D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT

Phone (803) 896-6240 Fax (803) 896-6245

DEC 0 6 2002

MR ROBERT N SENN
2456 KLAPMAN RD
WEST COLUMBIA SC 29169-4734

Re: Former Purolator Courier, 105 Corporate Blvd., W. Columbia, SC
UST Permit #05878
Access to your property located adjacent to Former Purolator Courier
Lexington County

Dear Mr. Senn:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) is conducting work to assess a gasoline release reported at the Former Purolator Courier facility. Davis & Floyd is currently conducting an environmental assessment and requires access to your property adjacent to the referenced facility in order to install field screening points and monitoring wells. The removal of some small trees and underbrush may be necessary to access portions of the property. You will be contacted prior to any brush or tree removal and regarding the location of the monitoring wells.

The monitoring wells will be constructed in accordance with the South Carolina Well Standards and Regulations. They will be completed at grade and will have a small diameter manhole cover and concrete pad. They will not interfere with normal usage of your property. The field screening points will be installed by a Geoprobe™ drill and will be used to sample soil and groundwater. They will be properly abandoned upon completion, and no permanent effects will remain on your property.

Please sign the enclosed SCDHEC right of entry form or the form and return it to the attention of Alexander Butler within ten days of the date of this letter. If you have any questions, please contact me at (803) 896-6648 or (800) 826-5435 (within SC).

Sincerely,

Alexander Butler, Hydrogeologist
Owner/Operator Support Section
Assessment and Corrective Action Division

enc: Right of Entry Form

cc: Mr. William Durham III, William Durham Company, 3135 Millwood Ave, Columbia SC 29205
Mr. James Ferguson, Davis & Floyd, 240 Stoneridge Dr., Columbia, SC 29210
Technical File
Read File

DHEC/UST/120302

UST PROGRAM
DOCKETING # 01 Tech

D H E C

PROMOTE PROTECT PROSPER

C. Earl Hunter, Commissioner

Promoting and protecting the health of the public and the environment.

MR WILLIAM DURHAM III
WILLIAM DURHAM CO
3135 MILLWOOD AVE
COLUMBIA SC 29205-1866

MAY 19 2011

UST DOCKET 1Ltch

Re: **Groundwater Sampling Directive**
Purolator Courier Corp., 105 Corporate Blvd., West Columbia, SC
UST Permit # 05878; CA# 41194
Release reported October 17, 1991
Lexington County

Dear Mr. Durham:

The Underground Storage Tank (UST) Management Division recognizes your commitment to continue work at this site using Davis & Floyd, Inc. as your contractor. The next appropriate scope of work at the site is comprehensive groundwater sampling event.

All existing monitoring wells and water supply wells should be sampled for BTEX+naph+MtBE + 8 oxygenates + 1,2 DCA (EPA Method 8260), EDB (EPA method 8011), and lead (no-purge sample, EPA Method 6010). Purging will not be required for existing monitoring wells where the water table is bracketed by the screen. Please have your contractor request low detection limits/reporting levels for all analyses. The use of "J" values is encouraged. Note that a non-detect analysis where the detection limit/reporting level exceeds the risk-based screening level (RBSL) is inconclusive. In this case, State Underground Petroleum Environmental Response Bank (SUPERB) payment may be denied since the analysis cannot be used as the basis for a decision.

The UST Division will not reimburse costs for oxygenate analysis for any laboratory that is not certified through the SCDHEC Office of Environmental Laboratory Certification. Detailed information regarding the oxygenate certification can be found on the UST Guidance Documents webpage. (http://www.scdhec.gov/environment/envserv/docs/OxygenateCertification.pdf. The document can also be accessed from the UST documents page at http://www.scdhec.net/environment/ lwm/forms/). Any laboratory with questions regarding the certification requirements should contact the Office of Environmental Laboratory Certification at (803) 896-0970.

Cost Agreement # 41194 has been approved in the amount shown on the enclosed cost agreement form for the sampling. Your contractor should submit sampling results to the Division in a monitoring report containing information stipulated in the following items:

- A narrative portion documenting current site conditions and noting the names of field personnel, date, time, ambient air temperature, and general weather conditions during the sampling event. The report should also contain well purging data, pH, specific conductivity, water temperature, PID readings (where applicable) and turbidity comments.
- Groundwater elevations, depth to groundwater, measurable free-phase product thickness (where applicable), total well depth and screened interval for all monitoring wells associated with the site, unless otherwise directed by the Division, presented in tabular form. Groundwater laboratory analytical data for all monitoring wells presented in tabular format.
- A groundwater elevation contour map of the site based on current potentiometric data.
- A Chemical of Concern (CoC) map based on current groundwater laboratory analytical data. The groundwater data should be adjacent to the relevant monitoring well.

- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.
- Signature and seal by a professional geologist or engineer registered in the State of South Carolina.

Davis & Floyd, Inc. can submit an invoice for direct billing from the SUPERB Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina-Certified Underground Storage Tank Site Rehabilitation Contractor.

The monitoring report and invoice are due within 60 days from the date of this letter. An interim invoice may not be submitted for this scope of work. If the invoice is not submitted within one hundred and twenty (120) days from the date of this letter, monies allocated to pay for the work will be uncommitted. This means that invoices for the scope of work submitted after the 120-day deadline will not be processed for payment until all other committed funds are paid or monies become available.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Department is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated costs must be pre-approved by the Department for the costs to be paid. The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable and to audit project records at any time during the project or after completion of work.

The Department grants pre-approval for transportation of virgin petroleum-impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. IDW should not be stored on-site longer than ninety (90) days. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the report. If the CoC concentrations, based on laboratory analysis, are below RBSLs, please contact the project manager for approval to dispose of soil and/or groundwater on site. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

On all correspondence concerning this site, please reference UST Permit # 05787. If there are any questions concerning this project, please contact me by telephone at (803) 896-6323, by fax at (803) 896-6245, or by e-mail at brineysm@dhec.sc.gov.

Sincerely,

Stephanie Briney

Stephanie Briney, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Approved cost agreement

cc: Davis & Floyd, Inc., 240 Stoneridge Dr., Ste. 305, Columbia, SC 29210 (w/enc)
Technical file (w/enc)

Approved Cost Agreement 41194

Facility: 05878 PUROLATOR COURIER CORP
BRINEYSM
PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB					
		B PERSONNEL	2.0000	290.00	580.00
10 SAMPLE COLLECTION					
		A GROUND WATER	2.0000	55.00	110.00
		C WATER SUPPLY	2.0000	25.00	50.00
		D GROUNDWATER NO-PURGE	21.0000	35.00	735.00
11 ANALYSES					
	GW GROUNDWATER	A BTEX+NAPTH+MTBE	25.0000	100.00	2,500.00
		BB 1,2-DCA	25.0000	10.75	268.75
		E LEAD	25.0000	20.00	500.00
		F EDB	25.0000	55.00	1,375.00
		P 8 OXYGENATES	25.0000	85.00	2,125.00
17 DISPOSAL					
		A1 WASTEWATER - PURGING/SAMPLING	1.0000	90.00	90.00
19 RPT/PROJECT MNGT & COORDINATIO					
		PCT PERCENT	0.1500	8,333.75	1,250.06
			Total Amount		9,583.81

Emerald, Inc.

CONSULTING AND ENGINEERING
SERVICES IN ENVIRONMENTAL AFFAIRS

2520 TAHOE DRIVE • POST OFFICE BOX 3050 • SUMTER, SOUTH CAROLINA 29151

WEBSITE:
www.emeraldinc-us.com

TELEPHONE (803) 469-5454
FAX (803) 469-5465

March 4, 2013

Stephanie Briney, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Underground Storage Tank Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

Aggressive Fluid Vapor Recovery Report
Purolator Courier Corp.
West Columbia, South Carolina
UST Permit #05878
Emerald Job 13-011A

Ms. Briney,

Please find the attached Aggressive Fluid Vapor Recovery (AFVR) Report for the Purolator Courier Corp. site. A site reconnaissance was conducted on February 19, 2013 to locate each monitoring well, gauge extraction wells, and assess site conditions. Prior to conducting this AFVR event, information gathered during the site reconnaissance was presented to the SCDHEC project manager for review.

AGGRESSIVE FLUID VAPOR RECOVERY EVENTS

On February 21 through 22, 2013, Emerald, Inc. personnel performed a 24-hour AFVR event utilizing MW-15 as the extraction point. This 24-hour AFVR event was conducted to remove free product previously detected at the subject site. Free phase petroleum product was detected in MW-15 at a thickness of 1.23 ft. prior to the event. Monitoring well locations are presented on the attached site map provided by SCDHEC.

Table 1 presents the recorded data for the off-gas concentrations (by PID), post treatment off-gas concentrations (if required), off-gas velocities, knockout tank vacuum. Table 2 presents the stinger depths, wellhead vacuum measurements for each extraction well utilized during the event. Table 2 also contains water levels measurements and magnehelic readings for selected nearby monitoring wells. Emerald, Inc. field personnel collected data at thirty minute intervals for the first eight hours of the event, then at one hour intervals from hours nine through twenty four. During the hours of midnight to 8 AM event monitoring was suspended. Due to the location of the site in a vacant field, off-gas treatment was not utilized during this event.

According to the calculations as presented on Table 1, a total of 157.03 pounds of hydrocarbons (as vapor) and 25.11 equivalent gallons of hydrocarbons were removed during this event. A total of approximately 2.39 gallons of product was measured in the knockout tank during this event. A total of 4,942 gallons of petroleum contaminated groundwater was transported to the City of Manning Wastewater Treatment Facility in Manning, SC for proper disposal. A copy of the disposal manifest for this event is included as an attachment.

If you have any questions or concerns please feel free to contact Emerald, Inc. at 803-469-5454.

Sincerely,
Emerald, Inc.

William C. McClary, P.G.
Project Manager

Ronny L. Lowder
President

Attachments

TABLE 1
AFVR MONITORING DATA
PUROLATOR COURIER CORP.
WEST COLUMBIA, SC
SCDHEC SITE ID #05878
EMERALD JOB #13-011A

Extraction Well	Date	Time (hh:mm)	Differential Time (hr)	Knockout Tank Vacuum (in. Hg)	Off-Gas Concentration (PPM)	Post-Treatment Concentration (PPM)	Offgas Velocity (ft/min)	Flow Rate (CFM)	CG-M (mg/dsm³)	Cg (Lb/Dscf)	Removal Rate (Lbs/Hr)	Interval Removal (Lbs)
MW-15	2/21/13	10:00	Start	12	> 5,000	N/A	2,043	127.77	26,589	1.66E-03	12.73	-
		10:30	0.5	12	> 5,000	N/A	2,104	131.58	26,589	1.66E-03	13.10	6.46
		11:00	0.5	12	> 5,000	N/A	1,967	123.01	26,589	1.66E-03	12.25	6.34
		11:30	0.5	14	> 5,000	N/A	1,899	118.76	26,589	1.66E-03	11.83	6.02
		12:00 ↓	0.5	15	> 5,000	N/A	1,999	125.02	26,589	1.66E-03	12.45	6.07
		12:30	0.5	16	> 5,000	N/A	2,081	130.14	26,589	1.66E-03	12.96	6.35
		13:00	0.5	17	3,667	N/A	1,541	96.37	19,500	1.22E-03	7.04	5.00
		13:30 ↓	0.5	19	3,466	N/A	1,745	109.13	18,431	1.15E-03	7.53	3.64
		14:00	0.5	20	1,766	N/A	1,762	110.19	9,391	5.86E-04	3.88	2.85
		14:30	0.5	21	1,425	N/A	1,657	103.63	7,578	4.73E-04	2.94	1.70
		15:00 ↓	0.5	22	1,500	N/A	1,668	104.32	7,977	4.98E-04	3.12	1.51
		15:30	0.5	24	4,302	N/A	1,706	106.69	22,877	1.43E-03	9.14	3.06
		16:00 ↓	0.5	24	3,996	N/A	1,646	102.94	21,250	1.33E-03	8.19	4.33
		16:30	0.5	25	3,470	N/A	1,807	113.01	18,452	1.15E-03	7.81	4.00
		17:00	0.5	24	2,714	N/A	1,688	105.57	14,432	9.01E-04	5.71	3.38
		17:30	0.5	24	2,815	N/A	1,707	106.75	14,969	9.35E-04	5.99	2.92
		18:00	0.5	24	2,017	N/A	1,562	97.69	10,726	6.70E-04	3.92	2.48
		19:00	1.0	25	3,890	N/A	1,646	102.94	20,686	1.29E-03	7.98	5.95
		20:00	1.0	25	4,038	N/A	1,180	73.80	21,473	1.34E-03	5.94	6.96
		21:00	1.0	25	3,166	N/A	1,354	84.68	16,836	1.05E-03	5.34	5.64
		22:00	1.0	25	3,541	N/A	1,381	86.37	18,830	1.18E-03	6.09	5.72
		23:00	1.0	25	3,321	N/A	1,415	88.49	17,660	1.10E-03	5.85	5.97
	2/22/13	0:00	1.0	25	3,262	N/A	1,978	123.70	17,346	1.08E-03	8.04	6.95
		8:00	8.0	25	1,902	N/A	1,507	94.25	10,114	6.31E-04	3.57	46.43
		9:00	1.0	25	1,816	N/A	1,621	101.38	9,657	6.03E-04	3.67	3.62
		10:00	End			N/A		0.00	0	0.00E+00	0.00	3.67

Well Gauging Data

Well No.	Diameter (in)	Screened Interval (ft)	Before AFVR Event: Depth to Product (ft)	Before AFVR Event: Depth to Water (ft)	Before AFVR Event: Product Thickness (ft)	After AFVR Event: Depth to Product (ft)	After AFVR Event: Depth to Water (ft)	After AFVR Event: Product Thickness (ft)
MW-15	2	3-13	3.08	4.31	1.23	-	4.92	-

Product Thickness

Product thickness in Sight Tube? 0.10

Product thickness in Holding Tanker? No

Weather Conditions

2/21/13 PM Sunny, 60°F

2/22/13 AM Sunny, 63°F

Emerald, Inc. Personnel

L. Stogner

Recovery / Disposal Information

Hydrocarbons Removed (vapor):	157.03	**Pounds**
Hydrocarbons Removed (liquid):	2.39	**Gallons**
Total Hydrocarbons Removed:	25.11	**Equivalent Gallons**
Molecular Weight Utilized:	128	**mg/mg-mole**
Disposal Facility:	City of Manning Wastewater Treatment Facility	
Total Liquids Removed:	4,942	**Gallons**

Equations:

Cg;m = PPMg*(Mg/K3)

Removal Rate = Cg * Flow Rate * 60Min/Hr

Interval Removal = $(T_1 + T_2)/2$

PPM = Part per Million (by PID)

Cg:m = mg/dsm3(mass concentration of gasoline emission)

Mg = 128 mg/mg-mole, molecular weight of gasoline

K3 = 24.07 dsm^3/1E6 mg-mole, mass to volume conversion

Cg = lb/dcsf, mass concentration of gasoline by emission

Removal Rate = lb/hr,pollutant mass removal rate of emission

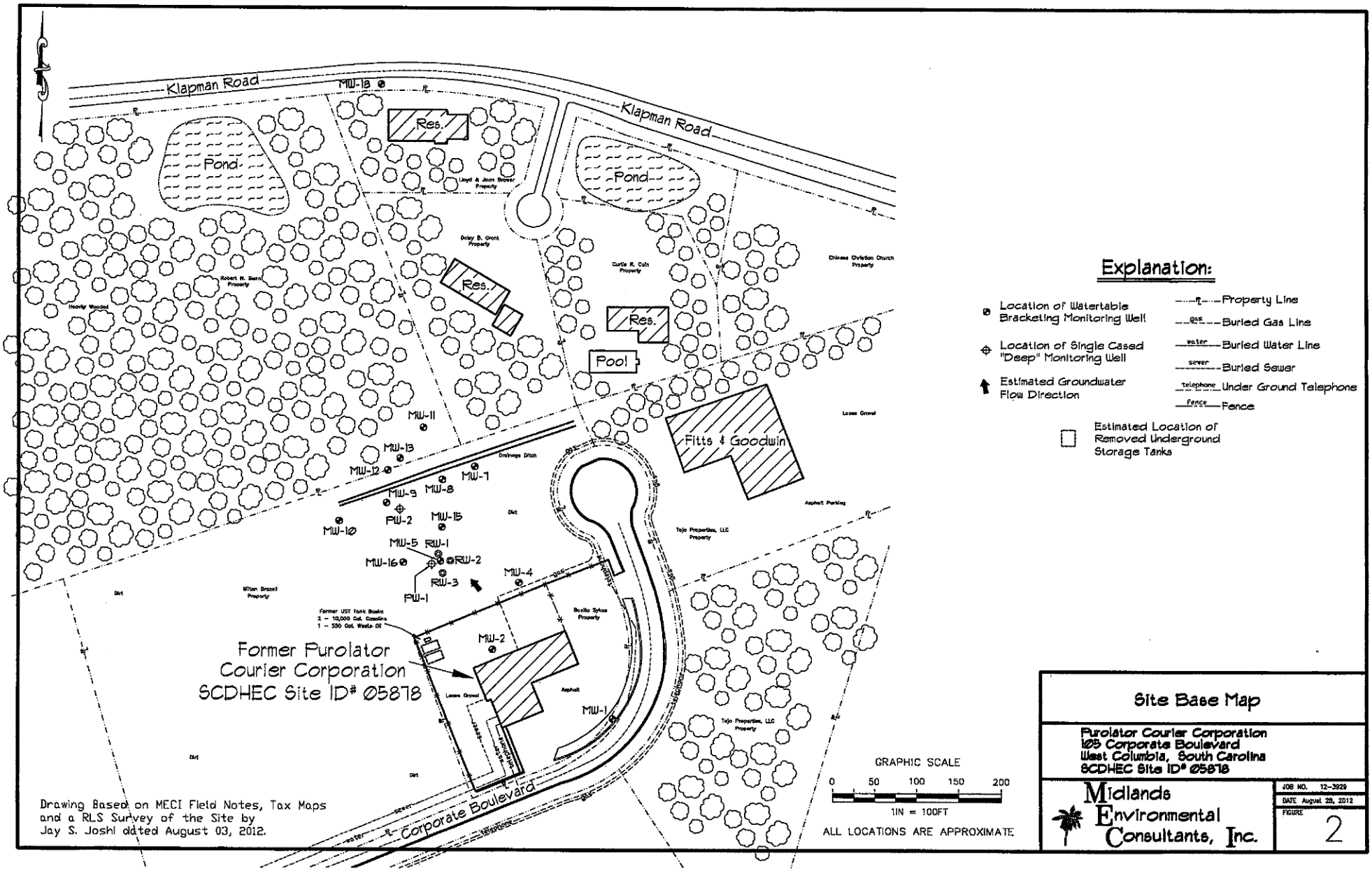
↑ = Stinger raised 0.5 Ft.

↓ = Stinger lowered 0.5 Ft.

TABLE 2
AFVR MONITORING DATA
PUROLATOR COURIER CORP.
WEST COLUMBIA, SC
SCDHEC SITE ID #05878
EMERALD JOB #13-011A

Date	Time (hh:mm)	Extraction Well		Process Monitoring Well Readings					
		MW-22		MW-9		MW-16		RW-1	
		Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water
2/21/13	10:00	3	14	Pre	3.46	Pre	3.35	Pre	3.71
	10:30	3	14	<1	3.46	<1	3.35	<1	3.70
	11:00	3	14	<1	3.46	<1	3.35	0.5	3.71
	11:30	3	15	<1	3.46	<1	3.37	2.0	3.75
	12:00	3.5	15	<1	3.48	<1	3.39	2.1	3.77
	12:30	3.5	16	<1	3.49	<1	3.42	2.1	3.81
	13:00	3.5	17	<1	3.57	<1	3.50	2.5	3.90
	13:30	4	18	<1	3.59	<1	3.52	2.6	3.94
	14:00	4	19	<1	3.61	<1	3.54	1.7	3.96
	14:30	4	19	<1	3.65	<1	3.59	1.5	4.01
	15:00	4.5	19	<1	3.67	<1	3.63	1.1	4.03
	15:30	4.5	19	<1	3.68	<1	3.70	1.2	4.06
	16:00	5	19	<1	3.72	<1	3.73	1.2	4.17
	16:30	5	20	<1	3.75	<1	3.79	1.4	4.26
	17:00	5	20	<1	3.80	<1	3.84	2.1	4.40
	17:30	5	20	<1	3.82	<1	3.87	<1	4.44
	18:00	5.5	20	<1	3.92	<1	3.83	<1	4.44
	19:00	5.5	20	<1	3.93	<1	3.94	3.0	4.61
	20:00	5.5	20	<1	4.03	<1	4.05	3.3	4.72
	21:00	5.5	20	<1	4.10	<1	4.09	3.4	4.84
	22:00	5.5	21	<1	4.14	<1	4.12	<1	4.86
	23:00	5.5	21	<1	4.20	<1	4.13	<1	4.87
2/22/13	0:00	5.5	21	<1	4.24	<1	4.16	<1	4.90
	8:00	5.5	21	<1	4.48	<1	4.12	<1	4.98
	9:00	5.5	21	<1	4.50	<1	4.13	<1	4.99
	10:00	5.5	21	<1	4.51	<1	4.13	<1	4.99

Notes:



Explanation:

- Location of Watertable Bracketing Monitoring Well
- Location of Single Cased "Deep" Monitoring Well
- Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Property Line
- Buried Gas Line
- Buried Water Line
- Buried Sewer
- Under Ground Telephone
- Fence

Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated August 03, 2012.

GRAPHIC SCALE
0 50 100 150 200
1IN = 100FT

ALL LOCATIONS ARE APPROXIMATE

Site Base Map

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 12-3929
DATE August 28, 2012
FIGURE 2

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 28

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator Courier Corp.
105 Corporate Blvd.
West Columbia, SC UST Permit #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name
EMERALD, INC.

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone 803-469-5454

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			~~4942~~ 4942	
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name | Signature | Date Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Hodge # T-2 | Signature: Edward Carbon | Date Month Day Year: 2 22 13

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 18.

Printed/Typed Name: James Bethea | Signature: James Bethea | Date Month Day Year: 2 22 13

GENERATOR

TRANSPORTER

FACILITY

Emerald, Inc.

CONSULTING AND ENGINEERING
SERVICES IN ENVIRONMENTAL AFFAIRS

2520 TAHOE DRIVE • POST OFFICE BOX 3050 • SUMTER, SOUTH CAROLINA 29151

WEBSITE:
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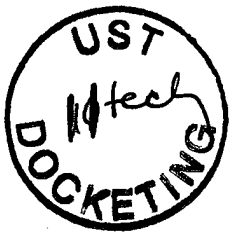
TELEPHONE (803) 469-5454
FAX (803) 469-5465

March 18, 2013

Stephanie Briney, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Underground Storage Tank Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201



Aggressive Fluid Vapor Recovery Report
Purolator Courier Corp.
West Columbia, South Carolina
UST Permit #05878
Emerald Job 13-011B

Ms. Briney,

Please find the attached Aggressive Fluid Vapor Recovery (AFVR) Report for the Purolator Courier Corp. site. A site reconnaissance was conducted on February 19, 2013 to locate each monitoring well, gauge extraction wells, and assess site conditions. Prior to conducting this AFVR event, information gathered during the site reconnaissance was presented to the SCDHEC project manager for review.

AGGRESSIVE FLUID VAPOR RECOVERY EVENTS

On March 11 through 12, 2013, Emerald, Inc. personnel performed a 24-hour AFVR event utilizing MW-5, RW-1 an RW-2 as the extraction points. This 24-hour AFVR event was conducted to remove free product previously detected at the subject site. Free phase petroleum product was detected in MW-5 at a thickness of 0.64 ft. prior to the event. Monitoring well locations are presented on the attached site map provided by SCDHEC.

Table 1 presents the recorded data for the off-gas concentrations (by PID), post treatment off-gas concentrations (if required), off-gas velocities, knockout tank vacuum. Table 2 presents the stinger depths, wellhead vacuum measurements for each extraction well utilized during the event. Table 2 also contains water levels measurements and magnehelic readings for selected nearby monitoring wells. Emerald, Inc. field personnel collected data at thirty minute intervals for the first eight hours of the event, then at one hour intervals from hours nine through twenty four. During the hours of midnight to 8 AM event monitoring was suspended. Due to the location of the site in a vacant field, off-gas treatment was not utilized during this event. At 1600 on 3/11/13 the stinger in MW-5 was raised in an attempt to produce higher PID readings. In addition, at 1500 the stingers in RW-1 and RW-2 were raised to focus on product removal from MW-5.

According to the calculations as presented on Table 1, a total of 23.21 pounds of hydrocarbons (as vapor) and 3.71 equivalent gallons of hydrocarbons were removed during this event. A total of approximately 0.24 gallons of product was measured in the knockout tank during this event. A total of 4,969 gallons of petroleum contaminated groundwater was transported to the City of Manning Wastewater Treatment Facility in Manning, SC for proper disposal. A copy of the disposal manifest for this event is included as an attachment.

If you have any questions or concerns please feel free to contact Emerald, Inc. at 803-469-5454.

Sincerely,
Emerald, Inc.

William C. McClary/RB

William C. McClary, P.G.
Project Manager

Ronny L. Lowder
President

Attachments

TABLE 1
AFVR MONITORING DATA
PUROLATOR COURIER CORP.
WEST COLUMBIA, SC
SCDHEC SITE ID #05878
EMERALD JOB #13-011B

Extraction Well	Date	Time (hh:mm)	Differential Time (hr)	Knockout Tank Vacuum (In. Hg)	Off-Gas Concentration (PPM) *	Post-Treatment Concentration (PPM) *	Offgas Velocity (ft/min)	Flow Rate (CFM)	CG:M (mg/dsm^3)	Cg (Lb/Dscf)	Removal Rate (Lbs/Hr)	Interval Removal (Lbs)
RW-1	3/11/13	8:00	Start	7.5	62	N/A	2,336	146.09	330	2.06E-05	0.18	-
RW-2		8:30	0.5	7.5	212	N/A	2,230	139.46	1,127	7.04E-05	0.59	0.19
MW-5		9:00	0.5	7	1,139	N/A	1,976	123.58	6,057	3.78E-04	2.80	0.85
		9:30	0.5	7	607	N/A	2,092	130.83	3,228	2.02E-04	1.58	1.10
		10:00 ↓	0.5	6	395	N/A	2,261	141.40	2,100	1.31E-04	1.11	0.67
		10:30	0.5	6	349	N/A	2,521	157.66	1,856	1.16E-04	1.10	0.55
		11:00	0.5	5	259	N/A	2,878	179.99	1,377	8.60E-05	0.93	0.51
		11:30	0.5	5	163	N/A	2,950	184.49	867	5.41E-05	0.60	0.38
		12:00 ↓	0.5	5	124	N/A	3,125	195.43	659	4.12E-05	0.48	0.27
		12:30	0.5	5	106	N/A	3,533	220.95	564	3.52E-05	0.47	0.24
		13:00	0.5	5	154	N/A	3,086	193.00	819	5.11E-05	0.59	0.26
		13:30	0.5	5	140	N/A	3,083	192.81	744	4.65E-05	0.54	0.28
		14:00 ↓	0.5	5	102	N/A	3,323	207.82	542	3.39E-05	0.42	0.24
		14:30	0.5	5	101	N/A	3,433	214.70	537	3.35E-05	0.43	0.21
		15:00	0.5	6	112	N/A	3,348	209.38	596	3.72E-05	0.47	0.22
		15:30	0.5	6	86	N/A	3,173	198.44	457	2.86E-05	0.34	0.20
		16:00	0.5	6	78	N/A	3,387	211.82	415	2.59E-05	0.33	0.17
		17:00	1.0	6	98	N/A	3,614	226.02	521	3.25E-05	0.44	0.39
		18:00	1.0	6	307	N/A	3,137	196.19	1,633	1.02E-04	1.20	0.82
		19:00	1.0	6	377	N/A	2,942	183.99	2,005	1.25E-04	1.38	1.29
		20:00	1.0	6	319	N/A	3,099	193.81	1,696	1.06E-04	1.23	1.31
		21:00	1.0	5	280	N/A	3,024	189.12	1,489	9.30E-05	1.05	1.14
		22:00	1.0	5	399	N/A	3,100	193.87	2,122	1.32E-04	1.54	1.30
		23:00	1.0	5	322	N/A	2,868	179.36	1,712	1.07E-04	1.15	1.35
	3/12/13	0:00	1.0	5	311	N/A	2,791	174.55	1,654	1.03E-04	1.08	1.12
		8:00	End	5	266	N/A	2,888	180.61	1,415	8.83E-05	0.96	8.15

Well Gauging Data:			Before AFVR Event			After AFVR Event		
Well No.	Diameter (in)	Screened Interval (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)
RW-1	4	5-15	-	3.54	-	-	3.61	-
RW-2	4	5-15	-	3.29	-	-	3.45	-
MW-5	2	4-14	5.22	5.86	0.64	-	5.99	-

Product Thickness	
Product thickness in Sight Tube?	0.01
Product thickness in Holding Tanker?	No

Weather Conditions		Emerald, Inc. Personnel
3/11/13	Sunny, 46°F-73°F	R. Robertson
3/12/13	Rain, 60°F-63°F	L. Stogner

Recovery / Disposal Information		
Hydrocarbons Removed (vapor):	23.21	Pounds
Hydrocarbons Removed (liquid):	0.24	Gallons
Total Hydrocarbons Removed:	3.71	Equivalent Gallons
Molecular Weight Utilized:	128	mg/mg-mole
Disposal Facility:	City of Manning Wastewater Treatment Facility	
Total Liquids Removed:	4,969	Gallons

Equations

Cg;m = PPMg*(Mg/K3)

Removal Rate = Cg * Flow Rate * 60Min/Hr

Interval Removal = $(T_1 + T_2)/2$

PPM = Part per Million (by PID)

Cg:m = mg/dsm3(mass concentration of gasoline emission)

Mg = 128 mg/mg-mole, molecular weight of gasoline

K3 = 24.07 dsm^3/1E6 mg-mole, mass to volume conversion

Cg = lb/dcsf, mass concentration of gasoline by emission

Removal Rate = lb/hr,pollutant mass removal rate of emission

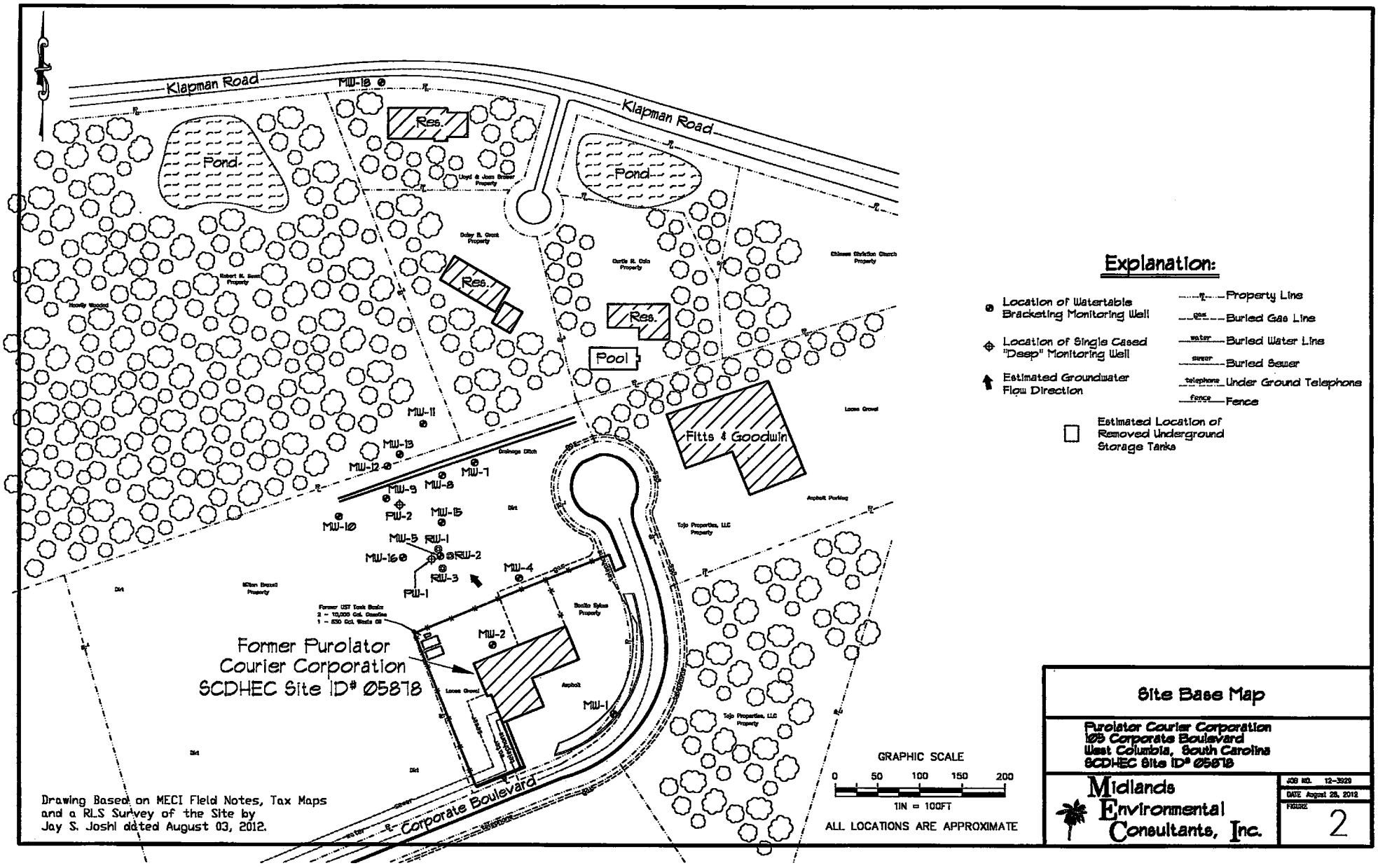
↑ = Stinger raised 0.5 Ft.

↓ = Stinger lowered 0.5 Ft.

TABLE 2
AFVR MONITORING DATA
PUROLATOR COURIER CORP.
WEST COLUMBIA, SC
SCDHEC SITE ID #05878
EMERALD JOB #13-011B

Date	Time (hh:mm)	Extraction Wells						Process Monitoring Well Readings						
		RW-1		RW-2		MW-5		MW-4		MW-15			MW-16	
		Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Product	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water
3/11/13	8:00	3.5	3.5	3.5	5.5	5.5	6.5	Pre	4.65	Pre	4.69	4.70	Pre	4.10
	8:30	3.5	3.5	3.5	5.5	5.5	6.5	<1	4.65	<1	4.70	4.71	<1	4.11
	9:00	3.5	3	3.5	5	5.5	6	<1	4.66	<1	4.71	4.72	<1	4.11
	9:30	3.5	3	3.5	5	5.5	6	<1	4.67	<1	4.62	4.63	<1	4.08
	10:00	4	3	4	4.5	6	6	<1	4.68	<1	4.51	4.52	<1	4.07
	10:30	4	3	4	4.5	6	6	<1	4.83	<1	4.40	4.41	<1	4.05
	11:00	4	2.5	4	4	6	5.5	<1	4.92	<1	4.34	4.35	<1	4.00
	11:30	4	2.5	4	4	6	5.5	<1	4.88	<1	4.23	4.26	<1	3.84
	12:00	4	3	4	5	6.5	5.5	<1	4.87	<1	4.19	4.22	<1	3.86
	12:30	4	3	4	5	6.5	5.5	<1	4.87	<1	4.24	4.29	<1	3.88
	13:00	4	3	4	5	6.5	5.5	<1	4.87	<1	4.26	4.32	<1	3.87
	13:30	4	3	4	5	6.5	5.5	<1	4.87	<1	4.26	4.32	<1	3.86
	14:00	4	3	4	5	7	5.5	<1	4.87	<1	4.29	4.35	<1	3.86
	14:30	4	4	4	6	7	5.5	<1	4.87	<1	4.32	4.38	<1	3.89
	15:00	3.5	4	3.5	6	7	6	<1	4.86	<1	4.38	4.44	<1	3.92
	15:30	3.5	4	3.5	6	7	6	<1	4.85	<1	4.40	4.46	<1	3.95
	16:00	3.5	4	3.5	6	7	6	<1	4.84	<1	4.41	4.47	<1	3.94
	17:00	3.5	3.5	3.5	5	5.5	5	<1	4.88	<1	4.46	4.51	0.03	3.96
	18:00	3.5	3	3.5	5	5.5	4	<1	4.90	<1	4.45	4.51	0.03	4.03
	19:00	3.5	3.5	3.5	5	5.5	3.5	<1	4.92	<1	4.46	4.51	0.02	4.04
	20:00	3.5	3.5	3.5	5	5.5	4	<1	4.94	<1	4.47	4.52	0.02	4.03
	21:00	3.5	3	3.5	5	5.5	4	<1	4.95	<1	4.48	4.54	0.02	4.04
	22:00	3.5	3.5	3.5	5	5.5	4	<1	4.98	<1	4.46	4.52	0.01	4.05
	23:00	3.5	3.5	3.5	4.5	5.5	4	<1	4.99	<1	4.44	4.50	<1	4.05
3/12/13	0:00	3.5	3	3.5	5	5.5	4	<1	5.01	<1	4.46	4.51	<1	4.06
	8:00	3.5	3.5	3.5	5	5.5	4	<1	5.09	<1	4.51	4.60	<1	4.01

Notes:



Site Base Map

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 12-3020
DATE August 28, 2012
FIGURE 2

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 38 of

2. Generator's Name and Mailing Address
Purolator Courier Corp.
105 Corporate Blvd.
West Columbia, SC UST Permit #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name
EMERALD, INC.

6. US EPA ID Number

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone 803-469-5454

C. State Transporter's ID

D. Transporter 2 Phone

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			4969	
b.				
c.				
d.				

GENERATOR

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name | Signature | Date Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: ROBERT D. RODGERS | Signature: Robert D. Rodgers | Date: 3 12 13

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name: David Strickland | Signature | Date: 3 12 13

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

MR MILTON BRAZELL
220 LORAINE CT
WEST COLUMBIA SC 29169

APR 05 2013

UST 12tcd DOCKETING

Re: Letter of Concern
Former Purolator Courier Corp., 105 Corporate Blvd., West Columbia, SC
UST Permit # 05878
Release Reported October 17, 1991
Adjacent property tax map# 004599-10-008
Request for Letter of Concern received April 4, 2013
Lexington County

Dear Mr. Brazell:

In response to your request for information about environmental conditions and liability associated with the referenced facility and adjacent property, the following is provided.

Our records indicate that three Underground Storage Tanks (USTs) were registered with the South Carolina Department of Health and Environmental Control (Agency) by Carolina Commerce Associates. The registered USTs were removed September 1991. An assessment report received in October 17, 1991 documented a release of petroleum products in the vicinity of the UST. Our records indicate that Carolina Commerce Associates complied with the regulatory requirements and stopped the leak from the USTs. The UST Management Division is pursuing the extent and severity of petroleum chemicals of concern on Carolina Commerce Associates' behalf. A Monitoring Report will be submitted in the near future.

This release of petroleum products from the USTs is qualified to receive funding under the conditions of the State Underground Petroleum Environmental Response Bank (SUPERB) Act. This means that reasonable costs up to $1,000,000 can be paid by the SUPERB account for site rehabilitation actions associated with this release.

Monitoring wells MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-15, MW-16, MW-17, PW-1, PW-2, RW-1, RW-2, and RW-3 were installed on your property as part of the assessment investigation. Groundwater samples were collected from the referenced monitoring wells on August 3, 2012 and analyzed for dissolved petroleum constituents such as BTEX (Benzene, Toluene, Ethylbenzene, Xylene), Naphthalene, MtBE, and EDB. A sample could not be collected from MW-4 because of an obstruction in the well. A sample could not be collected from MW-5 and MW-15 because MW-5 had 0.44ft of free product and MW-15 had 0.43ft of free product. A sample could not be collected from MW-6 and MW-17 because they could not be located and are assumed to be destroyed. The laboratory analysis detected the following constituents as listed below in parts per billion:

Monitoring well ID	Benzene	Toluene	Ethylbenzene	Xylene	Naphthalene	MtBE	EDB
MW-7	27	4.7	<5	14	<5	2	<0.020
MW-8	330	1,400	22	5,100	64	3.3	0.13
MW-9	0.2	2.5	<5	<5	<5	<5	<0.020
MW-10	<5	<5	<5	<5	<5	<5	<0.020
MW-16	27	26	88	50	37	<5	<0.019
PW-1	<5	<5	<5	<5	<5	<5	<0.019
PW-2	<20	<20	<20	<20	<20	<20	<0.021
RW-1	980	1,900	150	1,100	<200	31	1.4
RW-2	600	750	140	570	65	39	0.25
RW-3	1,400	2,500	430	2,100	160	63	1.8
Risk Based Screening Levels	5	1,000	700	10,000	25	40	0.05

Aggressive Fluid Vapor Recovery (AFVR) events were conducted in February 2013 and March 2013 to remove free product from monitoring wells MW-5 and MW-15. If free product is detected in the next groundwater sampling event then the AFVR events will continue to be conducted in the summer and fall of 2013. The UST owner/operator and the Agency will require access to your property during reasonable hours to perform necessary rehabilitation activities.

The Agency is not aware of any laws or regulations that prohibit the use or development of adjacent properties and properties where a petroleum release has occurred. However, the Agency advises against installing a water supply well for drinking, cooking, or bathing purposes until active corrective action is completed. If you should choose to install a water supply well for these purposes at this time, it is at your discretion.

On all correspondence concerning this site, please reference **UST Permit # 05878.** If there are any questions concerning this project, please contact me at (803) 896-6323 or by email at brineysm@dhec.sc.gov.

Sincerely,

Stephanie Briney

Stephanie Briney, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

cc: Mr. Dee O'Brien, Crawford Environmental Services, 104 Corporate Blvd., Ste. 412, West Columbia, SC 29169
Technical File

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071

APR 11 2013

UST 13 tech DOCKETING

Re: **QAPP Contractor Addendum Request**
Groundwater Sampling Contract
Solicitation # IFB-5400002759, PO#4600088529

Dear Mr. Shane:

In accordance with bid solicitation # IFB-5400002759 and the UST Management Division Quality Assurance Program Plan (QAPP), it is requested that you submit a Contractor Addendum for each site listed below. The Addendums must be submitted within 15 business days in my attention. The project manager for each site will issue a notice to proceed once the Addendum has been reviewed and approved. Please note, site reconnaissance should be conducted during the Addendum review so that any issues that arise may be addressed prior to commencing work at the site.

UST Permit #	Site Name	County	# samples and requested analysis*	Project Manager
19260	Goldrush Restaurant	Darlington	85-BTEXMN, DCA, Oxygenates, & EDB	C. Ridgley
02698	Johnny's Truck Stop	Darlington	72-BTEXMN, DCA, Oxygenates, & EDB	C. Ridgley
06898	EP Johnson Grocery	Orangeburg	8-BTEXMN, DCA, Oxygenates, & EDB	R. Miner
05986	Gaston Food Mart	Lexington	35-BTEXMN, DCA, Oxygenates, & EDB	R. Miner
07783	Brazzels Grocery	Richland	7-BTEXMN, DCA, Oxygenates, & EDB	R. Miner
05353	Red Hill Convenience	Lee	18-BTEXMN, DCA, Oxygenates, & EDB	D. Thoma
00949	Dolphin Head	Beaufort	16-BTEXMN, DCA, & Oxygenates	S. Burson
~~15438~~	Abandoned Service Stat	Colleton	37-BTEXMN, DCA, Oxygenates, & EDB	S. Burson
05878	Purolator Courier Corp	Lexington	22-BTEXMN, DCA, Oxygenates, & EDB	S. Briney
~~06157~~	Weeds Landing	Lexington	16-BTEXMN, DCA, Oxygenates, & EDB	S. Briney
13046	Midway Service Station	Lexington	34-BTEXMN, DCA, Oxygenates, & EDB	S. Briney
12151	Sportsman Corner	Clarendon	17-BTEXMN, DCA, Oxygenates, & EDB	S. Shull
02015	Pops Corner	Cherokee	45-BTEXMN, DCA, Oxygenates, & EDB	S. Shull

* The number of samples may not include trip blanks, field blanks, or field duplicates.

Please contact me with the sampling schedule before commencing work at these facilities. In addition, a weekly update for each site is required to be submitted via e-mail to the site's project manager and myself. If you have any questions or need further assistance, please contact me at (803) 896-6397 or thomadl@dhec.sc.gov.

Sincerely,

Debra L. Thoma

Debra L. Thoma, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land & Waste Management

Enc: Site Information Sheet

cc: Technical Files

April 22, 2013

Midlands Environmental Consultants, Inc.

Ms. Debra Thoma, Hydrogeologist
Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

UST
Stephanie
APR 2 3 2013
PROGRAM

UST
14
DOCKETING

Subject: QAPP Contractor Addendum – Revision 0
Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID Number 05878
MECI Project Number 13-4423
Certified Site Rehabilitation Contractor UCC-0009

Dear Ms. Thoma,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached QAPP Contractor Addendum for the referenced site.

On April 10, 2013, MECI personnel performed a site visit to the subject site to evaluate site conditions, locate monitoring wells and identify potential problems for future sampling activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.

Courtney M. Sanders
Staff Biologist

Jeff L. Coleman
Senior Scientist

Post Office Box 854, Lexington SC 29071 • 235-B Dooley Road, Lexington, SC 29073
Telephone: (803) 808-2043 • fax: (803) 808-2048

Section A: Project Management

A1 Title and Approval Page

Quality Assurance Project Plan
Addendum to the SC DHEC UST Programmatic QAPP
For
Purolator Courier Corporation, SCDHEC Site ID# 05878

105 Corporate Boulevard, West Columbia, South Carolina

Prepared by:
Courtney M. Sanders
Staff Biologist
Midlands Environmental Consultants, Inc.
(Certified Site Rehabilitation Contractor UCC-0009)
235-B Dooley Road
Lexington, SC 29073
(803)808-2043

Date: April 22, 2013

Approvals

Stephanie Briney SC DHEC Project Manager	Signature	Date
Courtney M. Sanders Contractor QA Manager	Signature	Date 4-23-13
Jeff L. Coleman Site Rehabilitation Contractor	Signature	Date 4/23/13
Daniel J. Wright Laboratory Director	Signature	Date 04/22/2013

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A3 Distribution List

Name	Title	Organization/Address	Telephone Number	Fax Number	Email Address
Stephanie Briney	SC DHEC Technical Project Manager	SCDHEC, UST Management Division, 2600 Bull St., Columbia, SC, 29201	803-896-6323	803-896-6245	brineysm@dhec.sc.gov
Jeff L. Coleman	Site Rehabilitation Contractor	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	jlc@meci.net
Courtney M. Sanders	Quality Assurance Officer	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	cms@meci.net
Kyle V. Pudney	Field Manager	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	kvp@meci.net
Daniel J. Wright	Laboratory Director	Shealy Environmental Services,Inc. 106 Vantage Point Dr. West Columbia, SC 29172	803-791-9700	803-791-9111	dwright@shealylab.com
	Well Services/Driller				

Table 1A Addendum Distribution List

A4 Project Organization

Role from the UST Master QAPP	Person in this Role for Project	Organization/Address	Telephone Number	Fax Number	Email Address
Project Manager	Stephanie Briney	SCDHEC, UST Management Division, 2600 Bull St., Columbia, SC, 29201	803-896-6323	803-896-6245	brineysm@dhec.sc.gov
Site Rehabilitation Contractor	Jeff L. Coleman	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	jlc@meci.net
Quality Assurance Officer	Courtney M. Sanders	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	cms@meci.net
Field Manager	Kyle V. Pudney	Midlands Environmental Consultants, Inc. 235-B Dooley Road	803-808-2043	803-808-2048	kvp@meci.net

Role from the UST Master QAPP	Person in this Role for Project	Organization/Address	Telephone Number	Fax Number	Email Address
		Lexington, SC 29073			
Analytical Laboratory Director	Daniel J. Wright	Shealy Environmental Services,Inc. 106 Vantage Point Dr. West Columbia, SC 29172	803-791-9700	803-791-9111	dwright@shealylab.com
Project Verifier	Courtney M. Sanders or Kyle V. Pudney	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	cms@meci.net

Table 2A Addendum Role Identification and Contact Information

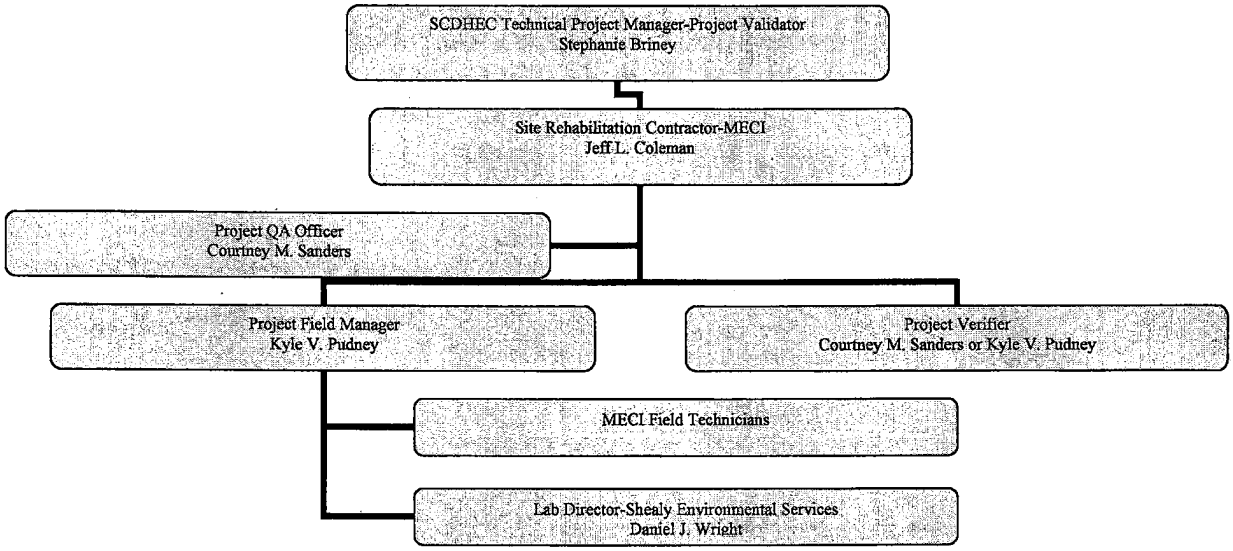


Figure 1A Organizational Chart

Project Manager (Stephanie Briney) – The project manager is responsible for direct oversight of contractors conducting assessment and site rehabilitation of releases at UST sites.

Site Rehabilitation Contractor (Jeff L. Coleman) – The Site Rehabilitation Contractor is an independent contractor responsible for managing and coordinating field and office activities needed for assessments or cleanup.

-Final Review of all work produced for a scope of work.
-Final say on technical interpretation of data.

Quality Assurance Officer (Courtney M. Sanders) – The Quality Assurance Officer is responsible for the oversight of all quality assurance activities associated with projects performed by the Site Rehabilitation Contractor.

-In charge of producing and maintaining the QAPPA for MECI.
-Reviews (and Audits, if necessary) all work produced in conjunction with a scope of work.
-Quality control of data entry and report preparation.

Field Manager (Kyle Pudney) –The field manager will oversee all work done on any given project.

-Assign, direct and oversee all field personnel working on each project.
-Responsible for coordinating with the SCDHEC project manager, should any problems or clarifications arise.
-Responsible for all reporting done in conjunction with field work.

