4 at 85.0 ppb. The 2L Standard is 0.7 ppb.

- Trichloroethene was detected in MW-2 at 10.0 ppb, and MW-4 at 42.0 ppb. The 2L Standard is 2.8 ppb.

The following ten constituents were detected in one or more of the wells in concentrations below the 2L Standards.

- Barium was detected in MW-2 at 0.647 ppm, MW-3 at 1.140 ppm, MW-5 at 0.808 ppm, MW-7B at 0.844 ppm, and MW-8B at 0.506 ppm. The 2L Standard is 2.0 ppm.

- Cadmium was detected in MW-5 at 0.00367 ppm and MW-8A at 0.00118 ppm. The 2L Standard is 0.005 ppm.

- Chromium was detected in MW-2 at 0.0498 ppm, MW-7B at 0.0216 ppm, and MW-9 at 0.0239 ppm. The 2L Standard in 0.05 ppm.

- Copper was detected in MW-5 at 0.232 ppm. The 2L Standard is 1.0 ppm.

- Lead was detected in MW-3 at 0.0118 ppm. The 2L Standard is 0.015 ppm.

- Mercury was detected in MW-4 at 0.000588 ppm. The 2L Standard is 0.0011 ppm.

- Nickel was detected in MW-3 at 0.0526 ppm and MW-5 at 0.0596 ppm. The 2L Standard is 0.1 ppm.

- Zinc was detected in MW-1 at 0.0697 ppm, MW-2 at 0.144 ppm, MW-3 at 0.256 ppm, MW-4 at 0.0585 ppm, MW-5 at 0.255 ppm, MW-7B at 0.145 ppm, MW-8B at 0.108 ppm, and MW-9 at 0.0773 ppm. The 2L Standard is 2.1 ppm.

- 1,1-Dichloroethane was detected in MW-2 at 31.0 ppb and MW-4 at 29.0 ppb. The 2L Standard is 700.0 ppb.

- cis-1,2-Dichloroethene was detected in MW-2 at 8.4 ppb. The 2L Standard is 70 ppb.

No 2L Standards have been set for the following three potentially naturally occurring constituents that were found in detectable concentrations. The practical quantitation limits of the analyses do not serve as standards for naturally occurring constituents.

- Beryllium was detected in MW-3 at 0.00270 ppm and MW-5 at 0.00341 ppm.

- Cobalt was detected in MW-2 at 0.0217 ppm, MW-3 at 0.0475 ppm, MW-4 at 0.0376 ppm, MW-5 at 0.0548 ppm, MW-7B at 0.0410 ppm, MW-8B at 0.0233 ppm, and MW-9 at 0.0734 ppm.

- Vanadium was detected in MW-2 at 0.186 ppm, MW-3 at 0.279 ppm, MW-4 at 0.222 ppm, MW-5 at 0.470 ppm, MW-7B at 0.136 ppm, and MW-9 at 0.0539 ppm.

5.2 Surface Water

There were no inorganic or volatile organic constituents detected in either of the surface water samples.

6.0 REFERENCES

North Carolina Administrative Code, Title 15A, 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 (November 8, 1993); from the Environmental Management Commission, Raleigh, North Carolina.

North Carolina Administrative Code, Title 15A, Department of Environment, Health and Natural Resources, Division of Environmental Management, Subchapter 2B, Classifications and Water Quality Standards Applicable to the Surface Waters of North Carolina, Section .0200 (April 1, 1991); from the Environmental Management Commission, Raleigh, North Carolina.

North Carolina Administrative Code, Title 15A, Department of Environment, Health and Natural Resources, Division of Solid Waste Management, Subchapter 13B, Solid Waste Management, Section .1600 (January 4, 1994).

TABLE 1
GROUND AND SURFACE WATER SAMPLING FIELD DATA
SWEPSONVILLE LANDFILL
ALAMANCE COUNTY, NORTH CAROLINA
OCTOBER 14, 1996

Field Parameter	Sample No.							
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7A	MW-7B
Temperature	58.3°F	61.1°F	59.2°F	62.2°F	66.0°F	68.6°F	68.9°F	64.6°F
Specific Conductance	140 μMHOs	166 μMHOs	89 μMHOs	480 μMHOs	128 μMHOs	195 μMHOs	30 μMHOs	25 μMHOs
pH	7.0	6.5	6.5	6.5	6.0	7.0	6.5	7.0

Field Parameter	Sample No.				
	MW-8A	MW-8B	MW-9	SW-1	SW-2
Temperature	69.3°F	64.1°F	58.6°F	68.8°F	59.0°F
Specific Conductance	21 μMHOs	18 μMHOs	68 μMHOs	260 μMHOs	210 μMHOs
pH	7.0	6.5	6.5	6.5	7.0

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TABLE 2
APPENDIX I INORGANIC ANALYSES BY SW-846 METHOD 6010
APPENDIX II MERCURY ANALYSIS BY SW-846 METHOD 7470
SWEPSONVILLE LANDFILL
OCTOBER 14, 1996

Compound	Sample No.													15A NCAC 2L Standards for Class GA Groundwater	15A NCAC 2B Standards for Class B, C Surface Waters	Practical Quantitation Limit (PQL)
	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7A	MW-7B	MW-8A	MW-8B	MW-9	SW-1	SW-2			
Antimony, Total	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	*		0.03
Arsenic, Total	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.05	0.05	0.01
Barium, Total	BQL	0.647	1.140	BQL	0.808	BQL	BQL	0.844	BQL	0.506	BQL	BQL	BQL	2.0		0.5
Beryllium, Total	BQL	BQL	0.00270	BQL	0.00341	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	*	0.0065	0.002
Cadmium, Total	BQL	BQL	0.00833	BQL	0.00367	BQL	BQL	BQL	0.00118	BQL	BQL	BQL	BQL	0.005	0.002	0.001
Chromium, Total	BQL	0.0498	0.0926	BQL	0.145	BQL	BQL	0.0216	BQL	BQL	0.0239	BQL	BQL	0.05	0.05	0.01
Cobalt, Total	BQL	0.0217	0.0475	0.0376	0.0548	BQL	BQL	0.0410	BQL	0.0233	0.0734	BQL	BQL	*		0.01
Copper, Total	BQL	BQL	BQL	BQL	0.232	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0		0.2
Lead, Total	BQL	BQL	0.0118	BQL	0.0362	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.015	0.025	0.01
Mercury, Total	BQL	BQL	BQL	0.000588	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.0011	0.000012	0.0005
Nickel, Total	BQL	BQL	0.0526	BQL	0.0596	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.1	0.088	0.04
Selenium, Total	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.05	0.005	0.02
Silver, Total	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.018		0.01
Thallium, Total	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	*		0.01
Vanadium, Total	BQL	0.186	0.279	0.222	0.470	BQL	BQL	0.136	BQL	BQL	0.0539	BQL	BQL	*		0.04
Zinc, Total	0.0697	0.144	0.256	0.0585	0.255	BQL	BQL	0.145	BQL	0.108	0.0773	BQL	BQL	2.1		0.05

Notes:
- All results in parts per million (ppm)
- BQL – Below practical quantitation limit
- Shaded blocks denote concentrations that do not meet 15A NCAC 2L Standards for Class GA Groundwater (MW data) or 15A NCAC 2B Standards for Class B surface waters (SW data)
- * – No 15A NCAC 2L Standard has been established for these constituents

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BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-1

Time 9:25 am

Sampled by James Roberts

Weather Sunny, 60s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 22.75 ft.

2) Depth to well bottom from measuring point 33.67 ft.

3) Height of water column 10.92 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) 1.78 gal.

2) Volume of water removed prior to sampling 5.3 gal.

3) Was well pumped DRY? (circle one) YES NO

FIELD ANALYSIS

1) Temperature 58.3°F

2) Specific Conductance 140 µmhos

3) pH 7.0

4) Physical Appearance and Odor Tan, no odor

BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-2

Time 12:05 pm

Sampled by James Roberts

Weather Sunny, upper 60s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 25.18 ft.

2) Depth to well bottom from measuring point 29.30 ft.

3) Height of water column 4.12 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) .67 gal.

2) Volume of water removed prior to sampling .75 gal.

3) Was well pumped DRY? (circle one) YES NO

FIELD ANALYSIS

1) Temperature 61.1°F

2) Specific Conductance 166 μmhos

3) pH 6.5

4) Physical Appearance and Odor Tan, no odor

BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-3

Time 10:20 am

Sampled by James Roberts

Weather Sunny, upper 60s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 7.04 ft.

2) Depth to well bottom from measuring point 23.85 ft.

3) Height of water column 16.81 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) 2.74 gal.

2) Volume of water removed prior to sampling 8.5 gal.

3) Was well pumped DRY? (circle one) YES NO

FIELD ANALYSIS

1) Temperature 59.2°F

2) Specific Conductance 89 µmhos

3) pH 6.5

4) Physical Appearance and Odor Tan, no odor

BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-4

Time 11:30 am

Sampled by James Roberts

Weather Sunny, upper 60s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 34.03 ft.

2) Depth to well bottom from measuring point 49.90 ft.

3) Height of water column 15.87 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) 2.59 gal.

2) Volume of water removed prior to sampling 8.0 gal.

3) Was well pumped DRY? (circle one) YES NO

FIELD ANALYSIS

1) Temperature 62.2°F

2) Specific Conductance 480 μmhos

3) pH 6.5

4) Physical Appearance and Odor Brown, no odor

BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-5

Time 12:25 pm

Sampled by James Roberts

Weather Sunny, 70s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 10.40 ft.

2) Depth to well bottom from measuring point 19.40 ft.

3) Height of water column 9.0 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) 1.47 gal.

2) Volume of water removed prior to sampling 1.5 gal.

3) Was well pumped DRY? (circle one) YES NO

FIELD ANALYSIS

1) Temperature 66.0°F

2) Specific Conductance 128 µmhos

3) pH 6.0

4) Physical Appearance and Odor Reddish, no odor

BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-6

Time 1:25 pm

Sampled by James Roberts

Weather Sunny, 70s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 20.15 ft.

2) Depth to well bottom from measuring point 52.67 ft.

3) Height of water column 32.52 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) 5.30 gal.

2) Volume of water removed prior to sampling 16.0 gal.

3) Was well pumped DRY? (circle one) YES NO

FIELD ANALYSIS

1) Temperature 68.6°F

2) Specific Conductance 195 μmhos

3) pH 7.0

4) Physical Appearance and Odor Clearish

BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-7A

Time 1:45 pm

Sampled by James Roberts

Weather Sunny, 70s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 24.05 ft.

2) Depth to well bottom from measuring point 63.33 ft.

3) Height of water column 39.28 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) 6.40 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 68.9°F

2) Specific Conductance 30 μmhos

3) pH 6.5

4) Physical Appearance and Odor Clear

BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-7B

Time 1:55 pm

Sampled by James Roberts

Weather Sunny, 70s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 23.03 ft.

2) Depth to well bottom from measuring point 32.45 ft.

3) Height of water column 9.42 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) 1.54 gal.

2) Volume of water removed prior to sampling 1.75 gal.

3) Was well pumped DRY? (circle one) YES NO

FIELD ANALYSIS

1) Temperature 64.6°F

2) Specific Conductance 25 μmhos

3) pH 7.0

4) Physical Appearance and Odor Brown, no odor

BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-8A

Time 2:35 pm

Sampled by James Roberts

Weather Sunny, 70s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 21.60 ft.

2) Depth to well bottom from measuring point 63.35 ft.

3) Height of water column 41.75 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) 6.81 gal.

2) Volume of water removed prior to sampling 20.5 gal.