Analytical Laboratory Director (Daniel J. Wright) – The Laboratory Director is directly responsible for the Analytical Laboratory used during a scope of work. The Analytical Laboratory receives the soil and water samples from the site rehabilitation contractor, performs the requested analyses, and provides analytical reports.

Project Verifier (Courtney M. Sanders) – The project verifier is responsible for verifying the quality of data produced during a scope of work. This includes review of field work and laboratory reports for potential quality issues.

Field Technicians (various employees) – Responsible for all field activities for a given scope of work.

-Conduct all initial site visit, and record findings
-Conduct all field activities associated with a scope of work. All work will be conducted according to the MECI SOP. Will be responsible for reporting any potential problems are inconsistencies found during assessment activities.
-Completes the chain of custody upon completion of sampling event and delivers samples to lab or office for later lab pick-up.

A5 Problem Definition/Background

Discuss the background (as much as is known) of the site and appropriate historical information, and why this site is being assessed.

The subject site (Purolator Courier Corp.) is located at 105 Corporate Boulevard, West Columbia, Lexington County, South Carolina (see Figure 1). The subject site formerly maintained three underground storage tanks (UST's), including 1-500 gallon waste oil UST and 2-10,000 gallon gasoline UST's. These former UST's were abandoned by removal from ground in September of 1991. A release of petroleum product was reported in October of 1991 and confirmed in June of 1992.

The site is being sampled in conjunction with the SCDHEC Groundwater Sampling Contract (Solicitation # IFB-5400002759, PO# 4600088529).

Please answer the following: Does this project fall under UST or Brownfields area?

Underground Storage Tank Division

A6 Project/Task Description

1. ***Summarize what is known about the work to be done. This can be a short sentence indicating what the Scope of this project is (see Master QAPP Section A6).***

The subject site (Purolator Courier Corporation) will be sampled in conjunction with the SCDHEC Groundwater Sampling Contract (Solicitation # IFB-5400002759, PO# 4600088529). During assessment activities monitoring wells will be sampled for petroleum constituents.

2. ***The work will begin within*** fourteen (14) days of receipt of approved QAPP contractors addendum ***after cost approval and sampling should be complete by*** twenty-one (21) days of receipt of approved QAPP contractors addendum.

3. ***Are there are time or resource constraints? Include those factors that may interfere with the tentative schedule.***

Factors that may prevent schedule work will be, but not limited to, inclement weather, equipment malfunction, and machine failure.

A7 Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs)

The subject site is located at 105 Corporate Boulevard, West Columbia, Lexington County, South Carolina. The site is currently a vacant lot that has recently been clear cut and graded. All work will be conducted on an adjacent property.

A8 Training and Certificates

Required training and licenses:

Title/Job	Name	Training Required	Date training received	Type of License	License Number
Principal Geologist	Bryan T. Shane, P.G.	Professional Geologist	10/30/1993	State of South Carolina	1102
Senior Scientist	Jeff Coleman	OSHA 40 hr HAZWOPER	7/27/2007	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/10/2012	N/A	N/A
Staff Geologist	John Bryant	OSHA 40 hr HAZWOPER	4/17/2009	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/102012	N/A	N/A
Staff Biologist	Courtney Sanders	OSHA 40 hr HAZWOPER	12/10/2010	N/A	N/A

Title/Job	Name	Training Required	Date training received	Type of License	License Number
		OSHA 8 hr HAZWOPER refresher	12/10/2012	N/A	N/A
Staff Biologist	Kyle Pudney	OSHA 40 hr HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/10/2012	N/A	N/A
Staff Biologist	Chris Lashley	OSHA 40 hr HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/10/2012	N/A	N/A
Staff Biologist	Gavin Globensky	OSHA 40 hr HAZWOPER	7/29/2011	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/10/2012	N/A	N/A
Staff Biologist	Ryan Ariail	OSHA 40 hr HAZWOPER	9/23/2011	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/10/2012	N/A	N/A
Staff Geologist	Patrick Boylan	OSHA 40 hr HAZWOPER	07/20/2012	N/A	N/A
Lab Manager	Daniel J. Wright	***	***	Lab Certification	SC 32010

Table 3A Required Training and Licenses

Courtney M. Sanders of Midlands Environmental Consultants, Inc. is responsible to ensuring that personnel participating in this project receive the proper training. All training records will be stored in the following location:235-B Dooley Road, Lexington, SC 29073.

It is understood that training records will be produced if requested by SC DHEC.

The Following Laboratory(ies) will be used for this Project:

Commercial Lab(s)

Full Name of the Laboratory___Shealy Environmental Services, Inc.____
Name of Lab Director_____Daniel J. Wright_____
SC DHEC Certification Number_____32010_____
Parameters this Lab will analyze for this project:

All samples will be analyzed for BTEX, Naphthalene, MTBE, 1,2 DCA, 8-Oxygenates (EPA Method 8260-B), and EDB (EPA Method 8011).

Please note: SC DHEC may require that the contractor submit some or all of the Laboratory's SOPs as part of this QAPP.

A9 Documents and Records

Personnel will receive the most current version of the QAPP Addendum via: (Check all that apply)

____US Mail ____Courier __X__ Hand delivered

Other (please specify):_____E-mailed electronic copies___

Record	Produced By	Hardcopy/ Electronic	Storage Location For how long?	Archival
Instrument Raw Data	Target, Thermospec, or Iteva software	Hardcopy and Electronic	Hardcopy: Offsite storage for 7 yrs Electronic: Two external storage device backups – one offsite, one onsite storage for 10 yrs	Yes
Final Reports	LIMS	Electronic	Electronic: Two external storage device backups – one offsite, one onsite storage for 10 years	Yes
Field Work	Field Staff	Hardcopy	MECI office: 235/B Dooley Road / Min. 5 years	Yes
Chain of Custody	Field Staff	Hardcopy	MECI office: 235B Dooley Road / Min. 5 years	Yes
QAPP Addendum	Courtney Sanders	Hardcopy & Electronic	MECI office: 235B Dooley Road / Min. 5 years	Yes
Internal QC record	Courtney Sanders	Hardcopy	MECI office: 235B Dooley Road / Min. 5 years	Yes
Sampling Report	Courtney Sanders	Hardcopy & Electronic	MECI office: 235B Dooley Road / Min. 5 years	Yes

Table 4A Record Identification, Storage, and Disposal

Section B Measurement/Data Acquisition

B1 Sampling Process/Experimental Design

Item	Start Date	End Date	Comments
Site Reconnaissance	4/10/13	4/10/13	Already Completed
QAPP preparation	4/22/13	4/22/13	In progress
QAPP approval	4/23/13	5/14/13	Assuming three week turnaround
Monitoring well Sampling	5/15/13	5/29/13	Sampled within 2 weeks of QAPP approval
Report Preparation	5/30/13	6/20/13	Three weeks to prepare/submit report

Item	Start Date	End Date	Comments

Table 5A Sampling Activities

B2 Sampling Methods

Please note: The contractor must follow sampling protocols as given in the UST QAPP.

***Estimate* the number of samples of each matrix that are expected to be collected:**

Soil	_____
Ground Water from monitoring wells	____18____
From Drinking/Irrigation water wells	_____
Field Duplicate Collection	_____1____
Field Blank Collection	_____1____
Trip Blank	_____1____
From surface water features	_____
Total number of Water samples	_____21____

Notes:
During the April 10, 2013 site visit, eighteen (18) monitoring wells were located. Monitoring well MW-18 was not located during the initial site visit. If the monitoring well is located during sampling activities, the newly located monitoring well will be sampled accordingly.

During the site visit it was noted nine (9) monitoring wells were in need of bolts. A combined total of nine (9) bolts are needed to properly secure the wells. **Total Bolts Needed: 15 Bolts**

All monitoring well samples will be analyzed by BTEX, Naphthalene, MTBE, 1,2 DCA, 8-Oxygenates (EPA Method 8260-B), and EDB (EPA Method 8011).

For the sample matrices indicated above, please describe how samples will be collected and the equipment needed.

Please see MECI Monitoring Well Sampling SOP for sampling procedures and type of materials used for sampling.

Will Sampling Equipment have to be cleaned and decontaminated or is everything disposable?

All equipment, excluding electronic water level indicators, field probes and turbidity tubes, is disposable.

If sampling equipment must be cleaned please give a detailed description of how this is done and the disposal of by-products from the cleaning and decontamination.

Please see MECI Monitoring Well Sampling SOP for decontamination procedures.

Identify any equipment and support facilities needed. This may include such things as Fed-ex to ship the samples, a Geoprobe, field analysis done by another contractor (who must be certified), and electricity to run sampling equipment.

All samples will be shipped to the lab via courier or overnight shipping company. Please see MECI Monitoring Well Sampling SOP for sample shipping procedures.

Address the actions to be taken when problems occur in the field, and the person responsible for taking corrective action and how the corrective action will be documented.

Failure	Response	Documentation	Individual Responsible
Water level indicator not working properly	Attempt to clean probe, change battery, use back-up indicator if need be.	Record on field sheets, notify office staff. Take indicator out of rotation until problem identified and corrected.	Field Staff, Field Manager
Field meters not working	Attempt to clean probes, recalibrate in the field.	Record on field sheets, notify office staff. Take meters out of rotation until problem identified and corrected.	Field Staff, Field Manager
Wells not located	Use metal detector, measure from known points, contact project manager for additional information.	Record method used to attempt to locate the well on field sheets, and possibly reasoning for the well to be missing	Field Staff

Table 6A Field Corrective Action

B3 Sample Handling and Custody

1. ***How will the samples get from the Site to the Lab to ensure holding requirements are met?***

Following sample collection, the samples are immediately place in a laboratory provided cooler, pre-filled with wet ice obtained from the MECI office. Samples are transported to the MECI office once a sampling event is complete. A Chain of Custody (CoC) is filled out following the sampling event by the field staff. See attached CoC. If a lab provided courier is scheduled to visit the MECI offices the day following a sampling event, sampling coolers are repacked with wet ice, and left at the office for pick-up the following morning. If no courier is schedule to visit the MECI office the day following a sampling event, all sampling coolers are repacked with ice and are dropped off at a lab approved shipping company for overnight delivery to the lab.

2. ***How will the contactors cool the samples and keep the samples cool?***

All samples are kept on wet ice, obtained from MECI office.

3. ***How will the lab determine the temperature of the samples upon receipt? Will they be using a temperature blank?***

A calibrated thermometer and temperature blank will be used to document sample temperature. The temperature blank is immediately checked by the sample receiving technician upon arrival at the laboratory.

4. ***Where will the samples be stored in the Lab once they are received?***

All samples are stored in clean refrigeration units monitored and maintained at 4 degrees C + or – 2 degrees. Volatile organic samples are stored separately form all other samples.

5. ***Describe the chain of custody procedure and attach a copy of each chain of custody that will be used. If a Chain of Custody SOP exists from the Lab and the Contractor is willing to adhere to it, then this may be attached.***

A chain of custody (COC) will be filled out for each sampling event at each project site. COC to be signed by MECI and Shealy Environmental technician at time physical transfer of samples occurs to courier. Shealy uses the following COC procedures to protect sample integrity following pickup by their courier: A full time Sample Receiving Technician receives all samples and completes a Sample Receipt Checklist (SRC), which will identify any anomalies, if any exist the Sample Receiving Technician or Project Manager must resolve the deviation internally and/or notify the client to resolve the anomaly

B4 Analytical Methods

1. ***Identify the SOPs which will be used to analyze the samples, the method which the SOP references and the equipment or instrumentation that is needed:***

Parameter	SOP ID*	Method Referenced	Equipment	Comments
BTEX+Naph+MTBE+Oxygentaes	S-VO-002	8260B	GC/MS	
PAH's	S-SV-021	8270D	GC/MS	
EDB	S-SV-012	8011	GC	
Lead,T.	S-IM-022	6010C	ICP	
Ferrous Iron	S-IN-009	SM 3500-FED	Spectrophotometer	
Nitrate	S-IN-042	353.2	Auto-analyzer/Lachate	
Sulfate	S-IN-010	300.0	Ion Chromatograph	
Methane	S-VO-004	RSK-175	GC	
TOC	S-IN-030	Walkley-Black	N/A	
DRO - TPH	S-SV-001	8015C	GC	
pH	MECI SOP 4.3.6	*	YSI 63	

Conductivity	MECI SOP 4.3.6	*	YSI 63	
Dissolved Oxygen	MECI SOP 4.3.6	*	YSI 550A	
Temperature	MECI SOP 4.3.6	*	YSI 550A	
Turbidity	MECI SOP 4.3.6	*	60 cm Turbidity Tube	

Table 7A Analytical SOPs and Referenced Methods

- **This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP. See also Table 8A SOP Abbreviation Key.**

Abbreviation	Lab Identification of this SOP	Full Name of the SOP
S-VO-002	S-VO-002	GC/MS VOLATILES ANALYSIS BASED ON EPA METHODS 8260B AND 624 PREPARED BY EPA METHODS 5030B, 5035 AND 3585
S-SV-021	S-SV-021	GC/MS ANALYSIS BASED ON EPA METHOD 8270D PREPARED BY EPA METHODS 3520C, 3550C AND 3580A
S-SV-012	S-SV-012	GC/ECD ANALYSIS OF EDB AND DBCP BASED ON METHOD 8011 & 504.1
S-IM-022	S-IM-022	INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROSCOPY-PECTROMETRIC METHOD for TRACE ELEMENT ANALYSES METHOD 6010C
S-IN-009	S-IN-009	FERROUS IRON (PHENANTHROLINE METHOD) STANDARD METHOD 3500-Fe D
S-IN-042	S-IN-042	NITRATE+NITRITE NITROGEN BY EPA METHOD 353.2, NITRATE NITROGEN BY 353.2 SUBTRACTION, AND NITRITE NITROGEN BY EPA METHOD 353.2
S-IN-010	S-IN-010	INORGANIC ANIONS BY ION CHROMATOGRAPHY EPA METHOD 300.0 and SW-846 9056 and 9056A
S-VO-004	S-VO-004	STANDARD OPERATING PROCEDURE GC ANALYSIS BASED ON METHOD RSKSOP-175
S-IN-030	S-IN-030	TOTAL ORGANIC CARBON (TOC) WALKLEY-BLACK PROCEDURE
S-SV-001	S-SV-001	GC/FID DIESEL RANGE ORGANICS ANALYSIS BASED ON METHOD 8015B and/or 8015C PREPARED BY EPA METHODS 3520C, 3550C and 3580A
MECI SOP 4.3.6	MECI SOP 4.3.6	Sampling Standard operating procedures

Table 8A SOP Abbreviation Key

2. Identify procedures to follow when failures occur, identify the individual responsible for corrective action and appropriate documentation:

Failure	Response	Documented Where?	Individual Responsible
Field meters not working	Attempt to clean probes, recalibrate in the field.	Record on field sheets, notify office staff. Take meters out of rotation until problem identified	Field Staff, Field Manager

		and corrected.	
COC or Sample Receiving issues	Call Client	Sample Receiving Checklist (SRC)	PM – Kelly Maberry kmaberry@shealylab.com
Analytical errors	Corrective Action Form (CAF)	CAF filled out by PM	Lab Director – Daniel J. Wright dwright@shealylab.com
QA/QC Failure	Corrective Action Form (CAF)	CAF filled out by PM	Lab Director –Daniel J. Wright dwright@shealylab.com QA/QC Officer – Jami Savje Jsavje@shealylab.com
On time delivery	Corrective Action Form (CAF)	CAF filled out by PM	Lab Director –Daniel J. Wright dwright@shealylab.com QA/QC Officer – Jami Savje Jsavje@shealylab.com

Table 9A Corrective Action Procedures

3. Identify sample disposal procedures.

Analysis	Matrix	Schedule for disposal	Method for disposal	Comments
BTEX+Naph+MTBE+Oxygenates	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
PAH's	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
EDB	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
Lead	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as	

			Hazardous or non-Hazardous waste.	
Ferrous Iron	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
Nitrate,Sulfate	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
Methane	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
All	Water	On-Site	Portable Granulated Activated Carbon (GAC) Unit	All waste water produced from sampling and decontamination activities will be run through a GAC unit

Table 10A Sample Disposal Procedures

4. Provide SOPs for the Kerr Method or the Ferrous Iron Method if these are parameters for this study. This can be attached or written here. If attached please note that it is an attachment and where it is located (if applicable).

B5 Quality Control Requirements:

All QC will follow the requirements laid out in Section B5 of the UST Programmatic QAPP.

B6 Field Instrument and Equipment Testing, Inspection and Maintenance

1. Identify all field and laboratory equipment needing periodic maintenance, the schedule for this, and the person responsible. Note the availability and location of spare parts.

Instrument	Serial Number	Type of Maintenance	Frequency	Parts needed/Location	Person responsible
Volatiles Mass	Shealy SOP S-	Change traps, clean ion	Periodic	Laboratory	MSV Analyst

Spec	SV-021 Page 7	source, replace filaments			
Semivolatile Mass Specc	Shealy SOP S-SV-021 Page 7	Injection port maintenance, ion source maintenance, column replacement	Periodic	Laboratory	MSSV Analyst
ECD GC	Shealy SOP S-SV-012 Page 5	Injection port maintenance, column replacement	Periodic	Laboratory	GC Analyst
Dionex IC	Shealy SOP S-IN-010 Page 6	Replace auto sampler filter, tubing, line filter, sample Line and Waste Line, as needed. Check Reagent levels, flow rate, waste line.	Periodic	Laboratory	IC Analyst
ICP	Shealy SOP S-IM-005 Page 6 & 7	Clean Sample introduction system , auto sampler, torch, Change spray chamber, torch tubing, tubing	Periodic	Laboratory	ICP Analyst
Leeman Mercury Analyzer	Shealy SOP S-IM-006 Page 5	Clean GLS, Change Pump tubing, Nafion Dryer, Lamp	Periodic	Laboratory	Mercury Analyst
Flow Injection Analysis – Lachat 8000	Shealy SOP S-IN-042 Page 5	Replace sample and reagent lines, replace light source, re-wrap heating coil, replace column	Periodic/As Needed	Laboratory	Nitrate Analyst
YSI 63	09C 101302, 10K 101895, 07M 100905	Replace probe tip	Yearly	Order from YSI	C. Sanders
YSI 63	09C 101302, 10K 101895, 07M 100905	Replace batteries	As Needed	In stock at office	Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	General inspection for wear and tear on equipment	Daily	Major fixes will be done out of office	Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	Check buffer solutions for expiration	Weekly	In stock at office	C. Sanders
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	Replace membrane	4 to 8 weeks	In stock at office	Field Staff
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	Replace batteries	As Needed	In stock at office	Field Staff
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	General inspection for wear and tear on equipment	Daily	Major fixes will be done out of office	Field Staff
Turbidity Tube	#1, #2, #3	General inspection for	Daily	Tubes will be	Field Staff

		wear and tear on equipment, clarity of Secchi Disk		cleaned/fixed in office	

Table 11A Instrument and Equipment Maintenance

2. Identify the testing criteria for each lab or field instrument that is used to ensure the equipment is performing properly. Indicate how deficiencies, if found, will be resolved, re-inspections performed, and effectiveness of corrective action determined and documented. Give the person responsible for this

Instrument/Equipment & Serial Number	Type of Inspection	Requirement	Individual Responsible	Resolution of Deficiencies
Volatiles Mass Spec Shealy SOP S-SV-021 Page 7	Daily calibration check	Method Requirements	MSV Analyst	Recalibration or instrument maintenance
Semi-volatiles Mass Spec Shealy SOP S-SV-021 Page 7	Daily calibration check	Method Requirements	MSSV Analyst	Recalibration or instrument maintenance
ECD GC Shealy SOP S-SV-012 Page 5	Daily calibration check	Method Requirements	GC Analyst	Recalibration or instrument maintenance
Dionex IC Shealy SOP S-IN-010 Page 6	Daily calibration check	Method Requirements	IC Analyst	Recalibration or instrument maintenance
ICP Shealy SOP S-IM-005 Page 6 & 7	Daily calibration check	Method Requirements	ICP Analyst	Recalibration or instrument maintenance
Leeman Mercury Analyzer Shealy SOP S-IM-006 Page 5	Daily calibration check	Method Requirements	Mercury Analyst	Recalibration or instrument maintenance
Flow Injection Analysis – Lachat 8000 Shealy SOP S-IN-042 Page 5	Daily and continuing calibration check	See calibration criteria	Nitrate Analyst	Recalibration or instrument maintenance
YSI 63 - 09C 101302, 10K 101895, 07M 100905	Daily calibration check	See calibration criteria	Field Staff	Recalibrate, general maintenance then recalibrate. Ship off for service by manufacturer
YSI 550A - 04L 2026AK, 08B 101407, 04A 0912AI	Daily calibration check	See calibration criteria	Field Staff	Recalibrate, general maintenance then recalibrate. Ship off for service by manufacturer

Table 12A Instrument and Equipment Inspection

B7 Instrument Calibration and Frequency

1. Identify equipment, tools, and instruments for field or lab work that should be calibrated and the frequency.
2. Describe how the calibrations should be performed and documented, indicating test criteria and standards or certified equipment.
3. Identify how deficiencies should be resolved and documented. Identify the person responsible for corrective action.

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference*
Volatiles Mass Spec	Minimum of 5 calibration standards for all compounds	When indicated by continuous calibration verification standard	Method Criteria	Detailed in SOP	MSV Analyst	S-VO-002
Semi-volatile Mass Spec	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	MSSV Analyst	S-SV-021
GC ECD	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	GC Analyst	S-SV-012
Dionex IC	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	IC Analyst	S-IN-010
ICP	Minimum of 3 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	ICP Analyst	S-IM-022
Cetac Mercury Analyzer	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	Mercury Analyst	S-IM-006
Lacaht QuickChem 8000	Minimum of 5 calibration standards	Daily or when indicated by calibration verification standard	Method Criteria	Detailed in SOP	Nitrate Analyst	S-IN-042
YSI 63	pH Calibration	Daily	+/- 0.2 pH units	clean/replace probe tip, recalibrate	Field Staff	4.3.6
YSI 63	Conductivity Calibration	As directed by manufacturer	+/- 10 uS	clean/replace probe tip, recalibrate	Field Staff	4.3.6
YSI 550A	DO calibration	Daily	+/- 0.25 mg/l	clean/replace probe tip,	Field Staff	4.3.6

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference*
				recalibrate		
YSI 550A	Temperature Calibration	Daily	+/- 1 °C	clean/replace probe tip, recalibrate	Field Staff	4.3.6
Electronic Water Level Indicator	Checked vs. Standard	Monthly	+/- 0.01 foot per 10 foot length	Replace probe tape	Field Staff	***
Oil/Water Interface probe	Checked vs. Standard	Monthly	+/- 0.01 foot per 10 foot length	Replace probe tape	Field Staff	***

Table 13A Instrument Calibration Criteria and Corrective Action

*** This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP. See also Table 8A SOP Abbreviation Key.**

B8 Inspection/Acceptance Requirements for Supplies and Consumables

1. Identify critical supplies and consumables for field and laboratory, noting supply source, acceptance criteria, and procedures for tracking, storing and retrieving these materials.
2. Identify the individual(s) responsible for this.

Item	Vendor	Acceptance criteria	Handling/Storage Conditions	Person responsible for inspection and tracking.
Laboratory Chemicals	Fisher,VWR	Certificates of analysis and laboratory testing	Laboratory storage	Receiving and laboratory personnel
Laboratory standards	O2Si, Restek, High Purity, VHG, Supelco	Certificates of analysis and laboratory verifications	Vendor specific storage conditions	Laboratory Analysts
Sample Containers	Daniels Scientific, QEC	Certificates of analysis and laboratory testing	Bottle storage area	Sample receiving personnel
Clear, Disposable polyethylene Bailers	Preferred Pump	Individual sleeves intact, ball valve operational	Stored in Vehicle Bay, Off of the ground	C. Sanders, Field Staff
Nylon Rope	Preferred Pump	Covered with plastic	Stored in Vehicle Bay, Off of the ground	C. Sanders, Field Staff
Nitrile Gloves	Preferred Pump	Unopened box, no holes	Stored in Vehicle Bay, Off of the ground	C. Sanders, Field Staff
40 mL HCL preserved amber vials	Shealy Environmental Services	Custody seal intact	Stored in Vehicle Bay, Off of the ground	C. Sanders, Field Staff
250 mL HNO3 preserved metals vials	Shealy Environmental Services	Custody seal intact	Stored in Vehicle Bay, Off of the ground	C. Sanders, Field Staff
Coolers	Shealy Environmental Services	Intact	Stored in Vehicle Bay, Off of the ground	C. Sanders, Field Staff
pH Buffer	TRS	Within expiration date	Stored in	C. Sanders, Field Staff

	Environmental, Enviroequipment		calibration room	
Conductivity Standard	TRS Environmental, Enviroequipment	Within expiration date	Stored in calibration room	C. Sanders, Field Staff
DO Membranes	YSI, Enviroequipment	Clean, in box	Stored in calibration room	C. Sanders, Field Staff
Batteries	Any Store	Not previously used	Stored in calibration room	C. Sanders, Field Staff

Table 14A List of Consumables and Acceptance Criteria

B9 Data Acquisition Requirements (Non-Direct Measurements)

1. Identify data sources, for example, computer databases or literature files, or models that should be accessed or used.
2. Describe the intended use of this information and the rationale for their selection, i.e., its relevance to project.
3. Indicate the acceptance criteria for these data sources and/or models.

Data Source	Used for	Justification for use in this project	Comments
Historical Data	Site Maps and Well Construction Information	Well Location and Detail	

Table 15A Non-Direct Measurements

4. Identify key resources/support facilities needed.

There are no non-direct measurements in this project

B10 Data Management

1. Describe the data management scheme from field to final use and storage.

Following sample collection and chain of custody production, samples are shipped to the lab. Field work from the field staff is reviewed by the MECI project manager, and converted into digital form. All data entry is subsequently checked to validate the data entry. The original copies of the field work are stored in MECI files for a minimum of 5 years. Digital copies of the work are stored on the MECI server, which is backed up weekly, and stored for a minimum of 5 years. The digital copy of the field work is presented to SCDHEC with the final report.

2. How does the lab and field staff ensure that no unauthorized changes are made to the chain of custody, sampling notebooks, laboratory notebooks and computer records?

The laboratory maintains comprehensive Quality Control and Training Programs. All sample receipt data, sample log-in, and analytical data is peer reviewed, including review for inappropriate changes. Data management, review procedures and the Quality Systems Program are documented in the laboratory's Quality Manual and Standard Operating Procedures. The Quality Assurance Department oversees adherence to and review of these programs.

All MECI field work is produced using ink-pens. Any attempt to alter field data, after sampling is complete, can be readily identified. MECI keeps a carbon copy of the chain of custody after it is shipped to the lab. This copy is kept with the field work. If any change to the CoC are suspected, this original carbon copy can be use to identify potential changes.

3. How does the lab ensure that there are no errors in samples records including times when sample information is compiled, data calculated and/or transmitted?

Sample data acquisition software is reviewed periodically. The LIMS database is backed up daily and is able to be restored in the event of a system failure. These procedures are documented in laboratory SOP S-AD-003, LIMS. The IT Manager is responsible for these systems and procedures."

4. How will the data be archived once the report is produced? How can it be retrieved? (This applies to both electronic and hard copies).

Laboratory Hardcopy data stored off site is logged, maintained and archived by the Quality Assurance Department. Laboratory Electronic Data Reports are maintained through IT back up under the responsibility of the IT Systems Manager.

MECI keeps all field work and paper copies of reports in its in-house filing system. All paper copies are stored for a minimum of 5 years. Any file can be retrieved easily by going to the correct filing cabinet/box.

All electronic copies of reports generated are kept on the MECI server. This server is backed-up on a weekly basis. Any file stored on the MECI server can be retrieved instantly, by accessing the server. All electronic files are stored for a minimum of 5 years on the server.

Section C Assessment and Oversight

C1 Assessment and Response Actions

1. *The Contractor is supposed to observe field personnel daily during sampling activities to ensure samples are collected and handled properly and report problems to DHEC within 24 hours. . Please state who is responsible for doing this and what observations will be made. Will this person have the authority to stop work if severe problems are seen?*

Field audits can be conducted on any field personnel at any time. MECI field audits can be conducted by the Field Manger, who will be responsible for ensuring that field personnel adhere to the QAPP. If during a random field audit, severe problems are found, work will be stopped by the field manager and the QA

officer contacted to determine corrective action. All problems must be corrected prior to any additional work being performed. Should it be requested, an On-site Field Audit can be scheduled with the SCDHEC project manager. If severe problems are identified by the SCDHEC project manager, the project manager can stop the work until the problems are corrected.

2. *The SCDHEC UST QAPP states that the Lab will receive an Offsite Technical System Audit. For this project, what assessments will be done on the Commercial Lab(s) that are being used—other than their certification audit? When or how often are these done? Who will the results be given to and who has the ability to stop work if problems are severe?*

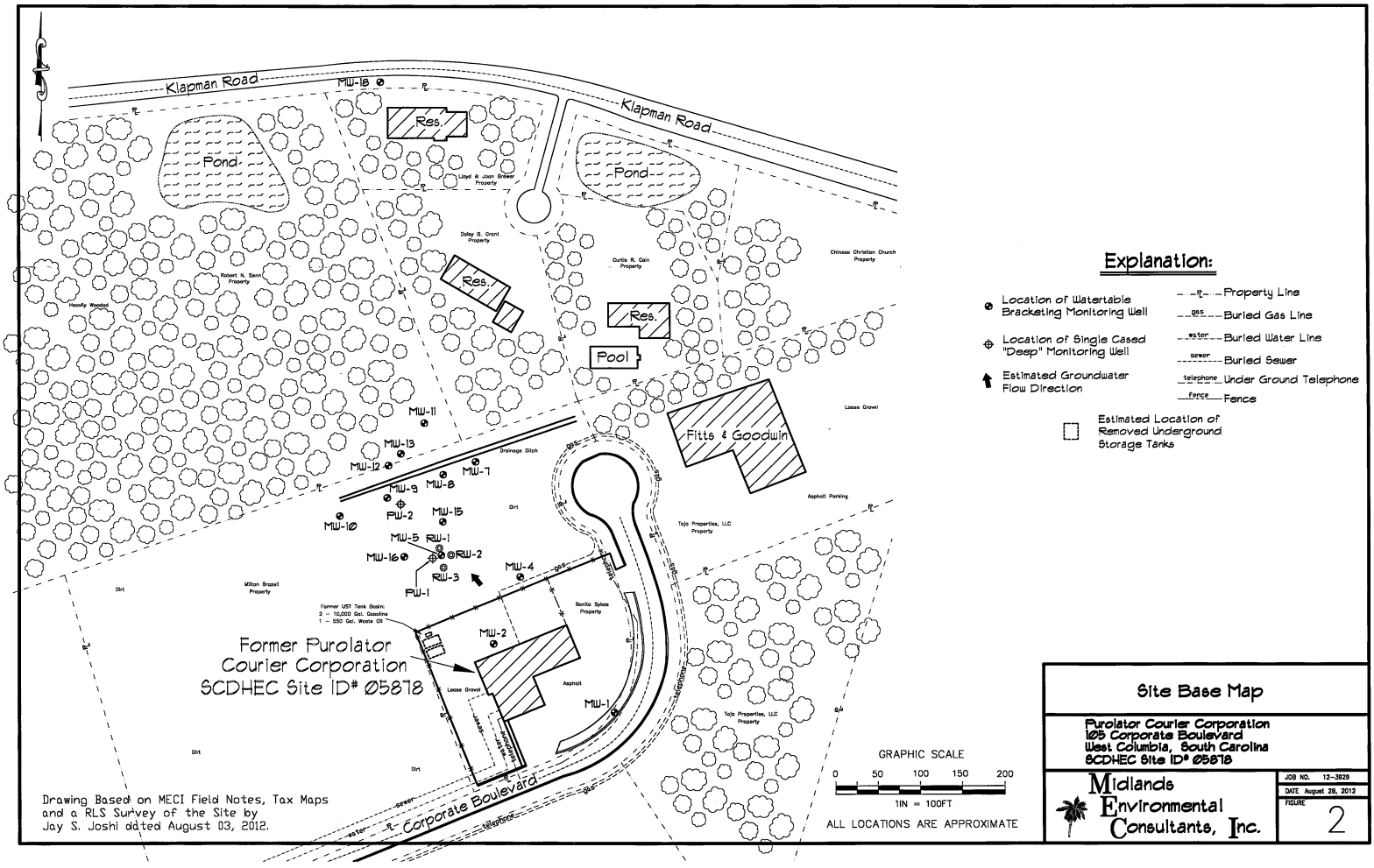
The laboratory participates in annual Proficiency Testing through an approved vendor, Wibby Environmental. If during a random audit, severe problems are found, work will be stopped by the according Wibby Environmental representative and the QA officer contacted to determine corrective action. Proficiency Testing results are provided to the Office of Environmental Laboratory Certification.

C2 Reports to Management

See the SC DHEC UST Programmatic QAPP (UST Master QAPP).

Section D Data Validation and Usability

See the SC DHEC UST Programmatic QAPP (UST Master QAPP).



Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated August 03, 2012.

Explanation:

- Location of Watertable Bracketing Monitoring Well
- Location of Single Cased "Deep" Monitoring Well
- Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Property Line
- Buried Gas Line
- Buried Water Line
- Buried Sewer
- Under Ground Telephone
- Fence

Site Base Map

Purolator Courier Corporation
1025 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 12-3029
DATE August 28, 2012
FIGURE 2

SHEALY

Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number

Client	Report to Contact	Sampler (Printed Name)	Quote No.
Address	Telephone No. / Fax No. / Email	Waybill No.	Page ___ of ___
City / State / Zip Code	Preservative: 1. Unpres. 4. HNO3 7. NaOH; 2. NaOH/ZnA 5. HCL; 3. H2SO4 6. Na Thio.		
Project Name			
Project Number	P.O Number		

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: GW	DW	WW	S	Other	Analysis	Number of Containers	Bottle (See Instructions on back)	Preservative	Lot No.	Remarks / Cooler ID

Turn Around Time Required (Prior lab approval required for expedited TA)
☐ Standard ☐ Rush (Please Specify)

Sample Disposal
☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification
☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison ☐Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler			1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory Received by		

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack
Receipt Temp. _____ °C
Temp. Blank ☐ Y / ☐ N

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071

MAY 13 2013

UST 15th DOCKETING

Re: **Notice to Proceed-Groundwater Sampling/QAPP Contractor Addendum Approval**
Groundwater Sampling Contract
Solicitation # IFB-5400002759, PO#4600088529
Purolator Courier Corp., 105 Corporate Blvd., West Columbia, SC
UST Permit # 05878; Midlands CA# 45696; Shealy CA# 45697
Lexington County

Dear Mr. Shane:

In accordance with bid solicitation # IFB-5400002759 and the UST Management Division Quality Assurance Program Plan (QAPP), the Site-Specific Contractor Addendum has been reviewed and approved. In accordance with the QAPP, a weekly status report of the project should be provided via e-mail. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. In addition, a discussion of the problem(s) encountered, including quality assurance problems, the actions taken, and the results must be included in the final report submitted to the UST Management Division.

MECI will perform services at the site on behalf of the site's responsible party (RP); however, payment will be made from the SUPERB Account. The site's RP has no obligation for payment for this scope of work. Please coordinate access to the facility with the property owner. The Agency grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included with the final report. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs. Please note, the final report is due within 3 weeks from the date the site is sampled. If the site is not sampled by the specified due date or the report is not received in the specified time period, a late fee may be imposed.

The final report should contain the requirements of Section III.2.15 of the bid solicitation. The final report should be submitted to Debra Thoma, the contract manager.

If you have any site-specific questions, please contact me at (803) 896-6323 or via e-mail at brineysm@dhec.sc.gov. If you have any contract specific questions, please contact Debra Thoma at (803) 896-6397 or via e-mail at thomadl@dhec.sc.gov.

Sincerely,

Stephanie Briney

Stephanie Briney, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land & Waste Management

enc: Approved QAPP Contractor Addendum Signature Page
Approved Cost Agreement

cc: Debra Thoma, Corrective Action Section, UST Management Division
Kelly Maberry, Shealy Environmental, 106 Vantage Point Dr., West Columbia, SC, 29172 (w/ approved CA)
Technical Files (w/ enc)

Approved Cost Agreement 45697

Facility: 05878 PUROLATOR COURIER CORP

BRINEYSM

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
11 ANALYSES						
	GW GROUNDWATER	A1	BTEXNM+OXYGS+1,2-DCA+ETH-8260B	22.0000	35.00	770.00
		F	EDB	22.0000	20.00	440.00
				Total Amount		1,210.00

Approved Cost Agreement 45696

Facility: 05878 PUROLATOR COURIER CORP
BRINEYSM
PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB						
		B	PERSONNEL	3.0000	100.00	300.00
10 SAMPLE COLLECTION						
		A	GROUND WATER	2.0000	4.50	9.00
		D	GROUNDWATER NO-PURGE	18.0000	4.50	81.00
		H	FIELD BLANK	1.0000	2.00	2.00
17 DISPOSAL						
		A	WASTEWATER	100.0000	0.10	10.00
18 MISCELLANEOUS						
			QAPP PREP	1.0000	0.00	0.00
25 WELL REPAIR						
		F	REPLACE WELL COVER BOLTS	9.0000	10.00	90.00
				Total Amount		492.00

Section A: Project Management

A1 Title and Approval Page

Quality Assurance Project Plan
Addendum to the SC DHEC UST Programmatic QAPP
For
Purolator Courier Corporation, SCDHEC Site ID# 05878

105 Corporate Boulevard, West Columbia, South Carolina

Prepared by:
Courtney M. Sanders
Staff Biologist
Midlands Environmental Consultants, Inc.
(Certified Site Rehabilitation Contractor UCC-0009)
235-B Dooley Road
Lexington, SC 29073
(803)808-2043

Date: April 22, 2013

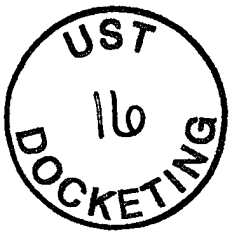
Approvals

Stephanie Briney SC DHEC Project Manager	Signature	Date 5/6/13
Courtney M. Sanders Contractor QA Manager	Signature	Date 4.23.13
Jeff L. Coleman Site Rehabilitation Contractor	Signature	Date 4/23/13
Daniel J. Wright Laboratory Director	Signature	Date 04/22/2013

Midlands Environmental Consultants, Inc.

June 13, 2013

Ms. Debra Thoma, Hydrogeologist
Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201



Subject: Report of Groundwater Sampling
Purolator Courier Corp
105 Corporate Blvd
West Columbia, South Carolina
SCDHEC Site ID Number 05878; CA # 45696
MECI Project Number 13-4423
Certified Site Rehabilitation Contractor UCC-0009

Dear Ms. Thoma,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Report of Groundwater Sampling for the referenced site. This report describes site activities conducted at the site in general accordance with South Carolina Department of Health and Environmental Control's (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP).

PROJECT INFORMATION

The subject site (Purolator Courier Corp.) is located at 105 Corporate Boulevard, West Columbia, Lexington County, South Carolina (see Figure 1). The subject site formerly maintained three underground storage tanks (UST's), including 1-500 gallon waste oil UST and 2-10,000 gallon gasoline UST's. These former UST's were abandoned by removal from ground in September of 1991. A release of petroleum product was reported in October of 1991 and confirmed in June of 1992.

The above information is based on reports and correspondence obtained from MECI field notes and SCDHEC files.

MONITORING WELL SAMPLING AND CHEMICAL ANALYSIS

On May 29, 2013, MECI personnel collected sixteen (16) monitoring well and three (3) recovery wells at the subject site. MECI personnel utilized an electronic water level indicator for water level measurements and an oil/water interface probe for free phase petroleum product level measurements.

Post Office Box 854, Lexington SC 29071 • 235-B Dooley Road, Lexington, SC 29073
Telephone: (803) 808-2043 • fax: (803) 808-2048

Based on a request by SCDHEC personnel, not all of the wells were to be purged prior to sampling. Eight (8) monitoring wells were purged prior to sample collection. Purging was completed by bailing at least five well volumes of water from the well, until pH, conductivity, dissolved oxygen stabilized to within 10%, or all water was evacuated from the well, whichever occurred first. Sampling/purging was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. A new set of nitrile gloves were worn at each monitoring well, and at all time samples were handled. Field measurements of pH, conductivity, dissolved oxygen, water temperature, and turbidity were obtained before well sampling process. MECI utilized YSI550A meter for DO (mg/L) and temperature readings (°C), YSI63 meters for pH and conductivity (uS) readings and a MicroTPI/TPW turbidimeter for turbidity readings (NTU). The attached Field Data Information Sheets presents the results of the field measurements obtained. The wells were sampled in accordance with SCDHEC's Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP, Dated June 2011) and MECI's Standard Operating Procedures (MECI SOP, Dated August, 2011).

Groundwater samples obtained were sent to Shealy Environmental Services, Inc. of West Columbia, SC (SCDHEC Laboratory Certification #32010) for analysis.

The following sampling matrix contains well development and requested analyses for each well:

Monitoring Well	Purge	No Purge	Product	Not Sampled	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	Sulfate (EPA Method 375.2)	Nitrate (EPA Method 335.2)	Methane (RSK Method)	PAH's (EPA Method 8270)	Ferrous Iron (Field Test)
					Analyte Sampled									
MW-1		X			X	X	X	X						
MW-2				X										
MW-4		X			X	X	X	X						
MW-5			X											
MW-7		X			X	X	X	X						
MW-8		X			X	X	X	X						
MW-9	X				X	X	X	X						
MW-10	X				X	X	X	X						
MW-11		X			X	X	X	X						
MW-12		X			X	X	X	X						
MW-13		X			X	X	X	X						
MW-15			X											
MW-16	X				X	X	X	X						
MW-18				X										
RW-1	X				X	X	X	X						
RW-2	X				X	X	X	X						
RW-3	X				X	X	X	X						
PW-1	X				X	X	X	X						
PW-2	X				X	X	X	X						
RW-2 Dup		X			X	X	X	X						

Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dicloroethane
PAH = polycyclic aromatic hydrocarbons
Trip Blank provided by Shealy Environmental, temperature obtained upon receipt at Laboratory

Monitoring Well	Purge	No Purge	Gauge Only	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	Sulfate (EPA Method 375.2)	Nitrate (EPA Method 335.2)	Methane (RSK Method)	PAH's (EPA Method 8270)	Ferrous Iron (Field Test)
					Analyte Sampled									
Field Blank		X			X	X	X	X						
Trip Blank		X			X		X	X						

Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dicloroethane
PAH = polycyclic aromatic hydrocarbons
Trip Blank provided by Shealy Environmental, temperature obtained upon receipt at Laboratory

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 85.0 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is attached at the end of this report.

Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.

Patrick G. Boylan
Staff Geologist

Courtney M. Sanders
Project Biologist

Attachments:

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?			X
3	Is name, address, & phone number of current property owner provided?			X
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			X
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?			X
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?			X
11	Has the site-specific geology and hydrogeology been described?			X
12	Has the primary soil type been described?			X
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			X
18	Has justification been provided for the locations of the monitoring wells?			X
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?			X
20	Has the groundwater sampling methodology been detailed? See MECI SOP	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	X		
22	Has the purging methodology been detailed? See MECI SOP	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? See attached Field Data Information Sheets	X		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	X		
25	Does the report include a brief discussion of the assessment done and the results?			X
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?			X
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)			X
34	Has the current and historical laboratory data been provided in tabular format?			X
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)			X
40	Has the site potentiometric map been provided? (Figure 5)			X
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			X
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? See attached	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			X
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	X		

Site Activity Summary

UST Permit #: 05878
Facility Name: Purolator Courier Corp
County: Lexington
Field Personnel: Chris Lashley

Midlands Environmental Consultants, Inc.
235-B Dooley Road, Lexington, SC 29073
(803) 808-2043 Fax: 808-2048

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	DO (mg/l)	# Gals. Purged	Comments
MW-1	Y	5/29/13	14:55	4-14	***	5.14	***	4.16	***	No Odor
MW-2	N	5/29/13	***	3-13	***	***	***	***	***	Behind Locked Gate
MW-4	Y	5/29/13	11:30	4-14	***	4.07	***	1.32	***	No Odor
MW-5	N	5/29/13	***	4-14	3.20	4.70	1.50	1.10	***	Product, Well Cap Added
MW-7	Y	5/29/13	14:06	4-14	***	4.32	***	1.72	***	No Odor
MW-8	Y	5/29/13	13:15	4-14	***	4.00	***	0.76	***	Odor
MW-9	Y	5/29/13	13:00	4-14	***	3.70	***	1.08	4.0	No Odor
MW-10	Y	5/29/13	12:25	4-14	***	2.90	***	***	1.5	No Odor
MW-11	Y	5/29/13	13:31	4-9	***	4.43	***	N/A	***	Obstructed @ 3.5', Used 1" Bailor, No Cup, No Odor
MW-12	Y	5/29/13	13:43	3.5-8.5	***	4.09	***	1.23	***	No Odor
MW-13	Y	5/29/13	13:52	3.5-8.5	***	4.12	***	1.48	***	No Odor
MW-15	N	5/29/13	***	3-13	2.98	3.40	0.42	***	***	Product
MW-16	Y	5/29/13	12:05	3-13	***	2.70	***	2.70	8.50	No Odor
MW-18	N	5/29/13	***	2-12	***	***	***	***	***	Not Located
RW-1	Y	5/29/13	9:47	5-15	***	2.89	***	0.89	24.0	4" Well, Odor
									38.0	**TOTAL GALLONS PURGED**

Site Activity Summary

UST Permit #: 05878
Facility Name: Purolator Courier Corp
County: Lexington
Field Personnel: Chris Lashley

Midlands Environmental Consultants, Inc.
235-B Dooley Road, Lexington, SC 29073
(803) 808-2043 fax: 808-2048

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	DO (mg/l)	# Gals. Purged	Comments
RW-2	Y	5/29/13	10:23	5-15	***	3.10	***	0.96	19.0	4" Well, Odor
RW-3	Y	5/29/13	0.47	5-15	***	2.70	***	0.78	24.0	4" Well, Odor
PW-1	Y	5/29/13	9:10	16-21	***	3.70	***	5.69	3.0	No Odor
PW-2	Y	5/29/13	12:47	21-26	***	5.20	***	1.15	1.0	No Odor
RW-2 Dup	Y	5/29/13	10:23	***	***	***	***	***	***	Duplicate Sample
Field Blank	Y	5/29/13	14:50	***	***	***	***	***	***	Field Blank
Trip Blank	Y	5/29/13	15:00	***	***	***	***	***	***	Trip Blank
									47.0	**TOTAL GALLONS PURGED**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 5/29/2013
Field Personnel: Chris Lashley
General Weather Conditions: Sunny

Ambient Air Temperature: 27.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302	X	04L 2026AK	X
10K 101895		08B 101895	
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolater Courier Corp
Site ID#: 05878 **Monitoring Well #** MW-9
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	3.70		feet
Total Well Depth (TWD)	14		feet
Length of the water column (LWC=TWD-DGW)		10.3	feet
1 casing volume (CV=LWC X C)= ____ X	0.163	1.68	gallons
5 casing volume (5 X CV)=	5	8.39	gallons

Total Volume of Water Purged Before Sampling 4 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:50	12:55	13:00					
pH (s.u.)	4.86	4.96	5.34					
Specific Conductivity (µmhos/cm)	76.3	78.2	63.3					
Water Temperature (°C)	19.9	20.4	20.1					
Dissolved Oxygen	0.76	1.78	1.38					
Turbidity (NTU)	87.10	888.3	1100+					
PID readings, if required								

Remarks: Sample Time: 13:00 **Dry @ 4.0 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 5/29/2013
Field Personnel: Chris Lashley
General Weather Conditions: Sunny

Ambient Air Temperature: 27.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302	X	04L 2026AK	X
10K 101895		08B 101895	
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolater Courier Corp
Site ID#: 05878 **Monitoring Well #** MW-10
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	2.90			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			11.1	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.81	gallons
5 casing volume (5 X CV)=		5	9.05	gallons

Total Volume of Water Purged Before Sampling 1.5 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:20	12:25						
pH (s.u.)	4.87	4.79						
Specific Conductivity (µmhos/cm)	33.5	38.4						
Water Temperature (°C)	19.5	19.9						
Dissolved Oxygen	1.08	2.24						
Turbidity (NTU)	54.21	914.3						
PID readings, if required								

Remarks: Sample Time: 12:25 **Dry @ 1.5 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 5/29/2013
Field Personnel: Chris Lashley
General Weather Conditions: Sunny

Ambient Air Temperature: 27.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302	X	04L 2026AK	X
10K 101895		08B 101895	
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolater Courier Corp
Site ID#: 05878 **Monitoring Well #** MW-16
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	2.70			feet
Total Well Depth (TWD)	13			feet
Length of the water column (LWC=TWD-DGW)			10.3	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.68	gallons
5 casing volume (5 X CV)=		5	8.39	gallons

Total Volume of Water Purged Before Sampling 8.5 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:40	11:45	11:50	11:55	12:00	12:05		
pH (s.u.)	4.92	5.14	5.32	5.53	5.55	5.6		
Specific Conductivity (µmhos/cm)	128.4	146.4	201.4	187.3	162.8	133.1		
Water Temperature (°C)	23.3	22.7	21.4	20.8	20.5	20.1		
Dissolved Oxygen	1.18	1.33	1.44	1.22	1.29	1.41		
Turbidity (NTU)	16.24	366.1	821.2	888.4	754.2	809.1		
PID readings, if required								

Remarks: Sample Time: 12:05

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 5/29/2013

Field Personnel: Chris Lashley

General Weather Conditions: Sunny

Ambient Air Temperature: 27.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302	X	04L 2026AK	X
10K 101895		08B 101895	
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolater Courier Corp

Site ID#: 05878 **Monitoring Well #** RW-1

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	2.89		feet
Total Well Depth (TWD)	15		feet
Length of the water column (LWC=TWD-DGW)		12.11	feet
1 casing volume (CV=LWC X C)= ____ X	0.66	7.99	gallons
5 casing volume (5 X CV)=	5	39.96	gallons

Total Volume of Water Purged Before Sampling 24 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	9:15	9:25	9:35	9:47				
pH (s.u.)	5.41	5.59	5.47	5.43				
Specific Conductivity (µmhos/cm)	66.4	58.3	43.2	38.9				
Water Temperature (°C)	20.4	20.5	20.3	20.2				
Dissolved Oxygen	0.89	2.15	2.21	2.35				
Turbidity (NTU)	52.28	154.8	209.3	196.4				
PID readings, if required								

Remarks: Sample Time: 9:47 **Dry @ 24 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 5/29/2013
Field Personnel: Chris Lashley
General Weather Conditions: Sunny

Ambient Air Temperature: 27.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302	X	04L 2026AK	X
10K 101895		08B 101895	
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolater Courier Corp
Site ID#: 05878 **Monitoring Well #** RW-2
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.10			feet
Total Well Depth (TWD)	15			feet
Length of the water column (LWC=TWD-DGW)			11.9	feet
1 casing volume (CV=LWC X C)= ____ X		0.66	7.85	gallons
5 casing volume (5 X CV)=		5	39.27	gallons

Total Volume of Water Purged Before Sampling 19 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	9:50	10:00	10:10	10:23				
pH (s.u.)	5.67	5.79	5.77	5.74				
Specific Conductivity (µmhos/cm)	68.8	60.8	58.2	57.3				
Water Temperature (°C)	20.4	20.2	19.6	19.1				
Dissolved Oxygen	0.96	3.12	4.57	3.76				
Turbidity (NTU)	29.17	216.4	293.2	961.6				
PID readings, if required								

Remarks: Sample Time: 10:23 **Dry @ 19 Gallons**
Duplicated

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 5/29/2013
Field Personnel: Chris Lashley
General Weather Conditions: Sunny

Ambient Air Temperature: 27.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302	X	04L 2026AK	X
10K 101895		08B 101895	
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolater Courier Corp
Site ID#: 05878 **Monitoring Well #** RW-3
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	2.70			feet
Total Well Depth (TWD)	15			feet
Length of the water column (LWC=TWD-DGW)			12.3	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	8.12	gallons
5 casing volume (5 X CV)=		5	40.59	gallons

Total Volume of Water Purged Before Sampling 24 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	10:30	10:45	11:00	11:20				
pH (s.u.)	5.47	5.79	5.77	5.74				
Specific Conductivity (µmhos/cm)	79.8	60.8	58.2	57.3				
Water Temperature (°C)	22.0	20.2	19.6	19.1				
Dissolved Oxygen	0.78	3.12	4.57	3.76				
Turbidity (NTU)	36.14	216.4	293.2	961.6				
PID readings, if required								

Remarks: Sample Time: 11:20 **Dry @ 24 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 5/29/2013
Field Personnel: Chris Lashley
General Weather Conditions: Sunny

Ambient Air Temperature: 27.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302	X	04L 2026AK	X
10K 101895		08B 101895	
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolater Courier Corp
Site ID#: 05878 **Monitoring Well #** PW-1
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	3.70		feet
Total Well Depth (TWD)	21		feet
Length of the water column (LWC=TWD-DGW)		17.3	feet
1 casing volume (CV=LWC X C)= ____ X	0.163	2.82	gallons
5 casing volume (5 X CV)=	5	14.10	gallons

Total Volume of Water Purged Before Sampling 3 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	9:00	9:10						
pH (s.u.)	4.93	4.71						
Specific Conductivity (µmhos/cm)	57.3	79.4						
Water Temperature (°C)	21.5	19.5						
Dissolved Oxygen	5.69	5.97						
Turbidity (NTU)	34.21	864.2						
PID readings, if required								

Remarks: Sample Time: 9:10 **Dry @ 3 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 5/29/2013
Field Personnel: Chris Lashley
General Weather Conditions: Sunny

Ambient Air Temperature: 27.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302	X	04L 2026AK	X
10K 101895		08B 101895	
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolater Courier Corp
Site ID#: 05878 **Monitoring Well #** PW-2
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

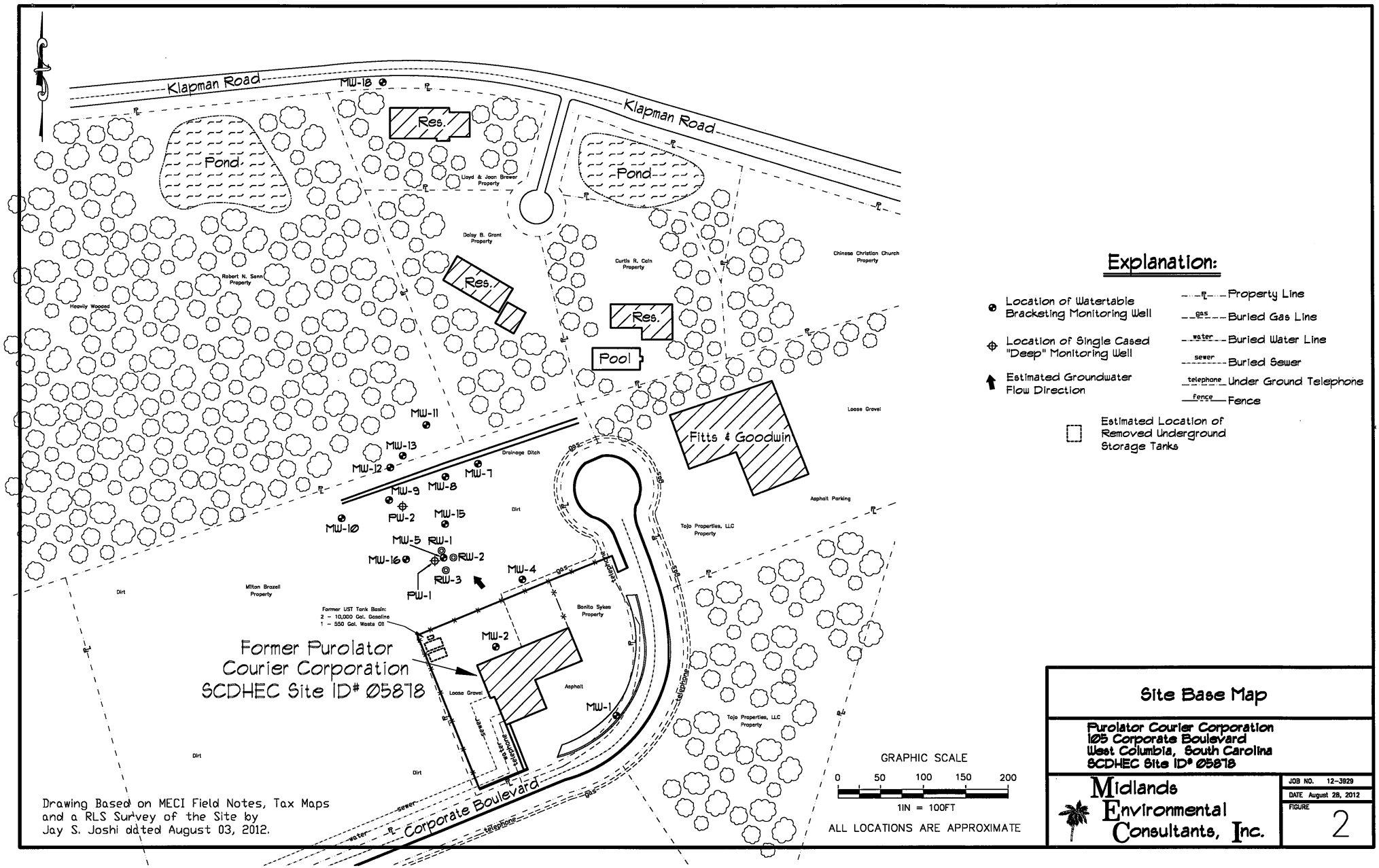
Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	5.20			feet
Total Well Depth (TWD)	26			feet
Length of the water column (LWC=TWD-DGW)			20.8	feet
1 casing volume (CV=LWC X C)=	____ X	0.163	3.39	gallons
5 casing volume (5 X CV)=		5	16.95	gallons

Total Volume of Water Purged Before Sampling 1 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:30	12:47						
pH (s.u.)	6.23	6.29						
Specific Conductivity (µmhos/cm)	146.7	150.4						
Water Temperature (°C)	20.7	19.6						
Dissolved Oxygen	1.15	2.41						
Turbidity (NTU)	54.21	864.2						
PID readings, if required								

Remarks: Sample Time: 12:47 **Dry @ 1 Gallons**



Site Base Map

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 12-3929
DATE August 28, 2012
FIGURE 2

Shealy Environmental Services, Inc.

106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Chain of Custody Record — **Number** 21166

Client: SCDHEC - UST	Report to Contact: D Thoma	Sampler (Printed Name): Chris Leshley	Quote No.
Address: 2600 Bull Street	Telephone No. / Fax No. / Email: 803-896-6240	Waybill No.	Page: 1 of 2
City: Columbia	State: SC	Zip Code: 29201	
Project Name: Purolator Courier Corp			
Project Number: 05878 / 45697	P.O Number: 4600088529		

Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: GW	DW	WW	S	Other	Analysis: Btex Naph MTBE	1,2 DCA	8 Oxygenates	EDB	Number of Containers	Bottle (See Instructions on back)	Preservative	Lot No.	Remarks / Cooler ID
													3	A	5		
MW 1	5/29	1455	G	X					X	X	X	X					No odor
MW 2 (No Sample)		—							—	—	—	—					No Access
MW 4		1130							X	X	X	X					No odor
MW 5 (No Sample)		—							—	—	—	—					Product
MW 7		1406							X	X	X	X					No odor
MW 8		1315															odor
MW 9		1300															No odor
MW 10		1225															No odor
MW 11		1331															No odor
MW 12	5/29	1343	G	X					X	X	X	X					No odor

Turn Around Time Required (Prior lab approval required for expedited TAT): ☐ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification: ☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison ☐Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: Chris Leshley	5/29/13	1600	1. Received by	5.29.13	1600
2. Relinquished by	5.30.13	1715	2. Received by	5.30.13	1715
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory Received by		

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack — Receipt Temp. _____ °C — Temp. Blank ☐ Y / ☐ N

Shealy Environmental Services, Inc.

106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY **Chain of Custody Record** **Number 21167**

Client	Report to Contact	Sampler (Printed Name)	Quote No.
SCDHEC - UST	D Thoma	Chris Lashley	
Address	**Telephone No. / Fax No. / Email**	**Waybill No.**	**Page**
2600 Bull Street	803 896 6240		2 of 3
City / State / Zip Code	**Preservative**		**Number of Containers**
Columbia SC 29201	1. Unpres. 4. HNO3 7. NaOH		**Bottle (See Instructions on back)**
Project Name	2. NaOH/ZnA 5. HCL		**Preservative**
Purolator Courier Corp	3. H2SO4 6. Na Thio.		**Lot No.**

Project Number	P.O Number
05578 / 45697	4600089529

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: GW	DW	WW	S	Other	Analysis: Rsol. Naph. matrix	1,2 DCA	E. Chlorinated	EDB	Remarks / Cooler ID
MW-13	5/29	1352	G	X					X	X	X	X	No odor
MW-15 (No Sample)		—							—	—	—	—	Product
MW 16		1205	G	X					X	X	X	X	No odor
MW-18 (No Sample)		—	—	-					—	—	-	-	Not Located
RW-1		947	G	X					X	X	X	X	odor
RW 2		1023											odor
RW 3		1120											odor
PW-1		910											No odor
PW-2		1247											No odor
RW-2 Duplicate	5/29	1023	G	X					X	X	X	X	odor

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	QC Requirements (Specify)	Possible Hazard Identification
☐ Standard ☐ Rush (Please Specify)	☐ Return to Client ☐ Disposal by Lab		☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison ☐Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: Chris Lashley	5/29/13	1600	1. Received by:	5.29.13	1600
2. Relinquished by	5.30.13	1415	2. Received by	5.30.13	1415
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by	Date	Time	4. Laboratory Received by	Date	Time

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack | Receipt Temp. _____ °C | Temp. Blank ☐ Y / ☐ N

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY **Chain of Custody Record**

Number 21168

Client: SCDHEC UST	Report to Contact: D. Thoma	Sampler (Printed Name): Chris Lashley	Quote No.
Address: 2600 Bull Street	Telephone No. / Fax No. / Email: 803-896-6240	Waybill No.	Page 3 of 3
City: Columbia; State: SC; Zip Code: 29201	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		
Project Name: Purolator Courier Corp			
Project Number: 05879 / 45697	P.O Number: 4600088529		

Number of Containers: 3 | 3
Bottle (See Instructions on back): A | A
Preservative: 5 | 5
Lot No.:

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: GW	DW	WW	S	Other	Analysis	Btex. Naphtha MtBC	1,2 DCA	8 oxygenate	EDB	Remarks / Cooler ID
Field Blank	5/29	1450	G	X						X	X	X	X	
Trip Blank	5/29	1500	G	X						X	X	X		

Turn Around Time Required (Prior lab approval required for expedited TAT): ☐ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification: ☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison ☐Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: Chris Lashley	5/29/13	1600	1. Received by	5.29.13	1600
2. Relinquished by	5.30.13	1405	2. Received by	5.30.13	1405
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory Received by		

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack
Receipt Temp. _____ °C
Temp. Blank ☐ Y / ☐ N

June 13, 2013

Midlands Environmental Consultants, Inc.

Re: Treatment of Purge Water
Purolator Courier Corp
West Columbia, South Carolina
SCDHEC Site ID Number 05878
MECI Project Number 13-4423

To Whom It May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

All purge waters were treated on-site using an up-flow treatment drum loaded with 30 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

Post Office Box 854, Lexington SC 29071 • 235-B Dooley Road, Lexington, SC 29073
Telephone: (803) 808-2043 • fax: (803) 808-2048

A total of 85.0 gallons were treated on May 29, 2013 at the referenced site.

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.

Patrick G Boylan
Staff Geologist

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

SC DHEC - UST Management
2600 Bull Street
Columbia, SC 29201
Attention: Debra Thoma

Project Name: **Purolator Courier Corp**

Project Number: **UST Permit #05878/CA #45697**

Lot Number: **OE30027**

Date Completed: **06/12/2013**

Kelly M. Maberry
Project Manager

ACCREDITED IN ACCORDANCE WITH NELAC

This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

Case Narrative
SC DHEC - UST Management
Lot Number: OE30027

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Sample Receiving
Samples -001 through -005, -007 through -011 and -014 through -017 for volatiles analysis contained vials with air bubbles greater than ¼" or 6mm in diameter. The laboratory uses these vials for screening and the vials without bubbles for analysis whenever possible. Condition of samples is documented on the Sample Receipt Checklist (SRC).

Volatiles
The LCS/LCSD associated with batch 22250 had tert-butyl formate recovered above the acceptance limits. This demonstrates a high bias on analytical results. There were no detections for this compound in the samples associated with this batch; therefore, data quality is not impacted.

EDB
Samples -006 and -015 had sediment in the vials that altered the sample volume.

Sample Summary
SC DHEC - UST Management
Lot Number: OE30027

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-1	Aqueous	05/29/2013 1455	05/30/2013
002	MW-4	Aqueous	05/29/2013 1130	05/30/2013
003	MW-7	Aqueous	05/29/2013 1406	05/30/2013
004	MW-8	Aqueous	05/29/2013 1315	05/30/2013
005	MW-9	Aqueous	05/29/2013 1300	05/30/2013
006	MW-10	Aqueous	05/29/2013 1225	05/30/2013
007	MW-11	Aqueous	05/29/2013 1331	05/30/2013
008	MW-12	Aqueous	05/29/2013 1343	05/30/2013
009	MW-13	Aqueous	05/29/2013 1352	05/30/2013
010	MW-16	Aqueous	05/29/2013 1205	05/30/2013
011	RW-1	Aqueous	05/29/2013 0947	05/30/2013
012	RW-2	Aqueous	05/29/2013 1023	05/30/2013
013	RW-3	Aqueous	05/29/2013 1120	05/30/2013
014	PW-1	Aqueous	05/29/2013 0910	05/30/2013
015	PW-2	Aqueous	05/29/2013 1247	05/30/2013
016	RW-2 Duplicate	Aqueous	05/29/2013 1023	05/30/2013
017	Field Blank	Aqueous	05/29/2013 1450	05/30/2013
018	Trip Blank	Aqueous	05/29/2013 1500	05/30/2013

(18 samples)

Executive Summary
SC DHEC - UST Management
Lot Number: OE30027

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	MW-4	Aqueous	Toluene	8260B	120		ug/L	7
004	MW-8	Aqueous	tert-Amyl alcohol (TAA)	8260B	510	J	ug/L	9
004	MW-8	Aqueous	Benzene	8260B	220		ug/L	9
004	MW-8	Aqueous	1,2-Dichloroethane	8260B	6.1	J	ug/L	9
004	MW-8	Aqueous	Ethylbenzene	8260B	55	J	ug/L	9
004	MW-8	Aqueous	Naphthalene	8260B	72	J	ug/L	9
004	MW-8	Aqueous	Toluene	8260B	1700		ug/L	9
004	MW-8	Aqueous	Xylenes (total)	8260B	6000		ug/L	9
007	MW-11	Aqueous	tert-Amyl alcohol (TAA)	8260B	14	J	ug/L	12
007	MW-11	Aqueous	Benzene	8260B	15		ug/L	12
007	MW-11	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	1.3	J	ug/L	12
007	MW-11	Aqueous	Xylenes (total)	8260B	3.8	J	ug/L	12
008	MW-12	Aqueous	tert-Amyl alcohol (TAA)	8260B	32	J	ug/L	13
008	MW-12	Aqueous	Benzene	8260B	68		ug/L	13
008	MW-12	Aqueous	Diisopropyl ether (IPE)	8260B	1.1	J	ug/L	13
008	MW-12	Aqueous	Ethylbenzene	8260B	6.6		ug/L	13
008	MW-12	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	7.3		ug/L	13
008	MW-12	Aqueous	Toluene	8260B	2.3	J	ug/L	13
008	MW-12	Aqueous	Xylenes (total)	8260B	15		ug/L	13
010	MW-16	Aqueous	tert-Amyl alcohol (TAA)	8260B	38	J	ug/L	15
010	MW-16	Aqueous	Benzene	8260B	75		ug/L	15
010	MW-16	Aqueous	1,2-Dichloroethane	8260B	1.6	J	ug/L	15
010	MW-16	Aqueous	Diisopropyl ether (IPE)	8260B	0.77	J	ug/L	15
010	MW-16	Aqueous	Ethylbenzene	8260B	22		ug/L	15
010	MW-16	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	3.2	J	ug/L	15
010	MW-16	Aqueous	Naphthalene	8260B	26		ug/L	15
010	MW-16	Aqueous	Toluene	8260B	3.0	J	ug/L	15
010	MW-16	Aqueous	Xylenes (total)	8260B	22		ug/L	15
011	RW-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	2000		ug/L	16
011	RW-1	Aqueous	Benzene	8260B	1800		ug/L	16
011	RW-1	Aqueous	1,2-Dichloroethane	8260B	42	J	ug/L	16
011	RW-1	Aqueous	Diisopropyl ether (IPE)	8260B	12	J	ug/L	16
011	RW-1	Aqueous	Ethylbenzene	8260B	500		ug/L	16
011	RW-1	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	160		ug/L	16
011	RW-1	Aqueous	Naphthalene	8260B	150		ug/L	16
011	RW-1	Aqueous	Toluene	8260B	4800		ug/L	16
011	RW-1	Aqueous	Xylenes (total)	8260B	2600		ug/L	16
011	RW-1	Aqueous	1,2-Dibromoethane (EDB)	8011	5.3		ug/L	16
012	RW-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	240	J	ug/L	17
012	RW-2	Aqueous	Benzene	8260B	290		ug/L	17
012	RW-2	Aqueous	1,2-Dichloroethane	8260B	6.2	J	ug/L	17
012	RW-2	Aqueous	Ethylbenzene	8260B	130		ug/L	17
012	RW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	22	J	ug/L	17
012	RW-2	Aqueous	Naphthalene	8260B	46		ug/L	17
012	RW-2	Aqueous	Toluene	8260B	810		ug/L	17

Executive Summary (Continued)

Lot Number: OE30027

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
012	RW-2	Aqueous	Xylenes (total)	8260B	580		ug/L	17
012	RW-2	Aqueous	1,2-Dibromoethane (EDB)	8011	0.23		ug/L	17
013	RW-3	Aqueous	tert-Amyl alcohol (TAA)	8260B	1300	J	ug/L	18
013	RW-3	Aqueous	Benzene	8260B	1900		ug/L	18
013	RW-3	Aqueous	1,2-Dichloroethane	8260B	41	J	ug/L	18
013	RW-3	Aqueous	Ethylbenzene	8260B	400		ug/L	18
013	RW-3	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	74	J	ug/L	18
013	RW-3	Aqueous	Naphthalene	8260B	120	J	ug/L	18
013	RW-3	Aqueous	Toluene	8260B	5400		ug/L	18
013	RW-3	Aqueous	Xylenes (total)	8260B	2200		ug/L	18
013	RW-3	Aqueous	1,2-Dibromoethane (EDB)	8011	4.4		ug/L	18
014	PW-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	34	J	ug/L	19
014	PW-1	Aqueous	Benzene	8260B	2.0	J	ug/L	19
014	PW-1	Aqueous	Diisopropyl ether (IPE)	8260B	0.44	J	ug/L	19
014	PW-1	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	3.8	J	ug/L	19
014	PW-1	Aqueous	Toluene	8260B	5.4		ug/L	19
014	PW-1	Aqueous	Xylenes (total)	8260B	8.7		ug/L	19
014	PW-1	Aqueous	1,2-Dibromoethane (EDB)	8011	0.075		ug/L	19
015	PW-2	Aqueous	Benzene	8260B	1.3	J	ug/L	20
015	PW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	30		ug/L	20
016	RW-2 Duplicate	Aqueous	tert-Amyl alcohol (TAA)	8260B	170	J	ug/L	21
016	RW-2 Duplicate	Aqueous	Benzene	8260B	210		ug/L	21
016	RW-2 Duplicate	Aqueous	1,2-Dichloroethane	8260B	4.6	J	ug/L	21
016	RW-2 Duplicate	Aqueous	Ethylbenzene	8260B	96		ug/L	21
016	RW-2 Duplicate	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	17	J	ug/L	21
016	RW-2 Duplicate	Aqueous	Naphthalene	8260B	34		ug/L	21
016	RW-2 Duplicate	Aqueous	Toluene	8260B	580		ug/L	21
016	RW-2 Duplicate	Aqueous	Xylenes (total)	8260B	430		ug/L	21
016	RW-2 Duplicate	Aqueous	1,2-Dibromoethane (EDB)	8011	0.25		ug/L	21

(74 detections)

Client: **SC DHEC - UST Management**
Description: **MW-1**
Date Sampled: **05/29/2013 1455**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-001**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 1439	JAC		22250

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND	L	100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	70-130
Bromofluorobenzene		103	70-130
Toluene-d8		105	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0221	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		123	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management**
Description: **MW-4**
Date Sampled: **05/29/2013 1130**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-002**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 1455	JAC		22252

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	**108-88-3**	**8260B**	**120**		**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		106	70-130
Bromofluorobenzene		109	70-130
Toluene-d8		122	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0243	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		130	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management**
Description: **MW-7**
Date Sampled: **05/29/2013 1406**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-003**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 1525	JAC		22250

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND	L	100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		93	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0304	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		137	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management**
Description: **MW-8**
Date Sampled: **05/29/2013 1315**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-004**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	20	06/07/2013 0225	AWM		22263

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**510**	**J**	**2000**	**130**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		200	4.0	ug/L	1
Benzene	**71-43-2**	**8260B**	**220**		**100**	**4.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		2000	20	ug/L	1
1,2-Dichloroethane	**107-06-2**	**8260B**	**6.1**	**J**	**100**	**6.0**	**ug/L**	**1**
Diisopropyl ether (IPE)	108-20-3	8260B	ND		200	8.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		2000	20	ug/L	1
Ethanol	64-17-5	8260B	ND		20000	660	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**55**	**J**	**100**	**34**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		2000	4.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		100	8.0	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**72**	**J**	**100**	**34**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		2000	130	ug/L	1
Toluene	**108-88-3**	**8260B**	**1700**		**100**	**34**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**6000**		**100**	**34**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		86	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		106	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0326	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		113	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management** Laboratory ID: **OE30027-005**

Description: **MW-9** Matrix: **Aqueous**

Date Sampled: **05/29/2013 1300**

Date Received: **05/30/2013**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 1608	JAC		22250

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND	L	100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		95	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		106	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0348	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		114	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management** | Laboratory ID: **OE30027-006**
Description: **MW-10** | Matrix: **Aqueous**
Date Sampled: **05/29/2013 1225**
Date Received: **05/30/2013**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 1540	JAC		22252

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		105	70-130
Bromofluorobenzene		107	70-130
Toluene-d8		118	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0410	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.021	0.021	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		116	57-137

PQL = Practical quantitation limit | B = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | H = Out of holding time | Q = Surrogate failure
ND = Not detected at or above the MDL | J = Estimated result < PQL and ≥ MDL | P = The RPD between two GC columns exceeds 40% | N = Recovery is out of criteria | L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" | S = MS/MSD failure

Client: **SC DHEC - UST Management**
Description: **MW-11**
Date Sampled: **05/29/2013 1331**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-007**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 2105	AWM		22263

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**14**	**J**	**100**	**6.7**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	**71-43-2**	**8260B**	**15**		**5.0**	**0.20**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**1.3**	**J**	**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	**1330-20-7**	**8260B**	**3.8**	**J**	**5.0**	**1.7**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		86	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		102	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0432	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		129	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management**
Description: **MW-12**
Date Sampled: **05/29/2013 1343**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-008**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 2128	AWM		22263

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**32**	**J**	**100**	**6.7**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	**71-43-2**	**8260B**	**68**		**5.0**	**0.20**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**1.1**	**J**	**10**	**0.40**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**6.6**		**5.0**	**1.7**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**7.3**		**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	**108-88-3**	**8260B**	**2.3**	**J**	**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**15**		**5.0**	**1.7**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		83	70-130
Bromofluorobenzene		94	70-130
Toluene-d8		101	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0453	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		118	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management**
Description: **MW-13**
Date Sampled: **05/29/2013 1352**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-009**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 2150	AWM		22263

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		77	70-130
Bromofluorobenzene		86	70-130
Toluene-d8		96	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0515	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		133	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management** | Laboratory ID: **OE30027-010**
Description: **MW-16** | Matrix: **Aqueous**
Date Sampled: **05/29/2013 1205**
Date Received: **05/30/2013**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 2213	AWM		22263

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**38**	**J**	**100**	**6.7**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	**71-43-2**	**8260B**	**75**		**5.0**	**0.20**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	**107-06-2**	**8260B**	**1.6**	**J**	**5.0**	**0.30**	**ug/L**	**1**
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**0.77**	**J**	**10**	**0.40**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**22**		**5.0**	**1.7**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**3.2**	**J**	**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**26**		**5.0**	**1.7**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	**108-88-3**	**8260B**	**3.0**	**J**	**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**22**		**5.0**	**1.7**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		82	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		100	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0621	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		123	57-137

PQL = Practical quantitation limit | B = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | H = Out of holding time | Q = Surrogate failure
ND = Not detected at or above the MDL | J = Estimated result < PQL and ≥ MDL | P = The RPD between two GC columns exceeds 40% | N = Recovery is out of criteria | L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" | S = MS/MSD failure

Client: **SC DHEC - UST Management**
Description: **RW-1**
Date Sampled: **05/29/2013 0947**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-011**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	20	06/07/2013 0248	AWM		22263
2	5030B	8260B	50	06/08/2013 2345	RGB		22379

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**2000**		**2000**	**130**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		200	4.0	ug/L	1
Benzene	**71-43-2**	**8260B**	**1800**		**100**	**4.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		2000	20	ug/L	1
1,2-Dichloroethane	**107-06-2**	**8260B**	**42**	**J**	**100**	**6.0**	**ug/L**	**1**
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**12**	**J**	**200**	**8.0**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		2000	20	ug/L	1
Ethanol	64-17-5	8260B	ND		20000	660	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**500**		**100**	**34**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		2000	4.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**160**		**100**	**8.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**150**		**100**	**34**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		2000	130	ug/L	1
Toluene	**108-88-3**	**8260B**	**4800**		**250**	**85**	**ug/L**	**2**
Xylenes (total)	**1330-20-7**	**8260B**	**2600**		**100**	**34**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		79	70-130		116	70-130
Bromofluorobenzene		90	70-130		119	70-130
Toluene-d8		98	70-130		116	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	10	06/06/2013 1238	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**5.3**		**0.20**	**0.20**	**ug/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		127	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management**
Description: **RW-2**
Date Sampled: **05/29/2013 1023**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-012**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	06/07/2013 0310	AWM		22263

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**240**	**J**	**500**	**34**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	1.0	ug/L	1
Benzene	**71-43-2**	**8260B**	**290**		**25**	**1.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	5.0	ug/L	1
1,2-Dichloroethane	**107-06-2**	**8260B**	**6.2**	**J**	**25**	**1.5**	**ug/L**	**1**
Diisopropyl ether (IPE)	108-20-3	8260B	ND		50	2.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		500	5.0	ug/L	1
Ethanol	64-17-5	8260B	ND		5000	170	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**130**		**25**	**8.5**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		500	1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**22**	**J**	**25**	**2.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**46**		**25**	**8.5**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		500	34	ug/L	1
Toluene	**108-88-3**	**8260B**	**810**		**25**	**8.5**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**580**		**25**	**8.5**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		81	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		100	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0704	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**0.23**		**0.020**	**0.020**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		131	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management**
Description: **RW-3**
Date Sampled: **05/29/2013 1120**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-013**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	50	06/07/2013 0441	AWM		22263

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**1300**	**J**	**5000**	**340**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		500	10	ug/L	1
Benzene	**71-43-2**	**8260B**	**1900**		**250**	**10**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5000	50	ug/L	1
1,2-Dichloroethane	**107-06-2**	**8260B**	**41**	**J**	**250**	**15**	**ug/L**	**1**
Diisopropyl ether (IPE)	108-20-3	8260B	ND		500	20	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		5000	50	ug/L	1
Ethanol	64-17-5	8260B	ND		50000	1700	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**400**		**250**	**85**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		5000	10	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**74**	**J**	**250**	**20**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**120**	**J**	**250**	**85**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		5000	340	ug/L	1
Toluene	**108-88-3**	**8260B**	**5400**		**250**	**85**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**2200**		**250**	**85**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		79	70-130
Bromofluorobenzene		91	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	10	06/06/2013 1300	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**4.4**		**0.19**	**0.19**	**ug/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		123	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management**
Description: **PW-1**
Date Sampled: **05/29/2013 0910**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-014**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 2236	AWM		22263

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**34**	**J**	**100**	**6.7**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	**71-43-2**	**8260B**	**2.0**	**J**	**5.0**	**0.20**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**0.44**	**J**	**10**	**0.40**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**3.8**	**J**	**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	**108-88-3**	**8260B**	**5.4**		**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**8.7**		**5.0**	**1.7**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		83	70-130
Bromofluorobenzene		93	70-130
Toluene-d8		100	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0812	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**0.075**		**0.020**	**0.020**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		134	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management**
Description: **PW-2**
Date Sampled: **05/29/2013 1247**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-015**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	06/06/2013 2303	AWM		22263

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	**71-43-2**	**8260B**	**1.3**	**J**	**5.0**	**0.20**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**30**		**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0834	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.021	0.021	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		111	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management**
Description: **RW-2 Duplicate**
Date Sampled: **05/29/2013 1023**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-016**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	06/07/2013 0355	AWM		22263

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**170**	**J**	**500**	**34**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	1.0	ug/L	1
Benzene	**71-43-2**	**8260B**	**210**		**25**	**1.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	5.0	ug/L	1
1,2-Dichloroethane	**107-06-2**	**8260B**	**4.6**	**J**	**25**	**1.5**	**ug/L**	**1**
Diisopropyl ether (IPE)	108-20-3	8260B	ND		50	2.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		500	5.0	ug/L	1
Ethanol	64-17-5	8260B	ND		5000	170	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**96**		**25**	**8.5**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		500	1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**17**	**J**	**25**	**2.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**34**		**25**	**8.5**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		500	34	ug/L	1
Toluene	**108-88-3**	**8260B**	**580**		**25**	**8.5**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**430**		**25**	**8.5**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		86	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		105	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	1	06/06/2013 1322	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**0.25**		**0.019**	**0.019**	**ug/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		135	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **SC DHEC - UST Management** | Laboratory ID: **OE30027-017**
Description: **Field Blank** | Matrix: **Aqueous**
Date Sampled: **05/29/2013 1450**
Date Received: **05/30/2013**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	1	06/10/2013 2300	AWM		22496

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	2
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	2
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	2
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	2
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	2
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	2
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	2
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	2
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	2
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	2
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	2
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	2
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	2
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		101	70-130
Toluene-d8		106	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	06/06/2013 0917	AMY	05/31/2013 1002	21643

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		124	57-137

PQL = Practical quantitation limit | B = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | H = Out of holding time | Q = Surrogate failure
ND = Not detected at or above the MDL | J = Estimated result < PQL and ≥ MDL | P = The RPD between two GC columns exceeds 40% | N = Recovery is out of criteria | L = LCS/LCSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W" | S = MS/MSD failure

Client: **SC DHEC - UST Management**
Description: **Trip Blank**
Date Sampled: **05/29/2013 1500**
Date Received: **05/30/2013**

Laboratory ID: **OE30027-018**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	1	06/10/2013 2323	AWM		22496

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	2
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	2
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	2
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	2
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	2
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	2
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	2
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	2
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	2
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	2
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	2
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	2
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	2
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		101	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: OQ22250-001
Batch: 22250
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	06/06/2013 1328
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	06/06/2013 1328
Benzene	ND		1	5.0	0.20	ug/L	06/06/2013 1328
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	06/06/2013 1328
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	06/06/2013 1328
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	06/06/2013 1328
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	06/06/2013 1328
Ethanol	ND		1	1000	33	ug/L	06/06/2013 1328
Ethylbenzene	ND		1	5.0	1.7	ug/L	06/06/2013 1328
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	06/06/2013 1328
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	06/06/2013 1328
Naphthalene	ND		1	5.0	1.7	ug/L	06/06/2013 1328
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	06/06/2013 1328
Toluene	ND		1	5.0	1.7	ug/L	06/06/2013 1328
Xylenes (total)	ND		1	5.0	1.7	ug/L	06/06/2013 1328

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		111	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ22250-002
Batch: 22250
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	1000		1	105	70-130	06/06/2013 1012
tert-Amyl methyl ether (TAME)	50	57		1	114	70-130	06/06/2013 1012
Benzene	50	57		1	115	70-130	06/06/2013 1012
tert-Butyl formate (TBF)	250	340	N	1	138	70-130	06/06/2013 1012
1,2-Dichloroethane	50	54		1	108	70-130	06/06/2013 1012
Diisopropyl ether (IPE)	50	56		1	112	70-130	06/06/2013 1012
3,3-Dimethyl-1-butanol	1000	1100		1	109	70-130	06/06/2013 1012
Ethanol	5000	5700		1	113	70-130	06/06/2013 1012
Ethylbenzene	50	56		1	112	70-130	06/06/2013 1012
Ethyl-tert-butyl ether (ETBE)	50	62		1	124	70-130	06/06/2013 1012
Methyl tertiary butyl ether (MTBE)	50	59		1	119	70-130	06/06/2013 1012

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ22250-002
Batch: 22250
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Naphthalene	50	53		1	107	70-130	06/06/2013 1012
tert-butyl alcohol (TBA)	1000	1000		1	101	70-130	06/06/2013 1012
Toluene	50	57		1	115	70-130	06/06/2013 1012
Xylenes (total)	100	110		1	112	70-130	06/06/2013 1012

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		106	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: OQ22250-003
Batch: 22250
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	1000		1	105	0.051	70-130	20	06/06/2013 1104
tert-Amyl methyl ether (TAME)	50	59		1	118	3.3	70-130	20	06/06/2013 1104
Benzene	50	57		1	113	1.3	70-130	20	06/06/2013 1104
tert-Butyl formate (TBF)	250	330	N	1	133	3.2	70-130	20	06/06/2013 1104
1,2-Dichloroethane	50	54		1	108	0.46	70-130	20	06/06/2013 1104
Diisopropyl ether (IPE)	50	56		1	112	0.71	70-130	20	06/06/2013 1104
3,3-Dimethyl-1-butanol	1000	1100		1	109	0.37	70-130	20	06/06/2013 1104
Ethanol	5000	5700		1	113	0.30	70-130	20	06/06/2013 1104
Ethylbenzene	50	55		1	110	1.9	70-130	20	06/06/2013 1104
Ethyl-tert-butyl ether (ETBE)	50	62		1	123	0.49	70-130	20	06/06/2013 1104
Methyl tertiary butyl ether (MTBE)	50	58		1	116	2.3	70-130	20	06/06/2013 1104
Naphthalene	50	54		1	108	1.8	70-130	20	06/06/2013 1104
tert-butyl alcohol (TBA)	1000	1000		1	100	0.31	70-130	20	06/06/2013 1104
Toluene	50	57		1	113	1.2	70-130	20	06/06/2013 1104
Xylenes (total)	100	110		1	112	0.15	70-130	20	06/06/2013 1104

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: OQ22252-001
Batch: 22252
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	06/06/2013 1343
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	06/06/2013 1343
Benzene	ND		1	5.0	0.20	ug/L	06/06/2013 1343
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	06/06/2013 1343
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	06/06/2013 1343
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	06/06/2013 1343
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	06/06/2013 1343
Ethanol	ND		1	1000	33	ug/L	06/06/2013 1343
Ethylbenzene	ND		1	5.0	1.7	ug/L	06/06/2013 1343
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	06/06/2013 1343
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	06/06/2013 1343
Naphthalene	ND		1	5.0	1.7	ug/L	06/06/2013 1343
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	06/06/2013 1343
Toluene	ND		1	5.0	1.7	ug/L	06/06/2013 1343
Xylenes (total)	ND		1	5.0	1.7	ug/L	06/06/2013 1343

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		109	70-130
1,2-Dichloroethane-d4		106	70-130
Toluene-d8		118	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ22252-002
Batch: 22252
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	950		1	95	70-130	06/06/2013 1027
tert-Amyl methyl ether (TAME)	50	52		1	104	70-130	06/06/2013 1027
Benzene	50	53		1	107	70-130	06/06/2013 1027
tert-Butyl formate (TBF)	250	310		1	124	70-130	06/06/2013 1027
1,2-Dichloroethane	50	52		1	104	70-130	06/06/2013 1027
Diisopropyl ether (IPE)	50	52		1	104	70-130	06/06/2013 1027
3,3-Dimethyl-1-butanol	1000	890		1	89	70-130	06/06/2013 1027
Ethanol	5000	4400		1	88	70-130	06/06/2013 1027
Ethylbenzene	50	53		1	106	70-130	06/06/2013 1027
Ethyl-tert-butyl ether (ETBE)	50	56		1	112	70-130	06/06/2013 1027
Methyl tertiary butyl ether (MTBE)	50	54		1	108	70-130	06/06/2013 1027

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ22252-002
Batch: 22252
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Naphthalene	50	43		1	86	70-130	06/06/2013 1027
tert-butyl alcohol (TBA)	1000	880		1	88	70-130	06/06/2013 1027
Toluene	50	56		1	112	70-130	06/06/2013 1027
Xylenes (total)	100	110		1	107	70-130	06/06/2013 1027

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		110	70-130
1,2-Dichloroethane-d4		98	70-130
Toluene-d8		114	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: OQ22252-003
Batch: 22252
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	910		1	91	3.9	70-130	20	06/06/2013 1120
tert-Amyl methyl ether (TAME)	50	53		1	107	2.4	70-130	20	06/06/2013 1120
Benzene	50	53		1	106	0.58	70-130	20	06/06/2013 1120
tert-Butyl formate (TBF)	250	300		1	122	1.9	70-130	20	06/06/2013 1120
1,2-Dichloroethane	50	53		1	106	1.5	70-130	20	06/06/2013 1120
Diisopropyl ether (IPE)	50	52		1	103	0.78	70-130	20	06/06/2013 1120
3,3-Dimethyl-1-butanol	1000	850		1	85	5.4	70-130	20	06/06/2013 1120
Ethanol	5000	3700		1	74	17	70-130	20	06/06/2013 1120
Ethylbenzene	50	53		1	106	0.79	70-130	20	06/06/2013 1120
Ethyl-tert-butyl ether (ETBE)	50	56		1	112	0.48	70-130	20	06/06/2013 1120
Methyl tertiary butyl ether (MTBE)	50	54		1	107	0.60	70-130	20	06/06/2013 1120
Naphthalene	50	42		1	84	3.2	70-130	20	06/06/2013 1120
tert-butyl alcohol (TBA)	1000	850		1	85	4.4	70-130	20	06/06/2013 1120
Toluene	50	56		1	111	0.25	70-130	20	06/06/2013 1120
Xylenes (total)	100	110		1	105	1.4	70-130	20	06/06/2013 1120

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		108	70-130
1,2-Dichloroethane-d4		104	70-130
Toluene-d8		115	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: OQ22263-001
Batch: 22263
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	06/06/2013 2036
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	06/06/2013 2036
Benzene	ND		1	5.0	0.20	ug/L	06/06/2013 2036
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	06/06/2013 2036
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	06/06/2013 2036
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	06/06/2013 2036
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	06/06/2013 2036
Ethanol	ND		1	1000	33	ug/L	06/06/2013 2036
Ethylbenzene	ND		1	5.0	1.7	ug/L	06/06/2013 2036
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	06/06/2013 2036
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	06/06/2013 2036
Naphthalene	ND		1	5.0	1.7	ug/L	06/06/2013 2036
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	06/06/2013 2036
Toluene	ND		1	5.0	1.7	ug/L	06/06/2013 2036
Xylenes (total)	ND		1	5.0	1.7	ug/L	06/06/2013 2036

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		95	70-130
1,2-Dichloroethane-d4		86	70-130
Toluene-d8		106	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ22263-002
Batch: 22263
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	870		1	87	70-130	06/06/2013 1951
tert-Amyl methyl ether (TAME)	50	47		1	95	70-130	06/06/2013 1951
Benzene	50	52		1	105	70-130	06/06/2013 1951
tert-Butyl formate (TBF)	250	270		1	106	70-130	06/06/2013 1951
1,2-Dichloroethane	50	50		1	100	70-130	06/06/2013 1951
Diisopropyl ether (IPE)	50	49		1	98	70-130	06/06/2013 1951
3,3-Dimethyl-1-butanol	1000	860		1	86	70-130	06/06/2013 1951
Ethanol	5000	4600		1	93	70-130	06/06/2013 1951
Ethylbenzene	50	54		1	107	70-130	06/06/2013 1951
Ethyl-tert-butyl ether (ETBE)	50	50		1	101	70-130	06/06/2013 1951
Methyl tertiary butyl ether (MTBE)	50	50		1	99	70-130	06/06/2013 1951

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ22263-002
Batch: 22263
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Naphthalene	50	47		1	94	70-130	06/06/2013 1951
tert-butyl alcohol (TBA)	1000	820		1	82	70-130	06/06/2013 1951
Toluene	50	57		1	113	70-130	06/06/2013 1951
Xylenes (total)	100	110		1	106	70-130	06/06/2013 1951

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		92	70-130
Toluene-d8		106	70-130

Volatile Organic Compounds by GC/MS - Duplicate

Sample ID: OE30027-016DU
Batch: 22263
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Result (ug/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	170	180	J	5	3.1	20	06/07/2013 0418
tert-Amyl methyl ether (TAME)	ND	ND		5	0.00	20	06/07/2013 0418
Benzene	210	200		5	6.2	20	06/07/2013 0418
tert-Butyl formate (TBF)	ND	ND		5	0.00	20	06/07/2013 0418
1,2-Dichloroethane	4.6	4.7	J	5	0.71	20	06/07/2013 0418
Diisopropyl ether (IPE)	ND	ND		5	0.00	20	06/07/2013 0418
3,3-Dimethyl-1-butanol	ND	ND		5	0.00	20	06/07/2013 0418
Ethanol	ND	ND		5	0.00	20	06/07/2013 0418
Ethylbenzene	96	91		5	4.9	20	06/07/2013 0418
Ethyl-tert-butyl ether (ETBE)	ND	ND		5	0.00	20	06/07/2013 0418
Methyl tertiary butyl ether (MTBE)	17	16	J	5	7.2	20	06/07/2013 0418
Naphthalene	34	32		5	4.0	20	06/07/2013 0418
tert-butyl alcohol (TBA)	ND	ND		5	0.00	20	06/07/2013 0418
Toluene	580	560		5	3.8	20	06/07/2013 0418
Xylenes (total)	430	410		5	4.8	20	06/07/2013 0418

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		85	70-130
Bromofluorobenzene		97	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: OE30027-013MS
Batch: 22263
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1300	50000	41000		50	78	70-130	06/07/2013 0503
tert-Amyl methyl ether (TAME)	ND	2500	2200		50	86	70-130	06/07/2013 0503
Benzene	1900	2500	4400		50	98	70-130	06/07/2013 0503
tert-Butyl formate (TBF)	ND	13000	10000		50	84	70-130	06/07/2013 0503
1,2-Dichloroethane	41	2500	2300		50	92	70-130	06/07/2013 0503
Diisopropyl ether (IPE)	ND	2500	2300		50	91	70-130	06/07/2013 0503
3,3-Dimethyl-1-butanol	ND	50000	39000		50	79	70-130	06/07/2013 0503
Ethanol	ND	250000	210000		50	84	70-130	06/07/2013 0503
Ethylbenzene	400	2500	2900		50	99	70-130	06/07/2013 0503
Ethyl-tert-butyl ether (ETBE)	ND	2500	2300		50	94	70-130	06/07/2013 0503
Methyl tertiary butyl ether (MTBE)	74	2500	2400		50	93	70-130	06/07/2013 0503
Naphthalene	120	2500	2200		50	82	70-130	06/07/2013 0503
tert-butyl alcohol (TBA)	ND	50000	38000		50	75	70-130	06/07/2013 0503
Toluene	5400	2500	8100		50	106	70-130	06/07/2013 0503
Xylenes (total)	2200	5000	7200		50	100	70-130	06/07/2013 0503

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		86	70-130
Bromofluorobenzene		92	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS - MSD

Sample ID: OE30027-013MD
Batch: 22263
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1300	50000	41000		50	79	1.1	70-130	20	06/07/2013 0526
tert-Amyl methyl ether (TAME)	ND	2500	2200		50	87	1.1	70-130	20	06/07/2013 0526
Benzene	1900	2500	4500		50	101	1.6	70-130	20	06/07/2013 0526
tert-Butyl formate (TBF)	ND	13000	11000		50	84	0.76	70-130	20	06/07/2013 0526
1,2-Dichloroethane	41	2500	2400		50	93	1.0	70-130	20	06/07/2013 0526
Diisopropyl ether (IPE)	ND	2500	2300		50	92	0.93	70-130	20	06/07/2013 0526
3,3-Dimethyl-1-butanol	ND	50000	40000		50	79	1.2	70-130	20	06/07/2013 0526
Ethanol	ND	250000	210000		50	86	2.0	70-130	20	06/07/2013 0526
Ethylbenzene	400	2500	3000		50	102	3.0	70-130	20	06/07/2013 0526
Ethyl-tert-butyl ether (ETBE)	ND	2500	2400		50	95	1.9	70-130	20	06/07/2013 0526
Methyl tertiary butyl ether (MTBE)	74	2500	2500		50	96	3.4	70-130	20	06/07/2013 0526

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: OE30027-013MD
Batch: 22263
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Naphthalene	120	2500	2300		50	86	4.6	70-130	20	06/07/2013 0526
tert-butyl alcohol (TBA)	ND	50000	38000		50	77	1.8	70-130	20	06/07/2013 0526
Toluene	5400	2500	8100		50	108	0.40	70-130	20	06/07/2013 0526
Xylenes (total)	2200	5000	7400		50	103	2.0	70-130	20	06/07/2013 0526

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		87	70-130
Bromofluorobenzene		95	70-130
Toluene-d8		101	70-130

Volatile Organic Compounds by GC/MS - MB

Sample ID: OQ22379-001
Batch: 22379
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Toluene	ND		1	5.0	1.7	ug/L	06/08/2013 1855

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		109	70-130
1,2-Dichloroethane-d4		105	70-130
Toluene-d8		114	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ22379-002
Batch: 22379
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Toluene	50	50		1	101	70-130	06/08/2013 1726

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ22379-002
Batch: 22379
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		112	70-130
1,2-Dichloroethane-d4		98	70-130
Toluene-d8		117	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: OQ22379-003
Batch: 22379
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Toluene	50	52		1	104	2.7	70-130	20	06/08/2013 1748

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		113	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		117	70-130

Volatile Organic Compounds by GC/MS - MS

Sample ID: OE30027-011MS
Batch: 22379
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Toluene	4800	2500	7000		50	88	70-130	06/09/2013 0007

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		110	70-130
Bromofluorobenzene		117	70-130
Toluene-d8		121	70-130

PQL = Practical quantitation limit
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: QE30027-011MD
Batch: 22379
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Toluene	4800	2500	6900		50	84	1.4	70-130	20	06/09/2013 0029

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		104	70-130
Bromofluorobenzene		118	70-130
Toluene-d8		118	70-130

Volatile Organic Compounds by GC/MS - MB

Sample ID: OQ22496-001
Batch: 22496
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	06/10/2013 2203
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	06/10/2013 2203
Benzene	ND		1	5.0	0.20	ug/L	06/10/2013 2203
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	06/10/2013 2203
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	06/10/2013 2203
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	06/10/2013 2203
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	06/10/2013 2203
Ethanol	ND		1	1000	33	ug/L	06/10/2013 2203
Ethylbenzene	ND		1	5.0	1.7	ug/L	06/10/2013 2203
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	06/10/2013 2203
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	06/10/2013 2203
Naphthalene	ND		1	5.0	1.7	ug/L	06/10/2013 2203
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	06/10/2013 2203
Toluene	ND		1	5.0	1.7	ug/L	06/10/2013 2203
Xylenes (total)	ND		1	5.0	1.7	ug/L	06/10/2013 2203

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: OQ22496-002
Batch: 22496
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	970		1	97	70-130	06/10/2013 2033
tert-Amyl methyl ether (TAME)	50	54		1	107	70-130	06/10/2013 2033
Benzene	50	56		1	112	70-130	06/10/2013 2033
tert-Butyl formate (TBF)	250	280		1	113	70-130	06/10/2013 2033
1,2-Dichloroethane	50	54		1	108	70-130	06/10/2013 2033
Diisopropyl ether (IPE)	50	51		1	101	70-130	06/10/2013 2033
3,3-Dimethyl-1-butanol	1000	950		1	95	70-130	06/10/2013 2033
Ethanol	5000	5000		1	100	70-130	06/10/2013 2033
Ethylbenzene	50	53		1	105	70-130	06/10/2013 2033
Ethyl-tert-butyl ether (ETBE)	50	55		1	111	70-130	06/10/2013 2033
Methyl tertiary butyl ether (MTBE)	50	54		1	108	70-130	06/10/2013 2033
Naphthalene	50	51		1	103	70-130	06/10/2013 2033
tert-butyl alcohol (TBA)	1000	910		1	91	70-130	06/10/2013 2033
Toluene	50	55		1	111	70-130	06/10/2013 2033
Xylenes (total)	100	110		1	105	70-130	06/10/2013 2033

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		101	70-130
1,2-Dichloroethane-d4		104	70-130
Toluene-d8		103	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: OQ22496-003
Batch: 22496
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	1000		1	101	4.3	70-130	20	06/10/2013 2055
tert-Amyl methyl ether (TAME)	50	56		1	111	3.8	70-130	20	06/10/2013 2055
Benzene	50	58		1	115	2.5	70-130	20	06/10/2013 2055
tert-Butyl formate (TBF)	250	300		1	119	5.0	70-130	20	06/10/2013 2055
1,2-Dichloroethane	50	57		1	115	6.2	70-130	20	06/10/2013 2055
Diisopropyl ether (IPE)	50	52		1	104	2.2	70-130	20	06/10/2013 2055
3,3-Dimethyl-1-butanol	1000	1000		1	101	5.6	70-130	20	06/10/2013 2055
Ethanol	5000	4900		1	97	3.2	70-130	20	06/10/2013 2055
Ethylbenzene	50	55		1	109	3.5	70-130	20	06/10/2013 2055
Ethyl-tert-butyl ether (ETBE)	50	59		1	118	6.2	70-130	20	06/10/2013 2055
Methyl tertiary butyl ether (MTBE)	50	58		1	115	6.4	70-130	20	06/10/2013 2055

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: OQ22496-003 **Matrix:** Aqueous
Batch: 22496 **Prep Method:** 5030B
Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Naphthalene	50	54		1	109	5.7	70-130	20	06/10/2013 2055
tert-butyl alcohol (TBA)	1000	960		1	96	5.2	70-130	20	06/10/2013 2055
Toluene	50	56		1	113	1.9	70-130	20	06/10/2013 2055
Xylenes (total)	100	110		1	109	3.0	70-130	20	06/10/2013 2055