3) Was well pumped DRY? (circle one) YES NO

FIELD ANALYSIS

1) Temperature 69.3°F

2) Specific Conductance 21 μmhos

3) pH 7.0

4) Physical Appearance and Odor Clear

BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-8B

Time 2:45 pm

Sampled by James Roberts

Weather Sunny, 70s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 20.96 ft.

2) Depth to well bottom from measuring point 25.80 ft.

3) Height of water column 4.84 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) .79 gal.

2) Volume of water removed prior to sampling 1.0 gal.

3) Was well pumped DRY? (circle one) YES NO

FIELD ANALYSIS

1) Temperature 64.1°F

2) Specific Conductance 18 μmhos

3) pH 6.5

4) Physical Appearance and Odor Tan, no odor

BPA ENVIRONMENTAL & ENGINEERING, INC.

GROUND WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well MW-9

Time 8:55 am

Sampled by James Roberts

Weather Sunny, 60s

GROUNDWATER ELEVATION

1) Depth to water from measuring point 14.56 ft.

2) Depth to well bottom from measuring point 27.25 ft.

3) Height of water column 12.69 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) 2.07 gal.

2) Volume of water removed prior to sampling 6.5 gal.

3) Was well pumped DRY? (circle one) YES NO

FIELD ANALYSIS

1) Temperature 58.6°F

2) Specific Conductance 68 μmhos

3) pH 6.5

4) Physical Appearance and Odor Tan, no odor

BPA ENVIRONMENTAL & ENGINEERING, INC.

SURFACE WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well SW-1

Time 12:55 pm

Sampled by James Roberts

Weather Sunny, 70s

FIELD ANALYSIS

1) Temperature 68.8°F

2) Specific Conductance 260 μmhos

3) pH 6.5

4) Physical Appearance and Odor Clear

BPA ENVIRONMENTAL & ENGINEERING, INC.

SURFACE WATER SAMPLING FIELD DATA

Location Swepsonville Landfill

Date October 14, 1996

Source/Well SW-2

Time 10:30 am

Sampled by James Roberts

Weather Sunny, upper 60s

FIELD ANALYSIS

1)	Temperature	59.0°F
2)	Specific Conductance	210 µmhos
3)	pH	7.0
4)	Physical Appearance and Odor	Clear

IEA, Inc.
3000 Weston Parkway
Cary, NC 27513

Phone 919-677-0090
Fax 919-677-0427

IEA
An Aquarion Company

October 27, 1996

OCT 1996
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Wes Scarlett
BPA Environmental & Engineering, Inc.
2641-G Randleman Road
Greensboro, NC 27406

IEA Project No.: 631942D/9610320
IEA Reference No.: W9610101
Client Project I.D.: 170.010 SWEPSONVILLE

Dear Mr. Scarlett,

Transmitted herewith are the results of analyses on 13 samples submitted to our laboratory.

The samples were received intact.

Analyses were performed according to approved methodologies and meet the requirements of the IEA Quality Assurance Program except where noted. Please see the enclosed reports for your results and a copy of the Chain of Custody documentation.

Thank you for selecting IEA for your sample analysis. Please do not hesitate to call me at 1-919-677-0090 or 1-800-444-9919 should you have any questions regarding this report. We look forward to serving you in the future.

Very truly yours,

IEA, Inc.

L. Barnett

for Rodney Raimonde
Project Manager

IEA, Inc.
3000 Weston Parkway
Cary, NC 27513

Phone 919-677-0090
Fax 919-677-0427

IEA
An Aquarion Company

November 11, 1996

NOV 1996
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Wes Scarlett
BPA Environmental & Engineering, Inc.
2641-G Randleman Road
Greensboro, NC 27406

IEA Project No.: 631944\9610656
IEA Reference No.: W9610636
Client Project I.D.: 170.010 SWEPSONVILLE

Dear Mr. Scarlett,

Transmitted herewith are the results of analyses on 13 samples submitted to our laboratory.

The samples were received intact.

Analyses were performed according to approved methodologies and meet the requirements of the IEA Quality Assurance Program except where noted. Please see the enclosed reports for your results and a copy of the Chain of Custody documentation.

Thank you for selecting IEA for your sample analysis. Please do not hesitate to call me at 1-919-677-0090 or 1-800-444-9919 should you have any questions regarding this report. We look forward to serving you in the future.

Very truly yours,

IEA, Inc.

Jim Hays
Project Manager

IEA, Inc.
3000 Weston Parkway
Cary, NC 27513

Phone 919-677-0090
Fax 919-677-0427

IEA
An Aquarion Company

IEA-NORTH CAROLINA CERTIFICATIONS

Certifying State	Program Type	Lab ID #
Alabama	DW	40210
Arkansas	WW	None Provided
California	DW, WW, HW Radiolog.	1768
Connecticut	DW, WW	PH-0135
Kansas	DW, HW, WW	E-158 (DW, WW) E-1189 (HW)
Kentucky	DW	90049
Maryland	DW, Radiolog.	259
Massachusetts	DW, WW	M-NC039
New Jersey	DW, WW Radiolog.	67719 67681
New York	Radiolog.	11422
North Carolina	DW WW Radiolog.	DW 37720 WW 84 Rad 37720
Ohio	Voluntary Action Program	CL00021
South Carolina	DW,WW,HW	99021
Tennessee	DW UST App List	02914
Utah	Radiolog. RCRA	E-206 E-226
Virginia	DW	00179
West Virginia	DW	9908C
Wisconsin	WW	998051010

DW=Drinking Water WW=Wastewater HW=Hazardous Waste Radiolog.=Radiological

Rev4,09/96

Monroe,
Connecticut
203-261-4458

Schaumburg,
Illinois
847-705-0740

N. Billerica,
Massachusetts
508-667-1400

Whippany,
New Jersey
201-428-8181

printed on recycled paper

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 9610320001 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-1

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	69.7	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 961032002 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-2

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	647.	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	49.8	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	21.7	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	186.	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	144.	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 961032003 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-3

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	1140	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	2.70	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	8.33	10/17/96	10/25/96	RH	R8423	10179603P
CHROMIUM	SW846 6010	10.0	92.6	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	47.5	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	11.8	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	52.6	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	279.	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	256.	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 961032004 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-4

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	37.6	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	222.	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	58.5	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 9610320005 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-5

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	808.	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	3.41	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	3.67	10/17/96	10/25/96	RH	R8423	10179603P
CHROMIUM	SW846 6010	10.0	145.	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	54.8	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	232.	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	36.2	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	59.6	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	470.	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	255.	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 961032006 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-6

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 961032007 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-7A

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 961032008 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-7B

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	844.	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	21.6	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	41.0	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	136.	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	145.	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 961032009 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-8A

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	1.18	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 961032010 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-8B

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
NTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
RSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	506.	10/17/96	10/25/96	FXW	R8422	10179603P
ERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
HROMIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	23.3	10/17/96	10/25/96	FXW	R8422	10179603P
OPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
EAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
HALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	108.	10/17/96	10/25/96	FXW	R8422	10179603P

omments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 9610320 11 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-9

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	23.9	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	73.4	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	53.9	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	77.3	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 9610320 12
Client Name: BPA ENVIRONMENTAL & ENG., INC
Client Proj. I.D.: 170.010 SWEPSONVILLE
Sample I.D.: SW-1

Matrix: WATER
Date Received: 10/15/96
Date Sampled: 10/14/96

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_942D
IEA Sample #: 961032013 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/15/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: SW-2

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report
PREPARATION BLANKS

IEA Project #: 631_942D
Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC
Client Proj. I.D.: 170.010 SWEPSONVILLE
Sample Number: PBW 10179603P (1)

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
ANTIMONY	SW846 6010	30.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ARSENIC	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BARIUM	SW846 6010	500.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
BERYLLIUM	SW846 6010	2.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CADMIUM	SW846 6010	1.00	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
CHROMIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COBALT	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
COPPER	SW846 6010	200.	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
LEAD	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
NICKEL	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SELENIUM	SW846 6010	20.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
SILVER	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
THALLIUM	SW846 6010	10.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
VANADIUM	SW846 6010	40.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P
ZINC	SW846 6010	50.0	BQL	10/17/96	10/25/96	FXW	R8422	10179603P

Corresponding Samples:
961031601, 961032001, 961032002, 961032003, 961032004, 961032005, 961032006, 961032007, 961032008, 961032009, 961032010, 961032011, 961032012, 961032013, 961034408

Comments:

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report
LABORATORY CONTROL SAMPLE

IEA Project #: 631_942D
IEA Sample #: LCSW 10179603P (1)
Matrix: WATER

Parameter	Method	Results (ug/l) True	Found	Limits Lower	Upper	% RCY	Date Analyzed	IEA Run	Prep Batch
ANTIMONY	SW846 6010	5000	5010	4000	6000	100.	10/25/96	R8422	10179603P
ARSENIC	SW846 6010	5000	5020	4000	6000	100.	10/25/96	R8422	10179603P
BARIUM	SW846 6010	5000	4880	4000	6000	97.7	10/25/96	R8422	10179603P
BERYLLIUM	SW846 6010	5000	5230	4000	6000	104.	10/25/96	R8422	10179603P
CADMIUM	SW846 6010	5000	5060	4000	6000	101.	10/25/96	R8422	10179603P
CHROMIUM	SW846 6010	5000	5010	4000	6000	100.	10/25/96	R8422	10179603P
COBALT	SW846 6010	5000	5060	4000	6000	101.	10/25/96	R8422	10179603P
COPPER	SW846 6010	5000	5350	4000	6000	107.	10/25/96	R8422	10179603P
LEAD	SW846 6010	5000	5040	4000	6000	101.	10/25/96	R8422	10179603P
NICKEL	SW846 6010	5000	4950	4000	6000	99.0	10/25/96	R8422	10179603P
SELENIUM	SW846 6010	5000	5030	4000	6000	100.	10/25/96	R8422	10179603P
SILVER	SW846 6010	500	526.	400	600	105.	10/25/96	R8422	10179603P
THALLIUM	SW846 6010	5000	4980	4000	6000	99.7	10/25/96	R8422	10179603P
VANADIUM	SW846 6010	5000	4980	4000	6000	99.7	10/25/96	R8422	10179603P
ZINC	SW846 6010	5000	4950	4000	6000	99.1	10/25/96	R8422	10179603P

Comments:

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report
DUPLICATE ANALYSIS

IEA Project #: 631_942D
IEA Sample #: 961032009
Matrix: WATER

Duplicate Analysis

Parameter	Method	Sample (ug/l)	Duplicate (ug/l)	RPD %	Date Analyzed	Samp Run	Dup Run	Prep Batch
ANTIMONY	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
ARSENIC	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
BARIUM	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
BERYLLIUM	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
CADMIUM	SW846 6010	1.18	1.08	9.35	10/25/96	R8422	R8422	10179603P
CHROMIUM	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
COBALT	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
COPPER	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
LEAD	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
NICKEL	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
SELENIUM	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
SILVER	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
THALLIUM	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
VANADIUM	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P
ZINC	SW846 6010	BQL	BQL		10/25/96	R8422	R8422	10179603P

$$RPD = \frac{S-D}{(S+D)/2} \times 100$$

Control Limits: +/- 20%

Corresponding Samples:
961031601, 961032001, 961032002, 961032003, 961032004, 961032005, 961032006, 961032007, 961032008, 961032009, 961032010, 961032011, 961032012, 961032013, 961034408

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report
SPIKE RESULTS

IEA Project #: 631_942D
IEA Sample #: 961032009
Matrix: WATER

Spike Results (ug/l)