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		105	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MB

Sample ID: OQ21643-001
Batch: 21643
Analytical Method: 8011
Matrix: Aqueous
Prep Method: 8011
Prep Date: 05/31/2013 1002

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	06/06/2013 0137

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		128	57-137

EDB & DBCP by Microextraction - LCS

Sample ID: OQ21643-002
Batch: 21643
Analytical Method: 8011
Matrix: Aqueous
Prep Method: 8011
Prep Date: 05/31/2013 1002

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.29		1	117	60-140	06/06/2013 0159

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		124	57-137

EDB & DBCP by Microextraction - MS

Sample ID: OE30027-009MS
Batch: 21643
Analytical Method: 8011
Matrix: Aqueous
Prep Method: 8011
Prep Date: 05/31/2013 1002

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	ND	0.24	0.28		1	114	60-140	06/06/2013 0537

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		125	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MSD

Sample ID: OE30027-009MD
Batch: 21643
Analytical Method: 8011

Matrix: Aqueous
Prep Method: 8011
Prep Date: 05/31/2013 1002

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,2-Dibromoethane (EDB)	ND	0.25	0.28		1	115	1.9	60-140	20	06/06/2013 0559

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		127	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY **Chain of Custody Record** **Number** 21166

Client: SCDHEC - UST	Report to Contact: D. Thoma	Sampler (Printed Name): Chris Leshley	Quote No.
Address: 2600 Bull Street	Telephone No. / Fax No. / Email: 803-896-6240	Waybill No.	Page: 1 of 3
City: Columbia; State: SC; Zip Code: 29201	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		Number of Containers: 3 / 4 / 5
Project Name: Purolator Courier Corp			Bottle (See Instructions on back): 3 / A / 5
Project Number: 05878 / 45697	P.O Number: 4600088529		Preservative: 1 / 1 / 1
			Lot No.: OE30027

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: GW	DW	WW	S	Other	Analysis: Brex, Naph, MTBE	1,2 DCA	8 oxygenates	EDB	Remarks / Cooler ID
MW-1	5/29	1455	G	X					X	X	X	X	No odor
~~MW-2~~ (No Sample)		—							—	—	—	—	No Access
MW-4		1130							X	X	X	X	No odor
~~MW-5~~ (No Sample)		—							—	—	—	—	Product
MW-7		1406							X	X	X	X	No odor
MW-8		1315											odor
MW-9		1300											No odor
MW-10		1225											No odor
MW-11		1331											No odor
MW-12	5/29	1343	G	X					X	X	X	X	No odor

Turn Around Time Required (Prior lab approval required for expedited TAT): ☐ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification: ☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison ☐Unknown

	Relinquished by / Sampler	Date	Time	Received by	Date	Time
1.	Chris Leshley	5/29/13	1600		5.29.13	1600
2.		5.30.13	1405		5.30.13	1405
3.		Date	Time		Date	Time
4.		5-30-13	1450	Laboratory Received by	5.30.13	1450

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack
Receipt Temp. 1.0 °C
Temp. Blank ☐ Y ☐ N

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West Columbia, South Carolina 29172
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www.shealylab.com

SHEALY **Chain of Custody Record** **Number** 21167

Client: SCDHEC - UST	Report to Contact: D. Thoma	Sampler (Printed Name): Chris Lashley	Quote No.
Address: 2600 Bull STREET	Telephone No. / Fax No. / Email: 803-896-6240	Waybill No.	Page: 2 of 3
City: Columbia / State: SC / Zip Code: 29201	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		Number of Containers: 3 / 3 / 3
Project Name: Purolator Courier Corp			Bottle (See Instructions on back): A / A / A
Project Number: 05878 / 45697	P.O Number: 4600098529		Preservative: 1 / 1 / 1
			Lot No.: OE30027

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: GW	DW	WW	S	Other	Analysis: Btex, Naph, MTBE	1,2 DCA	8 oxygenates	EDB	Remarks / Cooler ID
MW-13	5/29	1352	G	X					X	X	X	X	NO ODOR
~~MW-15~~ (NO Sample)		—							—	—	—	—	PRODUCT
MW-16		1205	G	X					X	X	X	X	NO odor
~~MW-18~~ (No Sample)		—	—	—					—	—	—	—	NOT LOCATED
RW-1		947	G	X					X	X	X	X	ODOR
RW-2		1023											ODOR
RW-3		1120											ODOR
PW-1		910											No odor
PW-2		1247											No odor
RW-2 Duplicate	5/29	1023	G	X					X	X	X	X	odor

Turn Around Time Required (Prior lab approval required for expedited TAT) ☐ Standard ☐ Rush (Please Specify)

Sample Disposal ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification ☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison ☐Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: Chris Lashley	5/29/13	1600	1. Received by	5-29-13	1600
2. Relinquished by	5.30.13	1405	2. Received by	5:30:13	1405
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. ~~Relinquished by~~	Date 5-30-13	Time 1450	4. Laboratory Received by	Date 5-30-13	Time 1450

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack — Receipt Temp. 1-0 °C — Temp. Blank ☐ Y / ☐ N

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www.shealylab.com

SHEALY **Chain of Custody Record** **Number** 21168

Client: SCDHEC - UST	Report to Contact: D. Thoma	Sampler (Printed Name): Chris Lashley	Quote No.
Address: 2600 Bull STREET	Telephone No. / Fax No. / Email: 803-896-6240	Waybill No.	Page: 3 of 3
City: Columbia / State: SC / Zip Code: 29201	Preservative: 1. Unpres. 4. HNO3 7. NaOH; 2. NaOH/ZnA 5. HCL; 3. H2SO4 6. Na Thio.		
Project Name: Purolator Courier Corp			
Project Number: 05878 / 45697	P.O Number: 4600088519		

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: GW	DW	WW	S	Other	Analysis: Btex, Naph, MTBE	1,2 DCA	8 oxygenates	EDB	Number of Containers	Bottle (See Instructions on back)	Preservative	Lot No. / Remarks / Cooler ID
													3	→ 1	3	0E30027
Field Blank	5/29	1450	G	X					X	X	X	X	A		A	
													5	→ 1	5	
Trip Blank	5/29	1500	G	X					X	X	X					

Turn Around Time Required (Prior lab approval required for expedited TAT): ☐ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification: ☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison ☐Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: Chris Lashley	5/29/13	1600	1. Received by	5.29.13	1600
2. Relinquished by	5.30.13	1405	2. Received by	5.30.13	1405
3. Relinquished by	Date	Time	3. Received by	Date	Time
4. Relinquished by	5/30/13	1450	4. Laboratory Received by	5-30-13	1450

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack — Receipt Temp. 1-0 °C — Temp. Blank ☐ Y / ☐ N

Sample Receipt Checklist (SRC)

Client: MEC/ Cooler Inspected by/date: ECL 5/30/13 Lot #: OE30027

Means of receipt: ☑ SESI ☐ Client ☐ UPS ☐ FedEx ☐ Airborne Exp ☐ Other			
Yes ☐	No ☑		1. Were custody seals present on the cooler?
Yes ☐	No ☐		2. If custody seals were present, were they intact and unbroken?
Cooler ID/temperature upon receipt 1180/1.0 °C ___/___ °C ___/___ °C ___/___ °C Method: ☑ Temperature Blank ☑ Against Bottles Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None			
If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.			
Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other:_____. (For coolers received via commercial courier, PMs are to be notified immediately.
Yes ☐	No ☐	NA ☑	4. Is the commercial courier's packing slip attached to this form?
Yes ☑	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☐	NA ☑	5a Were samples relinquished by client to commercial courier?
Yes ☑	No ☐		6. Were sample IDs listed?
Yes ☑	No ☐		7. Was collection date & time listed?
Yes ☑	No ☐		8. Were tests to be performed listed on the COC?
Yes ☑	No ☐		9. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐		10. Did all container label information (ID, date, time) agree with COC?
Yes ☑	No ☐		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		12. Was adequate sample volume available?
Yes ☑	No ☐		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		14. Were any samples containers missing?
Yes ☐	No ☑		15. Were there any excess samples not listed on COC?
Yes ☑	No ☐	NA ☐	16. Were bubbles present >"pea-size" (¼"or 6mm in diameter) in any VOA vials?
Yes ☐	No ☐	NA ☑	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	20. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☑	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s)_____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H_2SO_4,HNO_3,HCl,NaOH) with the SR # (number)

Sample(s) -001(1), -002(6), -003(3), -004(6) were received with bubbles >6 mm in diameter.

Sample(s)_____ were received with TRC >0.2 mg/L for NH3/ TKN/cyanide/phenol

Sample labels verified by: _____ Date: 5/30/13

Corrective Action taken, if necessary:

Was client notified: Yes ☐ No ☐ Did client respond: Yes ☐ No ☐

SESI employee: Date of response:

Comments: Samples with bubbles > 6 mm: -005(5), -007(3), -008(6), -009(2), -010(2), -011(2), -014(1), -015(1), -016(1), -017(2)

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

MR RONNY LOWDER
EMERALD INC
P O BOX 3050
SUMTER SC 29151-3050

SEP 18 2013

UST MARKETING 17tech

Re: AFVR
Contract #IFB-5400005023-11/8/12-EMW; PO #4600220167
Notice to proceed

Dear Mr. Lowder:

Under the terms and conditions of the referenced contract, and per the schedule submitted to the Underground Storage Tank (UST) Management Division on September 3, 2013, free-phase product (FPP) recovery using aggressive fluid vapor recovery (AFVR) has been approved for the UST facilities listed below. Emerald, Inc. may proceed upon receipt of this letter. Enclosed are packets containing necessary information to perform FPP recovery at each facility. Each facility has been assigned an individual cost agreement (CA) number, work scope, work scope start date, and report due date. As specified in the contract, a report and invoice must be submitted on or before the due date. The appropriate CA number and Purchase Order (PO) #4600220167 should be referenced on each invoice submitted.

Permit	Facility	County	Work Scope	CA	Start Date	Due Date
05878	Purolator Courier Corp	Lexington	1 96-hour event	46364	11/4/13	11/13/13

The FPP recovery at each facility will be performed on behalf of the UST Owner/Operator (O/O) and payment will be made from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. The O/O has no obligation to pay for the specified work scope. Please note that Sections 44-2-110(4) and 44-2-130(B) of the SUPERB Statute state that no costs will be allowed (considered for payment) unless prior approval from the South Carolina Department of Health and Environmental Control (Agency) is obtained.

Any changes to the work scope must be pre-approved by UST Management Division in order for Emerald to seek payment. Please contact the UST Project Manager for technical and/or financial approval. Any item that is not clearly or completely addressed in the report will not be compensated by SUPERB.

The Division grants pre-approval for transportation of FPP and petroleum-contaminated groundwater from the referenced UST facility to a permitted treatment facility. The FPP and contaminated groundwater must be accepted by the approved treatment facility. There can be no

spillage or leakage in transport. A copy of the disposal manifest from the receiving facility that clearly designates the quantity received must be included as an appendix to the report.

If you have any questions concerning this correspondence or need further assistance, please contact me by phone at (803) 898-0655, by fax at (803) 898-0673, or by e-mail at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, Geologist/Hydrologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

enc: Information packet
AFVR Schedule 5
cc: Technical file (w/o enc)

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT

Phone (803) 896-6240 Fax (803) 896-6245

NOV 10 2003

MR WILLIAM DURHAM III
WILLIAM DURHAM COMPANY
3135 MILLWOOD AVE
COLUMBIA SC 29205-1866

Re: Former Purolator Courier, 105 Corporate Blvd., West Columbia, SC
UST Permit #05878; CA #20427; MWA #UMW-17754
Release 1 Reported October 17, 1991
Assessment Report Received April 10, 2003
Lexington County

UST PROGRAM DOCKETING # 18 Tech

Dear Mr. Durham:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) recognizes your commitment to continue work at this site utilizing your own contractor. SCDHEC has reviewed the Assessment Report submitted by Davis & Floyd that noted that MW-3, MW-15, MW-16 and MW-7 could not be located or were destroyed during recent sampling. As continuing site remediation activities are necessary the monitoring wells must be re-installed in accordance with the South Carolina Well Standards and Regulations. As the SUPERB Account originally paid for these wells, replacement costs cannot be paid by the account. Approval for the replacement of the monitoring wells has been granted to your environmental consultant; a copy of the approval is provided for your records. Well replacement activities at the site should commence immediately upon receipt of this letter. Please have your consultant submit the monitoring well logs and DHEC 1903 forms for the replacement wells to the Department within 60 days of the date of this letter.

The Assessment report also noted the presence of free phase product in MW-5. Cost Agreement **#20427** has been approved in the amount shown on the enclosed Approved Cost Agreement to complete three Enhanced Fluid Recovery (EFR) events to remove the free product and sample all wells associated with this release.

- The initial 8-hour EFR event should be conducted within 30 days of the date of this letter. After each EFR event, the monitoring wells should be given at least 15 days to recover before conducting the next EFR event.

- Groundwater samples from all monitoring wells associated with the release should be collected no earlier than 30 days after the last EFR event and analyzed for BTEX , Naphthalene, and MTBE by EPA method 8260B.

The report submitted at the completion of these activities should include the following:

- A narrative portion documenting the three EFR events noting site conditions, the names of the EFR contractor, field personnel, date, times each EFR event started and ended, ambient air temperature, general weather conditions during the EFR event, and the estimated amount in gallons of the petroleum products removed as a liquid or vapor for each event. Wells containing free phase product should be gauged at the beginning and end of each EFR event. Disposal manifests for each EFR event should be included as part of the final report.

The sampling portion of the report shall include the following:

- Well purging data, pH, specific conductivity, water temperature, PID readings (where applicable) and turbidity comments.
- Groundwater elevations, depth to groundwater, remaining measurable free product thickness (if any), total well depth and screened interval for all monitoring wells associated with the site, unless otherwise directed by the Department, shall be presented in tabular form. Groundwater laboratory analytical data for all monitoring wells shall be presented in tabular format.
- A groundwater elevation contour map of the site based on current groundwater potentiometric data.
- A CoC map based on current groundwater laboratory analytical data. The groundwater data should be adjacent to the relevant monitoring well.
- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.
- The report must be signed and sealed by a professional geologist or engineer registered in the State of South Carolina.

Davis & Floyd can submit an invoice for direct billing from the SUPERB Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation.

Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Department is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the Department for the cost to be paid. **The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable or excessive.** The SCDHEC reserves the right to audit project records at any time during the project or after completion of work.

Rehabilitation activities at the site should be resumed immediately upon receipt of this letter. **The Department shall be contacted prior to well installation for concurrence regarding the final well locations.** Final monitoring wells shall be properly installed and bracketed at the water table.

A Report of Findings and the invoice are due within 180 days from the date of this letter. If the invoice is not submitted within 210 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

The Bureau grants preapproval for transportation of groundwater from the referenced site to a permitted treatment facility per EFR event. The department must be notified if the volume of water removed is greater than the amount approved in the enclosed cost agreement. The contaminated groundwater generated during the sampling event must be properly stored in labeled containers as appropriate. The contaminated groundwater must be accepted by an approved treatment facility. There can be no spillage or leakage in transport of any petroleum contaminated groundwater. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of groundwater on site. The SUPERB Account will not compensate for transportation or treatment of clean groundwater.

On all correspondence concerning this site, please reference **UST Permit #05878 and Cost Agreement #20427.** If there are any questions concerning this project, please contact me at (803) 896-6648 or (800) 826-5435 (within South Carolina only).

Sincerely,

Alexander Butler, Hydrogeologist
Owner/Operator Support Section
Assessment & Corrective Action Division

enc: Approved Cost Agreement (ACA)
Copy of Monitoring Well Approval (MWA)

cc: Mr. James Ferguson, Davis & Floyd, 240 Stoneridge Dr., Columbia, SC 29210 (with original MWA and copy of ACA)
Technical File (with copy of MWA and ACA)
Read File

SCDHEC/UST/102103

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

Monitoring Well Installation Approval Form

Date of Issue: October 23, 2003 Approval No.: UMW-17754

Approval is hereby granted to:	Davis & Floyd
On behalf of:	William Durham Company
UST Permit #:	05878
County:	Lexington

This approval is for the construction of field screening and four shallow monitoring wells in accordance with the South Carolina Well Standards and Regulations. The SUPERB Account does not pay the replacement of wells. The well(s) are to be constructed within the surficial aquifer for the intended purpose of monitoring groundwater quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.

2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.

3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.

4. A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to Alexander Butler at (803) 896-6648 or butlerap@dhec.sc.gov.

5. Please provide groundwater quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to me with the technical report.

6. Monitoring wells and temporary monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.

7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Bureau.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:

Alexander Butler, Hydrogeologist
Owner/Operator Support Section
Underground Storage Tank Program

cc: Central Midlands EQC District

SCDHEC/UST/102103

Approved Cost Agreement [redacted]0427

Facility: 05878 PUROLATOR COURIER C[redacted]P

BUTLERAP

PO Number:

Task / Description	Categories	Item Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB					
		B PERSONNEL	5.0000	250.00	1,250.00
10 SAMPLE COLLECTION					
		A GROUND WATER	23.0000	55.00	1,265.00
11 ANALYSES					
	GW GROUNDWATER	A BTEX+NAPTH+MTBE	23.0000	100.00	2,300.00
		E LEAD	23.0000	20.00	460.00
17 DISPOSAL					
		A2 WASTEWATER - PUMPING TEST	6,000.0000	0.60	3,600.00
		C SOIL (TREATMENT/DISPOSAL)	3.0000	50.00	150.00
19 RPT/PROJECT MNGT & COORDINATIO					
		PCT PERCENT	0.1500	18,025.00	2,703.75
23 EFR					
		A 8 HOUR EVENT	3.0000	3,000.00	9,000.00
			Total Amount		20,728.75

DAVIS & FLOYD Engineering
Architecture
Environmental & Laboratory Services

240 Stoneridge Drive, Suite 200 Columbia, SC 29210 • (803) 254-4337 (office) (803) 254-4549 (fax)

October 1, 2003
Serial No.: JMF-077-03
Job No.: 050098.03

RECEIVED
OCT 10 2003
UNDERGROUND STORAGE TANK PROGRAM

Mr. Alexander Butler, Hydrogeologist
Owner/Operator Support Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land & Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Reference: Report of Findings
Former Purolator Courier Site, 105 Corporate Blvd., W. Columbia, SC
UST Permit # 05878; CA # 18795; MWA #UMW-17247

Dear Mr.Butler:

On behalf of Carolina Commerce Associates, attached is the information requested in your June 20, 2003 letter to Mr. Durham. The seven hand-augered borings and three shallow wells were done on August 6th, the wells sampled on August 28th and surveyed on September 9th and the Laboratory Analysis Report issued on September 17th. Three of the older wells have apparently been destroyed (MW-15, 16 and 17) and one covered by asphalt (MW-3). Specifically, the package contains the following:

1. Site Map Showing Monitoring Locations, Figure 1.

2. SCDHEC Form 1903 for the three wells (MW-21, 23 and 25) and the lithologic logs and PID readings by Cypress Bay Geological Services, Inc. for the hand-augered boreholes.

3. Laboratory Analysis Report dated September 17, 2003 for samples collected from all available monitoring wells and the closest private well (Grant) on August 28, 2003. These samples were analyzed in the field for temperature, pH, and specific conductance and in the laboratory for lead with Method 6010B and for BTEX/MTBE and naphthalene with Method 8260B.

4. Tabulations of these and the previous (October 19, 2000) groundwater analytical results on a well-by-well basis, Table 1.

5. Tabulations of these and all previous groundwater elevation measurements in all wells, Table 2.

UST PROGRAM
DOCKETING # 19Tech

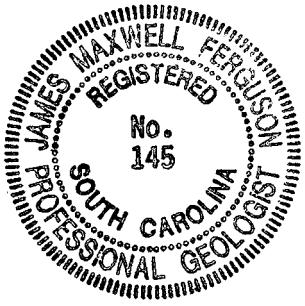
6. A potentiometric-surface-contour map for August 28, 2003, Figure 2. Water-level measurements are recorded on the Field Data Sheets attached to the Laboratory Analysis Report. Figure 2 shows a modified wetland boundary approximated by the Davis & Floyd, Inc. surveyors based on vegetation and the appearance of standing water on August 28th. This boundary is not an official wetlands delineation.

If you have questions, please contact me.

Sincerely,

DAVIS & FLOYD, INC.

James M. Ferguson



James M. Ferguson, P.G.

JMF/jmf

Attachments: As stated

c.c.: Mr. William Durham III
Mr. Robert N. Senn

TABLE 2
GROUNDWATER ELEVATION DATA
FORMER PUROLATOR COURIER SITE

Well	Date	Top of Casing Elevation	Depth to Groundwater	Water Table Elevation
MW-1	7/29/92	98.68	6.51	92.17
	3/30/93		1.83	96.85
	6/25/98		5.14	93.54
	12/29/98	98.54	6.67	91.87
	10/19/00		7.67	90.87
	8/28/03		4.83	93.71
MW-2	7/29/92	97.07	5.72	91.35
	3/30/93		2.26	94.81
	6/25/98		4.95	92.12
	12/29/98		5.64	91.43
	10/19/00		6.83	90.24
	8/28/03		4.66	92.41
MW-3	7/29/92	95.41	3.90	91.51
	3/30/93		1.00	94.41
	6/25/98		3.35	92.06
	12/29/98		3.90	91.51
	10/19/00		4.88	90.53
	8/28/03			
MW-4	7/29/92	98.69	7.60	91.09
	3/30/93		4.30	94.39
	6/25/98		7.07	91.62
	12/29/98		7.46	91.23
	10/19/00		5.79	92.90
	8/28/03		6.68	92.01
MW-5	7/29/92	96.70	6.70	**90.00**
	3/30/93		3.34	93.36
	6/25/98		7.02	**89.68**
	12/29/98		6.45	**90.25**
	10/19/00		8.21	**88.49**
	8/28/03		7.40	**91.87**
MW-6	7/29/92	99.56	8.35	91.21
	3/30/93		5.77	93.79
	6/25/98		7.89	91.67
	12/29/98		8.29	91.27
	10/19/00		9.28	90.28
	8/28/03		7.66	91.90
MW-7	7/29/92	96.71	7.00	89.71
	3/30/93		4.59	92.12
	6/25/98		7.09	89.62
	12/29/98		6.47	90.24
	10/19/00		5.26	91.45
	8/28/03		6.44	90.27
MW-8	7/29/92	95.88	6.00	89.88
	3/30/93		3.78	92.10
	6/25/98		6.24	**89.64**
	12/29/98		5.56	90.32
	10/19/00		7.01	88.87
	8/28/03		5.48	90.40
MW-9	7/29/92	94.85	5.40	89.45
	3/30/93		3.00	91.85
	6/25/98		5.31	89.54
	12/29/98		4.30	90.55
	10/19/00		6.10	88.75
	8/28/03		5.23	89.62

Well	Date	Top of Casing Elevation	Depth to Groundwater	Water Table Elevation
MW-10	7/29/92	94.04	4.90	89.14
	3/30/93		3.13	90.91
	6/25/98		4.67	89.37
	12/29/98		4.50	89.54
	10/19/00		5.35	88.69
	8/28/03		4.61	89.43
PW-1	3/30/93	96.50	3.22	93.28
	6/25/98		5.61	90.89
	12/29/98		5.60	90.90
	10/19/00		6.78	89.72
	8/28/03		5.18	91.32
PW-2	3/30/93	95.91	4.42	91.49
	6/25/98		4.40	91.51
	12/29/98		6.12	89.79
	10/19/00		6.75	89.16
	8/28/03		4.74	91.17
MW-11	12/29/98	92.98	3.93	89.05
	10/19/00		4.54	88.44
	8/28/03		4.17	88.81
MW-12	12/29/98	92.07	2.70	89.37
	10/19/00		3.82	88.25
	8/28/03		2.83	89.24
MW-13	12/29/98	92.56	3.36	89.20
	10/19/00		4.49	88.07
	8/28/03		3.83	88.73
MW-14	12/29/98	91.37	2.55	88.82
	10/19/00		3.41	87.96
	8/28/03		2.93	88.44
MW-15	12/29/98	93.91	3.45	90.46
	10/19/00		4.51	**89.76**
	8/28/03	DESTROYED		
MW-16	12/29/98	93.71	2.95	90.76
	10/19/00		4.08	89.63
	8/28/03	DESTROYED		
MW-17	12/29/98	94.63	3.50	91.13
	10/19/00		4.38	**90.61**
	8/28/03	DESTROYED		
MW-18	10/19/00	87.29	5.11	82.18
	8/28/03		5.93	81.36
MW-21	8/28/03	87.95	0.21	87.74
MW-23	8/28/03	90.25	1.37	88.88
MW-25	8/28/03	88.43	0.40	88.03

Notes: Water level corrected using 0.85 density for LNAPL
All measurements in feet
Elevations are relative to arbitrary datum.
Value in bold indicates free product in well.

Table 1. Summary of Groundwater Quality at the Former Purolator Courier Site (# 05878), West Columbia, South Carolina, October 19, 2000 and August 28, 2003.

Well	Parameter	pH	Conduc-tivity	Benzene	Ethyl-benzene	MTBE	Naphtha-lene	Toluene	Xylenes	Ferrous Iron	Carbon Dioxide	Carbon Monoxide	Methane	Nitrogen	Oxygen	Nitrate Nitrogen	Lead, Total	Sulfate
	MDL/RBSL	NA	NA	1.0/5.0	1.0/700	5.0/40	2.0/10	1.0/1,000	1.0/10,000	0.2/NA	NA	0.4/NA	0.07/NA	NA		NA	0.005/0.015	NA
MW-1	10/19/00	4.1	109	BDL	BDL	BDL	BDL	BDL	BDL	BDL	30	BDL	BDL	17	5.8	8.3	**0.069**	0.41
	08/28/03	4.7	115	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	0.013	NA
MW-2	10/19/00	5.3	144	**497**	47.1	33.8	5.1	137	210	BDL	NS	NS	NS	NS	NS	6.6	BDL	0.98
	08/28/03	5.9	160	**643**	37.3	**47.3**	**11.5**	28.9	44.1	NA	NA	NA	NA	NA	NA	NA	BDL	NA
MW-3	10/19/00	5.5	101	**64.5**	89.4	BDL	**53.7**	3.8	236	5.4	65.6	BDL	2.1	18.4	1	1.6	0.014	1.1
	08/28/03	WELL COVERED BY ASPHALT PAVEMENT																
MW-4	10/19/00	5.3	78	BDL	BDL	17.4	BDL	BDL	BDL	BDL	22.8	BDL	BDL	16.3	8.5	4.9	0.014	1.7
	08/28/03	4.7	62	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	BDL	NA
MW-5	10/19/00	2.58 FEET FREE PRODUCT FOUND																
	08/28/03	2.67 FEET FREE PRODUCT FOUND																
MW-6	10/19/00	5.9	463	BDL	BDL	BDL	1.5	BDL	BDL	0.6	NS	NS	NS	NS	NS	0.33	**0.015**	180
	08/28/03	6.2	618	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	BDL	NA
MW-7	10/19/00	5.3	88	BDL	BDL	11.7	BDL	2.9	BDL	5.0	NS	NS	NS	NS	NS	2.3	BDL	20.6
	08/28/03	5.9	88.16	BDL	BDL	BDL	BDL	4.1	BDL	NA	NA	NA	NA	NA	NA	NA	BDL	NA
MW-8	10/19/00	TRACE FREE PRODUCT FOUND																
	08/28/03	6.4	88.26	**1,330**	**2310**	BDL	**679**	**9,730**	**12,300**	NA	NA	NA	NA	NA	NA	NA	0.0057	NA
MW-9	10/19/00	5.8	99	1.4	BDL	19.5	1.1	25.9	BDL	4.8	NS	NS	NS	NS	NS	0.51	**0.1**	8.5
	08/28/03	6.0	87.53	**2,170**	310	**376**	**119**	**1,840**	706	NA	NA	NA	NA	NA	NA	NA	**0.083**	NA
MW-10	10/19/00	5.1	53	BDL	BDL	3.7	BDL	BDL	BDL	BDL	38.1	BDL	BDL	15.5	3.2	0.79	**0.086**	4.8
	08/28/03	6.0	87.5	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	**0.019**	NA
MW-11	10/19/00	4.6	78	BDL	BDL	2.8	BDL	BDL	BDL	5.0	NS	NS	NS	NS	NS	2.2	**0.022**	7.1
	08/28/03	4.6	89.11	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	**0.024**	NA
MW-12	10/19/00	5.3	63	**11.0**	BDL	35.7	BDL	BDL	BDL	2.0	NS	NS	NS	NS	NS	0.15	**0.023**	6.7
	08/28/03	5.8	89.59	**7,800**	**782**	**1,340**	**263**	**3,200**	2090	NA	NA	NA	NA	NA	NA	NA	BDL	NA
MW-13	10/19/00	4.3	54	**73**	9.8	24.0	2.0	5.1	33.4	1.8	NS	NS	NS	NS	NS	0.11	**0.018**	13.1
	08/28/03	5.5	88.92	**3,820**	**819**	BDL	**278**	**5,270**	3080	NA	NA	NA	NA	NA	NA	NA	**0.018**	NA
MW-14	10/19/00	5.3	83	**2,030**	275	**598**	115	412	504	4.5	82.2	BDL	1.6	18.4	0.93	BDL	0.0052	8.2
	08/28/03	5.9	88.59	**12.2**	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	BDL	NA
MW-15	10/19/00	0.41 FEET FREE PRODUCT FOUND																
	08/28/03	WELL COULD NOT BE LOCATED																
MW-16	10/19/00	5.8	783	**109**	112	BDL	113	78.3	217	5.0	NS	NS	NS	NS	NS	0.55	**0.045**	3.1
	08/28/03	WELL COULD NOT BE LOCATED																
MW-17	10/19/00	0.42 FEET FREE PRODUCT FOUND																
	08/28/03	WELL COULD NOT BE LOCATED																
MW-18	10/19/00	5.8	231	BDL	BDL	BDL	3.4	BDL	BDL	4.8	134	BDL	1.5	14.3	0.79	0.18	**0.72**	4.9
	08/28/03	5.9	184	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	**0.047**	NA
PW-1	10/19/00	4.5	116	BDL	BDL	BDL	BDL	1.1	BDL	BDL	NS	NS	NS	NS	NS	8.9	**0.029**	0.45
	08/28/03	4.7	89.11	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	BDL	NA
PW-2	10/19/00	DID NOT RECHARGE																
	08/28/03	88.8	188.0	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	**0.34**	NA
MW-21	08/28/03	5.2	31.0	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	**0.83**	NA
MW-23	08/28/03	5.6	108	**676**	251	BDL	**57**	**1,550**	925	NA	NA	NA	NA	NA	NA	NA	**0.71**	NA
MW-25	08/28/03	5.3	105	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	**0.49**	NA
Grant Well	10/19/00	4.2	40	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NS	NS	NS	NS	1.4	0.005	1.1
	08/28/03	4.8	68	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	**0.017**	NA

Notes:

MDL=method detection limit
RBSL=risk based screening level
BDL=Below detection limit
NS = Not sampled
NA = Not analyzed.
pH given in pH units

Conductivity in micromhos per centimeter (µmho/cm)
Lead in milligrams per liter (mg/L)
Volatiles and semi-volatiles in micrograms per liter (µg/L)
MTBE=Methyl-Tert-Butyl Ether
Concentrations exceeding the RBSL shown in bold
*matrix interference prevented precise determination

D H E C
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

1. LOCATION OF WELL:

County: System Name: **MW-21**

Latitude: Longitude:

Distance and Direction from Road Intersection:
See attached site location map

Street Address & City of Well Location: **West Columbia, SC**

Sketch Map:
See attached site map

2. CUTTING SAMPLES: ☐ Yes ☒ No

Geophysical Logs: ☐ Yes (please enclose) ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Grey Clayey Fine to Medium		
SAND	**6**	**6**
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

3. Remarks:

4. OWNER OF WELL: **Former Purolator Courier Site**
Address: **West Columbia, SC**

Telephone No.:

Engineer: **Davis and Floyd, Inc.**
Address: **240 Stone Ridge Road, Suite 200**
Columbia, SC

Telephone No.: **803-254-4337**

5. WELL DEPTH (completed) Date Started: **8-6-03**
6 ft. Date Completed: **8-6-03**

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug
☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. USE:
☐ Domestic ☐ Public Supply-Permit No. ____ ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test Well ☒ Monitor Well ☐

8. CASING: ☒ Threaded ☐ Welded
Diam.: **2"**
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to **1** ft. depth
____ in. to ____ ft. depth

Height: Above/Below Surface ____ ft.
Weight ____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

9. SCREEN
Type: **PVC** Diam.: **2"**
Slot/Gauge: **0.010** Length: **5'**
Set Between: **1** ft. and **6** ft. NOTE: MULTIPLE SCREENS
____ ft. and ____ ft. USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☒ No

10. STATIC WATER LEVEL
1.5 ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
____ ft. after ____ hrs. Pumping ____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: ____

12. WATER QUALITY
Chemical Analysis ☒ Yes ☐ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed from **1** ft. to **6** ft.
Effective size Uniformity Coefficient ____

14. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other ____
Depth: From **0.0** ft. to **0.5** ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
____ Type well disinfected ☐ Yes Type: ____
upon completion ☐ No Amount: ____

16. PUMP: Date installed: ____ Not installed ☒
Mfr. Name: ____ Model No.: ____
H.P. ____ Volts ____ Length of drop pipe ____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Registered Business Name: **Cypress Bay Geological** Date: **8/6/03**

Address: **262 Geology Lane, Walterboro, South Carolina 29488**

Signed ____ Cert. No.: **835**
Authorized Representative

DHEC1903(10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

DHEC
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

1. LOCATION OF WELL:

County: System Name: **MW-23**

Latitude: Longitude:

Distance and Direction from Road Intersection:
See attached site location map

Street Address & City of Well Location: **West Columbia, SC**

Sketch Map:
See attached site map

2. CUTTING SAMPLES: ☐ Yes ☒ No

Geophysical Logs: ☐ Yes (please enclose) ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Tan to Orange Sl. Clayey Silty		
Fine to Medium SAND	**6**	**6**
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

3. Remarks:

4. OWNER OF WELL: **Former Purolator Courier Site**
Address: **West Columbia, SC**

Telephone No.:

Engineer: **Davis and Floyd, Inc.**
Address: **240 Stone Ridge Road, Suite 200**
Columbia, SC

Telephone No.: **803-254-4337**

5. WELL DEPTH (completed) Date Started: **8-6-03**

6 ft. Date Completed: **8-6-03**

6. ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug
☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. USE:
☐ Domestic ☐ Public Supply-Permit No. ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test Well ☒ Monitor Well ☐

8. CASING: ☒ Threaded ☐ Welded
Diam.: **2"**
Type: ☒ PVC ☐ Galvanized
☐ Steel ☐ Other
2 in. to **1** ft. depth
in. to ft. depth

Height: Above/Below
Surface ft.
Weight lb./ft.
Drive Shoe? ☐ Yes ☐ No

9. SCREEN
Type: **PVC** Diam.: **2"**
Slot/Gauge: **0.010** Length: **5'**
Set Between: **1** ft. and **6** ft.
ft. and ft.
Sieve Analysis ☐ Yes (please enclose) ☒ No

NOTE: MULTIPLE SCREENS USE SECOND SHEET

10. STATIC WATER LEVEL
1.5 ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
ft. after hrs. Pumping G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield:

12. WATER QUALITY
Chemical Analysis ☒ Yes ☐ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed from **1** ft. to **6** ft.
Effective size Uniformity Coefficient

14. WELL GROUTED? ☒ Yes ☐ No
☒ Neat Cement ☐ Sand Cement ☐ Concrete ☐ Other
Depth: From **0.0** ft. to **0.5** ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction
Type well disinfected upon completion ☐ Yes Type: ☐ No Amount:

16. PUMP: Date installed: Not installed ☒
Mfr. Name: Model No.:
H.P. Volts Length of drop pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Registered Business Name: **Cypress Bay Geological** Date: **8/6/03**

Address: **262 Geology Lane, Walterboro, South Carolina 29488**

Signed Cert. No.: **835**
Authorized Representative

DHEC1903(10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)

Cypress Bay℠ Geological
262 Geology Lane Walterboro, South Carolina 29488
Phone: 843-538-4017 Fax: 843-538-2370
Drilling • Geological Services • Geoprobe • Analytical Services

Job Name: CAROLINA CENTER
Date: 8-6-03
Scale:
Calculated by: JAP
Page: 1 of 1

BORING #	PID	DEPTH	LITHOLOGY
B-19	0	1-4'	GREY CLAYEY FINE TO MED SAND
B-20	0	1-4'	GREY CLAYEY FINE TO MED SAND
B-21	0	1-4'	"
B-22	0	1-4'	ORANGE FINE TO MED SAND
B-23	24	1-4'	TAN TO ORANGE SL. CLAYEY SILTY SAND (FINE TO MED)
B-24	20	1-4'	GREY CLAYEY FINE TO MED SAND
B-25	1	1-4'	BLACK V. FINE SAND

* NOTE: BLACK ORGANIC RICH MUCK IN UPPER 12" IN ALL BOREHOLES SATURATED @ APPROX. 1' BLS

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

September 17, 2003

WILLIAM S. DURHAM
CAROLINA COMMERCE ASSOCIATES
3135 MILWOOD AVENUE
COLUMBIA, SC 29201

Login Number	:L03082904
Project Number	:50098.03
Description	:FORMER PUROLATOR COURIER

Dear William S. Durham:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on August 29, 2003.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the EPA, NELAC or other appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria and the results are within the 99% confidence interval for each method unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely,
DAVIS & FLOYD, INC.

John H. McCord, Jr.
Laboratory Manager

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
Page 1 of 1 Report ID: AB15241

Client ID: **MW-1**

Matrix : GW/ChemW

Sample ID : L03082904-01
Date Collected: 28-AUG-03 11:42
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**26.0**		1.0	degrees C		08/28/03	1142
SW846 9040B								
PH		**4.7**		0.50	su		08/28/03	1142
SW846 9050								
SPECIFIC CONDUCTIVITY		**115**		1.0	umhos/cm		08/28/03	1142
GROUND WATER ELEVATION		**94.22**		.01	feet MSL		08/28/03	1142
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.013**		0.0050	mg/l	BDL	09/03/03	1628
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	0926
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	0926
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	0926
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	0926
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	0926
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	0926

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
Page 1 of 1 Report ID: AB15242

Client ID: **MW-2**

Matrix : GW/ChemW

Sample ID : L03082904-02
Date Collected: 28-AUG-03 11:25
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**26.0**		1.0	degrees C		08/28/03	1125
SW846 9040B								
PH		**5.9**		0.50	su		08/28/03	1125
SW846 9050								
SPECIFIC CONDUCTIVITY		**160**		1.0	umhos/cm		08/28/03	1125
GROUND WATER ELEVATION		**92.98**		.01	feet MSL		08/28/03	1125
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	09/03/03	1633
Volatile Organics								
SW846 8260B								
BENZENE		**543**		5.0	ug/l	PAP	09/09/03	1117
ETHYLBENZENE		**37.3**		1.0	ug/l	PAP	09/03/03	0944
METHYL-TERT-BUTYL ETHER		**47.3**		5.0	ug/l	PAP	09/03/03	0944
NAPHTHALENE		**11.5**		5.0	ug/l	PAP	09/03/03	0944
TOLUENE		**28.9**		1.0	ug/l	PAP	09/03/03	0944
XYLENE (TOTAL)		**44.1**		1.0	ug/l	PAP	09/03/03	0944

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
Page 1 of 1 Report ID: AB15243

Client ID: **MW-4**

Matrix : GW/ChemW

Sample ID : L03082904-03
Date Collected: 28-AUG-03 18:05
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**24.0**		1.0	degrees C		08/28/03	1805
SW846 9040B								
PH		**4.7**		0.50	su		08/28/03	1805
SW846 9050								
SPECIFIC CONDUCTIVITY		**62.0**		1.0	umhos/cm		08/28/03	1805
GROUND WATER ELEVATION		**88.88**		.01	feet MSL		08/28/03	1805
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	09/03/03	1653
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1003
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1003
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1003
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1003
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1003
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1003

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
Page 1 of 1 Report ID: AB15244

Client ID: **MW-6**

Matrix : GW/ChemW

Sample ID : L03082904-04
Date Collected: 28-AUG-03 10:24
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**21.0**		1.0	degrees C		08/28/03	1024
SW846 9040B								
PH		**6.2**		0.50	su		08/28/03	1024
SW846 9050								
SPECIFIC CONDUCTIVITY		**618**		1.0	umhos/cm		08/28/03	1024
GROUND WATER ELEVATION		**89.44**		.01	feet MSL		08/28/03	1024
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	09/03/03	1659
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1021
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1021
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1021
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1021
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1021
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1021

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
Page 1 of 1 Report ID: AB15245

Client ID: **MW-6 DUP.**

Matrix : GW/ChemW

Sample ID : L03082904-05
Date Collected: 28-AUG-03 10:24
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**21.0**		1.0	degrees C		08/28/03	1024
SW846 9040B								
PH		**6.2**		0.50	su		08/28/03	1024
SW846 9050								
SPECIFIC CONDUCTIVITY		**618**		1.0	umhos/cm		08/28/03	1024
GROUND WATER ELEVATION		**98.44**		.01	feet MSL		08/28/03	1024
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	09/03/03	1716
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1040
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1040
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1040
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1040
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1040
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1040

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633 *SC Certification Number: 24110*

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03
Report Date : September 17, 2003
Page 1 of 1 Report ID: AB15246

Client ID: **MW-7**
Matrix : GW/ChemW

Sample ID : L03082904-06
Date Collected: 28-AUG-03 17:40
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**22.0**		1.0	degrees C		08/28/03	1740
SW846 9040B								
PH		**5.9**		0.50	su		08/28/03	1740
SW846 9050								
SPECIFIC CONDUCTIVITY		**71.0**		1.0	umhos/cm		08/28/03	1740
GROUND WATER ELEVATION		**88.16**		.01	feet MSL		08/28/03	1740
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	09/03/03	1722
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1058
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1058
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1058
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1058
TOLUENE		**4.1**		1.0	ug/l	PAP	09/03/03	1058
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1058

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
Page 1 of 1 Report ID: AB15247

Client ID: **MW-8**

Matrix : GW/ChemW

Sample ID : L03082904-07
Date Collected: 28-AUG-03 17:20
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**22.0**		1.0	degrees C		08/28/03	1720
SW846 9040B								
PH		**6.4**		0.50	su		08/28/03	1720
SW846 9050								
SPECIFIC CONDUCTIVITY		**114**		1.0	umhos/cm		08/28/03	1720
GROUND WATER ELEVATION		**88.26**		.01	feet MSL		08/28/03	1720
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.0057**		0.0050	mg/l	BDL	09/03/03	1728
Volatile Organics								
SW846 8260B								
BENZENE		**1330**		20.0	ug/l	PAP	09/03/03	1117
ETHYLBENZENE		**2310**		20.0	ug/l	PAP	09/03/03	1117
METHYL-TERT-BUTYL ETHER	<	100	X	100	ug/l	PAP	09/03/03	1117
NAPHTHALENE		**679**		100	ug/l	PAP	09/03/03	1117
TOLUENE		**9730**		100	ug/l	PAP	09/03/03	1552
XYLENE (TOTAL)		**12300**		100	ug/l	PAP	09/03/03	1552

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
Page 1 of 1 Report ID: AB15248

Client ID: **MW-9**

Matrix : GW/ChemW

Sample ID : L03082904-08
Date Collected: 28-AUG-03 16:29
Date Received : 29-AUG-03

Parameter	Result	Qual	RDL	Units	Analyst	Date	Time
Field Data							
EPA 170.1							
TEMPERATURE	**23.0**		1.0	degrees C		08/28/03	1629
SW846 9040B							
PH	**6.0**		0.50	su		08/28/03	1629
SW846 9050							
SPECIFIC CONDUCTIVITY	**139**		1.0	umhos/cm		08/28/03	1629
GROUND WATER ELEVATION	**87.53**		.01	feet MSL		08/28/03	1629
Trace Metals							
SW846 6010B T							
LEAD, TOTAL	**0.063**		0.0050	mg/l	BDL	09/03/03	1734
Volatile Organics							
SW846 8260B							
BENZENE	**2170**		20.0	ug/l	PAP	09/03/03	1135
ETHYLBENZENE	**310**		20.0	ug/l	PAP	09/03/03	1135
METHYL-TERT-BUTYL ETHER	**375**		100	ug/l	PAP	09/03/03	1135
NAPHTHALENE	**119**		100	ug/l	PAP	09/03/03	1135
TOLUENE	**1840**		20.0	ug/l	PAP	09/03/03	1135
XYLENE (TOTAL)	**706**		20.0	ug/l	PAP	09/03/03	1135

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
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Client ID: **MW-10**

Matrix : GW/ChemW

Sample ID : L03082904-09
Date Collected: 28-AUG-03 16:05
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**22.0**		1.0	degrees C		08/28/03	1605
SW846 9040B								
PH		**6.0**		0.50	su		08/28/03	1605
SW846 9050								
SPECIFIC CONDUCTIVITY		**84.0**		1.0	umhos/cm		08/28/03	1605
GROUND WATER ELEVATION		**87.50**		.01	feet MSL		08/28/03	1605
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.019**		0.0050	mg/l	BDL	09/03/03	1739
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1153
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1153
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1153
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1153
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1153
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1153

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
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Client ID: **MW-10 DUP.**

Matrix : GW/ChemW

Sample ID : L03082904-10
Date Collected: 28-AUG-03 16:05
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**22.0**		1.0	degrees C		08/28/03	1605
SW846 9040B								
PH		**6.0**		0.50	su		08/28/03	1605
SW846 9050								
SPECIFIC CONDUCTIVITY		**84.0**		1.0	umhos/cm		08/28/03	1605
GROUND WATER ELEVATION		**87.50**		.01	feet MSL		08/28/03	1605
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.043**		0.0050	mg/l	BDL	09/03/03	1745
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1212
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1212
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1212
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1212
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1212
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1212

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
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Client ID: **MW-11**

Matrix : GW/ChemW

Sample ID : L03082904-11
Date Collected: 28-AUG-03 15:06
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**23.0**		1.0	degrees C		08/28/03	1506
SW846 9040B								
PH		**4.6**		0.50	su		08/28/03	1506
SW846 9050								
SPECIFIC CONDUCTIVITY		**74.0**		1.0	umhos/cm		08/28/03	1506
GROUND WATER ELEVATION		**89.11**		.01	feet MSL		08/28/03	1506
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.024**		0.0050	mg/l	BDL	09/03/03	1751
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1230
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1230
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1230
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1230
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1230
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1230

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

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Client ID: **MW-12**

Matrix : GW/ChemW

Sample ID : L03082904-12
Date Collected: 28-AUG-03 15:38
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**23.0**		1.0	degrees C		08/28/03	1538
SW846 9040B								
PH		**5.8**		0.50	su		08/28/03	1538
SW846 9050								
SPECIFIC CONDUCTIVITY		**180**		1.0	umhos/cm		08/28/03	1538
GROUND WATER ELEVATION		**89.59**		.01	feet MSL		08/28/03	1538
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	09/03/03	1757
Volatile Organics								
SW846 8260B								
BENZENE		**7800**		50.0	ug/l	PAP	09/03/03	1610
ETHYLBENZENE		**762**		50.0	ug/l	PAP	09/03/03	1610
METHYL-TERT-BUTYL ETHER		**1340**		250	ug/l	PAP	09/03/03	1610
NAPHTHALENE		**263**		250	ug/l	PAP	09/03/03	1610
TOLUENE		**3200**		50.0	ug/l	PAP	09/03/03	1610
XYLENE (TOTAL)		**2090**		50.0	ug/l	PAP	09/03/03	1610

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

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Client ID: **MW-13**

Matrix : GW/ChemW

Sample ID : L03082904-13
Date Collected: 28-AUG-03 15:18
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**24.0**		1.0	degrees C		08/28/03	1518
SW846 9040B								
PH		**5.5**		0.50	su		08/28/03	1518
SW846 9050								
SPECIFIC CONDUCTIVITY		**128**		1.0	umhos/cm		08/28/03	1518
GROUND WATER ELEVATION		**88.92**		.01	feet MSL		08/28/03	1518
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.018**		0.0050	mg/l	BDL	09/03/03	1803
Volatile Organics								
SW846 8260B								
BENZENE		**3820**		50.0	ug/l	PAP	09/03/03	1307
ETHYLBENZENE		**819**		50.0	ug/l	PAP	09/03/03	1307
METHYL-TERT-BUTYL ETHER	<	250	X	250	ug/l	PAP	09/03/03	1307
NAPHTHALENE		**278**		250	ug/l	PAP	09/03/03	1307
TOLUENE		**5270**		50.0	ug/l	PAP	09/03/03	1307
XYLENE (TOTAL)		**3060**		50.0	ug/l	PAP	09/03/03	1307

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

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Client ID: **MW-14**

Matrix : GW/ChemW

Sample ID : L03082904-14
Date Collected: 28-AUG-03 14:58
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**24.0**		1.0	degrees C		08/28/03	1458
SW846 9040B								
PH		**5.9**		0.50	su		08/28/03	1458
SW846 9050								
SPECIFIC CONDUCTIVITY		**133**		1.0	umhos/cm		08/28/03	1458
GROUND WATER ELEVATION		**88.59**		.01	feet MSL		08/28/03	1458
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	09/03/03	1826
Volatile Organics								
SW846 8260B								
BENZENE		**12.2**		1.0	ug/l	PAP	09/03/03	1325
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1325
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1325
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1325
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1325
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1325

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633 *SC Certification Number: 24110*

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

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Client ID: **MW-18**

Matrix : GW/ChemW

Sample ID : L03082904-15
Date Collected: 28-AUG-03 14:20
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**24.0**		1.0	degrees C		08/28/03	1420
SW846 9040B								
PH		**5.9**		0.50	su		08/28/03	1420
SW846 9050								
SPECIFIC CONDUCTIVITY		**184**		1.0	umhos/cm		08/28/03	1420
GROUND WATER ELEVATION		**77.44**		.01	feet MSL		08/28/03	1420
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.047**		0.0050	mg/l	BDL	09/03/03	1832
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1344
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1344
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1344
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1344
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1344
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1344

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
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Client ID: **PW-1**

Matrix : GW/ChemW

Sample ID : L03082904-19
Date Collected: 28-AUG-03 18:32
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**20.0**		1.0	degrees C		08/28/03	1832
SW846 9040B								
PH		**4.7**		0.50	su		08/28/03	1832
SW846 9050								
SPECIFIC CONDUCTIVITY		**143**		1.0	umhos/cm		08/28/03	1832
GROUND WATER ELEVATION		**89.11**		.01	feet MSL		08/28/03	1832
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	09/03/03	1838
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1534
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1534
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1534
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1534
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1534
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1534

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

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Client ID: **PW-2**

Matrix : GW/ChemW

Sample ID : L03082904-20
Date Collected: 28-AUG-03 16:42
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**20.0**		1.0	degrees C		08/28/03	1642
SW846 9040B								
PH		**6.7**		0.50	su		08/28/03	1642
SW846 9050								
SPECIFIC CONDUCTIVITY		**188**		1.0	umhos/cm		08/28/03	1642
GROUND WATER ELEVATION		**88.80**		.01	feet MSL		08/28/03	1642
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.34**		0.13	mg/l	BDL	09/03/03	1907
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/04/03	0944
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/04/03	0944
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/04/03	0944
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/04/03	0944
TOLUENE	<	1.0		1.0	ug/l	PAP	09/04/03	0944
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/04/03	0944

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

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Client ID: **MW-21**

Matrix : GW/ChemW

Sample ID : L03082904-16
Date Collected: 28-AUG-03 12:10
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**25.0**		1.0	degrees C		08/28/03	1210
SW846 9040B								
PH		**5.2**		0.50	su		08/28/03	1210
SW846 9050								
SPECIFIC CONDUCTIVITY		**31.0**		1.0	umhos/cm		08/28/03	1210
GROUND WATER ELEVATION		**NA**		.01	feet MSL		08/28/03	1210
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.83**		0.050	mg/l	BDL	09/03/03	1849
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1439
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1439
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1439
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1439
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1439
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1439

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
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Client ID: **MW-23**

Matrix : GW/ChemW

Sample ID : L03082904-17
Date Collected: 28-AUG-03 12:37
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**22.0**		1.0	degrees C		08/28/03	1237
SW846 9040B								
PH		**5.6**		0.50	su		08/28/03	1237
SW846 9050								
SPECIFIC CONDUCTIVITY		**108**		1.0	umhos/cm		08/28/03	1237
GROUND WATER ELEVATION		**NA**		.01	feet MSL		08/28/03	1237
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.71**		0.050	mg/l	BDL	09/03/03	1855
Volatile Organics								
SW846 8260B								
BENZENE		**676**		10.0	ug/l	PAP	09/03/03	1629
ETHYLBENZENE		**251**		10.0	ug/l	PAP	09/03/03	1629
METHYL-TERT-BUTYL ETHER	<	50.0	X	50.0	ug/l	PAP	09/03/03	1629
NAPHTHALENE		**57.2**		50.0	ug/l	PAP	09/03/03	1629
TOLUENE		**1550**		10.0	ug/l	PAP	09/03/03	1629
XYLENE (TOTAL)		**925**		10.0	ug/l	PAP	09/03/03	1629

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

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LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
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Client ID: **MW-25**

Matrix : GW/ChemW

Sample ID : L03082904-18
Date Collected: 28-AUG-03 12:50
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**22.0**		1.0	degrees C		08/28/03	1250
SW846 9040B								
PH		**5.3**		0.50	su		08/28/03	1250
SW846 9050								
SPECIFIC CONDUCTIVITY		**105**		1.0	umhos/cm		08/28/03	1250
GROUND WATER ELEVATION		**NA**		.01	feet MSL		08/28/03	1250
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.49**		0.050	mg/l	BDL	09/03/03	1901
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1516
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	1516
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	1516
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	1516
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	1516
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	1516

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/02/03 1210

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
Page 1 of 1 Report ID: AB15261

Client ID: **GRANTI WELL**

Matrix : GW/ChemW

Sample ID : L03082904-21
Date Collected: 28-AUG-03 14:30
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**26.0**		1.0	degrees C		08/28/03	1430
SW846 9040B								
PH		**4.8**		0.50	su		08/28/03	1430
SW846 9050								
SPECIFIC CONDUCTIVITY		**68.0**		1.0	umhos/cm		08/28/03	1430
GROUND WATER ELEVATION		**NA**		.01	feet MSL		08/28/03	1430
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.017**		0.0050	mg/l	BDL	09/03/03	2133
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/04/03	0849
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/04/03	0849
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/04/03	0849
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/04/03	0849
TOLUENE	<	1.0		1.0	ug/l	PAP	09/04/03	0849
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/04/03	0849

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	DHR	09/03/03 1145

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

NELAC Certification Number: E87633

SC Certification Number: 24110

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.03

Report Date : September 17, 2003
Page 1 of 1 Report ID: AB15262

Client ID: **TRIP BLANK**

Matrix : GW/ChemW

Sample ID : L03082904-22
Date Collected: 26-AUG-03 14:20
Date Received : 29-AUG-03

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	0907
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	09/03/03	0907
METHYL-TERT-BUTYL ETHER	<	5.0		5.0	ug/l	PAP	09/03/03	0907
NAPHTHALENE	<	5.0		5.0	ug/l	PAP	09/03/03	0907
TOLUENE	<	1.0		1.0	ug/l	PAP	09/03/03	0907
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	09/03/03	0907

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Chain of Custody Record

Page ____ of ____

816 E. Durst Avenue, Greenwood, SC 29649 (864) 229-4413 Fax: (864) 229-7119
Laboratory Certifcation Numbers: SC - 24110, NC - 25, TN - 2923, VA - 77

Client	Project / Site Location	Office Use Only
Former Purolator Courier Columbia, SC	50098.03 Carolina Commerce	
Contact Jim Ferguson	**Report To** Jim Ferguson	**Copy To**
Collected By John McMahon	**Reporting Requirements:** [ ] Standard [ ] Data Package (Specify Level)	Purchase Order / Quote / Special Instructions

NOTICE:

Required Parameters, Containers and Preservatives: 125ml P (A: pH and Sp. Cond., Temp); 40ml G w/septa (C: BTEX, MTBE, Naphthalene); 250ml P (D: Lead)

State: SC

Login: L0306204

Indicate any known or expected hazards.

Sample Description	Sample Collection Date	Sample Collection Time	Time sampling initiated (composite only)	Composite	Grab	Matrix	Number of Containers Total	A	C	D	Fraction	HOT	Comments
Trip Blank	8.26-03	1420			X	S	2		2		32		
MW-6	8.28.03	1024			X	S	5	1	3	1	04		
MW-6 Dup		1024			X	S	5	1	3	1	05		
MW-2		1125			X	S	5	1	3	1	02		
MW-1		1142			X	S	5	1	3	1	01		
MW-21		1210			X	S	5	1	3	1	16		
MW-23		1237			X	S	5	1	3	1	17		
MW-25		1250			X	S	5	1	3	1	18		
MW-18		1420			X	S	5	1	3	1	15		
Grant Well		1430			X	S	5	1	3	1	31		
MW-12		1458			X	S	5	1	3	1	14		
MW-11		1506			X	S	5	1	3	1	11		
MW-13		1518			X	S	5	1	3	1	13		
MW-12		1538			X	S	5	1	3	1	12		
MW-10	↓	1605			X	S	5	1	3	1	09		

Relinquished By	Date	Time	Relinquished By	Date	Time	Relinquished By	Date	Time	Quick TAT	Shipped By
[signature]	8-29-03	0730							Y (N)	DAF CLIENT OPS FEDEX
Received By	**Date**	**Time**	**Received By**	**Date**	**Time**	**Received in Laboratory By**	**Date**	**Time**	If Y, specify: ___ days	Airbill Number
						Tisa M. Davis	8.29.03	0730		

Comments

Cooler ID (if available): ___
On Ice: (Yes) No Temp(C) 4
Custody Seal: Intact / Broken / (None)

Matrix Type Definitions 1 - Drinking Water 2 - Clean Water 5 - Groundwater 7 - Soil/Sediment 8 - Liquid Sludge 9 - Oil 12 - Air
Preservative Definitions A - None B - H_2SO_4 C - HCl D - HNO_3 E - NaOH F - Filtered G - Other

DAVIS & FLOYD Engineering, Architecture, Environmental & Laboratory Services

Chain of Custody Record

Page ____ of ____

816 E. Durst Avenue, Greenwood, SC 29649 (864) 229-4413 Fax: (864) 229-7119
Laboratory Certification Numbers: SC - 24110, NC - 25, TN - 2923, VA - 77

Client	Project / Site Location	Office Use Only
Former Purolator Courier Columbia, SC	50098.03 Carolina Commerce	
Contact	**Report To**	**Copy To**
Jim Ferguson	Jim Ferguson	

Reporting Requirements: [ ] Standard [ ] Data Package (Specify Level)

Purchase Order:

Collected By: John McMahon

Quote:

State: SC

Special Instructions:

NOTICE:

Required Parameters, Containers and Preservatives

Sample Description	Sample Collection Date	Sample Collection Time	Time sampling initiated (composite only)	Composite	Grab	Matrix	Number of Containers	Total	125ml P pH and Sp. Cond.,Temp A	40ml G w/septa BTEX,MTBE, Naphthalene C	250ml P Lead D	Login L 030829004 Fraction	Indicate any known or expected hazards. HOT	Comments
MW-10 Dup	8.28.03	1605			X	G	5	5	1	3	1	10		
MW-9		1629			X	G	5	5	1	3	1	08		
PW-2		1642			X	G	5	5	1	3	1	30		
MW-8		1720			X	G	5	5	1	3	1	07		
MW-7		1740			X	G	5	5	1	3	1	06		
MW-4		1805			X	G	5	5	1	3	1	03		
PW-1		1932			X	G	5	5	1	3	1	19		

Relinquished By	Date	Time	Relinquished By	Date	Time	Relinquished By	Date	Time	Quick TAT	Shipped By
	8.29.03	0730							Y (N)	D&F UPS CLIENT FEDEX
Received By	**Date**	**Time**	**Received By**	**Date**	**Time**	**Received In Laboratory By**	**Date**	**Time**	If Y, specify: ____ days	Airbill Number
						Tisa M. Davis	8.29.03	0730		

Comments:

Cooler ID (if available): ____
On Ice: (Yes) / No Temp(C) 4
Custody Seal: Intact / Broken / None

Matrix Type Definitions: 1 - Drinking Water 2 - Clean Water 5 - Groundwater 7 - Soil/Sediment 8 - Liquid Sludge 9 - Oil 12 - Air
Preservative Definitions: A - None B - H2SO4 C - HCl D - HNO3 E - NaOH F - Filtered G - Other

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-1

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.07

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 99.05 ft. msl (yes / no)

(B) Depth to Immiscible Layer: _____ ft.

(C) Immiscible Layer Elevation: (A) - (B) = _____ ft. msl (yes / no)

(D) Depth to Groundwater: 4.83 ft.

(E) Groundwater Elevation: (A)- (D) = 94.22 ft. msl (yes / no)

(F) Total Well Depth: 12.00 ft.

(G) Length of Water Column: (F) -(D)= 7.17 ft.

Casing Volume = (G) Volume in gal./ft. = 1.2 gals.

Method of Well Evacuation BAIL Start Time: 1135

Method of Sample Collection BAIL Time: 1142

Chain of Custody Started: (yes / no)

Source(s) of Well ID MW ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 0.5 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	1.2	2.4	3.6			
Time (military)	1137	1139	1141			
pH (S.U.)	4.8	4.7	4.7			
Specific Conductance (µmhos/cm)	116	115	115			
Water Temp. (°C)	26	26	26			
Odor *(subjective)* *	1	1	1			
Turbidity *(subjective)* **	4	4	4			

* (1)None (2)Slight (3)Moderate (4)Strong

**(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: _____

Completed by: _____ 8.28.03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-2

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 97.64 ft. msl (yes / no)

(B) Depth to Immiscible Layer: — ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 4.66 ft.

(E) Groundwater Elevation: (A)- (D) = 92.98 ft. msl (yes / no)

(F) Total Well Depth: 12.07 ft.

(G) Length of Water Column: (F) -(D)= 7.41 ft.

Casing Volume = (G) Volume in gal./ft. = 1.2 gals.

Method of Well Evacuation BAIL Start Time: 1118

Method of Sample Collection BAIL Time: 1125

Chain of Custody Started: (yes / no)

Source(s) of Well ID _____ ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 0 - 3 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	1.2	2.4	3.6			
Time (military)	1120	1121	1123			
pH (S.U.)	5.8	5.9	5.9			
Specific Conductance (µmhos/cm)	161	161	160			
Water Temp. (°C)	26	26	26			
Odor *(subjective)* *	3	2	2			
Turbidity *(subjective)* **	2	2	2			

* (1)None (2)Slight (3)Moderate (4)Strong

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock on Strong odor

Completed by: _____ 8-28-03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-3

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.07

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: _____ Temp. (°C): _____

Well Diameter: 2.0 in.

(A) Top of Well Elevation: _____ ft. msl (yes / no)

(B) Depth to Immiscible Layer: _____ ft.

(C) Immiscible Layer Elevation: (A) - (B) = _____ ft. msl (yes / no)

(D) Depth to Groundwater: _____ ft.

(E) Groundwater Elevation: (A)- (D) = _____ ft. msl (yes / no)

(F) Total Well Depth: _____ ft.

(G) Length of Water Column: (F) -(D)= _____ ft.

Casing Volume = (G) Volume in gal./ft. = _____ gals.

Method of Well Evacuation BAIL Start Time: _____

Method of Sample Collection BAIL Time: _____

Chain of Custody Started: (yes / no)

Source(s) of Well ID _____ ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: _____ ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)						
Time (military)						
pH (S.U.)						
Specific Conductance (µmhos/cm)						
Water Temp. (°C)						
Odor *(subjective)* *						
Turbidity *(subjective)* **						
_____						
_____						

* *(1)None (2)Slight (3)Moderate (4)Strong*

** *(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid*

Comments/Observations/Recommendations: well covered over with asphalt approx 2001

Completed by: _____ 8-28-03

Signature Date

Davis & Floyd, Inc.
FL07_00 (01/01)

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-4

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.07

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Overcast Temp. (°C): 80's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 95.56 ft. msl (yes / no)

(B) Depth to Immiscible Layer: ~ ft.

(C) Immiscible Layer Elevation: (A) - (B) = ~ ft. msl (yes / no)

(D) Depth to Groundwater: 6.68 ft.

(E) Groundwater Elevation: (A)- (D) = 88.88 ft. msl (yes / no)

(F) Total Well Depth: 14.61 ft.

(G) Length of Water Column: (F) -(D)= 7.93 ft.

Casing Volume = (G) Volume in gal./ft. = 1.3 gals.

Method of Well Evacuation BAIL Start Time: 1750

Method of Sample Collection BAIL Time: 1805

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 3.0 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	1.3	DRY @	1.2 Vol			
Time (military)	1755					
pH (S.U.)	4.7					
Specific Conductance (µmhos/cm)	62					
Water Temp. (°C)	24					
Odor *(subjective)* *	1					
Turbidity *(subjective)* **	3					

* (1)None (2)Slight (3)Moderate (4)Strong

**(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock

Completed by: John L. McMahon 8-28-03
Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-5

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.07

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Cloudy Temp. (°C): 80's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 95.13 ft. msl (yes / no)

(B) Depth to Immiscible Layer: 4.73 ft.

(C) Immiscible Layer Elevation: (A) - (B) = 90.40 ft. msl (yes / no)

(D) Depth to Groundwater: 7.40 ft.

(E) Groundwater Elevation: (A)- (D) = 87.73 ft. msl (yes / no)

(F) Total Well Depth: 15.00 ft.

(G) Length of Water Column: (F) -(D)= ~~7~~ ft.

Casing Volume = (G) Volume in gal./ft. = ~~No Sample~~ gals.

Method of Well Evacuation BAIL Start Time: _____

Method of Sample Collection BAIL Time: _____

Chain of Custody Started: (yes / no)

Source(s) of Well ID _____ ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: _____ ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)						
Time (military)						
pH (S.U.)						
Specific Conductance (µmhos/cm)						
Water Temp. (°C)						
Odor *(subjective)* *	1					
Turbidity *(subjective)* **						

* *(1)None (2)Slight (3)Moderate (4)Strong*

** *(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid*

Comments/Observations/Recommendations: Product layer 2.67 ft.

Completed by: _____ 8.28.03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-6 Deep

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/ /03 LWR submitted by:

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 80's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 97.10 ft. msl (yes / no)

(B) Depth to Immiscible Layer: — ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 7.66 ft.

(E) Groundwater Elevation: (A)- (D) = 89.44 ft. msl (yes / no)

(F) Total Well Depth: 15.81 ft.

(G) Length of Water Column: (F) -(D)= 8.15 ft.

Casing Volume = (G) Volume in gal./ft. = 1.3 gals.

Method of Well Evacuation BAIL Start Time: 1010

Method of Sample Collection BAIL Time: 1024

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (~~yes / no~~) Locking Cap (~~yes / no~~)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 2.0 ft.

Casing Type (PVC) (Steel) (Other)

Dedicated Pump or Bailer (yes / no) Type

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	(Deep)
Volume Purged (gallons)	1.3	2.6	3.9			
Time (military)	1013	1016	1018			
pH (S.U.)	6.1	6.2	6.2			6.2
Specific Conductance (µmhos/cm)	617	618	618			618
Water Temp. (°C)	21	21	21			21
Odor *(subjective)* *	1	1	1			1
Turbidity *(subjective)* **	5	5	4			4

* *(1)None (2)Slight (3)Moderate (4)Strong*

** *(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid*

Comments/Observations/Recommendations: No Lock

Completed by: [signature] 8-28-03

Signature *Date*

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-7

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/28/03 LWR submitted by:

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Overcast Temp. (°C): 82F

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 94.60 ft. msl (yes / no)

(B) Depth to Immiscible Layer: ft.

(C) Immiscible Layer Elevation: (A) - (B) = ft. msl (yes / no)

(D) Depth to Groundwater: 6.44 ft.

(E) Groundwater Elevation: (A)- (D) = 88.16 ft. msl (yes / no)

(F) Total Well Depth: 14.87 ft.

(G) Length of Water Column: (F) -(D)= 8.43 ft.

Casing Volume = (G) Volume in gal./ft. = 1.4 gals.

Method of Well Evacuation BAIL Start Time: 1728

Method of Sample Collection BAIL Time: 1740

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact ~~(yes / no)~~ Locking Cap ~~(yes / no)~~

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 2.0 ft.

Casing Type (PVC) (Steel) (Other)

Dedicated Pump or Bailer (yes / no) Type

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	1.4	2.8	~~4.2~~ DRY @ 2U			
Time (military)	1731	1734				
pH (S.U.)	5.9	5.9				
Specific Conductance (µmhos/cm)	71	71				
Water Temp. (°C)	22	22				
Odor *(subjective)* *	1	1				
Turbidity *(subjective)* **	3	4				

** (1)None (2)Slight (3)Moderate (4)Strong*

***(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid*

Comments/Observations/Recommendations:

Completed by: [signature] 8-28-03

Signature Date

Davis & Floyd, Inc.
FL07 _00 (01/01)

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-8

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.07

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 93.74 ft. msl (yes / no)

(B) Depth to Immiscible Layer: — ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 5.48 ft.

(E) Groundwater Elevation: (A)- (D) = _____ ft. msl (yes / no)

(F) Total Well Depth: 15.00 ft.

(G) Length of Water Column: (F) -(D)= 9.52 ft.

Casing Volume = (G) Volume in gal./ft. = 1.6 gals.

Method of Well Evacuation BAIL Start Time: 1658

Method of Sample Collection BAIL Time: 1720

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact ~~(yes / no)~~ Locking Cap ~~(yes / no)~~

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 2.0 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	1.6	3.2	4.8			
Time (military)	1702	1706	1710	@ 3V		
pH (S.U.)	6.14	6.4	6.4			
Specific Conductance (µmhos/cm)	116	114	114			
Water Temp. (°C)	22	22	22			
Odor *(subjective)* *	4	4	4 3			
Turbidity *(subjective)* **	2	3	3			

* (1)None (2)Slight (3)Moderate (4)Strong

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock Had product sheen

Completed by: [signature] 8-28-03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-9

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.03

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Cloudy Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 92.76 ft. msl (yes / no)

(B) Depth to Immiscible Layer: _____ ft.

(C) Immiscible Layer Elevation: (A) - (B) = _____ ft. msl (yes / no)

(D) Depth to Groundwater: 5.23 ft.

(E) Groundwater Elevation: (A)- (D) = 87.53 ft. msl (yes / no)

(F) Total Well Depth: 14.65 ft.

(G) Length of Water Column: (F) -(D)= 9.42 ft.

Casing Volume = (G) Volume in gal./ft. = 1.5 gals.

Method of Well Evacuation BAIL Start Time: 1622

Method of Sample Collection BAIL Time: 1629

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes no) Departure (yes / no)

Well Casing (height above / depth below) ground: 2.0 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	1.5	3.0	4.5			
Time (military)	1624	1625	1627			
pH (S.U.)	6.0	5.9	6.0			
Specific Conductance (µmhos/cm)	138	139	139			
Water Temp. (°C)	23	23	23			
Odor *(subjective)* *	3	3	3			
Turbidity *(subjective)* **	3	3	3			

* (1)None (2)Slight (3)Moderate (4)Strong

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock

Completed by: _____ 8-28-03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-10Dup

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 92.11 ft. msl (yes / no)

(B) Depth to Immiscible Layer: _____ ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 4.61 ft.

(E) Groundwater Elevation: (A)- (D) = 87.50 ft. msl (yes / no)

(F) Total Well Depth: 14.73 ft.

(G) Length of Water Column: (F) -(D)= 10.12 ft.

Casing Volume = (G) Volume in gal./ft. = 1.6 gals.

Method of Well Evacuation BAIL Start Time: 1551

Method of Sample Collection BAIL Time: 1605

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 2.0 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	(Dup)
Volume Purged (gallons)	1.6	~~3~~ 2 DRY @ 2.2 gal				
Time (military)	1555	1557				
pH (S.U.)	6.0	6.0				6.0
Specific Conductance (µmhos/cm)	84	84				84
Water Temp. (°C)	22	22				22
Odor *(subjective)* *	1	1	1			1
Turbidity *(subjective)* **	3	3				3

* (1)None (2)Slight (3)Moderate (4)Strong

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Locks

Completed by: _____ 8-28-03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: PW-1

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/28/03 LWR submitted by:

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Cloudy Temp. (°C): 80's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 94.29 ft. msl (yes / no)

(B) Depth to Immiscible Layer: — ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 5.18 ft.

(E) Groundwater Elevation: (A)- (D) = ft. msl (yes / no)

(F) Total Well Depth: 22.54 ft.

(G) Length of Water Column: (F) -(D)= 17.36 ft.

Casing Volume = (G) Volume in gal./ft. = 2.8 gals.

Method of Well Evacuation BAIL Start Time: 1813

Method of Sample Collection BAIL Time: 1832

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (~~yes / no~~) Locking Cap (~~yes / no~~)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 3.0 ft.

Casing Type (PVC) (Steel) (Other)

Dedicated Pump or Bailer (yes / no) Type

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	2.8	5.6	8.4			
Time (military)	1819	1825	1830			
pH (S.U.)	4.8	4.7	4.7			
Specific Conductance (µmhos/cm)	129	140	143			
Water Temp. (°C)	20	20	20			
Odor *(subjective)* *	1	1	1			
Turbidity *(subjective)* **	3	3	3			

* (1)None (2)Slight (3)Moderate (4)Strong

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock

Completed by: [signature] 8.28.03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: PW-2

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/ /03 LWR submitted by:

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 93.54 ft. msl (yes / no)

(B) Depth to Immiscible Layer: ft.

(C) Immiscible Layer Elevation: (A) - (B) = ft. msl (yes / no)

(D) Depth to Groundwater: 4.74 ft.

(E) Groundwater Elevation: (A)- (D) = 88.80 ft. msl (yes / no)

(F) Total Well Depth: 23.82 ft.

(G) Length of Water Column: (F) -(D)= 19.08 ft.

Casing Volume = (G) Volume in gal./ft. = 3.1 gals.

Method of Well Evacuation BAIL Start Time: 1632

Method of Sample Collection BAIL Time: 1642

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 2.5 ft.

Casing Type (PVC) (Steel) (Other)

Dedicated Pump or Bailer (yes / no) Type

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	3.1	6.2	9.3			
Time (military)	1637	DRY @	1647			
pH (S.U.)	6.7					
Specific Conductance (µmhos/cm)	188					
Water Temp. (°C)	20					
Odor *(subjective)* *	2					
Turbidity *(subjective)* **	3					

* (1)None (2)Slight (3)Moderate (4)Strong

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock

Completed by: [signature] 8-28-03
Signature Date

DAVIS & FLOYD Engineering, Architecture, Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-11

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 93.28 ft. msl (yes / no)

(B) Depth to Immiscible Layer: – ft.

(C) Immiscible Layer Elevation: (A) - (B) = – ft. msl (yes / no)

(D) Depth to Groundwater: 4.17 ft.

(E) Groundwater Elevation: (A)- (D) = 89.11 ft. msl (yes / no)

(F) Total Well Depth: 8.54 ft.

(G) Length of Water Column: (F) -(D)= 4.37 ft.

Casing Volume = (G) Volume in gal./ft. = 0.7 gals.

Method of Well Evacuation BAIL Start Time: 1459

Method of Sample Collection BAIL Time: 1506

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 0-2 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	0.7	1.4	2.1			
Time (military)	1501	1503	1505			
pH (S.U.)	4.5	4.6	4.5			
Specific Conductance (µmhos/cm)	73	74	74			
Water Temp. (°C)	23	23	23			
Odor *(subjective)* *	1	1	1			
Turbidity *(subjective)* **	3	2	2			

* (1)None (2)Slight (3)Moderate (4)Strong

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock

Completed by: John L McMahon 8.28.03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-12

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 97.42 ft. msl (yes / no)

(B) Depth to Immiscible Layer: _____ ft.

(C) Immiscible Layer Elevation: (A) - (B) = _____ ft. msl (yes / no)

(D) Depth to Groundwater: 7.83 ft.

(E) Groundwater Elevation: (A)- (D) = 89.59 ft. msl (yes / no)

(F) Total Well Depth: 7.98 ft.

(G) Length of Water Column: (F) -(D)= 5.15 ft.

Casing Volume = (G) Volume in gal./ft. = 0.8 gals.

Method of Well Evacuation BAIL Start Time: 1527

Method of Sample Collection BAIL Time: 1538

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 0.3 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	0.8	1.6	2.4			
Time (military)	1530	1533	1536			
pH (S.U.)	5.9	5.8	5.8			
Specific Conductance (µmhos/cm)	188	182	180			
Water Temp. (°C)	23	23	23			
Odor *(subjective)* *	3	3	3			
Turbidity *(subjective)* **	2	2	2			

* (1)None (2)Slight (3)Moderate (4)Strong

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock

Completed by: _____ 8-28-03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-B13

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/27/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 92.75 ft. msl (yes / no)

(B) Depth to Immiscible Layer: _____ ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 3.83 ft.

(E) Groundwater Elevation: (A)- (D) = 88.92 ft. msl (yes / no)

(F) Total Well Depth: 8.15 ft.

(G) Length of Water Column: (F) -(D)= 4.32 ft.

Casing Volume = (G) Volume in gal./ft. = 0.7 gals.

Method of Well Evacuation BAIL Start Time: 1512

Method of Sample Collection BAIL Time: 1518

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 0.3 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	0.7	1.4	2.1			
Time (military)	1513	1515	1517			
pH (S.U.)	5.6	5.6	5.5			
Specific Conductance (µmhos/cm)	129	128	128			
Water Temp. (°C)	24	24	24			
Odor *(subjective)* *	2	2	2			
Turbidity *(subjective)* **	1	2	2			

* (1)None (2)Slight (3)Moderate (4)Strong

**(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock

Completed by: _____ 8.28.03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-24

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 91.52 ft. msl (yes / no)

(B) Depth to Immiscible Layer: — ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 2.93 ft.

(E) Groundwater Elevation: (A)- (D) = 88.59 ft. msl (yes / no)

(F) Total Well Depth: 8.07 ft.

(G) Length of Water Column: (F) -(D)= 5.14 ft.

Casing Volume = (G) Volume in gal./ft. = 0.8 gals.

Method of Well Evacuation BAIL Start Time: 1448

Method of Sample Collection BAIL Time: 1458

Chain of Custody Started: (yes / no)

Source(s) of Well ID _____ ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 0.2 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	0.8	1.6	2.4			
Time (military)	1450	1452	1453			
pH (S.U.)	5.8	5.9	5.9			
Specific Conductance (µmhos/cm)	134	133	133			
Water Temp. (°C)	24	24	24			
Odor *(subjective)* *	2	2	2			
Turbidity *(subjective)* **	3	3	3			

* (1)None (2)Slight (3)Moderate (4)Strong

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock

Completed by: _____ 8.28.03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-15

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.07

Date: 8/20/03 LWR submitted by:

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: ft. msl (yes / no)

(B) Depth to Immiscible Layer: ft.

(C) Immiscible Layer Elevation: (A) - (B) = ft. msl (yes / no)

(D) Depth to Groundwater: ft.

(E) Groundwater Elevation: (A) - (D) = ft. msl (yes / no)

(F) Total Well Depth: 12.99 ft.

(G) Length of Water Column: (F) -(D)= ft.

Casing Volume = (G) Volume in gal./ft. = gals.

Method of Well Evacuation BAIL Start Time:

Method of Sample Collection BAIL Time:

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: ft.

Casing Type (PVC) (Steel) (Other)

Dedicated Pump or Bailer (yes / no) Type

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)						
Time (military)						
pH (S.U.)						
Specific Conductance (µmhos/cm)						
Water Temp. (°C)						
Odor *(subjective)* *						
Turbidity *(subjective)* **						

*(1)None (2)Slight (3)Moderate (4)Strong

**(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: unable to find well

Completed by: [signature] 8-28-03

Signature Date

Davis & Floyd, Inc.
FL07_00 (01/01)

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-16

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.09

Date: 8/28/03 LWR submitted by:

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: ft. msl (yes / no)

(B) Depth to Immiscible Layer: ft.

(C) Immiscible Layer Elevation: (A) - (B) = ft. msl (yes / no)

(D) Depth to Groundwater: ft.

(E) Groundwater Elevation: (A)- (D) = ft. msl (yes / no)

(F) Total Well Depth: 12.17 ft.

(G) Length of Water Column: (F) -(D)= ft.

Casing Volume = (G) Volume in gal./ft. = gals.

Method of Well Evacuation BAIL Start Time:

Method of Sample Collection BAIL Time:

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes) no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: ft.

Casing Type (PVC) (Steel) (Other)

Dedicated Pump or Bailer (yes / no) Type

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)						
Time (military)						
pH (S.U.)						
Specific Conductance (µmhos/cm)						
Water Temp. (°C)						
Odor *(subjective)* *						
Turbidity *(subjective)* **						

* *(1)None (2)Slight (3)Moderate (4)Strong*

** *(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid*

Comments/Observations/Recommendations: Unable to find

Completed by: [signature] 8-28-03
Signature Date

Davis & Floyd, Inc.
FL07_00 (01/01)

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: W-17

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/27/03 LWR submitted by:

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: ft. msl (yes / no)

(B) Depth to Immiscible Layer: ft.

(C) Immiscible Layer Elevation: (A) - (B) = ft. msl (yes / no)

(D) Depth to Groundwater: ft.

(E) Groundwater Elevation: (A)- (D) = ft. msl (yes / no)

(F) Total Well Depth: 12.24 ft.

(G) Length of Water Column: (F) -(D)= ft.

Casing Volume = (G) Volume in gal./ft. = gals.

Method of Well Evacuation BAIL Start Time:

Method of Sample Collection BAIL Time:

Chain of Custody Started: (yes / no)

Source(s) of Well ID Map ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: ft.

Casing Type (PVC) (Steel) (Other)

Dedicated Pump or Bailer (yes / no) Type

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)						
Time (military)						
pH (S.U.)						
Specific Conductance (µmhos/cm)						
Water Temp. (°C)						
Odor *(subjective)* *						
Turbidity *(subjective)* **						

* (1)None (2)Slight (3)Moderate (4)Strong

**(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: Unable to find well

Completed by: 8-28-03

Signature Date

Davis & Floyd, Inc.
FL07_00 (01/01)

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-18

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.07

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: 83.37 ft. msl (yes / no)

(B) Depth to Immiscible Layer: — ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 5.93 ft.

(E) Groundwater Elevation: (A)- (D) = _____ ft. msl (yes / no)

(F) Total Well Depth: 12.0 ft.

(G) Length of Water Column: (F) -(D)= 6.07 ft.

Casing Volume = (G) Volume in gal./ft. = 1.0 gals.

Method of Well Evacuation BAIL Start Time: 1413

Method of Sample Collection BAIL Time: 1420

Chain of Custody Started: (yes / no)

Source(s) of Well ID MW ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 0.3 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	1.0	2.0	3.0			
Time (military)	1415	1417	1419			
pH (S.U.)	5.8	5.8	5.9			
Specific Conductance (µmhos/cm)	210	206	184			
Water Temp. (°C)	24	24	24			
Odor *(subjective)* *	1	1	1			
Turbidity *(subjective)* **	3	3	3			

* (1)None (2)Slight (3)Moderate (4)Strong

**(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No lock

Completed by: _____ 8-28-03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-2 (

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.02

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Sunny Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: — ft. msl (yes / no)

(B) Depth to Immiscible Layer: — ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 6.21 ft.

(E) Groundwater Elevation: (A)- (D) = _____ ft. msl (yes / no)

(F) Total Well Depth: 3.42828 ft.

(G) Length of Water Column: (F) -(D)= 3.07 ft.

Casing Volume = (G) Volume in gal./ft. = 0.5 gals.

Method of Well Evacuation BAIL Start Time: 1204

Method of Sample Collection BAIL Time: 1210

Chain of Custody Started: (yes / no)

Source(s) of Well ID _____ ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 0.3 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	0.5	DRY @	2 U			
Time (military)	1205	1206				
pH (S.U.)	5.2	5.2				
Specific Conductance (µmhos/cm)	72	31				
Water Temp. (°C)	25	25				
Odor *(subjective)* *	2	2				
Turbidity *(subjective)* **	4	5				

* (1)None (2)Slight (3)Moderate (4)Strong

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock

Completed by: _____ 8-28-03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-23

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.03

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Clear Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: — ft. msl (yes / no)

(B) Depth to Immiscible Layer: — ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 1.37 ft.

(E) Groundwater Elevation: (A)- (D) = _____ ft. msl (yes / no)

(F) Total Well Depth: 5.26 ft.

(G) Length of Water Column: (F) -(D)= 3.89 ft.

Casing Volume = (G) Volume in gal./ft. = 0.6 gals.

Method of Well Evacuation BAIL Start Time: 1230

Method of Sample Collection BAIL Time: 1237

Chain of Custody Started: (yes / no)

Source(s) of Well ID _____ ID Label (yes (no))

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 0.3 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	0.6	DRY @	1.5 ✓			
Time (military)	1232	1233				
pH (S.U.)	5.6	5.6				
Specific Conductance (µmhos/cm)	110	108				
Water Temp. (°C)	23	23				
Odor *(subjective)* *	1	1				
Turbidity *(subjective)* **	5	5				

* *(1)None (2)Slight (3)Moderate (4)Strong*

** *(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid*

Comments/Observations/Recommendations: No Lock product odor

Completed by: [signature] 8-28-03

Signature *Date*

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: MW-25

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.07

Date: 8/28/03 LWR submitted by: _____

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Clear Temp. (°C): 90's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: — ft. msl (yes / no)

(B) Depth to Immiscible Layer: — ft.

(C) Immiscible Layer Elevation: (A) - (B) = — ft. msl (yes / no)

(D) Depth to Groundwater: 0.4 ft.

(E) Groundwater Elevation: (A)- (D) = _____ ft. msl (yes / no)

(F) Total Well Depth: 3.8 ft.

(G) Length of Water Column: (F) -(D)= 3.4 ft.

Casing Volume = (G) Volume in gal./ft. = 0.6 gals.

Method of Well Evacuation BAIL Start Time: 1246

Method of Sample Collection BAIL Time: 1250

Chain of Custody Started: (yes / no)

Source(s) of Well ID _____ ID Label (yes (no))

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: 0.3 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes / no) Type _____

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)	0.6	DRY @	1.2 VO			
Time (military)	1241	1247				
pH (S.U.)	5.3	5.3				
Specific Conductance (µmhos/cm)	105	105				
Water Temp. (°C)	22	22				
Odor *(subjective)* *	1	1				
Turbidity *(subjective)* **	5	5				

* (1)None (2)Slight (3)Moderate (4)Strong

**(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid

Comments/Observations/Recommendations: No Lock

Completed by: _____ 8-28-03

Signature Date

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Field Data for Groundwater Sample Collection
Groundwater Measurements

Well ID: Grant's Well

Client: Former Purolator Courier

Site Name: Columbia, SC Job No.: 50098.03

Date: 8/28/03 LWR submitted by:

Sampling Personnel: JLM/WFW

Regulatory Personnel: N/A

Weather Conditions: Temp. (°C):

Well Diameter: 2.0 in.

(A) Top of Well Elevation: ft. msl (yes / no)

(B) Depth to Immiscible Layer: ft.

(C) Immiscible Layer Elevation: (A) - (B) = ft. msl (yes / no)

(D) Depth to Groundwater: ft.

(E) Groundwater Elevation: (A)- (D) = ft. msl (yes / no)

(F) Total Well Depth: ft.

(G) Length of Water Column: (F) -(D)= ft.

Casing Volume = (G) Volume in gal./ft. = gals.

Method of Well Evacuation BAIL Start Time:

Method of Sample Collection BAIL Time: 1430

Chain of Custody Started: (yes / no)

Source(s) of Well ID ID Label (yes / no)

Well Completion: Protective Casing (yes / no) Flush (yes / no)

Flush-Mount Cover Seal Intact (yes / no) Locking Cap (yes / no)

Locked at Arrival (yes / no) Departure (yes / no)

Well Casing (height above / depth below) ground: ft.

Casing Type (PVC) (Steel) (Other)

Dedicated Pump or Bailer (yes / no) Type

Protective Post / Abutment (yes / no) Concrete Pad (yes / no)

Well Integrity: Satisfactory (yes / no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

Diameter of Tubing (in.)	Volume (gal. / ft.)	Diameter of Pipe (in.)	Volume (gal. / ft.)
1/8	0.0006	1.0	0.041
3/16	0.0014	2.0	0.163
1/4	0.0025	3.0	0.367
5/16	0.0039	4.0	0.653
3/8	0.0050	5.0	1.020
1/2	0.0100	6.0	1.470
3/4	0.0230	1 gallon/ft. = 3.8 liters/ft.	

Cylinder Volume (gal./ft.) = $\pi r^2 h \times 0.0043$

Radius (r) and height (h) measured in inches.

FIELD ANALYSES

Measurements	First	Second	Third	Fourth	Fifth	( )
Volume Purged (gallons)						
Time (military)						
pH (S.U.)	4.8					
Specific Conductance (µmhos/cm)	68					
Water Temp. (°C)	26					
Odor *(subjective)* *	1					
Turbidity *(subjective)* **	1					

** (1)None (2)Slight (3)Moderate (4)Strong*

***(1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5) Extremely Turbid*

Comments/Observations/Recommendations:

Completed by: [signature] 8-28-03

Signature Date

Davis & Floyd, Inc.
FL07_00 (01/01)

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RDL	Report Detection Limit	**MDL**	Method Detection Limit
TOP	Top of Pipe	**MSL**	Mean Sea Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
BTU	British Thermal Units	**NTU**	Nephelometric Turbidity Units
C	Degrees Centigrade	**F**	Degrees Fahrenheit
umhos/cm	micromhos/cm	**meq**	milliequivalents
kg	kilogram(s)	**g**	gram(s)
mg	milligram(s)	**ug**	microgram(s)
l	liter(s)	**ml**	milliliters(s)
ul	microliter(s)	**m3**	cubic meter(s)
lb	pound(s)	**ft3**	cubic foot(feet)
ft	foot(feet)	**TIC**	Tentatively Identified Compounds

mg/l, mg/kg Units of concentration in milligrams per liter for liquids and milligrams per kilogram for solids. Also referred to as Parts Per Million or "ppm" when the assumption is made that the specific gravity or density is one (1 g/ml).

ug/l, ug/kg Units of concentration in micrograms per liter for liquids and micrograms per kilograms for solids. Also referred to as Parts Per Billion or "ppb" when the assumption is made that the specific gravity or density is one (1 g/ml).

wt% Units of concentration expressed on a weight/weight basis (e.g. grams per 100 grams).

< Less Than – The number following the sign is the limit of quantitation, the smallest amount of analyte that can be reliably determined using this test.

> Greater Than

Data Qualifiers:

- **A** TIC is a possible aldol-condensation product resulting from sample extraction, (Organics)
- **B** Analyte also detected in the method blank.
- **C** Amendable Cyanide is a negative value due to an unknown interference.
- **E** Estimated concentration due to interference.
- **J** Estimated value below RDL or estimated value for TIC. (Organics)
- **P** Concentration difference between primary and confirmation columns >25%. (Organics) The lower result is reported.
- **X** Matrix interference which requires dilution or prevents the reporting of a result. Detection limits have been adjusted where applicable.
- ***** Defined in report comments.

Solid samples (i.e. soil, sludge, and solid waste) are reported on a dry weight basis unless otherwise noted.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or biological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of the material involved, the test results will be meaningless. If you have any questions regarding the proper techniques of collecting samples, please contact us. However, we cannot be held responsible for sample integrity unless sampling has been performed by a member of our staff.

WARRANTY AND LIMITATION OF LIABILITY – The accuracy of all analytical results is warranted for the sample as it is received by the laboratory. Warranty for the integrity of the sample begins at the time it is placed in the possession of authorized Davis & Floyd, Inc. Laboratories personnel. All other warranties, expressed or implied, are disclaimed. Liability is limited to the cost of the analysis.

Davis & Floyd, Inc. | PO Drawer 428 | Greenwood, SC 29648 | 816 E. Durst Avenue | Greenwood, SC 29649 | (864) 229-4413 | Fax (864) 229-7119

D H E C
PROMOTE PROTECT PROSPER
Catherine B. Templeton, Director
Promoting and protecting the health of the public and the environment

UST Tech DOCKETING

MS BONITA SYKES
2935 E PONCE DE LEON AVE
DECATOUR GA 30030

MAR 2 9 2012

Re: **Request for Right of Entry**
Former Purolator Courier Corp., 105 Corporate Blvd., West Columbia, SC
UST Permit # 05878
Release Reported October 17, 1991
Tax Map# 004599-10-019
Lexington County

Dear Ms. Sykes:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control confirmed a release from the UST system at the referenced site on October 17, 1991.

To determine what risk the above reported release may pose to the environment and public health, and in accordance with Section 280.65 of the South Carolina Underground Storage Tank Control Regulations, implementation of a comprehensive groundwater sampling event is necessary to obtain current groundwater data. The UST Management Division intends to conduct necessary assessment and remediation work using state funds from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. Since you were not the owner or operator of the UST system, there will be no cost to you for the intended work. As the current property owner, the UST Division is requesting your permission for the contractor to enter the property to perform the necessary work and all future work. The UST Management Division will keep you apprised of all pending activities and provide you a copy of all reports. **Please complete the attached right of entry form and return it to my attention within 15 days from your date of receipt.**

If you have any questions, please contact me by phone at (803) 896-6323, by fax at (803) 896-6245, or by e-mail at brineysm@dhec.sc.gov.

Sincerely,

Stephanie Briney

Stephanie Briney, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

enc: Right of Entry Form
cc: Technical file (no enc)

D · H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT

Phone (803) 896-6240 Fax (803) 896-6245

JUN 20 2003

MR WILLIAM DURHAM III
WILLIAM DURHAM COMPANY
3135 MILLWOOD AVE
COLUMBIA SC 29205-1866

UST PROGRAM
DOCKETING # 20T&Ch

Re: Former Purolator Courier, 105 Corporate Blvd., W. Columbia, SC
UST Permit #05878; CA #18795; MWA #UMW-17247
Release 1 Reported October 17, 1991
Technical File Reviewed April 30, 2003
Lexington County

Dear Mr. Durham:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) recognizes your commitment to continue work at this site utilizing your own contractor. SCDHEC has reviewed the Assessment Component Cost Agreement for continued work at this site submitted by Davis & Floyd.

The next scope of work to be implemented at this site is installation of monitoring wells to fully define the contaminant plume and a sampling event. Cost Agreement **#18795** has been approved in the amount shown on the enclosed Approved Cost Agreement to complete the necessary work. Please be advised that only EPA Method 8260B will be accepted for purgeable aromatics.

Davis & Floyd can submit an invoice for direct billing from the SUPERB Account. Please note that all applicable South Carolina certification requirements apply to the laboratory services, well installation, and report preparation. Approval for the installation of three shallow groundwater monitoring wells has been provided to your environmental consultant; a copy is enclosed for your records.

Please note that Sections 44-2-110(4) and 44-2-130 of the SUPERB Statute state that no costs will be allowed unless prior approval from the Department is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by the Department for the cost to be paid. **The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified and will only pay rates in accordance with established criteria. Further, SCDHEC reserves the right to question and/or reject costs if deemed unreasonable or excessive.** The SCDHEC reserves the right to audit project records at any time during the project or after completion of work.

Rehabilitation activities at the site should be resumed immediately upon receipt of this letter. Characterization of all exposure pathways shall be completed using field screening points. Based on the field screening results, monitoring wells shall be installed in appropriate locations to monitor the migration of chemicals of concern along these exposure pathways and for site rehabilitation. **The Department shall be contacted prior to well installation for concurrence regarding the final well locations.** Final monitoring wells shall be properly installed and bracketed at the water table.

A Report of Findings and the invoice are due within 90 days from the date of this letter. If the invoice is not submitted within 120 days from the date of this letter, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

The Bureau of Land and Waste Management grants pre-approval for transportation of virgin petroleum contaminated groundwater/soil from the referenced site to a permitted treatment facility. The contaminated groundwater/soil must be properly stored in labeled containers or covered with plastic as appropriate. The contaminated groundwater/soil must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below risk-based screening levels, please contact the project manager for approval to dispose of soil and/or groundwater on site. The SUPERB Account will not compensate for transportation or treatment of clean soil and/or groundwater.

On all correspondence concerning this site, please reference **UST Permit #05878 and Cost Agreement #18795**. If there are any questions concerning this project, please contact me at (803) 896-6648 or (800) 826-5435 (within South Carolina only).

Sincerely,

Alexander Butler, Hydrogeologist
Owner/Operator Support Section
Assessment & Corrective Action Division

enc: Approved Cost Agreement (ACA)
Copy of Monitoring Well Approval (MWA)

cc: Mr. James Ferguson, Davis & Floyd, 240 Stoneridge Dr., Columbia, SC 29210 (with original MWA and copy of ACA)
Technical File (with copy of MWA and ACA)
Read File

SCDHEC/UST/04/30/03

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

Monitoring Well Installation Approval Form

Date of Issue: April 30, 2003 Approval No.: UMW-17247

Approval is hereby granted to:	Davis & Floyd
On behalf of:	William Durham Company
UST Permit #:	05878
County:	Lexington

This approval is for the construction of field screening, and three shallow monitoring wells in accordance with the South Carolina Well Standards and Regulations. The SUPERB Account does not pay the replacement of wells. The well(s) are to be constructed within the surficial aquifer for the intended purpose of monitoring groundwater quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.

2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.

3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.

4. A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to Alexander Butler at (803) 896-6648 or butlerap@dhec.sc.gov.

5. Please provide groundwater quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to me with the technical report.

6. Monitoring wells and temporary monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.

7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Bureau.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by:

Alexander Butler, Hydrogeologist
Owner/Operator Support Section
Underground Storage Tank Program

cc: Central Midlands District EQC
Technical File
SCDHEC/UST/04/30/03

Approved Cost Agreement 187[redacted]

Facility: 05878 PUROLATOR COURIER CORP
BUTLERAP
PO Number: 477444

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
01 PLAN		A	PLAN PREPARATION	1.0000	100.00	100.00
04 MOB/DEMOB		A	EQUIPMENT	1.0000	500.00	500.00
		B	PERSONNEL	4.0000	250.00	1,000.00
05 SOIL BORINGS (HAND AUGER)			SOIL BORINGS (HAND AUGER)	84.0000	14.00	1,176.00
09 WELL INSTALLATION		A	WATER TABLE (HAND AUGER)	36.0000	20.00	720.00
10 SAMPLE COLLECTION		A	GROUND WATER	24.0000	55.00	1,320.00
11 ANALYSES	GW GROUNDWATER	A	BTEX+NAPTH+MTBE	24.0000	100.00	2,400.00
		E	LEAD	24.0000	20.00	480.00
16 SUBSEQUENT SURVEY			SUBSEQUENT SURVEY	1.0000	260.00	260.00
17 DISPOSAL		A1	WASTEWATER - PURGING/SAMPLING	1.0000	90.00	90.00
		C	SOIL (TREATMENT/DISPOSAL)	1.0000	50.00	50.00
				Total Amount		8,096.00

AB

D H E C

PROMOTE PROTECT PROSPER

2600 Bull Street
Columbia, SC 29201-1708

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT

Phone (803) 896-6240 Fax (803) 896-6245

RECEIVED
JAN 27 2003
UNDERGROUND STORAGE TANK PROGRAM

RIGHT OF ENTRY

I, Robert Senn certify that I am the legal owner or the authorized representative for Robert Senn (owner) of the property described below. I have witnessed the planned locations / have been provided a sketch map indicating the location(s) of the work to be performed. Permission is hereby granted to the South Carolina Department of Health and Environmental Control (SCDHEC) and its agents to enter the referenced property for the following purposes:

Name of Facility (if appropriate) : _____

Street Address : 2456 Kipman Dr.

City, State, ZIP : West Col. SC 29169

1) Drilling of screening points. The work will be properly abandoned upon completion, and no permanent effects shall remain on site.

2) Installing _____ monitoring/ recovery wells. I understand that these wells will remain on the property until cleanup is complete. Additionally, SCDHEC or its agents will access the property at reasonable times for measurement and/or collection of samples. The monitoring wells will be properly abandoned upon completion of remediation activities.

NAME (Please print) : Robert Senn

SIGNATURE : Robert Senn

WITNESS : Diane C Senn

DATE : 1- Mo 22 Day 03 Year

Reference UST Permit # 05878

Note: Contact me prior to work. 794-4442
No heavy equipment to be used such as Dozer or Back Hoe or removal of trees.

Robert Senn

UST PROGRAM DOCKETING # 21 Tech

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT

Phone (803) 896-6240 Fax (803) 896-6245

JAN 13 2003

MR ROBERT N SENN
2456 KLAPMAN RD
WEST COLUMBIA SC 29169-4734

Re: Former Purolator Courier, 105 Corporate Blvd., W. Columbia, SC
UST Permit #05878
Access to your property located adjacent to Former Purolator Courier
Lexington County

Dear Mr. Senn:

The Underground Storage Tank Program has previously requested permission to enter your property for Davis & Floyd to install field screening and groundwater monitoring wells. A response to the previously sent letter within the requested 10 days has not been received.

The Program has the authority pursuant to the State Underground Petroleum Environmental Response Bank Act (S.C. Code Ann. 44-2-10 *et seq.* (Supp. 1996)) and the Underground Storage Tank Control Regulations (S.C. Code Ann. Regs. 61-92 (Supp.1996)) to hold William Durham Company, the owner / operator, responsible for addressing the existing contamination. The Department also has authority, however, under the Pollution Control Act (S.C. Code Ann. 48-1-10 *et seq.* (1976)), as amended, to require each and every individual property owner to abate pollution on his or her own property. Indeed, the South Carolina Supreme Court has held landowners strictly liable under the Pollution Control Act for contamination emanating from their property. The Department believes it to be in your best interest to allow William Durham Company and there contractor Davis & Floyd to address the contamination problem as they, until now, have done.

The Bureau requests that you allow the installation of these wells to proceed in a timely manner and return the required right of entry form. **Please complete the attached right of entry form and return it to the attention of Alexander Butler within 10 days from your date of receipt. If not, the Department may pursue a court order to gain access to the property.**

On all correspondence concerning this facility, please reference **UST Permit #05878.** If you have any questions, please contact me at (803) 896-6648 or (800) 826-5435 (within SC).