Parameter	Method	SA	SR	SSR	%RCY	Date Analyzed	Samp Run	Spike Run	Prep Batch
ANTIMONY	SW846 6010	500.	BQL	492.	98.4	10/25/96	R8422	R8422	10179603P
ARSENIC	SW846 6010	2000	BQL	2000	99.8	10/25/96	R8422	R8422	10179603P
BARIUM	SW846 6010	2000	BQL	1930	96.3	10/25/96	R8422	R8422	10179603P
BERYLLIUM	SW846 6010	50.0	BQL	50.8	102.	10/25/96	R8422	R8422	10179603P
CADMIUM	SW846 6010	50.0	1.18	51.9	101.	10/25/96	R8422	R8422	10179603P
CHROMIUM	SW846 6010	200.	BQL	201.	100.	10/25/96	R8422	R8422	10179603P
COBALT	SW846 6010	500.	BQL	497.	99.4	10/25/96	R8422	R8422	10179603P
COPPER	SW846 6010	250.	BQL	272.	109.	10/25/96	R8422	R8422	10179603P
LEAD	SW846 6010	500.	BQL	501.	100.	10/25/96	R8422	R8422	10179603P
NICKEL	SW846 6010	500.	BQL	503.	100.	10/25/96	R8422	R8422	10179603P
SELENIUM	SW846 6010	2000	BQL	1980	99.2	10/25/96	R8422	R8422	10179603P
SILVER	SW846 6010	50.0	BQL	54.4	109.	10/25/96	R8422	R8422	10179603P
THALLIUM	SW846 6010	2000	BQL	1970	98.5	10/25/96	R8422	R8422	10179603P
VANADIUM	SW846 6010	500.	BQL	498.	99.6	10/25/96	R8422	R8422	10179603P
ZINC	SW846 6010	500.	BQL	534.	107.	10/25/96	R8422	R8422	10179603P

%R = ((SSR - SR) / SA) * 100 Control Limits: 75-125%

Corresponding Samples:
961031601, 961032001, 961032002, 961032003, 961032004, 961032005, 961032006, 961032007, 961032008, 961032009, 961032010, 961032011, 961032012, 961032013, 961034408

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report
SPIKE DUPLICATE RESULTS

IEA Project #: 631_942D
IEA Sample #: 961032009S
Matrix: WATER

Parameter	Method	Spike Duplicate Results Sample (ug/l)	Duplicate (ug/l)	RPD %	Date Analyzed	Samp Run	Dup Run	Prep Batch
ANTIMONY	SW846 6010	492.	496.	0.86	10/25/96	R8422	R8422	10179603P
ARSENIC	SW846 6010	2000	1990	0.39	10/25/96	R8422	R8422	10179603P
BARIUM	SW846 6010	1930	1920	0.19	10/25/96	R8422	R8422	10179603P
BERYLLIUM	SW846 6010	50.8	50.7	0.23	10/25/96	R8422	R8422	10179603P
CADMIUM	SW846 6010	51.9	51.6	0.51	10/25/96	R8422	R8422	10179603P
CHROMIUM	SW846 6010	201.	200.	0.43	10/25/96	R8422	R8422	10179603P
COBALT	SW846 6010	497.	496.	0.26	10/25/96	R8422	R8422	10179603P
COPPER	SW846 6010	272.	270.	0.73	10/25/96	R8422	R8422	10179603P
LEAD	SW846 6010	501.	500.	0.13	10/25/96	R8422	R8422	10179603P
NICKEL	SW846 6010	503.	501.	0.31	10/25/96	R8422	R8422	10179603P
SELENIUM	SW846 6010	1980	1970	0.51	10/25/96	R8422	R8422	10179603P
SILVER	SW846 6010	54.4	53.5	1.62	10/25/96	R8422	R8422	10179603P
THALLIUM	SW846 6010	1970	1960	0.37	10/25/96	R8422	R8422	10179603P
VANADIUM	SW846 6010	498.	497.	0.30	10/25/96	R8422	R8422	10179603P
ZINC	SW846 6010	534.	530.	0.81	10/25/96	R8422	R8422	10179603P

$$RPD = \frac{S-D}{(S+D)/2} \times 100$$

Control Limits: +/- 20%

Corresponding Samples:
961031601, 961032001, 961032002, 961032003, 961032004, 961032005, 961032006, 961032007, 961032008, 961032009, 961032010, 961032011, 961032012, 961032013, 961034408

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065601 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-1

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065602 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-2

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065603 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-3

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065604 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-4

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	0.588	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065605 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-5

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065606 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-6

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065607 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-7A

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065608 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-7B

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065609 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-8A

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065610 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-8B

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065611 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: MW-9

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065612 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: SW-1

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report

IEA Project #: 631_944DR
IEA Sample #: 961065613 Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC Date Received: 10/31/96
Client Proj. I.D.: 170.010 SWEPSONVILLE Date Sampled: 10/14/96
Sample I.D.: SW-2

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report
PREPARATION BLANKS

IEA Project #: 631_944DR
Matrix: WATER
Client Name: BPA ENVIRONMENTAL & ENG., INC
Client Proj. I.D.: 170.010 SWEPSONVILLE
Sample Number: PBW 11019601H

Parameter	Method	Quant Limit	Result (ug/l)	Date Prepared	Date Analyzed	Analyst	IEA Run	Prep Batch
MERCURY	SW846 7470	0.500	BQL	11/01/96	11/04/96	PW	R8590	11019601H

Corresponding Samples:
961057402, 961063706, 961063707, 961063708, 961063709, 961065601,
961065602, 961065603, 961065604, 961065605, 961065606, 961065607,
961065608, 961065609, 961065610, 961065611, 961065612, 961065613

Comments:

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report
DUPLICATE ANALYSIS

IEA Project #: 631_944DR
IEA Sample #: 961057402
Matrix: WATER

Parameter	Method	Duplicate Analysis Sample (ug/l)	Duplicate (ug/l)	RPD %	Date Analyzed	Samp Run	Dup Run	Prep Batch
MERCURY	SW846 7470	BQL	BQL		11/04/96	R8590	R8590	11019601H

$$RPD = \frac{S-D}{(S+D)/2} \times 100$$

Control Limits: +/- 20%

Corresponding Samples:
961057402, 961063706, 961063707, 961063708, 961063709, 961065601, 961065602, 961065603, 961065604, 961065605, 961065606, 961065607, 961065608, 961065609, 961065610, 961065611, 961065612, 961065613