Sincerely,

Alexander Butler, Hydrogeologist
Owner/Operator Support Section
Assessment and Corrective Action Division

UST PROGRAM
DOCKETING # 22tech

Enc: Right of Entry Form

cc: Mr. William Durham III, William Durham Company, 3135 Millwood Ave, Columbia SC 29205
Mr. James Ferguson, Davis & Floyd, 240 Stoneridge Dr., Columbia, SC 29210
Technical File/Read File

DAVIS & FLOYD Engineering
Architecture
Environmental & Laboratory Services

240 Stoneridge Drive, Suite 200 Columbia, SC 29210 • (803) 254-4337 (office) (803) 254-4549 (fax)

October 21, 2002
Serial No.: JMF-0069-02
File No.: 50098.03

Mr. Alexander Butler, Hydrogeologist
Owner/Operator Assistance Section
Assessment and Corrective Action Division
Underground Storage Tank Program
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201-1708

RE: Tier II Plan
Site ID# 05878
Former Purolator Courier Site
West Columbia, Lexington County, SC

Dear Mr. Butler:

In response to your September 25, 2002 letter to Mr. Durham, a Tier II plan with associated Cost Agreement and Disposal Requests are attached. The site location is shown on the attached copy of the USGS topo and well construction is shown on the attached schematic. The downgradient area to be investigated is very heavily vegetated and the property owner has not allowed the cutting of trees in the past. Hand-augering is the only possible drilling method and deeper wells, although indicated, will not be possible unless you can obtain permission from Mr. Robert N. Senn. His telephone number is (803) 794-4442. It has been two years since the monitoring wells and the nearby privately-owned well were sampled and re-sampling all wells is indicated. A comprehensive survey is also proposed to accurately map the stream and its wetland for the first time. This has not been possible in the past due to the heavy vegetation and this surveying will be more difficult than normal if trees can not be cut or damaged.

If you have any questions, please contact me.

Sincerely,

DAVIS & FLOYD, INC.

James M. Ferguson

James M. Ferguson, P.G.

JMF/jmf

Enclosures: As stated

c.c.: Mrs. Rena Derrick

UST PROGRAM
DOCKETING # 23 Tech

RECEIVED
OCT 28 2002
Underground Storage
Tank Program

TIER II PLAN

SOUTH CAROLINA
Department of Health and Environmental Control
Division of Underground Storage Tank Management

Site ID # 05878 County Lexington Facility Name Former Purolator Courier
Facility Address 153 Corporate Blvd., West Columbia, SC
Responsible party William S. Durham, III Address See Owner Address (below)
No USTs 3 removed? January 1991 (date) replaced? no (date)
Current use of facility/property Light Industrial
Current property owner name American Hermetics
Current property owner address 153 Corporate Blvd., West Columbia, SC

Field Screening Methodology
Specify the field screening methodology to be used. The use of field screening methods to optimize the number and location of permanent wells is required.

Depth to groundwater is less than 5 feet in the downgradient area to be investigated and landowner does not allow the cutting of trees. Hand-augering will therefore be used to allow the collection of groundwater samples from 8 to 10 open boreholes along the stream bank that will be analyzed in the field with a portable gas-chromatograph. The field data will be used to place a permanent monitoring well in the center of the plume and one monitoring well each on the side-gradient edges of the plume.

Permanent Monitoring Wells (Estimate number and total completed depth)
# of shallow wells 3 total depth 12
# of deep wells 0 total depth 0 (If necessary)
Comments, if warranted Four downgradient wells to be hand-augered along stream bank downgradient of well MW-14

Analyses
List the analytical parameters (e.g., BTEX .MTBE) and estimated number.

24	GW	BTEX-MTBE-Naph.
24	GW	PAHs
24	GW	Lead
24	GW	pH
23	GW	Nitrate
23	GW	Sulfate
23	GW	Ferrous Iron
10	GW	Dissolved Methane

Implementation Schedule
Start up date Nov. 1, 2002 Completion date Dec. 19, 2002
Report submittal date Jan. 10, 2002 or ninety days from date of RAP approval

TIER II PLAN

SOUTH CAROLINA
Department of Health and Environmental Control
Division of Underground Storage Tank Management

Site ID # 05878 Facility Name Former Purolator Courier

Site Maps

1. Attach a copy of the relevant portion of the USGS topographic map showing the site location

2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following

North Arrows	Legend with facility name and address, Site ID number, date, and a bar scale
Location of property lines	Streets or highways (indicate name and numbers)
Location of buildings	Identification of located buildings
Paved areas on or adjacent to site	Location of all present and former ASTs and USTs
Previous soil sampling locations	Underground and above ground utilities on or adjacent to site
Previous monitoring well locations	Location of any other potential receptor

Aquifer Characterization (Check one and provide explanation for choice)

Pump Test _____ Slug Tests _____

No additional aquifer characterization is proposed.

Small Volume Disposal Type and Method

Soil Will be drummed and disposed of in a SCDHEC-approved manner pending laboratory analysis

Purge Water Will be drummed and disposed of in a SCDHEC-approved manner pending laboratory analysis.

Additional Comments Adjacent downgradient property owner, Mr. Robert N. Senn, 803-794-4442, has stated that no trees shall be cut on his property. Hand-augering is therefore the only drilling method and deeper wells, although indicated, can not be installed.

TIER II PLAN

SOUTH CAROLINA
Department of Health and Environmental Control
Division of Underground Storage Tank Management

UST Facility Name: Former Purolator Courier
UST Permit #: 05878 CP #: 050098.03

	ITEM	QUANTITY	UNIT	UNIT PRICE		TOTAL
1.	Plan Preparation*	1	x	$100.00	$	100.00
2.	Receptor Survey*	0	x	$500.00	$	0.00
3.	Comprehensive Survey	1		$1,000.00	$	1,000.00
4.	Mob/Demob (List component #)					
	A. Equipment item 9	1	x	$500.00	$	500.00
	B. Personnel 9,10,16,17,18	5	x	$250.00	$	1,250.00
5.	Soil Borings (hand auger)	84	feet x	$14.00	$	1,176.00
6.	Soil Borings (drilled)	(includes collection and quantification)				
	and Field Screening*	0	feet x	$17.00	$	0.00
7.	Soil Leachability	0	x	$200.00	$	0.00
8.	Abandonment*	0	feet x	$4.00	$	0.00
9.	Well Installation*	(includes drilling costs)				
	A Water Table (hand auger)	36	feet x	$20.00	$	720.00
	B. Water Table (drilled)		feet x	$38.00	$	570.00
	C. Telescoping x feet		feet x	$58.00	$	0.00
	D. Rock Drilling		feet x	$58.00	$	0.00
10.	Ground-water sample collection*	24	samples x	$55.00	$	1,320.00
11.	Analyses-Groundwater	(See Analytical Methodology for Analyses)				
	A. BTEX+Napth+MTBE	24	samples x	$100.00	$	2,400.00
	B. BTEX+Napth+MTBE + Trimethylbenzene	0	samples x	$135.00	$	0.00
	C. PAHs	24	samples x	$120.00	$	2,880.00
	D. Lead	24	samples x	$20.00	$	480.00
	E. EDB	0	samples x	$55.00	$	0.00
	F. 8 RCRA Metals	0	samples x	$140.00	$	0.00
	G. TPH (9070)	0	samples x	$55.00	$	0.00
	H. pH	24	samples x	$10.00	$	240.00
	I. BOD	0	samples x	$40.00	$	0.00
	J. Nitrate	23	samples x	$20.00	$	460.00
	K. Sulfate	23	samples x	$20.00	$	460.00
	L. Ferrous Iron	23	samples x	$20.00	$	460.00
	M. Methane	10	samples x	$110.00	$	1,100.00
	N. Organic Lead	0	samples x	$100.00	$	0.00

Continue on back of page

ASSESSMENT COMPONENT COST AGREEMENT						
11.	Analyses - Soil					
	O. BTEX + Napth	0	samples x	$100.00	$	0.00
	P. PAHs	0	samples x	$120.00	$	0.00
	Q. 8 RCRA Metals	0	samples x	$150.00	$	0.00
	R. TPH (9071)	0	samples x	$60.00	$	0.00
	S. TPH (3550)	0	samples x	$65.00	$	0.00
	T. TPH (5035)	0	samples x	$65.00	$	0.00
	U. Grain size / hydrometer	1	samples x	$75.00		75.00
	V. Total Organic Carbon	0	samples x	$35.00	$	0.00
12.	Aquifer Characterization*					
	A. Pumping Test	0	hours x	$120.00	$	0.00
	B. Slug Test	0	tests x	$150.00	$	0.00
13.	Free Product Recovery Rate Test*	0	tests x	$120.00		0.00
14.	Fate/Transport Modeling					
	A. Mathematical Model	0	models x	$300.00	$	0.00
	B. Computer Model	1	models x	$500.00	$	500.00
15.	Risk Evaluation					
	A. Tier I	0	x	$300.00	$	0.00
	B. Tier II	1	x	$500.00	$	500.00
16.	Subsequent Survey*	0	x	$260.00	$	0.00
17.	Disposal*					
	A. Wastewater					
	1. Purging/Sampling	1	drums x	$90.00	$	90.00
	2. Pumping test	0	gallons x	$0.60	$	0.00
	B. Free Product	0	drums x	$110.00	$	0.00
	C. Soil (Treatment/Disposal)	0	tons x	$50.00	$	0.00
		1	drums x	$50.00	$	50.00
18.	Miscellaneous*					
			x		$	0.00
			x		$	
			x		$	
			x		$	
			(SUBTOTAL)		$	16,331.00
19.	Report/Project Management and Coordination	0.15		16,331	$	2,449.65
20.	Total				$	18,780.65

* The appropriate mobilization cost can be added to complete these tasks, as necessary

DISPOSAL REQUEST

SOUTH CAROLINA

Department of Health and Environmental Control (DHEC)
Division of Underground Storage Tank Management

****Please check appropriate box****

SITE ID # 05878 COUNTY Lexington
FACILITY NAME Former Purolator Courier
STREET ADDRESS 153 Corporate Blvd. CITY West Columbia

CONTAMINANT (QUALITY & TYPE OF UNITS)

____ VIRGIN PETROLEUM ____ WASTE OIL ____ OTHER (describe)

TYPE OF WASTE (CHECK ONLY ONE)

____ SOIL XX WATER ____ OTHER (describe)

Please fill out all applicable sections

POINT OF CONTACT

James M. Ferguson
Name (Type or Print)

Davis & Floyd, Inc. (803) 254-4337
Company **Phone Number**

240 Stoneridge Drive, Suite 200 Columbia SC 29210
Address **City** **State** **Zip Code**

GENERATOR

Jim Peurifoy
Name (Type or Print)

Cypress Bay Geological Services, Inc. (803) 538-4017
Company **Phone Number**

262 Geology Lane Walterboro SC 29488
Address **City** **State** **Zip Code**

TRANSPORTER

Crandell Corporation (803) 791-4800
Name of Individual or Company (please Print) **Phone Number**

100 Richlex Drive Lexington SC 29072
Address **City** **State** **Zip Code**

DESIGNATED FACILITY

Crandell Corporation (803) 791-4800
Name of Individual or Company (please Print) **Phone Number**

100 Richlex Drive Lexington SC 29072
Address **City** **State** **Zip Code**

Please include copy of acceptance letter

Total Quantity 1 drums UNITS (drums, tons, gallons, etc.)

DISPOSAL REQUEST

SOUTH CAROLINA

Department of Health and Environmental Control (DHEC)
Bureau of Underground Storage Tank Management

****Please check appropriate box****

SITE ID # 05878 COUNTY Lexington
FACILITY NAME Former Purolator Courier
STREET ADDRESS 153 Corporate Blvd. CITY West Columbia

CONTAMINANT (QUALITY & TYPE OF UNITS)

____ VIRGIN PETROLEUM ____ WASTE OIL ____ OTHER (describe)

TYPE OF WASTE (CHECK ONLY ONE)

XX SOIL ____ WATER ____ OTHER (describe)

Please fill out all applicable sections

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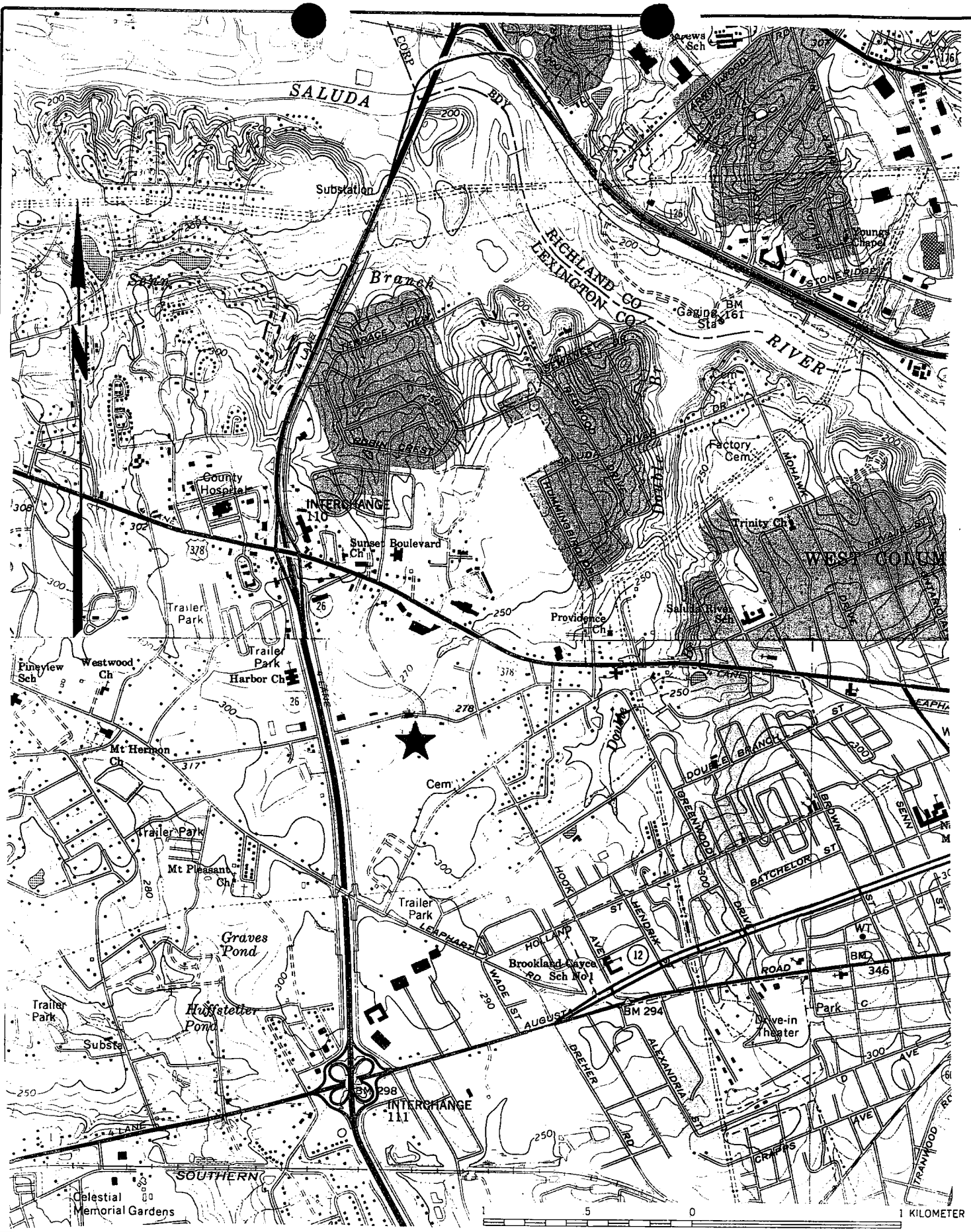
100 Richlex Drive Lexington SC 29072
Address **City** **State** **Zip Code**

Please include copy of acceptance letter

Total Quantity 1 drum UNITS (drums, tons, gallons, etc.)



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NO	REVISED	CHKD	DATE

DESIGNED	CHECKED	JOB NO.
DRAWN	APPROVED	DATE

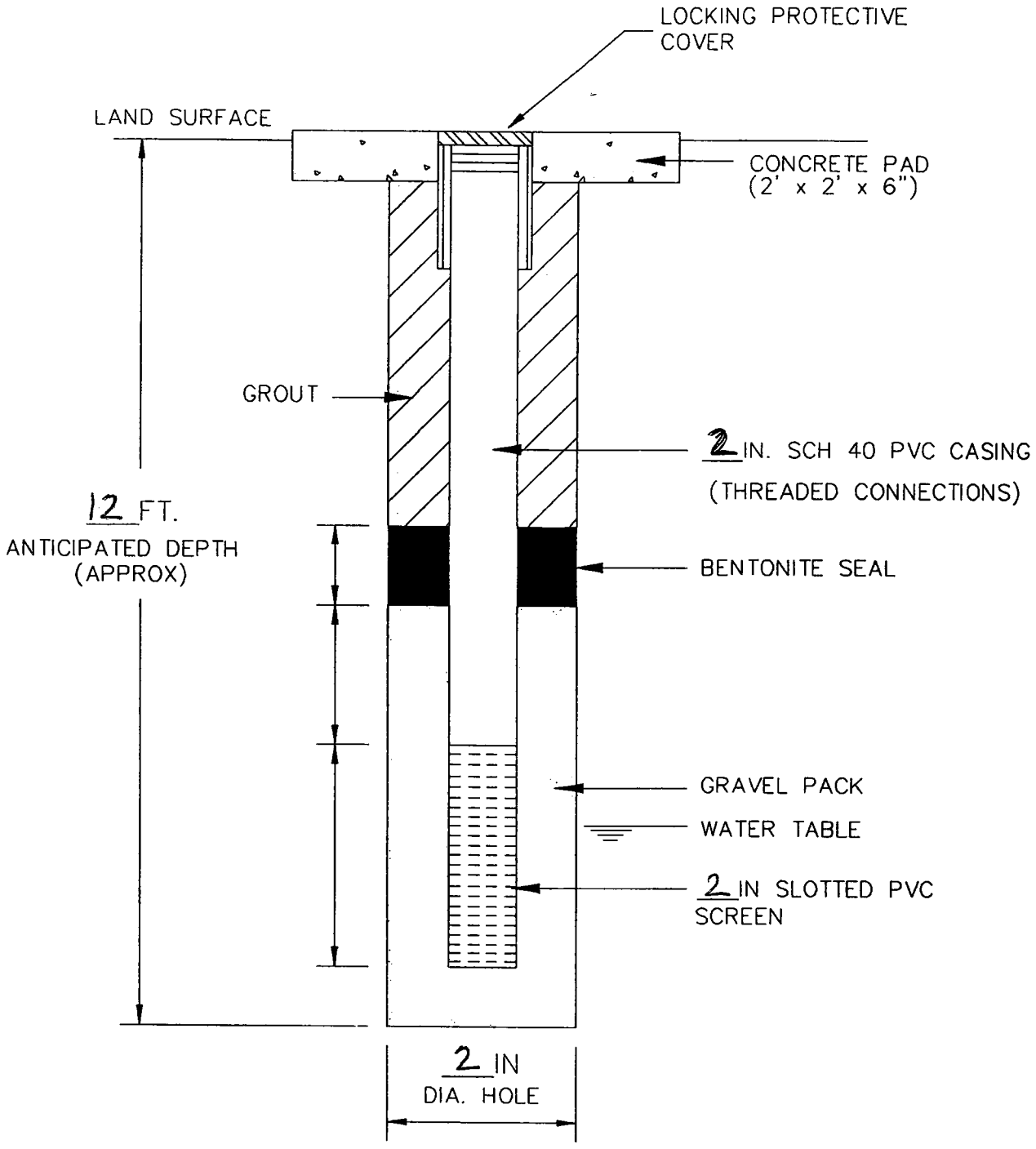
USGS TOPO MAP
SHOWING LOCATION OF
PROPOSED WELL
ON RIGHT-OF-WAY

DRAWING TITLE

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
GREENWOOD • CHARLESTON • COLUMBIA
SOUTH CAROLINA

FORMER PUROLATOR COURIER
WEST COLUMBIA, SC

OWNER/CLIENT



FORMER PUROLATOR COURIER LEXINGTON CO., SC	DAVIS & FLOYD	TYPICAL SHALLOW WATER TABLE AQUIFER MONITORING WELL DESIGN

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT

Phone (803) 896-6240 Fax (803) 896-6245

SEP 25 2002

MR WILLIAM DURHAM III
WILLIAM DURHAM COMPANY
3135 MILLWOOD AVE
COLUMBIA SC 29205

Re: Former Purolator Courier, 105 Corporate Blvd., West Columbia, SC
UST Permit #05878
Notice of Violation
Lexington County

Dear Mr. Durham:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control directed you to submit a Tier II plan and associated proposed cost agreement due on March 9, 2001. To date the required plan and proposed cost agreement has not been received. In accordance with Section 280.65 of the South Carolina Underground Storage Tank Regulations, the assessment must be conducted as documented chemicals of concern are above risk-based screening levels.

Implementation of the scope of this work should proceed upon receipt of this correspondence. **The plan and cost agreement must be submitted within 30 days from the date of this letter. If the plan is not received in accordance with this schedule, enforcement procedures will be initiated.**

On all correspondence regarding this site, please reference UST Permit #05878. If you have any questions concerning this correspondence, please call me at (803) 896-6648 or (800) 826-5435 (within South Carolina only).

Sincerely,

Alexander Butler, Hydrogeologist
Owner/Operator Assistance Section
Assessment and Corrective Action Division

enc: Tier II Assessment Plan Request

cc: Technical File
Read File

UST PROGRAM
DOCKETING # 24 Tech

DHEC/BLWM/UST/092302

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT

Phone (803) 898-4350 Fax (803) 898-4330

MAR 14 2002

MR WILLIAM DURHAM III
WILLIAM DURHAM COMPANY
3135 MILLWOOD AVE
COLUMBIA SC 29205

Re: Former Purolator Courier, 105 Corporate Blvd., West Columbia, SC
UST Permit #05878
Release 1 Reported October 17, 1991
Notice of Violation
Lexington County

Dear Mr. Durham:

The Underground Storage Tank (UST) Program of the South Carolina Department of Health and Environmental Control (SCDHEC) directed you to submit Tier II plan and associated proposed cost agreement due on March 9, 2001. To date the required plan and proposed cost agreement have not been received. In accordance with Section 280.65 of the South Carolina Underground Storage Tank Regulations the assessment must be conducted as documented chemicals of concern (CoC) are above the risk-based-screening levels (RBSLs).

Implementation of this scope of work should proceed upon receipt of this correspondence. **The plan and proposed cost agreement must be submitted within 30 days from the date of this letter, if the plan and proposed cost agreement are not received in accordance with this schedule, enforcement procedures will be initiated.**

On all correspondence regarding this site, please reference **UST Permit # 05878.** If you have any questions concerning this correspondence, please call at (803) 898-4353 or 1-800-826-5435 (within South Carolina only).

Sincerely,

Eric Owens, Hydrogeologist
Owner/Operator Assistance Section
Assessment and Corrective Action Division

cc: Technical File
Read File

UST PROGRAM
DOCKETING # 25Tech

SCDHEC/UST/022602

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

DIVISION OF
UNDERGROUND STORAGE TANK MANAGEMENT

Phone (800) 826-5435 Fax (803) 898-4330

June 26, 2001

Mr. Scott Elliott, P.A.
Elliot & Elliott, P.A.
721 Olive Street
Columbia, South Carolina 29205.

Re: Former Purolator Courier Site, 105 Corporate Blvd., W. Columbia, Lexington County
UST Permit # 05878,
Adjacent property designated Lot 9 of Carolina Center Business Park
Correspondence received June 21, 2001

Dear Mr. Elliot:

In response to your request for information about environmental conditions and liability associated with the referenced facility and adjacent property, the following is provided.

Our records indicate that three Underground Storage Tanks (USTs) were registered with the Department by Purolater Courier Corporation. The registered USTs were removed in September 1991. An assessment report received in October 1991 documented a release of petroleum products in the vicinity of the UST system. The William Durham Company has been pursuing the extent and severity of contamination under our direction in accordance with Section 280.65 of the South Carolina Underground Storage Tank Control Regulations R.61-92. The most recent report was submitted on February 8, 2001.

This release of petroleum products from the USTs is qualified to receive funding under the conditions of the State Underground Petroleum Environmental Response Bank (SUPERB) Act. This means that reasonable costs up to $1,000,000 can be paid by the SUPERB Account for site rehabilitation actions associated with this release in accordance with Section 44-2-40 of the SUPERB Act.

Based on the information contained in the February 2001 report, Lot 9 has not been impacted by the UST release. While a monitoring well has not been installed on Lot 9, the groundwater flow direction is in the opposite direction of Lot 9 toward Klapman Road. Laboratory analyses for the groundwater sample collected from Monitoring Well MW-1, which is located next to Corporate Boulevard directly across the street from Lot 9, did not indicated the presence of petroleum contamination.

UST PROGRAM
DOCKETING # 26Tech

Should the potential exist for petroleum contamination to migrate onto an adjacent property, the UST owner/operator and the Department may require access during reasonable hours to perform necessary rehabilitation activities. In such cases, all rehabilitation activities would be addressed using the SUPERB Account. In accordance with Section 44-2-80 of the SUPERB Act, subsequent lenders or land owners would not be responsible for assessment or cleanup activities in the unlikely event that petroleum constituents would migrate onto Lot 9.

If you have any questions, please do not hesitate to me at (803) 898-4350 or (800) 826-5435 (within SC only).

Sincerely,

Arthur Shrader, Director
Assessment and Corrective Action Branch
Underground Storage Tank Program
Bureau of Land and Waste Management

cc: Mr. William Durham III, William Durham Company, 3135 Millwood Ave., Columbia, SC 29205
Read/Technical Files

ELLIOTT & ELLIOTT, P.A.

ATTORNEYS AT LAW
721 OLIVE STREET
COLUMBIA, SOUTH CAROLINA 29205

SCOTT ELLIOTT

TELEPHONE (803) 771-0555
FACSIMILE (803) 771-8010

June 21, 2001

VIA FACSIMILE AND U.S. MAIL

RECEIVED
JUN 22 2001
Underground Storage
Tank Program

Art Shrader
Department of Health and Environmental Control
2600 Bull Street
Columbia, S.C. 29201-1708

Re: *Lot 9, Carolina Center Business Park*

Dear Mr. Shrader:

As I explained to you by telephone, my family is considering the purchase of Lot 9 of the Carolina Center Business Park. I am advised and understand that there exists underground contamination under lots designated Center 5 and Lot 6-A on the enclosed plat of Carolina Center Business Park. Prior to purchasing Lot 9, I would request the answer to the following three (3) questions:

1. Does underground contamination exist under Lot 9?
2. If contamination exists under Lot 9, would my family as owner or any subsequent owner be liable for cleaning up or eliminating such contamination?
3. Would a lending institution financing the purchase of Lot 9 or using Lot 9 as security for a loan be liable for the cost of cleaning up or eliminating the underground contamination?

In answering the above questions, I would appreciate your making specific reference to any state or federal laws upon which you base your answer. I would look forward to your immediate reply.

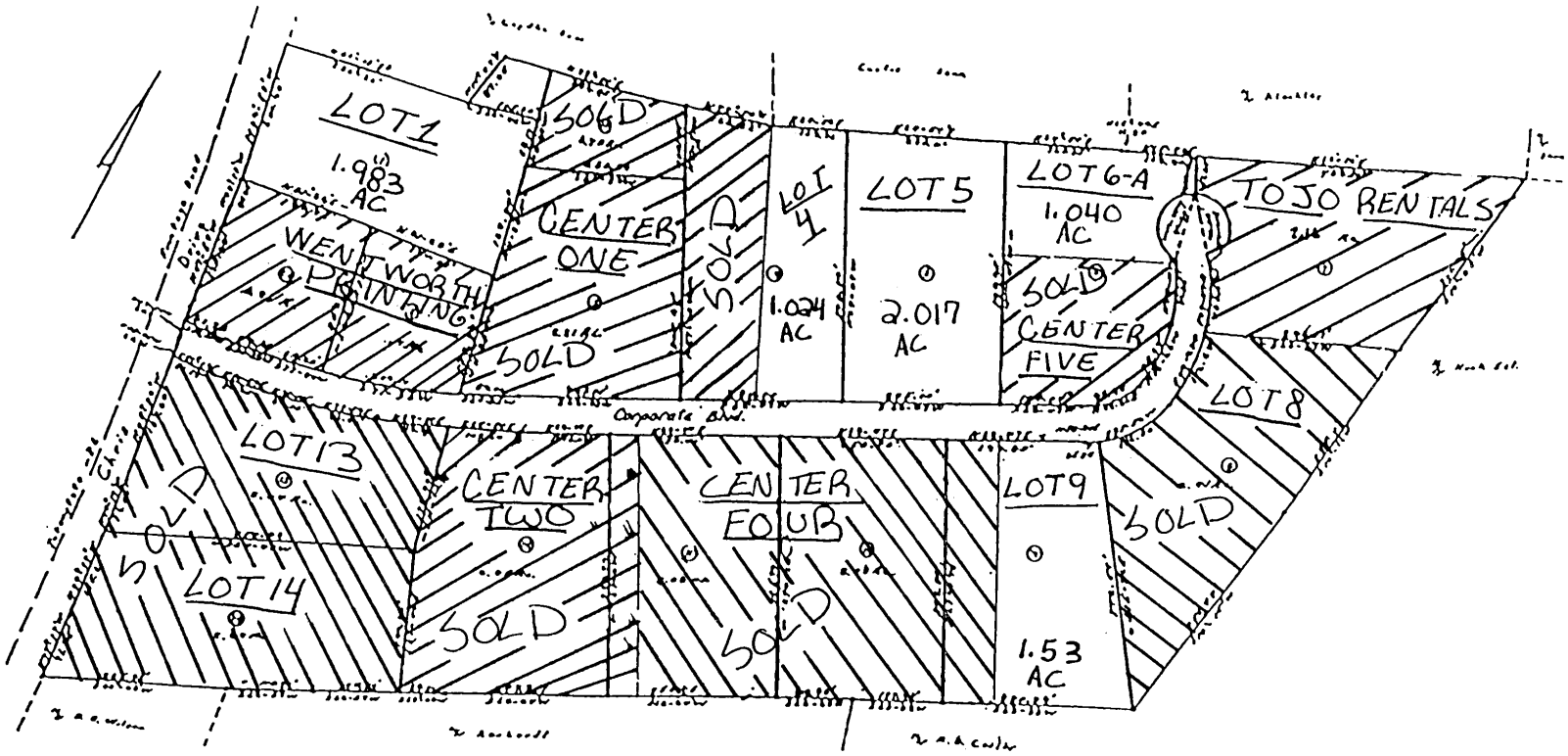
Sincerely Yours,

ELLIOTT & ELLIOTT, P.A.

SCOTT ELLIOTT

UST PROGRAM
DOCKETING # 27 Tech

SE:ab
Encl.



CERTIFICATE of APPROVAL for RECORDING

THE SUBDIVISION PLAT SHOWN HEREON COMPLIES WITH THE SUBDIVISION REGULATIONS FOR LEXINGTON COUNTY AND WAS APPROVED BY THE LEXINGTON COUNTY PLANNING COMMISSION FOR RECORDING IN THE OFFICE OF THE CLERK OF COURT OF LEXINGTON COUNTY, SOUTH CAROLINA.

DATE

CHAIRMAN

SECRETARY

Cert Prepared for

CAROLINA CENTER BUSINESS PARK

Lexington County
Scale 1" = 100'

near West Columbia S.C.
July 22, 1974

Prepared by
Brooks Flemming & Associates

Reference:

Cert Prepared for the Lotus Holiday Company by Lane Campbell & Associates dated [illegible]

Cert Prepared for Charles Schneider by William L. Wentworth dated [illegible]

CERTIFICATE OF ACCURACY

I HEREBY CERTIFY THAT THE PLAT SHOWN HEREON IS A TRUE, CORRECT, AND ACCURATE SURVEY REQUIRED BY THE SUBDIVISION REGULATIONS FOR LEXINGTON COUNTY AND THAT THE MONUMENTS SHOWN WERE PLACED TO THE SPECIFICATIONS SET FORTH IN SAID REGULATIONS.

July 22, 1974
DATE

[signature]
MICHAEL E. ARANT, JR., ALS

William Durham Company
Real Estate Brokers • 3135 Millwood Avenue • Columbia, S.C. 29205 • 803-256-3597
Sales, Leasing and Managing Agents for Commercial and Industrial Properties
Development Consultants • Realtor

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

FEB 12 2001

Mr. William Durham III
3135 Millwood Avenue
Columbia, South Carolina 29205

Re: Purolator Courier Corp
UST Permit #05878
Tier II Assessment Addendum received February 9, 2001
Lexington County

Dear Mr. Durham:

The Underground Storage Tank Program of the Bureau of Land and Waste Management has reviewed the referenced report submitted by Davis & Floyd. Results of the ground-water analyses indicate the concentration of Chemicals of Concern (COCs) are above the Risk Based Screening Levels. Further, free-phase petroleum product has increased in several monitoring wells since the previous sampling event. Currently, the release reported on October 17, 1991 at the referenced site has a priority classification of 2B. Therefore, SUPERB funds are available, or will soon become available, to implement the next necessary scope of work. The next scope of work to be implemented at this site is a complete definition of the dissolved hydrocarbon plume in the down-gradient direction.

Please have your contractor complete and submit the enclosed Assessment Component Cost Proposal form and Tier II Assessment Plan form within thirty days of the date of this letter. Every component may not be necessary to complete the above scope of work. The SUPERB allowable cost for each component is included on the Assessment Component Cost Proposal form.

On all correspondence or inquiries regarding this project, please reference UST Permit # 05878. If you have any questions, please feel free to contact me at (803) 898-4325 or (800) 826-5435 (within South Carolina only).

Sincerely,

Kristen H. Long

Kristen H. Long, Hydrogeologist
Owner/Operator Assistance Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management

UST PROGRAM
DOCKETING # 28 Tech

Enc: Tier II Assessment Plan/Assessment Component Cost Proposal Form

cc: Mr. James Ferguson, Davis & Floyd, 240 Stoneridge Dr., Ste. 200, Columbia, South Carolina 29210
Technical File (without enc.)

SCHDEC/UST/020901

DAVIS & FLOYD Engineering
Architecture
Environmental & Laboratory Services

240 Stoneridge Drive, Suite 200 Columbia, SC 29210 • (803) 254-4337 (office) (803) 254-4549 (fax)

February 6, 2001
Serial No.: JMF-018-01
File No.: 50098.02

RECEIVED
FEB 0 8 2001
Bureau of Underground
Storage Tank Management

Ms. Pamela DuBois, Hydrogeologist
Owner/Operator Assistance Section
Assessment and Corrective Action Branch
Division of Underground Storage Tank Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201-1708

RE: Additional Groundwater Sampling Results, Cost Agreement # 08493
Site ID# 05878
Former Purolator Courier Site
West Columbia, Lexington County, SC

Dear Ms. DuBois:

In response to your August 25, 2000 letter to Mr. Durham, the listed elements of work have been performed and the resulting information is attached. The additional well, MW-18, was installed by Cypress Bay Geological Services, Inc. as approved on September 26, 2000 and its Water Well Data Form is attached. Its location and elevation were surveyed and a new map (Figure 1, attached) was produced to show all wells.

MW-18 and 15 of the other 19 monitoring wells were sampled on October 19, 2000. Four monitoring wells held free product and one did not sufficiently recharge to allow sample collection. The nearest domestic well, owned by Mr. Grant, was also resampled. The field data sheets attached to the December 4, 2000 Laboratory Analysis Report (attached) document the circumstances associated with sampling as you requested. Table 1 (attached) is a summary of all monitoring-well construction, Table 2 (attached) is a summary of all groundwater-elevation measurements, and Table 3 (attached) is a summary of the analytical results for the October 19 samples.

The groundwater-elevation data and contaminants-of-concern (CoC) data were plotted on maps and are attached as Figures 2 through 9.

3136 Millwood Ave.
Col. SC 29205

UST PROGRAM
DOCKETING # 29 Tech

United States Environmental Protection Agency's Bioscreen, Version 1.4 software was used to re-calculate Site Specific Target Levels for the CoCs. The worksheets and a table summarizing the input and results of this modeling are attached.

The results of the requested free product recovery rate test on well MW-5 are shown in Table 5 (attached).

An Assessment Component Invoice signed by Mr. Durham and me is also attached.

If you have any questions, please contact me.

Sincerely,

DAVIS & FLOYD, INC.

James M. Ferguson, P.G.

JMF/jmf

Enclosures: As stated

c.c.: Mr. William Durham III

DHEC
PROMOTE PROTECT PROSPER
South Carolina Department of Health and Environmental Control

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 734-5300

1. LOCATION OF WELL:

County: **Lexington** System Name:

Latitude: Longitude:

Distance and Direction from Road Intersection:
See attached site location map

Street Address & City of Well Location: **Lexington, SC**

Sketch Map:
See attached site map

2. CUTTING SAMPLES: ☒ Yes ☐ No

Geophysical Logs: ☐ Yes (please enclose) ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Sandy CLAY and Clayey SAND	12	12
Sand, gray-brown, fine	1	1
to coarse, slightly		
clayey, soft, wet		
Sand, d. gray, f-c,	8	9
clayey, v. soft, sat		
Clay, yel.-brn, plastic,	3	12
firm, w/ abund.		
coarse sand, sat.		
[illegible]		

*Indicate Water Bearing Zones
(Use a 2nd sheet if needed)

3. Remarks:

4. OWNER OF WELL:
Address:

Telephone No.:

Engineer: **Davis and Floyd, Inc.**
Address: **240 Stone Ridge Road,, Suite 200**
Columbia, SC 29210
Telephone No.: **803-254-4337**

5. WELL DEPTH (completed) Date Started: **9-26-00**
12 ft. Date Completed: **9-26-00**

6. ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug
☐ Air Rotary ☐ Driven ☐ Cable tool ☐ Other

7. USE:
☐ Domestic ☐ Public Supply-Permit No. _____ ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test Well ☒ Monitor Well ☐

8. CASING: ☒ Threaded ☐ Welded
Diam.: **2**
Type: ☒ PVC ☐ Galvanized
☐ Steel ☐ Other
2 in. to **2** ft. depth
_____ in. to _____ ft. depth

Height: Above/Below
Surface _____ ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

9. SCREEN
Type: **PVC** Diam.: **2**
Slot/Gauge: **0.010** Length: **10**
Set Between: **2** ft. and **12** ft. NOTE: MULTIPLE SCREENS
_____ ft. and _____ ft. USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

10. STATIC WATER LEVEL
_____ ft. below land surface after 24 hours

11. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

12. WATER QUALITY
Chemical Analysis ☒ Yes ☐ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed from **1.5** ft. to **12.0** ft.
Effective size **#2** Uniformity Coefficient _____

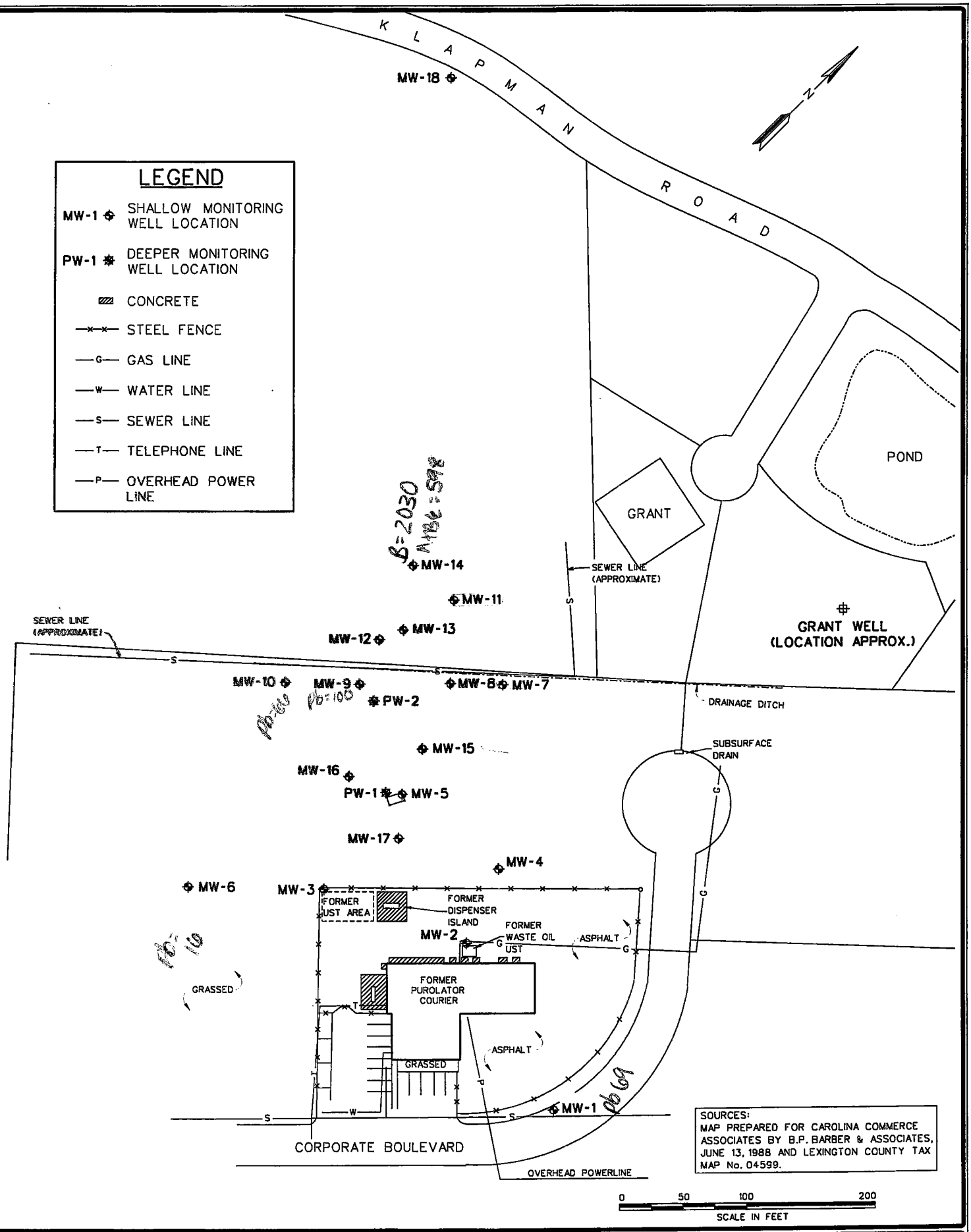
14. WELL GROUTED? ☒ Yes ☐ No
☐ Neat Cement ☐ Sand Cement ☒ Concrete ☐ Other _____
Depth: From **0.0** ft. to **0.5** ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
_____ Type well disinfected upon completion ☐ Yes Type: _____ ☐ No Amount: _____

16. PUMP: Date installed: _____ Not installed ☒
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe _____ ft. Capacity _____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine
☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: **Cypress Bay Geological** Date: **10/3/00**
Address: **262 Geology Lane, Walterboro, South Carolina 29488**
Signed _____ Cert. No.: **835**
Authorized Representative

DHEC1903(10/96) COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)



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NO.	REVISED	CHKD	DATE

DESIGNED	CHECKED	JOB NO.
FERGUSON	FERGUSON	050098.02
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 2001

FIGURE 1
SITE MAP SHOWING
MONITORING WELL LOCATIONS
DRAWING TITLE

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
GREENWOOD • CHARLESTON • COLUMBIA
SOUTH CAROLINA

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SC
OWNER/CLIENT

...\50098-01\ss\welloc.dgn Jan. 18, 2001 09:31:56

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

RECEIVED
2000

December 04, 2000

WILLIAM S. DURHAM
CAROLINA COMMERCE ASSOCIATES
3135 MILWOOD AVENUE
COLUMBIA, SC 29201

Login Number :L00102003
Project Number :50098.02
Description :FORMER PUROLATOR COURIER/W. COLA.

Dear William S. Durham:

We are pleased to provide the enclosed analytical results for the samples received by Davis & Floyd, Inc. on October 20, 2000.

A formal Quality Assurance/Quality Control program is maintained by Davis & Floyd, which is designed to meet or exceed the EPA or appropriate regulatory requirements. All analytical analyses for this project met QA/QC criteria unless otherwise stated in the footnotes. This report is to be reproduced only in full.

Feel free to contact our Client Services Representative at (864) 229-4413 if further explanation of the analysis is required. Unless other arrangements have been made, samples will be disposed of or returned 14 days from the date of the report. We appreciate the opportunity to provide services to your firm.

Sincerely,
DAVIS & FLOYD, INC.

John H. McCord, Jr.
Laboratory Manager

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **MW-1**
Matrix : GW/ChemW

Sample ID : L00102003-01
Date Collected: 19-OCT-00 09:19
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**25.0**		1.0	degrees C		10/19/00	0919
HACH IR-18C								
FERROUS, IRON	<	0.20		0.20	mg/l		10/19/00	0919
SW846 9040B								
PH		**4.1**		0.50	su		10/19/00	0919
SW846 9050								
SPECIFIC CONDUCTIVITY		**109**		1.0	umhos/cm		10/19/00	0919
Subcontract Work								
AM15.01G								
CARBON DIOXIDE		**30.0**		0.60	mg/l	MICROSEE	11/03/00	0000
CARBON MONOXIDE	<	0.40		0.40	mg/l	MICROSEE	11/03/00	0000
METHANE	<	0.070		0.070	ug/l	MICROSEE	11/03/00	0000
NITROGEN		**17.0**		0.40	mg/l	MICROSEE	11/03/00	0000
OXYGEN		**5.8**		0.15	mg/l	MICROSEE	11/03/00	0000
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.069**		0.0050	mg/l	BDL	10/31/00	2012
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	10/23/00	1220
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/23/00	1220
METHYL-TERT-BUTYL ETHER	<	1.0		1.0	ug/l	PAP	10/23/00	1220
NAPHTHALENE	<	1.0		1.0	ug/l	PAP	10/23/00	1220
TOLUENE	<	1.0		1.0	ug/l	PAP	10/23/00	1220
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/23/00	1220
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		**8.3**		0.10	mg/l	JSJ	10/20/00	1057
SULFATE		**0.41**		0.10	mg/l	JSJ	10/20/00	1057

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LABORATORY ANALYSIS REPORT

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3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **MW-1**

Sample ID : L00102003-01

Prep Procedure	Method	Analyst Prep Date
Analytical Prep Procedures:		
METALS PREP ICP	SW846 3010	JSJ 10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
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Client ID: **MW-2**
Matrix : GW/ChemW

Sample ID : L00102003-02
Date Collected: 19-OCT-00 10:40
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		21.0		1.0	degrees C		10/19/00	1040
HACH IR-18C								
FERROUS, IRON	<	0.20		0.20	mg/l		10/19/00	1040
SW846 9040B								
PH		5.3		0.50	su		10/19/00	1040
SW846 9050								
SPECIFIC CONDUCTIVITY		144		1.0	umhos/cm		10/19/00	1040
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	10/31/00	2017
Volatile Organics								
SW846 8260B								
BENZENE		497		4.0	ug/l	PAP	10/23/00	1809
ETHYLBENZENE		47.1		1.0	ug/l	PAP	10/23/00	1252
METHYL-TERT-BUTYL ETHER		33.8		1.0	ug/l	PAP	10/23/00	1252
NAPHTHALENE		5.1		1.0	ug/l	PAP	10/23/00	1252
TOLUENE		137		1.0	ug/l	PAP	10/23/00	1252
XYLENE (TOTAL)		210		1.0	ug/l	PAP	10/23/00	1252
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		6.6		0.10	mg/l	JSJ	10/20/00	1116
SULFATE		0.96		0.10	mg/l	JSJ	10/20/00	1116

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **MW-3**
Matrix : GW/ChemW

Sample ID : L00102003-03
Date Collected: 19-OCT-00 11:05
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		23.0		1.0	degrees C		10/19/00	1105
HACH IR-18C								
FERROUS, IRON		5.4		0.20	mg/l		10/19/00	1105
SW846 9040B								
PH		5.5		0.50	su		10/19/00	1105
SW846 9050								
SPECIFIC CONDUCTIVITY		101		1.0	umhos/cm		10/19/00	1105
Subcontract Work								
AM15.01G								
CARBON DIOXIDE		65.6		0.60	mg/l	MICROSEE	11/03/00	0000
CARBON MONOXIDE	<	0.40		0.40	mg/l	MICROSEE	11/03/00	0000
METHANE		2.1		0.070	ug/l	MICROSEE	11/03/00	0000
NITROGEN		18.4		0.40	mg/l	MICROSEE	11/03/00	0000
OXYGEN		1.0		0.15	mg/l	MICROSEE	11/03/00	0000
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		0.014		0.0050	mg/l	BDL	10/31/00	2022
Volatile Organics								
SW846 8260B								
BENZENE		64.5		1.0	ug/l	PAP	10/23/00	1324
ETHYLBENZENE		89.4		1.0	ug/l	PAP	10/23/00	1324
METHYL-TERT-BUTYL ETHER	<	1.0		1.0	ug/l	PAP	10/23/00	1324
NAPHTHALENE		53.7		1.0	ug/l	PAP	10/23/00	1324
TOLUENE		3.8		1.0	ug/l	PAP	10/23/00	1324
XYLENE (TOTAL)		236		1.0	ug/l	PAP	10/23/00	1324
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		1.6		0.10	mg/l	JSJ	10/20/00	1135
SULFATE		1.1		0.10	mg/l	JSJ	10/20/00	1135

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **MW-3**
Sample ID : L00102003-03

Prep Procedure	Method	Analyst Prep Date
Analytical Prep Procedures:		
METALS PREP ICP	SW846 3010	JSJ 10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **MW-4**
Matrix : GW/ChemW

Sample ID : L00102003-04
Date Collected: 19-OCT-00 11:30
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**23.0**		1.0	degrees C		10/19/00	1130
HACH IR-18C								
FERROUS, IRON	<	0.20		0.20	mg/l		10/19/00	1130
SW846 9040B								
PH		**5.3**		0.50	su		10/19/00	1130
SW846 9050								
SPECIFIC CONDUCTIVITY		**78.0**		1.0	umhos/cm		10/19/00	1130
Subcontract Work								
AM15.01G								
CARBON DIOXIDE		**22.8**		0.60	mg/l			
CARBON MONOXIDE	<	**0.40**		0.40	mg/l			
METHANE	<	**0.070**		0.070	ug/l			
NITROGEN		**16.3**		0.40	mg/l			
OXYGEN		**8.5**		0.15	mg/l			
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.014**		0.0050	mg/l	BDL	10/31/00	2037
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	0935
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	0935
METHYL-TERT-BUTYL ETHER		**17.4**		1.0	ug/l	PAP	10/24/00	0935
NAPHTHALENE	<	1.0		1.0	ug/l	PAP	10/24/00	0935
TOLUENE	<	1.0		1.0	ug/l	PAP	10/24/00	0935
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/24/00	0935
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		**4.9**		0.10	mg/l	JSJ	10/20/00	1153
SULFATE		**1.7**		0.10	mg/l	JSJ	10/20/00	1153

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LABORATORY ANALYSIS REPORT

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3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **MW-4**

Sample ID : L00102003-04

Prep Procedure	Method	Analyst Prep Date
Analytical Prep Procedures:		
METALS PREP ICP	SW846 3010	JSJ 10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
Page 1 of 1

Client ID: **MW-6**
Matrix : GW/ChemW

Sample ID : L00102003-05
Date Collected: 19-OCT-00 08:55
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**19.0**		1.0	degrees C		10/19/00	0855
HACH IR-18C								
FERROUS, IRON		**0.60**		0.20	mg/l		10/19/00	0855
SW846 9040B								
PH		**5.9**		0.50	su		10/19/00	0855
SW846 9050								
SPECIFIC CONDUCTIVITY		**463**		1.0	umhos/cm		10/19/00	0855
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.015**		0.0050	mg/l	BDL	10/31/00	2042
Volatile Organics								
SW846 8260B								
BENZENE	<	**1.0**		1.0	ug/l	PAP	10/23/00	1356
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/23/00	1356
METHYL-TERT-BUTYL ETHER	<	1.0		1.0	ug/l	PAP	10/23/00	1356
NAPHTHALENE		**1.5**		1.0	ug/l	PAP	10/23/00	1356
TOLUENE	<	1.0		1.0	ug/l	PAP	10/23/00	1356
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/23/00	1356
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		**0.33**		0.10	mg/l	JSJ	10/20/00	1212
SULFATE		**190**		1.0	mg/l	JSJ	10/23/00	0906

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
Page 1 of 1

Client ID: **MW-6 DUP.**
Matrix : GW/ChemW

Sample ID : L00102003-06
Date Collected: 19-OCT-00 08:55
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**19.0**		1.0	degrees C		10/19/00	0855
HACH IR-18C								
FERROUS, IRON		**0.60**		0.20	mg/l		10/19/00	0855
SW846 9040B								
PH		**5.9**		0.50	su		10/19/00	0855
SW846 9050								
SPECIFIC CONDUCTIVITY		**463**		1.0	umhos/cm		10/19/00	0855
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.013**		0.0050	mg/l	BDL	10/31/00	2047
Volatile Orgamics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	10/23/00	1427
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/23/00	1427
METHYL-TERT-BUTYL ETHER	<	1.0		1.0	ug/l	PAP	10/23/00	1427
NAPHTHALENE	<	1.0		1.0	ug/l	PAP	10/23/00	1427
TOLUENE	<	1.0		1.0	ug/l	PAP	10/23/00	1427
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/23/00	1427

Sample Comments: The sample fractions for the nitrate and sulfate were preserved incorrectly. No data is available.

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
Page 1 of 1

Client ID: **MW-7**
Matrix : GW/ChemW

Sample ID : L00102003-07
Date Collected: 19-OCT-00 16:55
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**21.0**		1.0	degrees C		10/19/00	1655
HACH IR-18C								
FERROUS, IRON		**5.0**		0.20	mg/l		10/19/00	1655
SW846 9040B								
PH		**5.3**		0.50	su		10/19/00	1655
SW846 9050								
SPECIFIC CONDUCTIVITY		**88.0**		1.0	umhos/cm		10/19/00	1655
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	10/31/00	2052
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	10/23/00	1459
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/23/00	1459
METHYL-TERT-BUTYL ETHER		**11.7**		1.0	ug/l	PAP	10/23/00	1459
NAPHTHALENE	<	1.0		1.0	ug/l	PAP	10/23/00	1459
TOLUENE		**2.9**		1.0	ug/l	PAP	10/23/00	1459
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/23/00	1459
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		**2.3**		0.10	mg/l	JSJ	10/20/00	1250
SULFATE		**20.6**		0.10	mg/l	JSJ	10/20/00	1250

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
Page 1 of 1

Client ID: **MW-9**
Matrix : GW/ChemW

Sample ID : L00102003-08
Date Collected: 19-OCT-00 16:13
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**21.0**		1.0	degrees C		10/19/00	1613
HACH IR-18C								
FERROUS, IRON		**4.8**		0.20	mg/l		10/19/00	1613
SW846 9040B								
PH		**5.6**		0.50	su		10/19/00	1613
SW846 9050								
SPECIFIC CONDUCTIVITY		**99.0**		1.0	umhos/cm		10/19/00	1613
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.10**		0.0050	mg/l	BDL	10/31/00	2057
Volatile Organics								
SW846 8260B								
BENZENE		**1.4**		1.0	ug/l	PAP	10/24/00	0959
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	0959
METHYL-TERT-BUTYL ETHER		**19.5**		1.0	ug/l	PAP	10/24/00	0959
NAPHTHALENE		**1.1**		1.0	ug/l	PAP	10/24/00	0959
TOLUENE		**25.9**		1.0	ug/l	PAP	10/24/00	0959
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/24/00	0959
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		**0.51**		0.10	mg/l	JSJ	10/20/00	0108
SULFATE		**8.5**		0.10	mg/l	JSJ	10/20/00	0108

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
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Client ID: **MW-9 DUP.**
Matrix : GW/ChemW

Sample ID : L00102003-09
Date Collected: 19-OCT-00 16:13
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**21.0**		1.0	degrees C		10/19/00	1613
HACH IR-18C								
FERROUS, IRON		**5.0**		0.20	mg/l		10/19/00	1613
SW846 9040B								
PH		**5.6**		0.50	su		10/19/00	1613
SW846 9050								
SPECIFIC CONDUCTIVITY		**100**		1.0	umhos/cm		10/19/00	1613
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.098**		0.0050	mg/l	BDL	10/31/00	2102
Volatile Organics								
SW846 8260B								
BENZENE		**1.3**		1.0	ug/l	PAP	10/24/00	1023
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	1023
METHYL-TERT-BUTYL ETHER		**19.1**		1.0	ug/l	PAP	10/24/00	1023
NAPHTHALENE		**1.2**		1.0	ug/l	PAP	10/24/00	1023
TOLUENE		**24.9**		1.0	ug/l	PAP	10/24/00	1023
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/24/00	1023
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		**0.51**		0.10	mg/l	JSJ	10/20/00	0127
SULFATE		**7.5**		0.10	mg/l	JSJ	10/20/00	0127

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
Page 1 of 2

Client ID: **MW-10**
Matrix : GW/ChemW

Sample ID : L00102003-10
Date Collected: 19-OCT-00 16:10
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**20.0**		1.0	degrees C		10/19/00	1610
HACH IR-18C								
FERROUS, IRON	<	0.20		0.20	mg/l		10/19/00	1610
SW846 9040B								
PH		**5.1**		0.50	su		10/19/00	1610
SW846 9050								
SPECIFIC CONDUCTIVITY		**53.0**		1.0	umhos/cm		10/19/00	1610
Subcontract Work								
AM15.01G								
CARBON DIOXIDE		**38.1**		0.60	mg/l	MICROSEE	11/03/00	0000
CARBON MONOXIDE	<	0.40		0.40	mg/l	MICROSEE	11/03/00	0000
METHANE	<	0.070		0.070	ug/l	MICROSEE	11/03/00	0000
NITROGEN		**15.5**		0.40	mg/l	MICROSEE	11/03/00	0000
OXYGEN		**3.2**		0.15	mg/l	MICROSEE	11/03/00	0000
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.066**		0.0050	mg/l	BDL	10/31/00	2107
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	1047
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	1047
METHYL-TERT-BUTYL ETHER		**3.7**		1.0	ug/l	PAP	10/24/00	1047
NAPHTHALENE	<	1.0		1.0	ug/l	PAP	10/24/00	1047
TOLUENE	<	1.0		1.0	ug/l	PAP	10/24/00	1047
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/24/00	1047
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		**0.79**		0.10	mg/l	JSJ	10/20/00	0210
SULFATE		**4.8**		0.10	mg/l	JSJ	10/20/00	0210

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **MW-10**
Sample ID : L00102003-10

Prep Procedure	Method	Analyst Prep Date
Analytical Prep Procedures:		
METALS PREP ICP	SW846 3010	JSJ 10/24/00 1000

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

Client : CAROLINA COMMERCE ASSOCIATES
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
Page 1 of 1

Client ID: MW-11
Matrix : GW/ChemW

Sample ID : L00102003-11
Date Collected: 19-OCT-00 17:42
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		20.0		1.0	degrees C		10/19/00	1742
HACH IR-18C								
FERROUS, IRON		5.0		0.20	mg/l		10/19/00	1742
SW846 9040B								
PH		4.6		0.50	su		10/19/00	1742
SW846 9050								
SPECIFIC CONDUCTIVITY		78.0		1.0	umhos/cm		10/19/00	1742
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		0.022		0.0050	mg/l	BDL	10/31/00	2117
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	1111
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	1111
METHYL-TERT-BUTYL ETHER		2.8		1.0	ug/l	PAP	10/24/00	1111
NAPHTHALENE	<	1.0		1.0	ug/l	PAP	10/24/00	1111
TOLUENE	<	1.0		1.0	ug/l	PAP	10/24/00	1111
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/24/00	1111
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		2.2		0.10	mg/l	JSJ	10/20/00	0344
SULFATE		7.1		0.10	mg/l	JSJ	10/20/00	0344

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
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Client ID: **MW-12**
Matrix : GW/ChemW

Sample ID : L00102003-12
Date Collected: 19-OCT-00 17:20
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**20.0**		1.0	degrees C		10/19/00	1720
HACH IR-18C								
FERROUS, IRON		**2.0**		0.20	mg/l		10/19/00	1720
SW846 9040B								
PH		**5.3**		0.50	su		10/19/00	1720
SW846 9050								
SPECIFIC CONDUCTIVITY		**63.0**		1.0	umhos/cm		10/19/00	1720
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.023**		0.0050	mg/l	BDL	10/31/00	2122
Volatile Organics								
SW846 8260B								
BENZENE		**11.0**		1.0	ug/l	PAP	10/24/00	1136
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	1136
METHYL-TERT-BUTYL ETHER		**35.7**		1.0	ug/l	PAP	10/24/00	1136
NAPHTHALENE	<	1.0		1.0	ug/l	PAP	10/24/00	1136
TOLUENE	<	1.0		1.0	ug/l	PAP	10/24/00	1136
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/24/00	1136
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		**0.15**		0.10	mg/l	JSJ	10/20/00	0403
SULFATE		**6.7**		0.10	mg/l	JSJ	10/20/00	0403

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
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Client ID: **MW-13**
Matrix : GW/ChemW

Sample ID : L00102003-13
Date Collected: 19-OCT-00 17:23
Date Received : 20-OCT-00

Parameter	Result	Qual	RDL	Units	Analyst	Date	Time
Field Data							
EPA 170.1							
TEMPERATURE	**20.0**		1.0	degrees C		10/19/00	1723
HACH IR-18C							
FERROUS, IRON	**1.8**		0.20	mg/l		10/19/00	1723
SW846 9040B							
PH	**4.3**		0.50	su		10/19/00	1723
SW846 9050							
SPECIFIC CONDUCTIVITY	**54.0**		1.0	umhos/cm		10/19/00	1723
Trace Metals							
SW846 6010B T							
LEAD, TOTAL	**0.018**		0.0050	mg/l	BDL	10/31/00	2137
Volatile Organics							
SW846 8260B							
BENZENE	**73.3**		1.0	ug/l	PAP	10/24/00	1200
ETHYLBENZENE	**9.8**		1.0	ug/l	PAP	10/24/00	1200
METHYL-TERT-BUTYL ETHER	**24.0**		1.0	ug/l	PAP	10/24/00	1200
NAPHTHALENE	**2.0**		1.0	ug/l	PAP	10/24/00	1200
TOLUENE	**5.1**		1.0	ug/l	PAP	10/24/00	1200
XYLENE (TOTAL)	**33.4**		1.0	ug/l	PAP	10/24/00	1200
Wet Chemistry							
SW846 9056							
NITRATE NITROGEN (AS N)	**0.11**		0.10	mg/l	JSJ	10/20/00	0421
SULFATE	**13.1**		0.10	mg/l	JSJ	10/20/00	0421

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **MW-14**
Matrix : GW/ChemW

Sample ID : L00102003-14
Date Collected: 19-OCT-00 17:42
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**20.0**		1.0	degrees C		10/19/00	1742
HACH IR-18C								
FERROUS, IRON		**4.5**		0.20	mg/l		10/19/00	1742
SW846 9040B								
PH		**5.3**		0.50	su		10/19/00	1742
SW846 9050								
SPECIFIC CONDUCTIVITY		**83.0**		1.0	umhos/cm		10/19/00	1742
Subcontract Work								
AM15.01G								
CARBON DIOXIDE		**82.2**		0.60	mg/l	MICROSEE	11/03/00	0000
CARBON MONOXIDE	<	**0.40**		0.40	mg/l	MICROSEE	11/03/00	0000
METHANE		**1.6**		0.070	ug/l	MICROSEE	11/03/00	0000
NITROGEN		**18.4**		0.40	mg/l	MICROSEE	11/03/00	0000
OXYGEN		**0.93**		0.15	mg/l	MICROSEE	11/03/00	0000
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.0052**		0.0050	mg/l	BDL	10/31/00	2142
Volatile Organics								
SW846 8260B								
BENZENE		**2030**		10.0	ug/l	PAP	10/24/00	1736
ETHYLBENZENE		**275**		10.0	ug/l	PAP	10/24/00	1736
METHYL-TERT-BUTYL ETHER		**598**		10.0	ug/l	PAP	10/24/00	1736
NAPHTHALENE		**115**		1.0	ug/l	PAP	10/24/00	1224
TOLUENE		**412**		10.0	ug/l	PAP	10/24/00	1736
XYLENE (TOTAL)		**504**		1.0	ug/l	PAP	10/24/00	1224
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)	<	0.10		0.10	mg/l	JSJ	10/20/00	0440
SULFATE		**8.2**		0.10	mg/l	JSJ	10/20/00	0440

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **MW-14**
Sample ID : L00102003-14

Prep Procedure	Method	Analyst Prep Date
Analytical Prep Procedures:		
METALS PREP ICP	SW846 3010	JSJ 10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
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Client ID: **MW-16**
Matrix : GW/ChemW

Sample ID : L00102003-19
Date Collected: 19-OCT-00 14:45
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		22.3		1.0	degrees C		10/19/00	1455
HACH IR-18C								
FERROUS, IRON		5.0		0.20	mg/l		10/19/00	1455
SW846 9040B								
PH		5.8		0.50	su		10/19/00	1455
SW846 9050								
SPECIFIC CONDUCTIVITY		783		1.0	umhos/cm		10/19/00	1455
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		0.045		0.0050	mg/l	BDL	10/31/00	2202
Volatile Organics								
SW846 8260B								
BENZENE		109		1.0	ug/l	PAP	10/24/00	1336
ETHYLBENZENE		112		1.0	ug/l	PAP	10/24/00	1336
METHYL-TERT-BUTYL ETHER	<	1.0		1.0	ug/l	PAP	10/24/00	1336
NAPHTHALENE		113		1.0	ug/l	PAP	10/24/00	1336
TOLUENE		78.3		1.0	ug/l	PAP	10/24/00	1336
XYLENE (TOTAL)		217		1.0	ug/l	PAP	10/24/00	1336
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		0.55		0.10	mg/l	JSJ	10/20/00	0555
SULFATE		3.1		0.10	mg/l	JSJ	10/20/00	0555

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : CAROLINA COMMERCE ASSOCIATES
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: MW-18
Matrix : GW/ChemW

Sample ID : L00102003-15
Date Collected: 19-OCT-00 12:50
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		22.0		1.0	degrees C		10/19/00	1250
HACH IR-18C								
FERROUS, IRON		4.8		0.20	mg/l		10/19/00	1250
SW846 9040B								
PH		5.8		0.50	su		10/19/00	1250
SW846 9050								
SPECIFIC CONDUCTIVITY		231		1.0	umhos/cm		10/19/00	1250
Subcontract Work								
AM15.01G								
CARBON DIOXIDE		134		0.60	mg/l	MICROSEE	11/03/00	0000
CARBON MONOXIDE	<	0.40		0.40	mg/l	MICROSEE	11/03/00	0000
METHANE		1.5		0.070	ug/l	MICROSEE	11/03/00	0000
NITROGEN		14.3		0.40	mg/l	MICROSEE	11/03/00	0000
OXYGEN		0.79		0.15	mg/l	MICROSEE	11/03/00	0000
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		0.72		0.0050	mg/l	BDL	10/31/00	2147
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	1248
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	1248
METHYL-TERT-BUTYL ETHER	<	1.0		1.0	ug/l	PAP	10/24/00	1248
NAPHTHALENE		3.4		1.0	ug/l	PAP	10/24/00	1248
TOLUENE	<	1.0		1.0	ug/l	PAP	10/24/00	1248
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/24/00	1248
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		0.18		0.10	mg/l	JSJ	10/20/00	0459
SULFATE		4.9		0.10	mg/l	JSJ	10/20/00	0459

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **MW-18**
Sample ID : L00102003-15

Prep Procedure	Method	Analyst Prep Date
Analytical Prep Procedures:		
METALS PREP ICP	SW846 3010	JSJ 10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000

Client ID: **PW-1**
Matrix : GW/ChemW

Sample ID : L00102003-17
Date Collected: 19-OCT-00 15:38
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		**21.0**		1.0	degrees C		10/19/00	1538
HACH IR-18C								
FERROUS, IRON	<	0.20		0.20	mg/l		10/19/00	1538
SW846 9040B								
PH		**4.5**		0.50	su		10/19/00	1538
SW846 9050								
SPECIFIC CONDUCTIVITY		**116**		1.0	umhos/cm		10/19/00	1538
Trace Metals								
SW846 6010B T								
LEAD, TOTAL		**0.029**		0.0050	mg/l	BDL	10/31/00	2157
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	1312
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	1312
METHYL-TERT-BUTYL ETHER	<	1.0		1.0	ug/l	PAP	10/24/00	1312
NAPHTHALENE	<	1.0		1.0	ug/l	PAP	10/24/00	1312
TOLUENE		**1.1**		1.0	ug/l	PAP	10/24/00	1312
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/24/00	1312
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		**8.9**		0.10	mg/l	JSJ	10/20/00	0536
SULFATE		**0.45**		0.10	mg/l	JSJ	10/20/00	0536

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

DAVIS & FLOYD

LABORATORY ANALYSIS REPORT

Client : **CAROLINA COMMERCE ASSOCIATES**
3135 MILWOOD AVENUE
COLUMBIA, SC 29201
Contact : WILLIAM S. DURHAM

Project Number: 50098.02
Report Date : December 04, 2000
Page 1 of 1

Client ID: **GRANT WELL**
Matrix : GW/ChemW

Sample ID : L00102003-16
Date Collected: 19-OCT-00 13:05
Date Received : 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Field Data								
EPA 170.1								
TEMPERATURE		19.0		1.0	degrees C		10/19/00	1305
HACH IR-18C								
FERROUS, IRON	<	0.20		0.20	mg/l		10/19/00	1305
SW846 9040B								
PH		4.2		0.50	su		10/19/00	1305
SW846 9050								
SPECIFIC CONDUCTIVITY		40.0		1.0	umhos/cm		10/19/00	1305
Trace Metals								
SW846 6010B T								
LEAD, TOTAL	<	0.0050		0.0050	mg/l	BDL	10/31/00	2152
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	10/23/00	1149
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/23/00	1149
METHYL-TERT-BUTYL ETHER	<	1.0		1.0	ug/l	PAP	10/23/00	1149
NAPHTHALENE	<	1.0		1.0	ug/l	PAP	10/23/00	1149
TOLUENE	<	1.0		1.0	ug/l	PAP	10/23/00	1149
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/23/00	1149
Wet Chemistry								
SW846 9056								
NITRATE NITROGEN (AS N)		1.4		0.10	mg/l	JSJ	10/20/00	0518
SULFATE		1.1		0.10	mg/l	JSJ	10/20/00	0518

Prep Procedure	Method	Analyst	Prep Date
Analytical Prep Procedures:			
METALS PREP ICP	SW846 3010	JSJ	10/24/00 1000

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LABORATORY ANALYSIS REPORT

Client	: **CAROLINA COMMERCE ASSOCIATES**	Project Number:	50098.02
	3135 MILWOOD AVENUE		
	COLUMBIA, SC 29201	Report Date	: December 04, 2000
Contact	: WILLIAM S. DURHAM	Page 1 of 1	

Client ID:	**TRIP BLANK**	Sample ID	: L00102003-18
		Date Collected:	18-OCT-00 17:10
Matrix	: GW/ChemW	Date Received	: 20-OCT-00

Parameter		Result	Qual	RDL	Units	Analyst	Date	Time
Volatile Organics								
SW846 8260B								
BENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	0813
ETHYLBENZENE	<	1.0		1.0	ug/l	PAP	10/24/00	0813
METHYL-TERT-BUTYL ETHER	<	1.0		1.0	ug/l	PAP	10/24/00	0813
NAPHTHALENE	<	1.0		1.0	ug/l	PAP	10/24/00	0813
TOLUENE	<	1.0		1.0	ug/l	PAP	10/24/00	0813
XYLENE (TOTAL)	<	1.0		1.0	ug/l	PAP	10/24/00	0813

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Chain of Custody Record

818 E. Durst Avenue, Greenwood, SC 29649 (864) 229-4413 Fax: (864) 229-7119
Laboratory Certification Numbers: SC - 24110, NC - 25, TN - 2923, VA - 77

Client	Project / Site Location	Office Use Only
Carolina Commerce Associate Columbia,SC	50098.02 Former Purolator Courier/W.Cola.	

Contact	Report To	Copy To	Reporting Requirements: [ ] Standard [ ] Data Package (Specify Level)	Purchase Order
Jim Ferguson	Jim Ferguson			

Collected By: John McMahan

State: SC

Quote:

Special Instructions:

NOTICE:

Required Parameters, Containers and Preservatives

Sample Description	Sample Collection Date	Sample Collection Time	Time sampling initiated (composite only) Time	Composite	Grab Type	Matrix	Number of Containers Total	125ml P pH,Sp.Cond.,Temp.,F arrous Iron A	40ml G Naphthalene,BTEX, MTBE (8260B) C	250ml P NO3 B	500ml P SO4 A	250ml P Lead D	40ml G Dissolved Methane A	Login L00102003 Fraction	Indicate any known or expected hazards. HOT	Comments
Trip Blank	10-18-00	1710			X	1	2	1	2					18		
MW-6	10-19-00	0855			X	5	7	1	3	1	1	1		05		
MW-6 Dup		0855			X	5	7	1	3	1	1	1		06		
MW-1		0919			X	5	9	1	3	1	1	1	2	01		
MW-2		1040			X	5	7	1	3	1	1	1		02		
MW-3		1105			X	5	9	1	3	1	1	1	2	03		
MW-4		1130			X	5	9	1	3	1	1	1	2	04		
MW-18		1250			X	5	9	1	3	1	1	1	2	15		
Grant Well		1305			X	5	7	1	3	1	1	1		16		
PW-1		1538			X	5	7	1	3	1	1	1		17		
MW-9		1613			X	5	7	1	3	1	1	1		08		
MW-9 Dup		1613			X	5	7	1	3	1	1	1		09		

Relinquished By	Date	Time	Relinquished By	Date	Time	Relinquished By	Date	Time	Quick TAT	Shipped By
John L McMahan II	10-20-00	0730							Y N	D&F CLIENT UPS FEDEX
Received By	**Date**	**Time**	**Received By**	**Date**	**Time**	**Received in Laboratory By**	**Date**	**Time**	**If Y, specify:**	**Airbill Number**
						TISA M. DAVIS	10.20.00	0730	— days	

Comments

Cooler ID (if available): —
On Ice: Yes / No Temp(C) 4
Custody Seal: Intact / Broken / None

Matrix Type Definitions 1 -Drinking Water 2 - Clean Water 5 - Groundwater 7 - Soil/Sediment 8 - Liquid Sludge 9 - Oil 12 - Air
Preservative Definitions A -None B - H2SO4 C - HCl D - HNO3 E - NaOH F - Filtered G - Other

Davis & Floyd, Inc.
FL02_01 (02/99)

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

Chain of Custody Record

818 E. Durst Avenue, Greenwood, SC 29649 (864) 229-4413 Fax: (864) 229-7119
Laboratory Certification Numbers: SC - 24110, NC - 25, TN - 2923, VA - 77

Client	Project / Site Location	Office Use Only
Carolina Commerce Associate Columbia,SC	50098.02 Former Purolator Courier/W.Cola.	

Contact	Report To	Copy To	Reporting Requirements: [ ] Standard [ ] Data Package (Specify Level)	Purchase Order
Jim Ferguson	Jim Ferguson			

Collected By: John McMahan

State: SC

Quote:

Special Instructions:

NOTICE:

Required Parameters, Containers and Preservatives

Sample Description	Sample Collection Date	Sample Collection Time	Time sampling initiated (composite only) Time	Composite	Grab Type	Matrix	Number of Containers Total	pH,Sp.Cond.,Temp.,F errous Iron 125ml P A	Naphthalene,BTEX, MTBE (8260B) 40ml G C	NO3 250ml P B	SO4 500ml P A	Lead 250ml P D	Dissolved Methane 40ml G A							Login L 00102003 Fraction	Indicate any known or expected hazards. HOT	Comments
MW-10	10-19-00	1610			X	5	9	1	3	1	1	1	2							10		
MW-7	↓	1655			X	5	7	1	3	1	1	1								07		
MW-12	↓	1720			X	5	7	1	3	1	1	1								12		
MW-13	↓	1723			X	5	7	1	3	1	1	1								13		
MW-11	↓	1742			X	5	7	1	3	1	1	1								11		
MW-14	↓	1742			X	5	9	1	3	1	1	1	2							14		

Relinquished By	Date	Time	Relinquished By	Date	Time	Relinquished By	Date	Time	Quick TAT	Shipped By
John L McMahan	10-20-00	0730							Y N	D&F CLIENT UPS FEDEX
Received By	**Date**	**Time**	**Received By**	**Date**	**Time**	**Received in Laboratory By**	**Date**	**Time**	**If Y, specify:**	**Airbill Number**
						TISA M. DAVIS	10.20.00	0730	— days	

Comments

Cooler ID (if available): —
On Ice: Yes No Temp(C) 4
Custody Seal: Intact / Broken / None

Matrix Type Definitions 1 -Drinking Water 2 - Clean Water 5 - Groundwater 7 - Soil/Sediment 8 - Liquid Sludge 9 - Oil 12 - Air
Preservative Definitions A -None B - H2SO4 C - HCl D - HNO3 E - NaOH F - Filtered G - Other

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-1

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM/MSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 70
Well Diameter: 2.0 in.
(A) Top of Well Elevation: ~~94.87~~ 98.54 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 7.67 ft.
(E) Groundwater Elevation: (A)-(D)= ~~90.87~~ 90.87 msl (yes/no)
(F) Total Well Depth = 12.00 ft.
(G) Length of Water Column: (F)-(D)= 4.33 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.7 gals.
Method of Well Evacuation Ba. 1 Start Time: 0909
Method of Sample Collection Ba. 1 Time: 0919
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MW ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.5 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT. MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	0.7	1.4	2.1		
Time (military)	0910	0912	0915		
pH (S.U.)	4.2	4.2	4.1		
Sp. Cond. (umhos/cm)	110	111	109		
Water Temp. (°C)	24	24	25		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	2	3	4		

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 10.2

FORM COMPLETED BY: [signature] (SIGNATURE)
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-2

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: Jam/JWSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Cloudy Temp.: 70
Well Diameter: 2.0 in.
(A) Top of Well Elevation: ~~97.73~~ 97.07 msl (yes/no) Jam 1-8-01
(B) Depth to Immiscible Layer: - ft.
(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)
(D) Depth to Groundwater: 6.83 ft.
(E) Groundwater Elevation: (A)-(D)= ~~90.90~~ 90.24 msl (yes/no) Jam 1-8-01
(F) Total Well Depth = 12.08 ft.
(G) Length of Water Column: (F)-(B)= 5.25 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.8 gals.
Method of Well Evacuation Bail Start Time: 1031
Method of Sample Collection Bail Time: 1040
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.3 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	0.8	1.6	2.4		
Time (military)	1034	1036	1038		
pH (S.U.)	5.3	5.3	5.3		
Sp. Cond. (umhos/cm)	155	143	144		
Water Temp. (°C)	23	24	21		
Odor (subjective)*	2	2	2		
Turbidity (subjective)**	1	2	2		

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - <0.2

FORM COMPLETED BY: [signature] (Signature)
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-3

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM/WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Cloudy Temp.: 70
Well Diameter: 2.0 in.
(A) Top of Well Elevation: JLM 1-8-01 94.54 95.41 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 4.88 ft.
(E) Groundwater Elevation: (A)-(D)= 90.53 90.53 1-8-01 msl (yes/no)
(F) Total Well Depth = 13.28 ft.
(G) Length of Water Column: (F)-(D)= 8.4 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.4 gals.
Method of Well Evacuation Bail Start Time: 1051
Method of Sample Collection Bail Time: 1105
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0 - 3 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.4	2.8	4.2		
Time (military)	1055	1059	1101		
pH (S.U.)	5.4	5.5	5.5		
Sp. Cond. (umhos/cm)	102	100	101		
Water Temp. (°C)	22	23	23		
Odor (subjective)*	2	2	2		
Turbidity (subjective)**	2	2	2		

* (1)None (2)Slight (3)Moderate (4)Stronge

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 5.4

FORM COMPLETED BY: [signature]
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-4

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Cloudy Temp.: 70
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 98.69 94.23 JLM 1-08-01 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 5.79 ft.
(E) Groundwater Elevation: (A)-(D)= 92.90 88.44 JLM 1-08-01 msl (yes/no)
(F) Total Well Depth = 14.61 ft.
(G) Length of Water Column: (F)-(D)= 8.82 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.4 gals.
Method of Well Evacuation Ba. 1 Start Time: 1118
Method of Sample Collection Ba. 1 Time: 1130
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (Height above/depth below) ground: 3.2 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low) / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	@1½ 2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.4 OR 4	~~2.8~~			
Time (military)	1123				
pH (S.U.)	5.3				
Sp. Cond. (umhos/cm)	78				
Water Temp. (°C)	23				
Odor (subjective)*	1				
Turbidity (subjective)**	3				

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - <0.2
NO LOCK

FORM COMPLETED BY: John L. McMahan III (SIGNATURE)
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-5

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 70's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 90.25 JLM 1-8-01 msl (yes/no)
(B) Depth to Immiscible Layer: 5.63 ft.
(C) Immiscible Layer Elevation: (A)-(B)= 84.62 msl (yes/no)
(D) Depth to Groundwater: 8.21 ft.
(E) Groundwater Elevation: (A)-(D)= ~~82.04~~ JLM 1-8-01 msl (yes/no)
(F) Total Well Depth = 15.00 ft.
(G) Length of Water Column: (F)-(D)= ft.
Casing Volume = (G) x Volume in gal./ft.= gals.
Method of Well Evacuation Ba. 1 Start Time:
Method of Sample Collection Ba. 1 Time:
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 3.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)					
Time (military)					
pH (S.U.)					
Sp. Cond. (umhos/cm)					
Water Temp. (°C)					
Odor (subjective)*					
Turbidity (subjective)**					

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - NO LOCK

1st 0.35 ft/min product recharge over 10 min pd
2nd 0.40 ft/min " " " "
3rd 0.32 ft/min " " " "

FORM COMPLETED BY: John L McMahan
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-6

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WLB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 60's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 101.27 99.58 msl (yes/no) JLM 1-8-01
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 9.25 9.28 ft.
(E) Groundwater Elevation: (A)-(D)= 91.99 msl (yes/no) JLM 1-8-01
(F) Total Well Depth = 15.81 ft.
(G) Length of Water Column: (F)-(D)= 6.53 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.0 gals.
Method of Well Evacuation Ba. 1 Start Time: 0832
Method of Sample Collection Ba. 1 Time: 0855
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	Dup 4th Volume	5th Volume
Volume Purged (gallons)	1.0	2.0	DRY @ 2.5		
Time (military)	0842	0843			
pH (S.U.)	6.0	5.9	5.9	5.9	
Sp. Cond. (umhos/cm)	454	461	463	463	
Water Temp. (°C)	19	19	19	19	
Odor (subjective)*	1	1	1	1	
Turbidity (subjective)**	3	3	3	3	

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 0.6
No Lock

FORM COMPLETED BY: (signature)
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-7

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WLSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Cloudy Temp.: 70's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 91.71 ~~90.24~~ msl (yes/no) JLM 1-8-01
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 5.26 ft.
(E) Groundwater Elevation: (A)-(D)= ~~84.98~~ 91.45 msl (yes/no) JLM 1-8-01
(F) Total Well Depth = 14.87 ft.
(G) Length of Water Column: (F)-(D)= 9.61 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.6 gals.
Method of Well Evacuation Ba. 1 Start Time: 1319
Method of Sample Collection Ba. 1 Time: 1655
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.6	3.2 DRY @ 2V			
Time (military)	1323	1327			
pH (S.U.)	5.3	5.3			
Sp. Cond. (umhos/cm)	81	88			
Water Temp. (°C)	21	21			
Odor (subjective)*	1	1			
Turbidity (subjective)**	2	2			

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 5.0
No Lock

FORM COMPLETED BY: John L McMahon (signature)
DATE: 10-19-00

D&F Form48 (3/94)

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-8

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Cloudy Temp.: 70's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: ~~96.32~~ JLM 1-8-01 95.88 msl (yes/no)
(B) Depth to Immiscible Layer: - ft.
(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)
(D) Depth to Groundwater: 7.01 ft.
(E) Groundwater Elevation: (A)-(D)= ~~88.31~~ JLM 1-8-01 88.87 msl (yes/no)
(F) Total Well Depth = 15.00 ft.
(G) Length of Water Column: (F)-(D)= 7.99 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.3 gals.
Method of Well Evacuation Ba. 1 Start Time: 1336
Method of Sample Collection Ba. 1 Time: 1427
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.3	2.6 DRY @ 2V			
Time (military)	1340	1350			
pH (S.U.)	5.9	5.9			
Sp. Cond. (umhos/cm)	58	59			
Water Temp. (°C)	21	21			
Odor (subjective)*	3	3			
Turbidity (subjective)**	2	2			

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron -
No Lock
Found product when well bailed down, no product layer at beginning of evaluation

FORM COMPLETED BY: John L. McMahan III (SIGNATURE)
DATE: 10-19-00

D&F Form48 (3/94)

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CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-9 Dup

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM/JWSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Cloudy Temp.: 70's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 94.85 ~~90.55~~ JLM 1-2-01 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 6.10 ft.
(E) Groundwater Elevation: (A)-(D)= ~~88.75~~ 84.45 JLM 1-5-01 msl (yes/no)
(F) Total Well Depth = 14.64 ft.
(G) Length of Water Column: (F)-(D)= 8.54 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.4 gals.
Method of Well Evacuation Ba. 1 Start Time: 1604
Method of Sample Collection Ba. 1 Time: 1613
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.4	2.8	4.2		
Time (military)	1608	1610	1612		
pH (S.U.)	5.7	5.6	5.6		
Sp. Cond. (umhos/cm)	101	99	100		
Water Temp. (°C)	21	21	21		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	3	4	4		

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 4.8
No Lock Dup 5.0

FORM COMPLETED BY: (Signature)
DATE: 10-19-00

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PLANNERS SCIENTISTS
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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-10

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 70's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 94.04 ~~89.54~~ JLM 1-8-01 msl (yes/no)
(B) Depth to Immiscible Layer: – ft.
(C) Immiscible Layer Elevation: (A)–(B)= – msl (yes/no)
(D) Depth to Groundwater: 5.35 ft.
(E) Groundwater Elevation: (A)–(D)= 88.69 ~~84.19~~ JLM 1-8-01 msl (yes/no)
(F) Total Well Depth = 14.73 ft.
(G) Length of Water Column: (F)–(D)= 9.38 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.5 gals.
Method of Well Evacuation Ba. 1 Start Time: JLM ~~1604~~ 1549
Method of Sample Collection Ba. 1 Time: 1610
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.5	3.0 DRY	~~4.5~~ 2V		
Time (military)	1553	1559			
pH (S.U.)	5.1	5.1			
Sp. Cond. (umhos/cm)	53	53			
Water Temp. (°C)	20	20			
Odor (subjective)*	1	1			
Turbidity (subjective)**	3	4			

* (1)None (2)Slight (3)Moderate (4)Strange
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - L.O.2
No Lock

FORM COMPLETED BY: John L McMahon III (signature)
DATE:

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-11

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM/WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 70's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 92.98 ~~89.05~~ JLM 1-8-01 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 4.54 ft.
(E) Groundwater Elevation: (A)-(D)= ~~88.44~~ 84.51 JLM 1-8-01 msl (yes/no)
(F) Total Well Depth = 8.54 ft.
(G) Length of Water Column: (F)-(D)= 4.0 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.65 gals.
Method of Well Evacuation Ba. 1 Start Time: 1732
Method of Sample Collection Ba. 1 Time: 1742
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.2 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT. MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	0.7	1.4	2.1		
Time (military)	1735	1739	1741		
pH (S.U.)	4.7	4.7	4.6		
Sp. Cond. (umhos/cm)	78	78	78		
Water Temp. (°C)	20	20	20		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	2	2	2		

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 50
ALOCK

FORM COMPLETED BY: [signature] (SIGNATURE)
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-12

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM/WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 70
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 92.07 ~~89.37~~ JLM 1-8-01 msl (yes/no)
(B) Depth to Immiscible Layer: ~ ft.
(C) Immiscible Layer Elevation: (A)-(B)= ~ msl (yes/no)
(D) Depth to Groundwater: 3.82 ft.
(E) Groundwater Elevation: (A)-(D)= ~~81.54~~ JLM 1-8-01 88.25 msl (yes/no)
(F) Total Well Depth = 7.98 ft.
(G) Length of Water Column: (F)-(D)= 4.16 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.7 gals.
Method of Well Evacuation Ba. 1 Start Time: 1711
Method of Sample Collection Ba. 1 Time: 1720
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.2 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	6th Volume
Volume Purged (gallons)	0.7	1.4	2.1		
Time (military)	1714	1717	1719		
pH (S.U.)	5.3	5.3	5.3		
Sp. Cond. (umhos/cm)	63	63	~~63~~		
Water Temp. (°C)	20	20	~~20~~		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	2	2	2		

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 2.0
NO LOCK

FORM COMPLETED BY: [signature] (SIGNATURE)
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-13

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 70
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 92.56 ~~99.20~~ JLM 1-8-01 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 4.49 ft.
(E) Groundwater Elevation: (A)-(D)= ~~84.71~~ JLM 1-8-01 88.07 msl (yes/no)
(F) Total Well Depth = 8.15 ft.
(G) Length of Water Column: (F)-(D)= 3.66 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.6 gals.
Method of Well Evacuation Ba. 1 Start Time: 1714
Method of Sample Collection Ba. 1 Time: 1723
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0-3 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (bailer) (yes/no) Type
Protective Post/Abulment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low (moderate) high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT. MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	0.6	DRY @ 2			
Time (military)	1716	1718			
pH (S.U.)	4.3	4.3			
Sp. Cond. (umhos/cm)	54	54			
Water Temp. (°C)	20	20			
Odor (subjective)*	1	1			
Turbidity (subjective)**	2	2			

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 1.8
NO LOCK

FORM COMPLETED BY: [signature]
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-14

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 70
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 91.37 ~~89.82~~ JLM 1-8-01 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 3.41 ft.
(E) Groundwater Elevation: (A)-(D)= ~~85.41~~ 87.96 JLM 1-8-01 msl (yes/no)
(F) Total Well Depth = 8.07 ft.
(G) Length of Water Column: (F)-(D)= 4.66 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.8 gals.
Method of Well Evacuation Ba. 1 Start Time: 1737
Method of Sample Collection Ba. 1 Time: 1742
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.2 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (In.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT. MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	0.5	1.6	2.4		
Time (military)	1733	1739	1741		
pH (S.U.)	5.3	5.3	5.3		
Sp. Cond. (umhos/cm)	80	80	83		
Water Temp. (°C)	20	20	20		
Odor (subjective)*	3	3	3		
Turbidity (subjective)**	2	2	2		

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 4.5
No Lock

FORM COMPLETED BY: [signature] (SIGNATURE)
DATE: 10-19-00

D&F Form48 (3/94)

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PLANNERS SCIENTISTS
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FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-15

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 70's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: JLM 1-8-01 ~~90.46~~ 93.91 msl (yes/no)
(B) Depth to Immiscible Layer: 4.10 ft.
(C) Immiscible Layer Elevation: (A)-(B)= JLM 1-8-01 ~~86.36~~ 89.81 msl (yes/no)
(D) Depth to Groundwater: 4.51 ft.
(E) Groundwater Elevation: (A)-(D)= 89.40 ~~85.95~~ JLM 1-8-01 msl (yes/no)
(F) Total Well Depth = 12.99 ft.
(G) Length of Water Column: (F)-(D)= 8.48 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.4 gals.
Method of Well Evacuation Ba. 1 Start Time: 1410
Method of Sample Collection Ba. 1 Time: 1425
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.3 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (In.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT. MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.4	2.8	4.2		
Time (military)	1413	1417	1420		
pH (S.U.)	5.9	6.0	6.0		
Sp. Cond. (umhos/cm)	103	101	100		
Water Temp. (°C)	22	22	22		
Odor (subjective)*	4	4	4		
Turbidity (subjective)**	4	4	4		

* (1)None (2)Slight (3)Moderate (4)Strange
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 4.2
Seal bad

FORM COMPLETED BY: [signature] (SIGNATURE)
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-16

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Cloudy Temp.: 80's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 93.71 ~~90.76~~ JLM 1-8-01 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 4.08 ft.
(E) Groundwater Elevation: (A)-(D)= ~~89.63~~ ~~86.68~~ JLM 1-8-01 msl (yes/no)
(F) Total Well Depth = 12.17 ft.
(G) Length of Water Column: (F)-(D)= 8.09 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.3 gals.
Method of Well Evacuation Ba. 1 Start Time: 1435
Method of Sample Collection Ba. 1 Time: 1455
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.5 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT. MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.3	2.6	3.9		
Time (military)	1440	1445	1450		
pH (S.U.)	5.8	5.8	5.8		
Sp. Cond. (umhos/cm)	78.4	78.4	78.3		
Water Temp. (°C)	22.3	22.3	22.3		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	2	3	4		

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 5.0
NO LOCK

FORM COMPLETED BY: [signature] (SIGNATURE)
DATE: 10-19-00

D&F Form48 (3/94)

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-17

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Temp.:
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 91.13 94.43 msl (yes/no) 1-8-01
(B) Depth to Immiscible Layer: ~~3.30~~ ft. 3.96 ft JLM
(C) Immiscible Layer Elevation: (A)-(B)= 87.17 msl (yes/no)
(D) Depth to Groundwater: 4.38 ft.
(E) Groundwater Elevation: (A)-(D)= ~~90.25~~ 90.05 msl (yes/no) JLM 1-8-01
(F) Total Well Depth = 12.24 ft.
(G) Length of Water Column: (F)-(D)= 7.86 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.3 gals.
Method of Well Evacuation Ba. 1 Start Time:
Method of Sample Collection Ba. 1 Time:
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.3				
Time (military)					
pH (S.U.)					
Sp. Cond. (umhos/cm)					
Water Temp. (°C)					
Odor (subjective)*					
Turbidity (subjective)**					

* (1)None (2)Slight (3)Moderate (4)Stronge

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron -

FORM COMPLETED BY: (signature)
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-18

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: Jerry/WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Cloudy Temp.: 70
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 87.29 msl (yes/no)
(B) Depth to Immiscible Layer: - ft.
(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)
(D) Depth to Groundwater: surface 5.11 ft.
(E) Groundwater Elevation: (A)-(D)= 82.18 msl (yes/no)
(F) Total Well Depth = 12.0 ft.
(G) Length of Water Column: (F)-(D)= 6.89 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.1 gals.
Method of Well Evacuation Ba. 1 Start Time: 1240
Method of Sample Collection Ba. 1 Time: 1250
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.3 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (In.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT. MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.1	2.2	3.3		
Time (military)	1243	1246	1248		
pH (S.U.)	5.8	5.8	5.8		
Sp. Cond. (umhos/cm)	277	243	231		
Water Temp. (°C)	22	22	22		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	4	5	5		

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 4.8
NO LOCK

FORM COMPLETED BY: [signature]
DATE: 10-19-00

D&F Form48 (3/94)

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-1

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 70
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 91.87 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 7.67 ft.
(E) Groundwater Elevation: (A)-(D)= 84.20 msl (yes/no)
(F) Total Well Depth = 12.00 ft.
(G) Length of Water Column: (F)-(D)= 4.33 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.7 gals.
Method of Well Evacuation Ba. 1 Start Time: 0909
Method of Sample Collection Ba. 1 Time: 0919
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.5 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	0.7	1.4	2.1		
Time (military)	0910	0912	0915		
pH (S.U.)	4.2	4.2	4.1		
Sp. Cond. (umhos/cm)	110	111	109		
Water Temp. (°C)	24	24	25		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	2	3	4		

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 20.2

FORM COMPLETED BY: [signature] (SIGNATURE)
DATE: 10-19-00

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: PW-2

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 70's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 96.56 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 6.78 ft.
(E) Groundwater Elevation: (A)-(D)= 89.72 msl (yes/no)
(F) Total Well Depth = 22.54 ft.
(G) Length of Water Column: (F)-(D)= 15.76 ft.
Casing Volume = (G) x Volume in gal./ft.= 2.6 gals.
Method of Well Evacuation Ba. 1 Start Time: 1526
Method of Sample Collection Ba. 1 Time: 1538
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 3.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (In.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT. MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	2.6	3.2	5.8		
Time (military)	1530	1533	1536		
pH (S.U.)	4.6 ~~4.8~~	4.7	4.5		
Sp. Cond. (umhos/cm)	114	116	116		
Water Temp. (°C)	21	21	21		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	2	2	2		

* (1)None (2)Slight (3)Moderate (4)Strange
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - <0.2
NO LOCK

FORM COMPLETED BY: John L. McMahon II (Signature)
DATE: 10-19-00

D&F Form48 (3/94)

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: PW-2

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 86's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 95.91 msl (yes/no)
(B) Depth to Immiscible Layer: - ft.
(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)
(D) Depth to Groundwater: 6.75 ft.
(E) Groundwater Elevation: (A)-(D)= 89.16 msl (yes/no)
(F) Total Well Depth = 23.82 ft.
(G) Length of Water Column: (F)-(D)= 17.07 ft.
Casing Volume = (G) x Volume in gal./ft.= 2.8 gals.
Method of Well Evacuation Ba. 1 Start Time: 1548
Method of Sample Collection Ba. 1 Time: -
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.5 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume DRY @ W	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	2.8	3.6	5.4		
Time (military)	1553				
pH (S.U.)	6.2				
Sp. Cond. (umhos/cm)	216	DID NOT Recharge			
Water Temp. (°C)	20				
Odor (subjective)*	1				
Turbidity (subjective)**	5				

* (1)None (2)Slight (3)Moderate (4)Strange
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron -
NO LOCK

FORM COMPLETED BY: [signature] (signature)
DATE: 10-19-00

D&F Form48 (3/94)

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ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: Grant We

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.02
Date: 10-19-00 LWR submitted by: Jim Ferguson
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Temp.:
Well Diameter: 2.0 in.
(A) Top of Well Elevation: msl (yes/no)
(B) Depth to Immiscible Layer: ft.
(C) Immiscible Layer Elevation: (A)-(B)= msl (yes/no)
(D) Depth to Groundwater: ft.
(E) Groundwater Elevation: (A)-(D)= msl (yes/no)
(F) Total Well Depth = ft.
(G) Length of Water Column: (F)-(D)= ft.
Casing Volume = (G) x Volume in gal./ft.= gals.
Method of Well Evacuation Bail Start Time: —
Method of Sample Collection Bail Time: 1305
Chain-of-Custody Form Started (yes/no)

N/A

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

N/A

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT. MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	—				
Time (military)	1305				
pH (S.U.)	4.2				
Sp. Cond. (umhos/cm)	40				
Water Temp. (°C)	19				
Odor (subjective)*	1				
Turbidity (subjective)**	1				

* (1)None (2)Slight (3)Moderate (4)Strange
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - <0.2

FORM COMPLETED BY: [signature] (Signature)
DATE: 10-19-00

D&F Form48 (3/94)

TABLE 1

SUMMARY OF MONITORING WELL CONSTRUCTION
FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

WELL NO.	GROUND SURFACE ELEVATION	TOP OF CASING ELEVATION	SCREENED INTERVAL DEPTH
MW-1	99.05	98.54	4-14
MW-2	97.64	97.07	3-13
MW-3	95.56	95.41	4-14
MW-4	95.76	98.69	4-14
MW-5	95.13	96.70	4-14
MW-6	97.10	99.56	4-14
MW-7	94.60	96.71	4-14
MW-8	93.74	95.88	4-14
MW-9	92.76	94.85	4-14
MW-10	92.11	94.04	4-14
PW-1	94.29	96.50	16-21
PW-2	93.54	95.91	21-26
MW-11	93.28	92.98	4-9
MW-12	92.42	92.07	4-9
MW-13	92.75	92.56	4-9
MW-14	91.52	91.37	4-9
MW-15	94.24	93.91	3-13
MW-16	93.92	93.71	3-13
MW-17	95.01	94.63	3-13
MW-18	87.37	87.29	2-12

NOTES:
1. Well elevations surveyed by D&F relative to arbitrary datum.
2. Screen interval depths below ground surface.
3. All measurements in feet.