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report
SPIKE RESULTS

IEA Project #: 631_944DR
IEA Sample #: 961057402
Matrix: WATER

Spike Results (ug/l)

Parameter	Method	SA	SR	SSR	%RCY	Date Analyzed	Samp Run	Spike Run	Prep Batch
MERCURY	SW846 7470	1.00	BQL	0.996	99.6	11/04/96	R8590	R8590	11019601H

%R = ((SSR - SR) / SA) * 100 Control Limits: 75-125%

Corresponding Samples:
961057402, 961063706, 961063707, 961063708, 961063709, 961065601,
961065602, 961065603, 961065604, 961065605, 961065606, 961065607,
961065608, 961065609, 961065610, 961065611, 961065612, 961065613

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
Level 2 Metals Results Report
SPIKE DUPLICATE RESULTS

IEA Project #: 631_944DR
IEA Sample #: 961057402S
Matrix: WATER

Spike Duplicate Results

Parameter	Method	Sample (ug/l)	Duplicate (ug/l)	RPD %	Date Analyzed	Samp Run	Dup Run	Prep Batch
MERCURY	SW846 7470	0.996	0.992	0.40	11/04/96	R8590	R8590	11019601H

$$RPD = \frac{S-D}{(S+D)/2} \times 100$$

Control Limits: +/- 20%

Corresponding Samples:
961057402, 961063706, 961063707, 961063708, 961063709, 961065601,
961065602, 961065603, 961065604, 961065605, 961065606, 961065607,
961065608, 961065609, 961065610, 961065611, 961065612, 961065613

Comments:

Client-specific quantitative limits used.

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-01	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/23/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	CREWES
Sample Identification:	MW-1	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-01	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/23/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	CREWES
Sample Identification:	MW-1	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

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Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-02	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/23/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	CREWES
Sample Identification:	MW-2	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	31
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	7.0
25	cis-1,2-Dichloroethene	5	8.4
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-02	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/23/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	CREWES
Sample Identification:	MW-2	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	8.3
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	10
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

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Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-03	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/23/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	CREWES
Sample Identification:	MW-3	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-03	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/23/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	CREWES
Sample Identification:	MW-3	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-04	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/23/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-4	Dilution Factor:	2.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	29
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	310
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

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Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-04	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/23/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-4	Dilution Factor:	2.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	85
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	42
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit
Quantitation limit elevated due to sample dilution prior to analysis.
Sample diluted due to high concentration of target compounds present.

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Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-05	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-5	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-05	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-5	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-06	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-6	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-06	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-6	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

Industrial & Environmental Analysts, Inc. (IEA)
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Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-07	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-7A	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
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Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-07	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-7A	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

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Industrial & Environmental Analysts, Inc. (IEA)
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Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-08	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-7B	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

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Industrial & Environmental Analysts, Inc. (IEA)
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Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-08	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-7B	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

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Industrial & Environmental Analysts, Inc. (IEA)
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Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-09	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-8A	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
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Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-09	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-8A	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

Industrial & Environmental Analysts, Inc. (IEA)
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Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-10	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-8B	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
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Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-10	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-8B	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

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Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-11	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-9	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
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IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-11	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	MW-9	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

Industrial & Environmental Analysts, Inc. (IEA)
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Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-12	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	SW-1	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-12	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	SW-1	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

FORM APPI8260 Rev. 060195

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-13	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	SW-2	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

FORM 8260ALW Rev. 022195

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	10/15/96
IEA Sample Number:	9610320-13	Date Sampled:	10/14/96
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	SW-2	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit

FORM APPI8260 Rev. 060195

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	N/A
IEA Sample Number:	9610320	Date Sampled:	N/A
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	CREWES
Sample Identification:	QC BLANK (VBLK57)	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	N/A
IEA Sample Number:	9610320	Date Sampled:	N/A
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	CREWES
Sample Identification:	QC BLANK (VBLK57)	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit
N/A = Not Applicable
Corresponding Samples: 9610320-01, 02, 03, 9610411-09MS/MSD
Filename: 1022E02
FORM APPI8260 Rev. 060195

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	N/A
IEA Sample Number:	9610320	Date Sampled:	N/A
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/23/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	QC BLANK (VBLK58)	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	N/A
IEA Sample Number:	9610320	Date Sampled:	N/A
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/23/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	QC BLANK (VBLK58)	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit
N/A = Not Applicable
Corresponding Samples: 9610320-04
Filename: 1023502
FORM APPI8260 Rev. 060195

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	N/A
IEA Sample Number:	9610320	Date Sampled:	N/A
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	QC BLANK (VBLK56)	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
1	Acetone	100	BQL
2	Acrylonitrile	200	BQL
3	Benzene	5	BQL
4	Bromochloromethane	5	BQL
5	Bromodichloromethane	5	BQL
6	Bromoform	5	BQL
7	Bromomethane	10	BQL
8	2-Butanone	100	BQL
9	Carbon Disulfide	100	BQL
10	Carbon Tetrachloride	10	BQL
11	Chlorobenzene	5	BQL
12	Chlorodibromomethane	5	BQL
13	Chloroethane	10	BQL
14	Chloroform	5	BQL
15	Chloromethane	10	BQL
16	1,2-Dibromo-3-Chloropropane	25	BQL
17	1,2-Dibromoethane	5	BQL
18	Dibromomethane	10	BQL
19	1,2-Dichlorobenzene	5	BQL
20	1,4-Dichlorobenzene	5	BQL
21	trans-1,4-Dichloro-2-Butene	100	BQL
22	1,1-Dichloroethane	5	BQL
23	1,2-Dichloroethane	5	BQL
24	1,1-Dichloroethene	5	BQL
25	cis-1,2-Dichloroethene	5	BQL
26	trans-1,2-Dichloroethene	5	BQL
27	1,2-Dichloropropane	5	BQL
28	cis-1,3-Dichloropropene	10	BQL
29	trans-1,3-Dichloropropene	10	BQL
30	Ethylbenzene	5	BQL
31	2-Hexanone	50	BQL
32	Iodomethane	10	BQL
33	Methylene Chloride	10	BQL
34	4-Methyl-2-Pentanone	100	BQL
35	Styrene	10	BQL
36	1,1,1,2-Tetrachloroethane	5	BQL
37	1,1,2,2-Tetrachloroethane	5	BQL

Industrial & Environmental Analysts, Inc. (IEA)
GC/MS PURGEABLES SW-846 METHOD 8260
Appendix I Target List

IEA Project Number:	631-942	Date Received:	N/A
IEA Sample Number:	9610320	Date Sampled:	N/A
Client Name:	BPA ENVIRONMENTAL & ENG., INC	Date Analyzed:	10/22/96
Client Project I.D.:	170.010 SWEPSONVILLE	Analysis By:	MOORE
Sample Identification:	QC BLANK (VBLK56)	Dilution Factor:	1.0
Matrix:	Water		

Number	Compound	Quantitation Limit (ug/L)	Results Concentration (ug/L)
38	Tetrachloroethene	5	BQL
39	Toluene	5	BQL
40	1,1,1-Trichloroethane	5	BQL
41	1,1,2-Trichloroethane	5	BQL
42	Trichloroethene	5	BQL
43	Trichlorofluoromethane	5	BQL
44	1,2,3-Trichloropropane	15	BQL
45	Vinyl Acetate	50	BQL
46	Vinyl Chloride	10	BQL
47	Xylenes (Total)	5	BQL

Comments:
Sample specific quantitation limits may be calculated by multiplying the quantitation limit by the dilution factor and/or moisture correction factor where reported.
BQL = Below Quantitation Limit
N/A = Not Applicable
Corresponding Samples: 9610320-05 through 13
Filename: 1022503
FORM APPI8260 Rev. 060195

Industrial & Environmental Analysts, Inc. (IEA)
WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

IEA Project No.: 631-942
IEA Reference No: 9610411-09

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC
1,1-Dichloroethene	50	BQL	54	108	61-145
Trichloroethene	50	BQL	48	96	71-120
Benzene	50	BQL	52	104	76-127
Toluene	50	BQL	50	100	76-125
Chlorobenzene	50	BQL	50	100	75-130

	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
1,1-Dichloroethene	50	53	106	2	14	61-145
Trichloroethene	50	48	96	0	14	71-120
Benzene	50	51	102	2	11	76-127
Toluene	50	49	98	2	13	76-125
Chlorobenzene	50	49	98	2	13	75-130

Comments:

FORM WAVOLMAS REV 012492

Industrial & Environmental Analysts, Inc. (IEA)
8260 VOLATILE SURROGATE RECOVERY

IEA Project No.: 631-942

Sample ID	SURR 1	SURR 2	SURR 3
VBLK57	96	91	99
9610320-01	96	94	96
9610320-02	98	91	97
9610320-03	98	96	96
9610411-09MS	97	92	95
9610411-09MSD	98	93	96
VBLK58	95	88	99
9610320-04	98	94	95
VBLK56	97	94	93
9610320-05	99	93	96
9610320-06	97	87	96
9610320-07	98	100	91
9610320-08	98	91	97
9610320-09	98	94	98
9610320-10	98	92	96
9610320-11	98	93	97
9610320-12	99	94	95
9610320-13	98	95	95

	QC Limits
S1 = Toluene-d8	(90-123)
S2 = 4-Bromofluorobenzene	(75-129)
S3 = 1,2-Dichloroethane-d4	(70-139)

IEA
An Aquarion Company

3000 WESTON PKWY.
CARY, N.C. 27513
PH # 919-677-0090
FAX # 919-677-0427

CHAIN OF CUSTODY RECORD

NO. 73104

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ OTHER _____

COMPANY: BPA Environmental & Engineering

Page 1 of 2

PROJECT: 170.010 SUBJECT: Swepsonville landfill

SAMPLERS: (SIGNATURE) James P. Roberts

SAMPLE	TIME	DATE			# OF CONTAINERS	MATRIX SOIL	MATRIX WATER	Apdix I metals & T-Hg	Apdix I vol										
MW-1	925	10-14-96		✓	3		✓	✓	✓										
MW-2	1205			✓	3		✓	✓	✓										
MW-3	1020			✓	3		✓	✓	✓										
MW-4	1130			✓	3		✓	✓	✓										
MW-5	1225			✓	3		✓	✓	✓										
MW-6	1325			✓	3		✓	✓	✓										
MW-7A	1345			✓	3		✓	✓	✓										
MW-7B	1355			✓	3		✓	✓	✓										
MW-8A	1435			✓	3		✓	✓	✓										
MW-8B	1345			✓	3		✓	✓	✓										

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
[illegible]	10/15/96				
James P. Roberts	10/15/96	800 hr	[illegible]	10/15/96	4:00 pm

IEA QUOTE NO.	IEA RUSH NO.
W7610163	
PROJECT MANAGER (PLEASE PRINT)	P.O. NO.

REMARKS: 631-7423 4°C

☒ BOTTLE INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☒ CHILLED ☐ SEE REMARKS

IEA
An Aquarion Company

3000 WESTON PKWY.
CARY, N.C. 27513
PH # 919-677-0090
FAX # 919-677-0427

CHAIN OF CUSTODY RECORD

NO. 69709

REGULATORY CLASSIFICATION - PLEASE SPECIFY

☐ NPDES ☐ DRINKING WATER ☐ RCRA ☐ OTHER _____

BPA Environmental & Engineering

Page 2 of 2

120.010 Swepsonville landfill

SAMPLERS: (SIGNATURE) Jamal C. Roberts

						# OF CONTAINERS	SOIL	WATER	Apdix I mod + 5 T-HG	Apdix I vol
MW-9	10/14/96	855		✓		3		✓	✓	✓
SW-1	↓	1255		✓		3		✓	✓	✓
SW-2	↓	1030		✓		3		✓	✓	✓

RELINQUISHED BY	DATE	TIME	RECEIVED BY	DATE	TIME
Jamal C. Roberts	10/15/96	8:00am			
			[signature]	10/15/96	4:00pm

IEA QUOTE NO.

IEA RUSH NO.

PROJECT MANAGER (PLEASE PRINT): Ms Scarlet

P.O. NO.

☒ BOTTLE INTACT ☐ CUSTODY SEALS
☐ PRESERVED ☐ SEALS INTACT
☒ CHILLED ☐ SEE REMARKS

(31-9421)

4°C

BPA Environmental & Engineering, Inc.

John E. Palmer, P.G.
E.W. Scarlett, Jr., P.G.
R. Edward Hedgecock, P.E., P.G.

2641-G Randleman Road
Greensboro, NC 27406-5159
(910) 272-9713

January 9, 1997

Mr. Larry Rose
Division of Solid Waste Management
P.O. Box 27687
Raleigh, NC 27611-7687

RE: Water Quality Monitoring
Swepsonville Landfill
BPA Project No. 0170.010

Dear Mr. Rose:

Enclosed is one (1) copy of the report titled "Swepsonville Landfill, Alamance County, NC, Results of Water Quality Sampling, October 1996." If you have any comments or questions, please call.

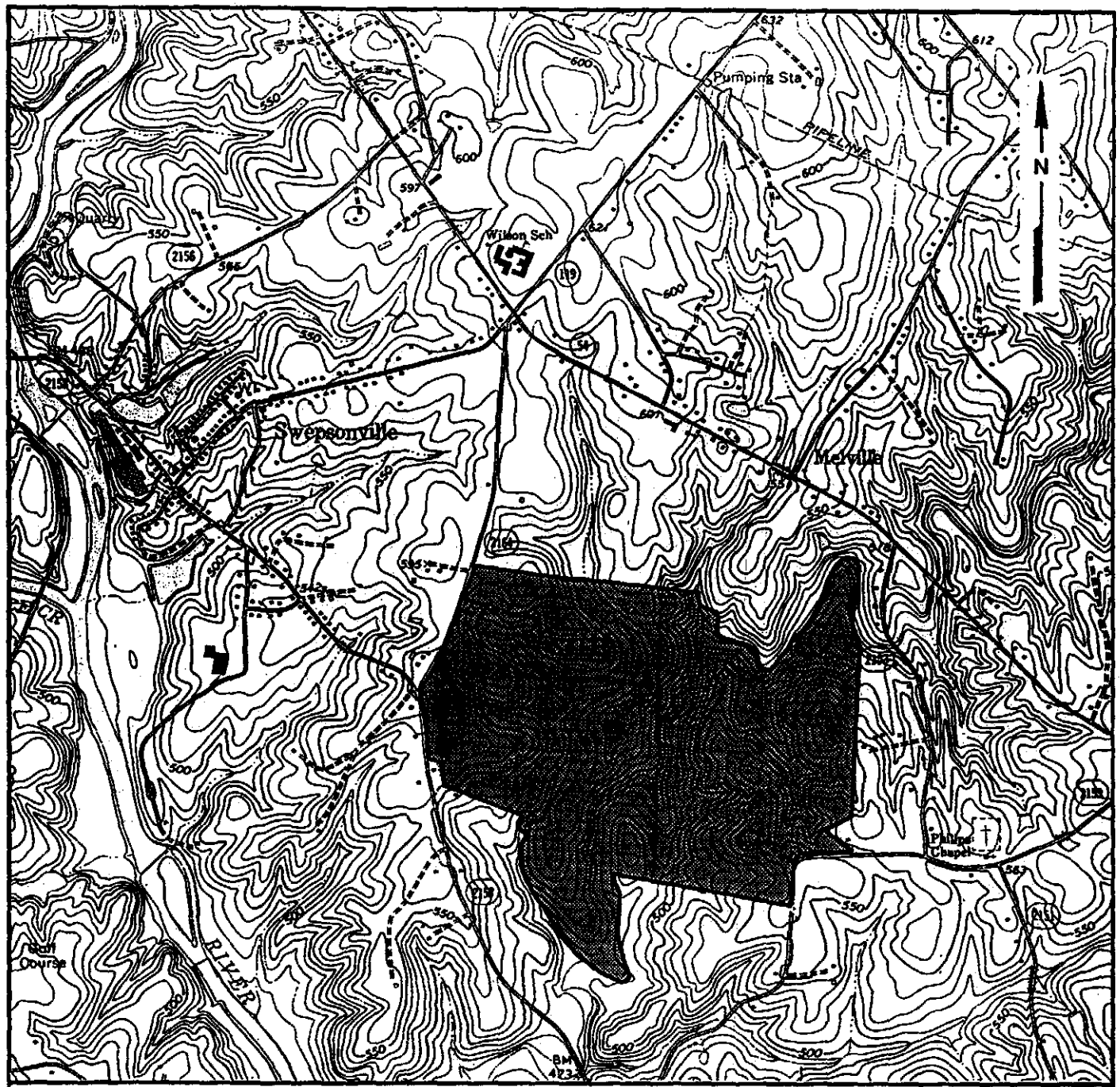
Sincerely yours,

BPA ENVIRONMENTAL & ENGINEERING, INC.

E. W. Scarlett, Jr., P.G.
Principal

EWS/cwm

JAN 1997
Received
Solid Waste
Section



MEBANE QUADRANGLE
NORTH CAROLINA
USGS 7.5 MINUTE TOPOGRAPHIC SERIES
1969

1000 0 2000 3000
SCALE IN FEET

SWEPSONVILLE LANDFILL
ALAMANCE COUNTY, NORTH CAROLINA

BPA Environmental & Engineering, Inc.

SITE LOCATION MAP

FIGURE 1