TABLE 2
GROUNDWATER ELEVATION DATA
FORMER PUROLATOR COURIER SITE

Well	Date	Top of Casing Elevation	Depth to Groundwater	Water Table Elevation
MW-1	07/29/92	98.68	6.51	92.17
	03/30/93		1.83	96.85
	06/25/98		5.14	93.54
	12/29/98	98.54	6.67	91.87
	10/19/00		7.67	90.87
MW-2	07/29/92	97.07	5.72	91.35
	03/30/93		2.26	94.81
	06/25/98		4.95	92.12
	12/29/98		5.64	91.43
	10/19/00		6.83	90.24
MW-3	07/29/92	95.41	3.90	91.51
	03/30/93		1.00	94.41
	06/25/98		3.35	92.06
	12/29/98		3.90	91.51
	10/19/00		4.88	90.53
MW-4	07/29/92	98.69	7.60	91.09
	03/30/93		4.30	94.39
	06/25/98		7.07	91.62
	12/29/98		7.46	91.23
	10/19/00		5.79	92.90
MW-5	07/29/92	96.70	6.70	**90.00**
	03/30/93		3.34	93.36
	06/25/98		7.02	**89.68**
	12/29/98		6.45	**90.25**
	10/19/00		8.21	**90.68**
MW-6	07/29/92	99.56	8.35	91.21
	03/30/93		5.77	93.79
	06/25/98		7.89	91.67
	12/29/98		8.29	91.27
	10/19/00		9.28	90.28
MW-7	07/29/92	96.71	7.00	89.71
	03/30/93		4.59	92.12
	06/25/98		7.09	89.62
	12/29/98		6.47	90.24
	10/19/00		5.26	91.45
MW-8	07/29/92	95.88	6.00	89.88
	03/30/93		3.78	92.10
	06/25/98		6.24	**89.64**
	12/29/98		5.56	90.32
	10/19/00		7.01	88.87
MW-9	07/29/92	94.85	5.40	89.45
	03/30/93		3.00	91.85
	06/25/98		5.31	89.54
	12/29/98		4.30	90.55
	10/19/00		6.10	88.75
MW-10	07/29/92	94.04	4.90	89.14
	03/30/93		3.13	90.91
	06/25/98		4.67	89.37
	12/29/98		4.50	89.54
	10/19/00		5.35	88.69
PW-1	03/30/93	96.50	3.22	93.28
	06/25/98		5.61	90.89
	12/29/98		5.60	90.90
	10/19/00		6.78	89.72
PW-2	03/30/93	95.91	4.42	91.49
	06/25/98		4.40	91.51
	12/29/98		6.12	89.79
	10/19/00		6.75	89.16
MW-11	12/29/98	92.98	3.93	89.05
	10/19/00		4.54	88.44
MW-12	12/29/98	92.07	2.70	89.37
	10/19/00		3.82	88.25
MW-13	12/29/98	92.56	3.36	89.20
	10/19/00		4.49	88.07
MW-14	12/29/98	91.37	2.55	88.82
	10/19/00		3.41	87.96
MW-15	12/29/98	93.91	3.45	90.46
	10/19/00		4.51	**89.75**
MW-16	12/29/98	93.71	2.95	90.76
	10/19/00		4.08	89.63
MW-17	12/29/98	94.63	3.50	91.13
	10/19/00		4.38	**90.61**
MW-18	10/19/00	87.29	5.11	82.18

Notes:
All measurements in feet
Elevations are relative to mean sea level
Value in **bold** indicates free product in well.
Water level corrected using 0.85 density for LNAPL

Table 3. Summary of Groundwater Quality at the Former Purolator Courier Site in West Columbia, South Carolina, October 19, 2000

Parameter	pH	Conduc-tivity	Benzene	Ethyl-benzene	MTBE	Naphth-lene	Toluene	Xylenes	Ferrous Iron	Carbon Dioxide	Carbon Monoxide	Methane	Nitrogen	Oxygen	Nitrate Nitrogen	Lead, Total	Sulfate
MDL/RBSL	NA	NA	1.0/5.0	1.0/700	5.0/40	2.0/10	1.0/1,000	1.0/10,000	0.2/NA	NA	0.4/NA	0.07/NA	NA		NA	0.005/0.015	NA
Well	**Date**																
MW-1	10/19/00	4.1	109	BDL	BDL	BDL	BDL	BDL	BDL	BDL	30	BDL	BDL	17	5.8	8.3	**0.069**	0.41
MW-2	10/19/00	5.3	144	**497**	47.1	33.8	5.1	137	210	BDL	NS	NS	NS	NS	NS	6.6	BDL	0.96
MW-3	10/19/00	5.5	101	**64.5**	89.4	BDL	53.7	3.8	236	5.4	**85.6**	BDL	2.1	18.4	1	1.6	0.014	1.1
MW-4	10/19/00	5.3	78	BDL	BDL	17.4	BDL	BDL	BDL	BDL	**22.8**	BDL	BDL	16.3	8.5	4.9	0.014	1.7
MW-5	10/19/00	2.58 FEET FREE PRODUCT FOUND																
MW-6	10/19/00	5.9	463	BDL	BDL	BDL	1.5	BDL	BDL	0.8	NS	NS	NS	NS	NS	0.33	**0.015**	190
MW-7	10/19/00	5.3	88	BDL	BDL	11.7	BDL	2.9	BDL	5.0	NS	NS	NS	NS	NS	2.3	BDL	20.6
MW-8	10/19/00	TRACE FREE PRODUCT FOUND																
MW-9	10/19/00	5.6	99	1.4	BDL	19.5	1.1	25.9	BDL	4.8	NS	NS	NS	NS	NS	0.51	**0.1**	8.5
MW-10	10/19/00	5.1	53	BDL	BDL	3.7	BDL	BDL	BDL	BDL	38.1	BDL	BDL	15.5	3.2	0.79	**0.066**	4.8
MW-11	10/19/00	4.6	78	BDL	BDL	2.8	BDL	BDL	BDL	5.0	NS	NS	NS	NS	NS	2.2	**0.022**	7.1
MW-12	10/19/00	5.3	63	**11.0**	BDL	35.7	BDL	BDL	BDL	2.0	NS	NS	NS	NS	NS	0.15	**0.023**	6.7
MW-13	10/19/00	4.3	54	**73**	9.8	24.0	2.0	5.1	33.4	1.8	NS	NS	NS	NS	NS	0.11	**0.018**	13.1
MW-14	10/19/00	5.3	83	**2,030**	275	**598**	115	412	504	4.5	82.2	BDL	1.6	18.4	0.93	BDL	0.0052	8.2
MW-15	10/19/00	0.41 FEET FREE PRODUCT FOUND																
MW-16	10/19/00	5.8	783	**109**	112	BDL	113	78.3	217	5.0	NS	NS	NS	NS	NS	0.55	**0.045**	3.1
MW-17	10/19/00	0.42 FEET FREE PRODUCT FOUND																
MW-18	10/19/00	5.8	231	BDL	BDL	BDL	3.4	BDL	BDL	4.8	134	BDL	1.5	14.3	0.79	0.18	**0.72**	4.9
PW-1	10/19/00	4.5	116	BDL	BDL	BDL	BDL	1.1	BDL	BDL	NS	NS	NS	NS	NS	8.9	**0.029**	0.45
PW-2	10/19/00	DID NOT RECHARGE																
Grant Well	10/19/00	4.2	40	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NS	NS	NS	NS	NS	1.4	0.005	1.1

Notes:

MDL=method detection limit

RBSL=risk based screening level

BDL=Below detection limit

NS = Not sampled

pH given in pH units

Conductivity in micromhos per centimeter (µmho/cm)

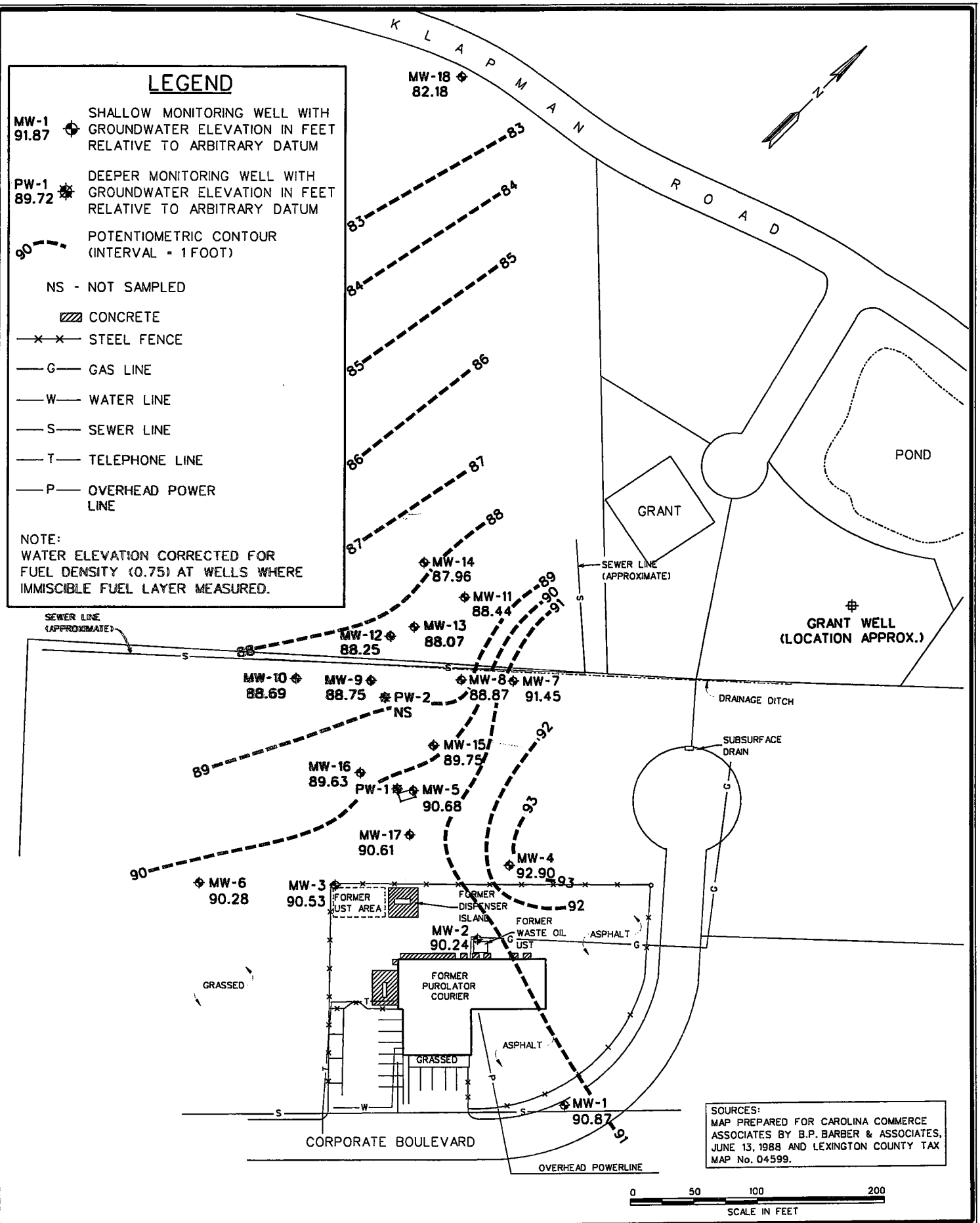
Lead in milligrams per liter (mg/L)

Volatiles and semi-volatiles in micrograms per liter (µg/L)

MTBE=Methyl-Tert-Butyl Ether

Concentrations exceeding the RBSL shown in **bold**

*matrix interference prevented precise determination



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NO.	REVISED	CHKD	DATE

DESIGNED	CHECKED	JOB NO.
FERGUSON	FERGUSON	050098.02
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 2001

FIGURE 2
POTENTIOMETRIC SURFACE MAP
OCTOBER 19, 2000
DRAWING TITLE

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SOUTH CAROLINA

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SC
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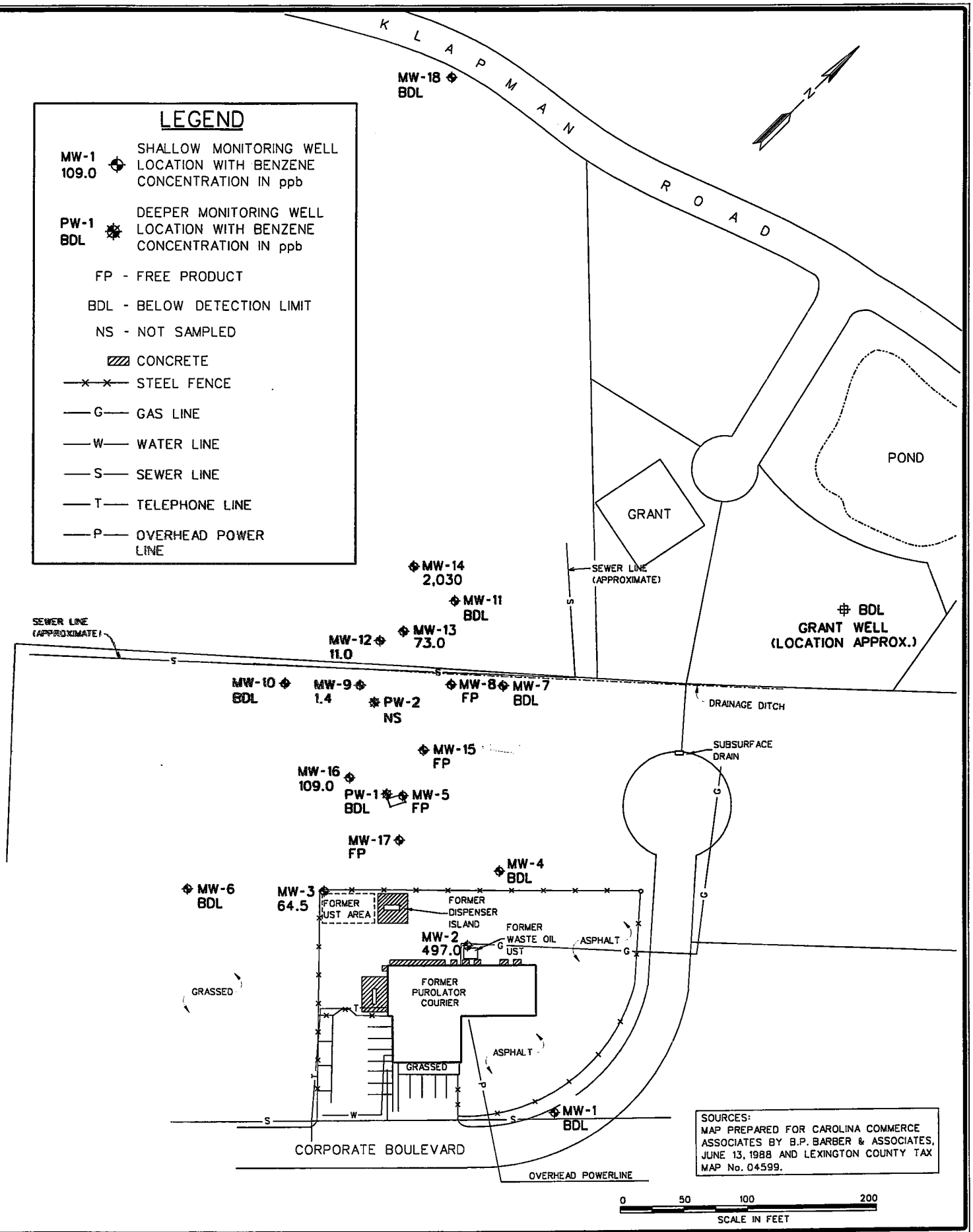

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DRAWN	APPROVED	DATE
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FIGURE 3
SITE MAP SHOWING BENZENE
OCTOBER 19, 2000
DRAWING TITLE

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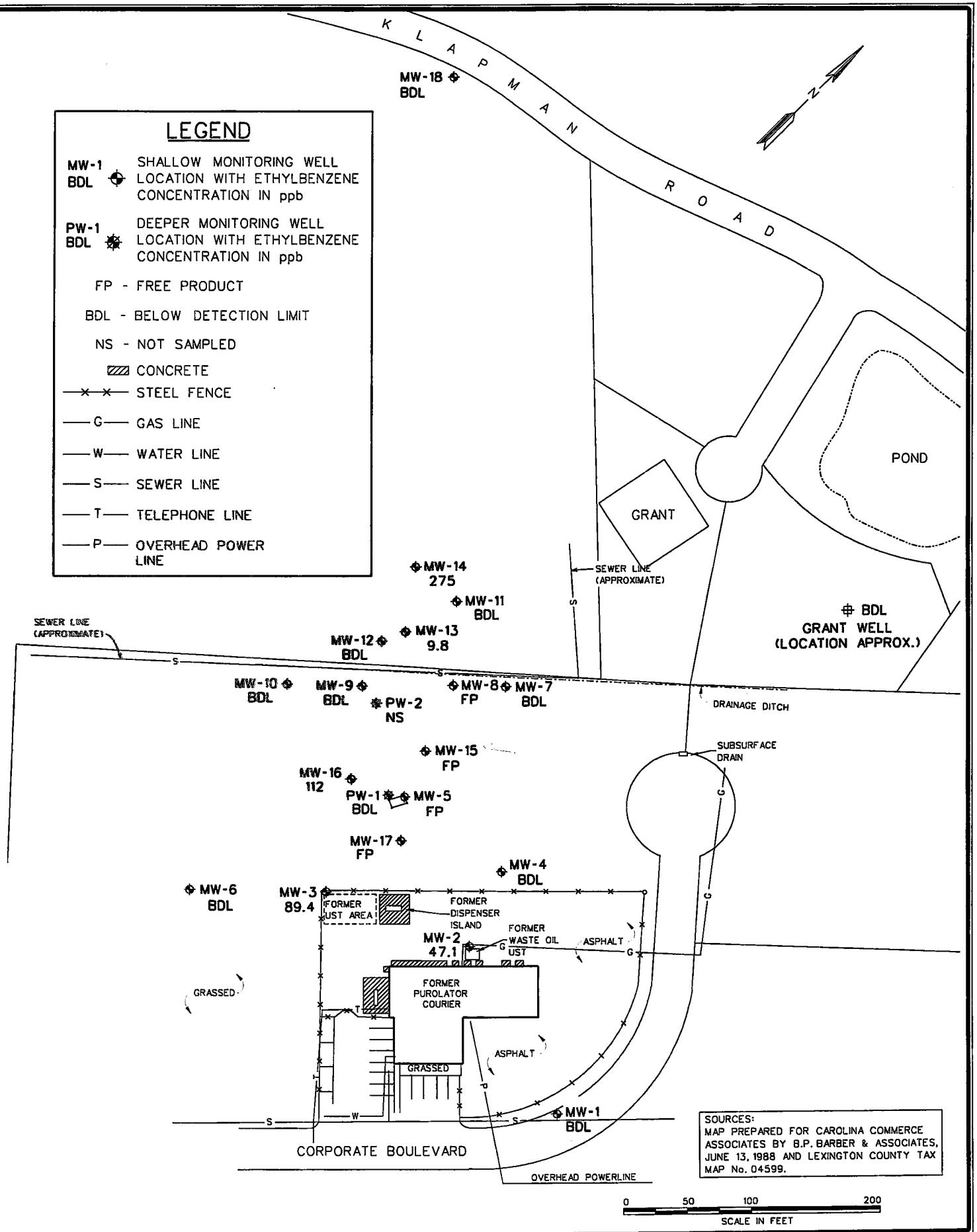

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DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 2001

FIGURE 4
SITE MAP SHOWING ETHYLBENZENE
OCTOBER 19, 2000

DRAWING TITLE

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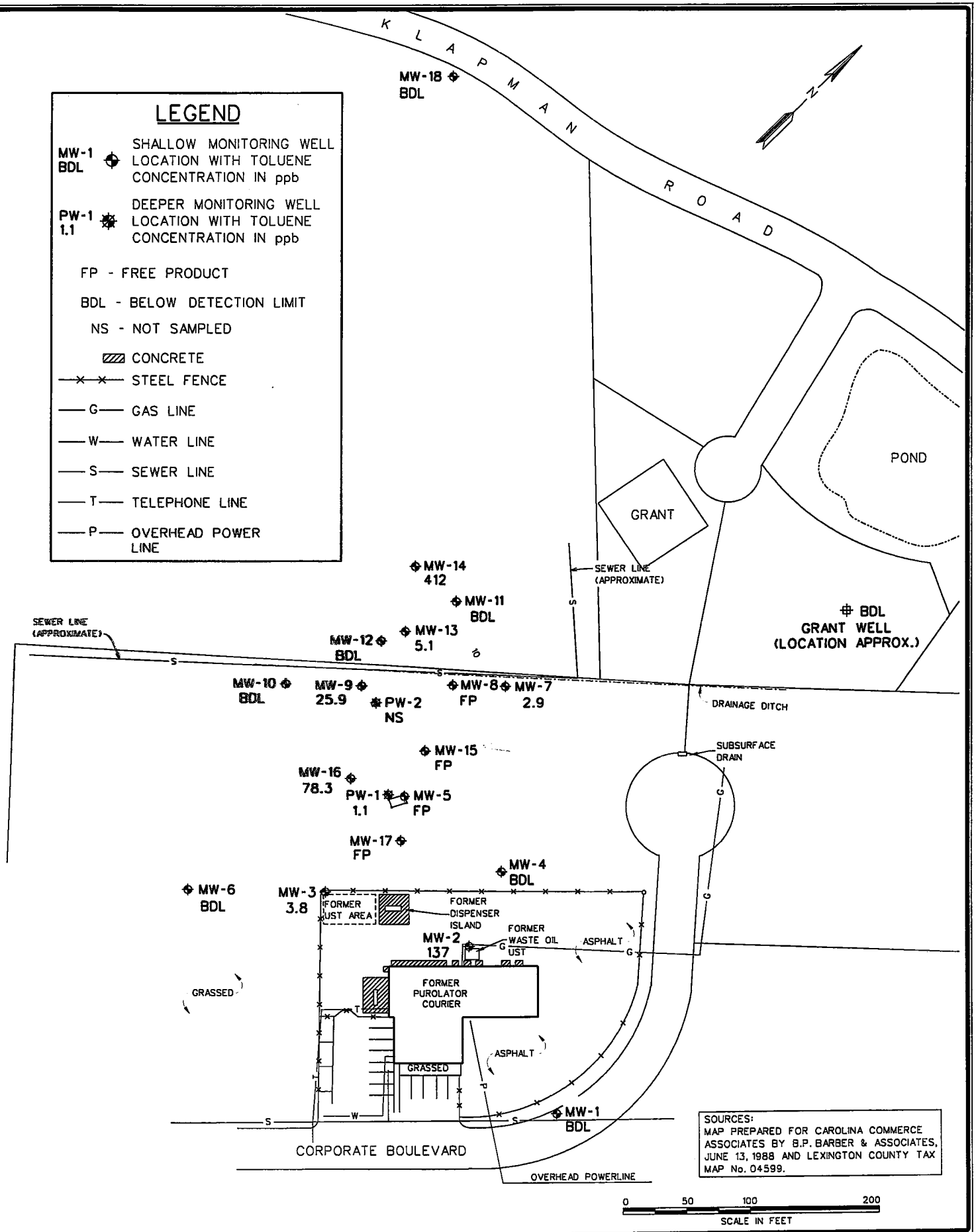

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DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 2001

FIGURE 5
SITE MAP SHOWING TOLUENE
OCTOBER 19, 2000
DRAWING TITLE

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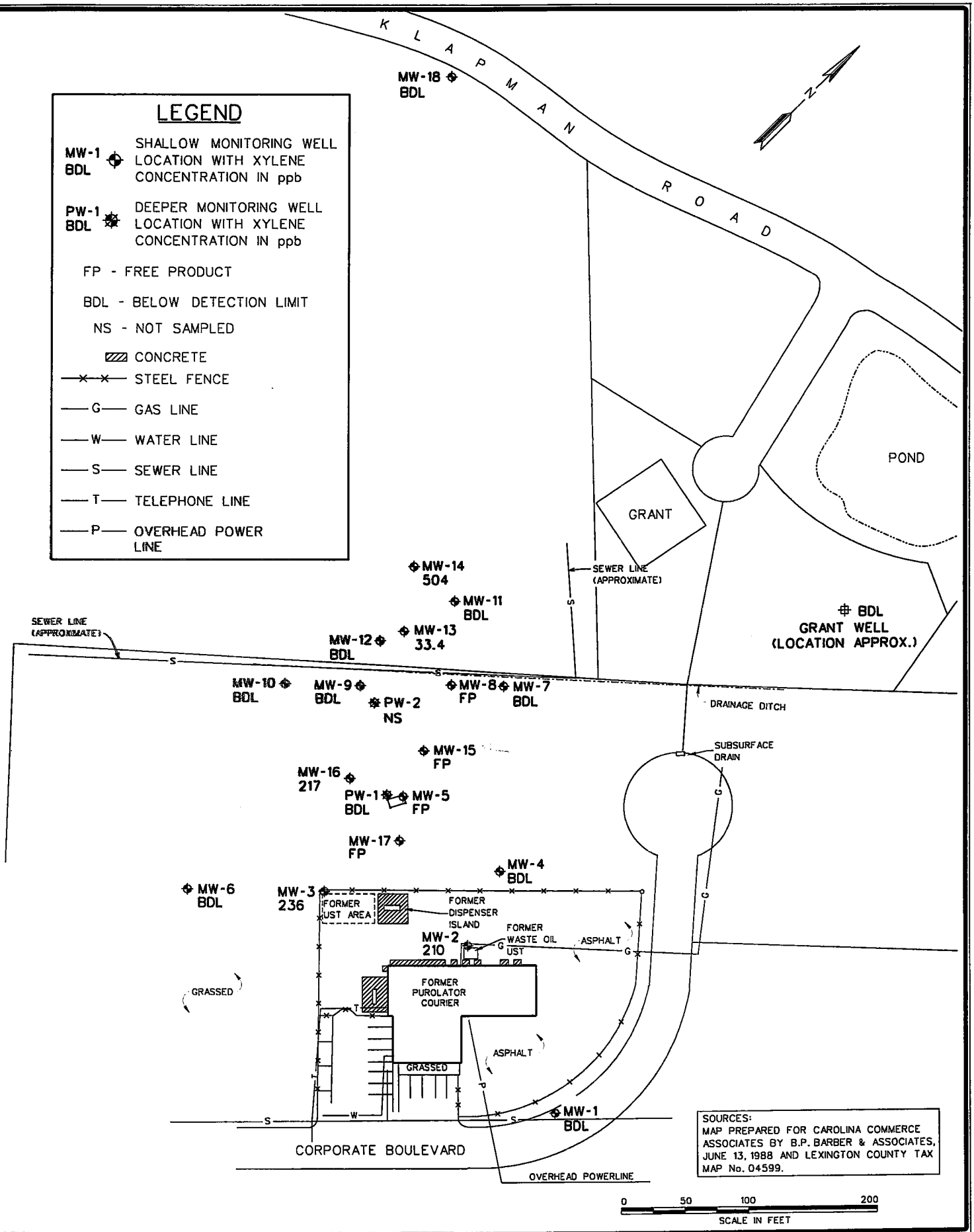

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DESIGNED	CHECKED	JOB NO.
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DRAWN	APPROVED	DATE
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FIGURE 6
SITE MAP SHOWING XYLENE
OCTOBER 19, 2000
DRAWING TITLE

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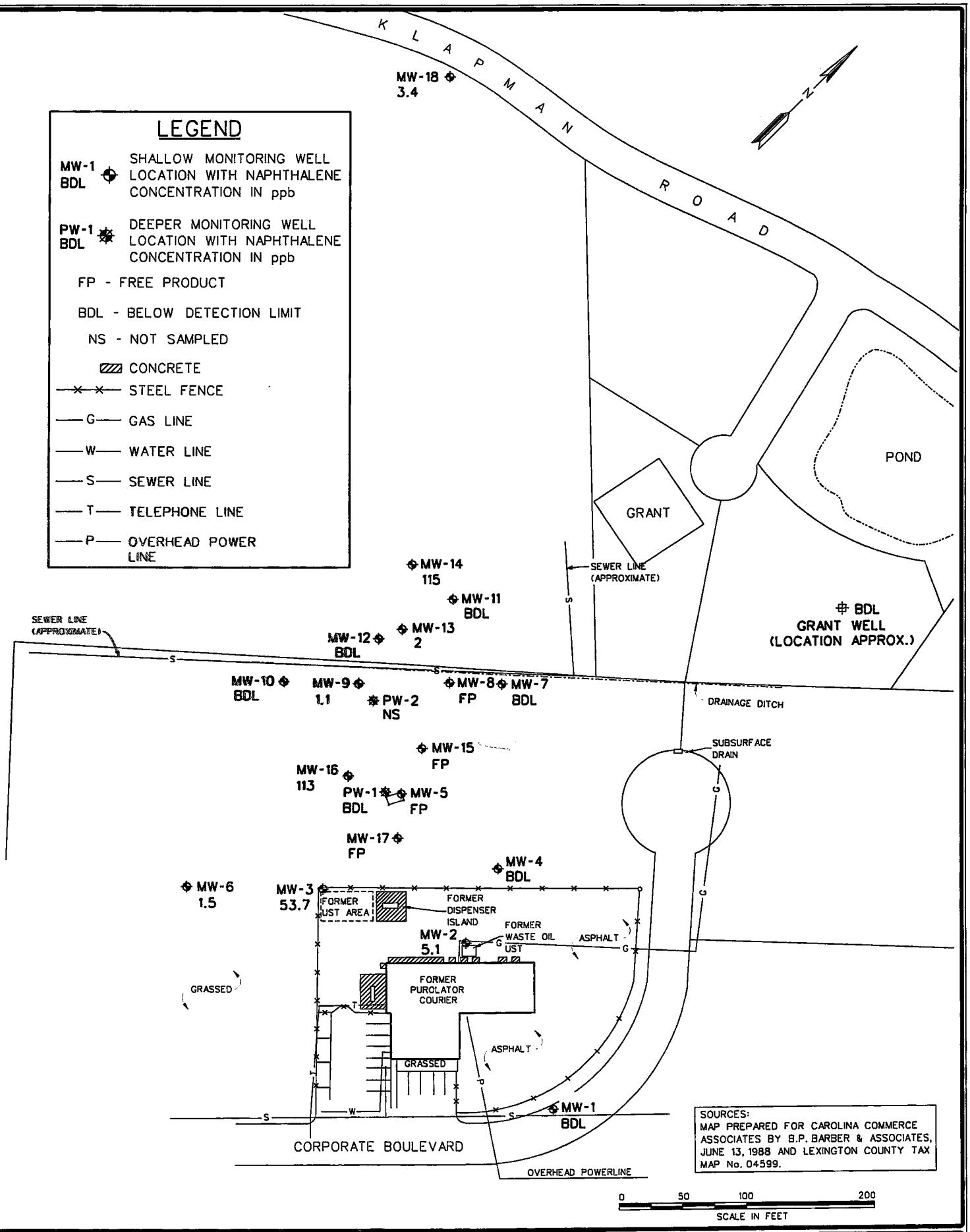

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NO.	REVISED	CHKD	DATE

DESIGNED	CHECKED	JOB NO.
FERGUSON	FERGUSON	050098.02
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 2001

FIGURE 7
SITE MAP SHOWING NAPHTHALENE
OCTOBER 19, 2000

DRAWING TITLE

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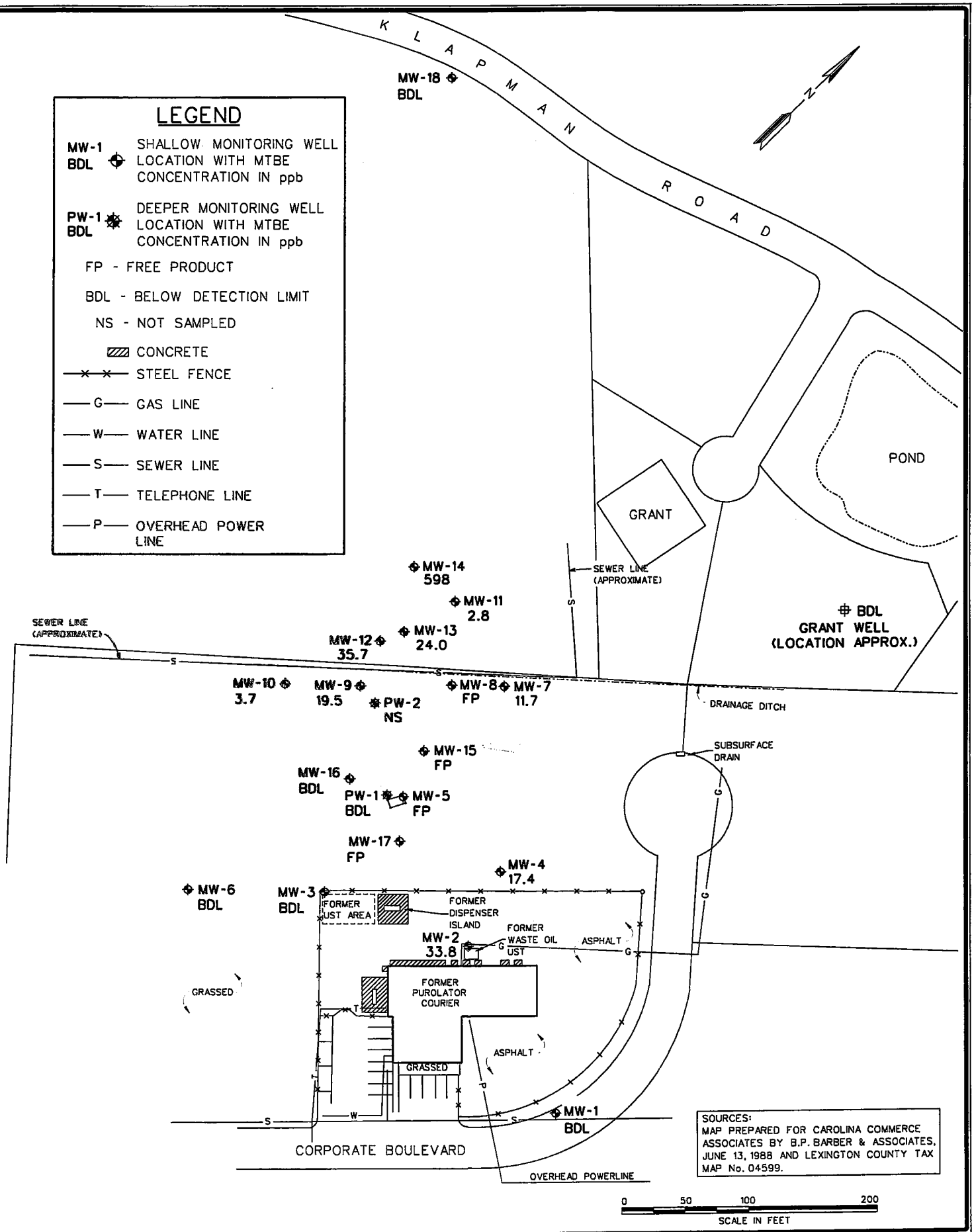

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DESIGNED	CHECKED	JOB NO.
FERGUSON	FERGUSON	050098.02
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 2001

FIGURE 8
SITE MAP SHOWING MTBE
OCTOBER 19, 2000
DRAWING TITLE

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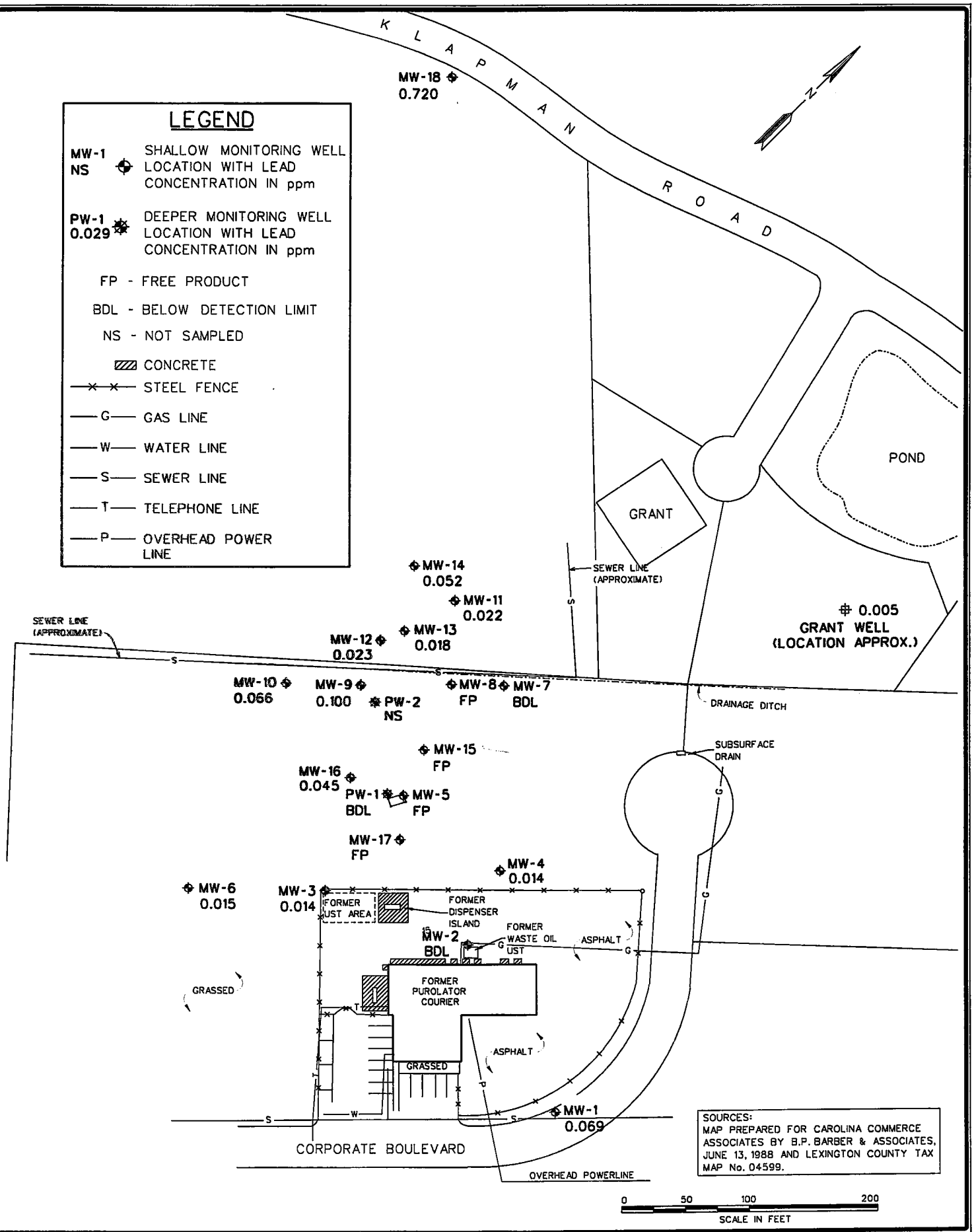

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DESIGNED	CHECKED	JOB NO.
FERGUSON	FERGUSON	050098.02
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 2001

FIGURE 9
SITE MAP SHOWING LEAD
OCTOBER 19, 2000
DRAWING TITLE

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Table 4. Summary of Bioscreen Modeling Input and Results
Former Purolator Courier Site, West Columbia, SC
Carolina Commerce Associates

	Input Parameters			Modeling Results		
CoC	**Seepage Vel.**	**Solute half-life**	**Source conc.**	**RBSL**	**SSTL @ source**	**SSTL @ MW-14**
Benzene	150 ft/yr	0.75	12.3	0.005	0.64	0.104
Ethylbenzene	150 ft/yr	1.20	1	0.700	RBSL not exceeded	RBSL not exceeded
Toluene	150 ft/yr	0.26	20.3	1.000	RBSL not exceeded	RBSL not exceeded
Xylene	150 ft/yr	1.10	9.18	10.000	RBSL not exceeded	RBSL not exceeded
Naphthalene	150 ft/yr	0.62	0.927	0.010	0.35	0.023
MTBE	150 ft/yr	0.82	0.95	0.040	0.34	0.074

Notes: 1. Seepage velocity and solute half-lives calibrated to fit current concentrations at MW-14 after 12 years by trial and error.
2. Source concentration based on December 1998 analyses of sample from MW-5.
3. SSTLs backwards modeled by trial and error to produce RBSL at receptor (stream 300 feet from source).

BENZENE 12 YEAR MATCH

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Benzene
Run Name

Data Input Instructions:

115 or 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	150.0	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0167	(ft/ft)
Porosity	n	0.2	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

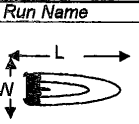
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	9.2E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	0.75	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	6	(mg/L)
Delta Nitrate*	NO3	7	(mg/L)
Observed Ferrous Iron*	Fe2+	4	(mg/L)
Delta Sulfate*	SO4	0	(mg/L)
Observed Methane*	CH4	1.5	(mg/L)

5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	12	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 15 (ft)

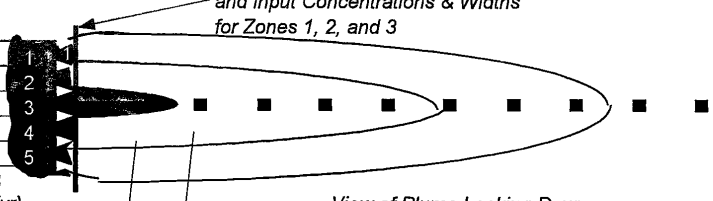
Source Zones:

Width* (ft)	Conc. (mg/L)*
10	0.005
32	1
32	12.3
32	1
10	0.005

Source Halflife (see Help):

70	200	(yr)
Inst. React.	1st Order	
Soluble Mass	1500	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	12.3		2.03								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

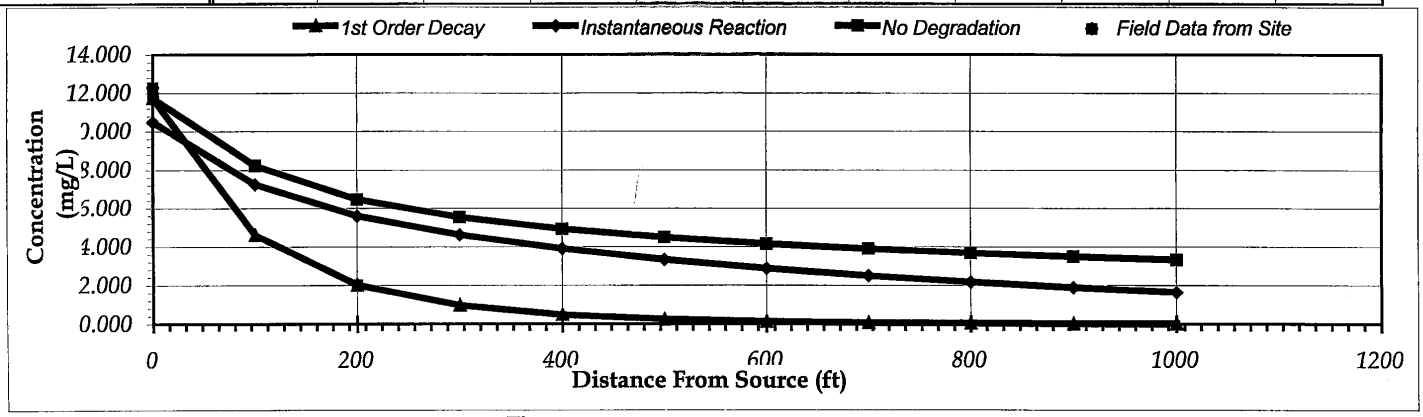
Help | Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	11.740	8.229	6.470	5.533	4.924	4.487	4.153	3.887	3.669	3.485	3.328
1st Order Decay	11.740	4.598	2.020	0.965	0.480	0.244	0.126	0.066	0.035	0.018	0.010
Inst. Reaction	10.495	7.257	5.592	4.611	3.898	3.339	2.881	2.499	2.172	1.889	1.640
Field Data from Site	12.300		2.030								



Calculate Animation

Time: 12 Years

Return to Input

Recalculate This Sheet

BENZENE TRIAL & ERROR (0.005 at 300' RECEPTOR)

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Benzene
Run Name

Data Input Instructions:

115 or 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	150.0	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0167	*(ft/ft)*
Porosity	*n*	0.2	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	9.2E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.75	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	6	*(mg/L)*
Delta Nitrate*	*NO3*	7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	4	*(mg/L)*
Delta Sulfate*	*SO4*	0	*(mg/L)*
Observed Methane*	*CH4*	1.5	*(mg/L)*

5. GENERAL

Modeled Area Length*	1000	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	500	*(yr)*

6. SOURCE DATA

Source Thickness in Sat.Zone* 15 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*	
10	0.005	1
32	0.1	2
32	0.64	3
32	0.1	4
10	0.005	5

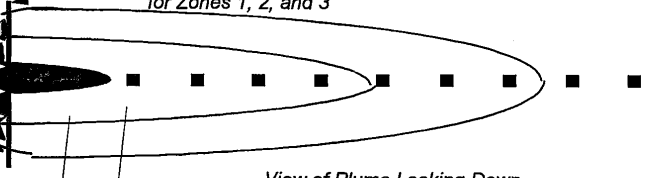
Source Halflife (see Help):

100 | >1000 *(yr)*

Inst. React. ↑ 1st Order

Soluble Mass 1500 *(Kg)*
In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000
Concentration (mg/L)	12.3		2.03								

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

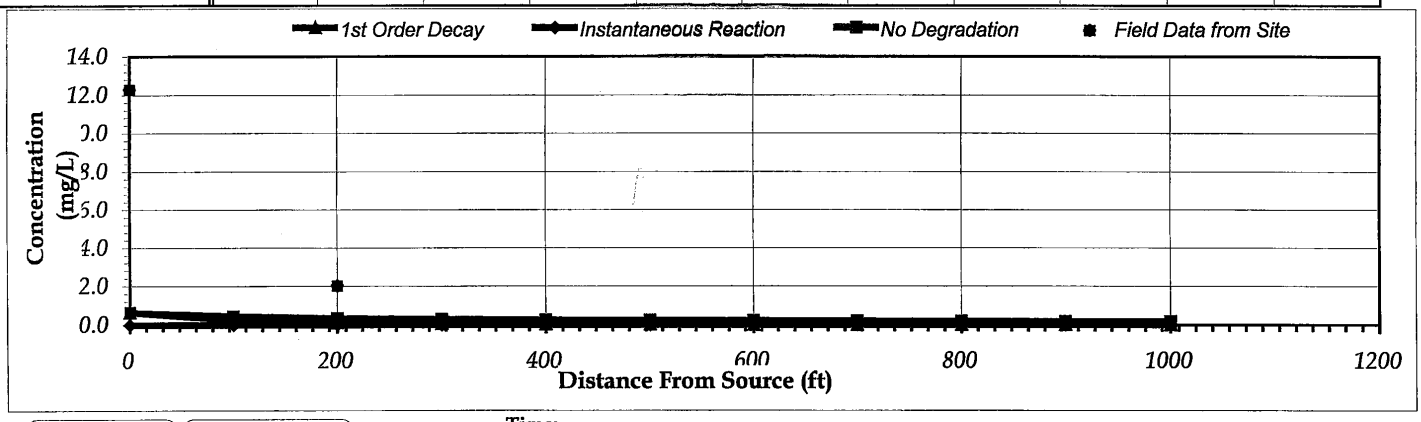
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.644	0.440	0.339	0.286	0.252	0.228	0.210	0.195	0.184	0.174	0.165
1st Order Decay	0.644	0.246	0.106	0.050	0.025	0.012	0.006	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		2.030								



Replay Animation | Next Timestep | Prev Timestep

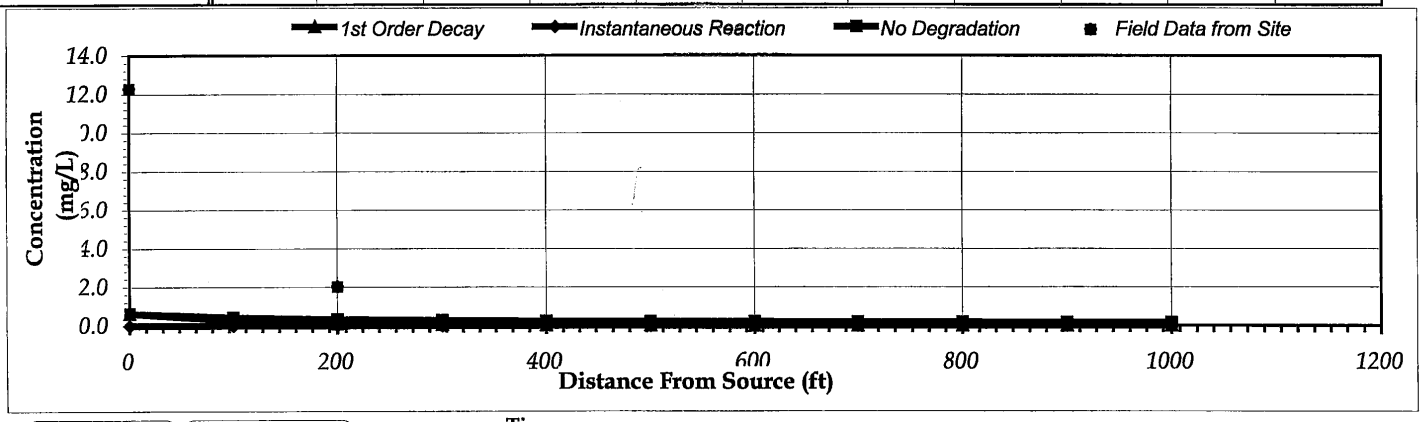
Time: 50 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.638	0.436	0.335	0.283	0.250	0.226	0.208	0.194	0.182	0.172	0.164
1st Order Decay	0.638	0.243	0.105	0.049	0.024	0.012	0.006	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		2.030								



Replay Animation | Next Timestep | Prev Timestep

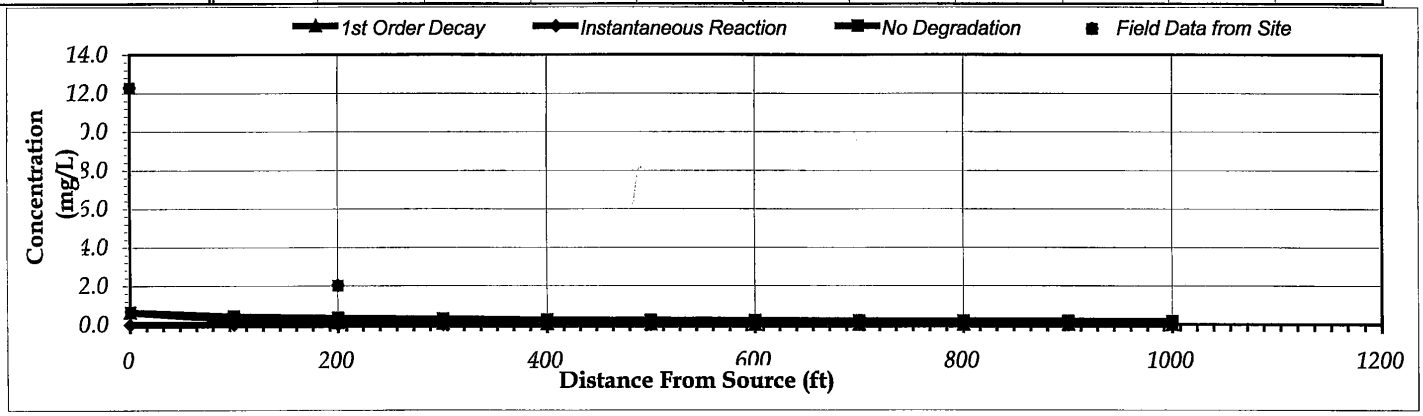
Time: 100 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.632	0.431	0.332	0.280	0.247	0.224	0.206	0.192	0.180	0.171	0.162
1st Order Decay	0.632	0.241	0.104	0.049	0.024	0.012	0.006	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		2.030								



Replay Animation | Next Timestep | Prev Timestep

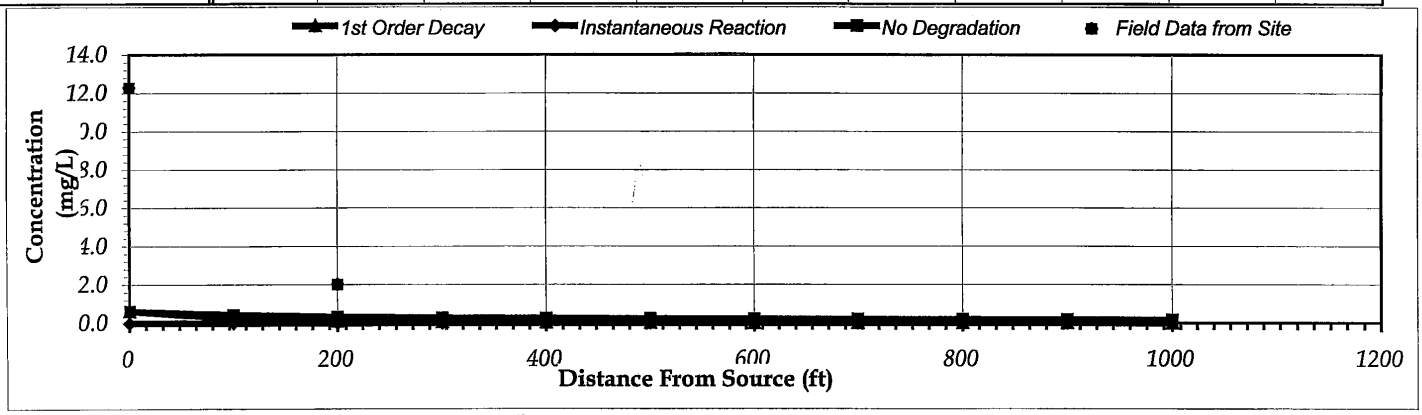
Time: 150 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.626	0.427	0.329	0.278	0.245	0.222	0.204	0.190	0.179	0.169	0.161
1st Order Decay	0.626	0.239	0.103	0.048	0.024	0.012	0.006	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		2.030								



Replay Animation | Next Timestep | Prev Timestep

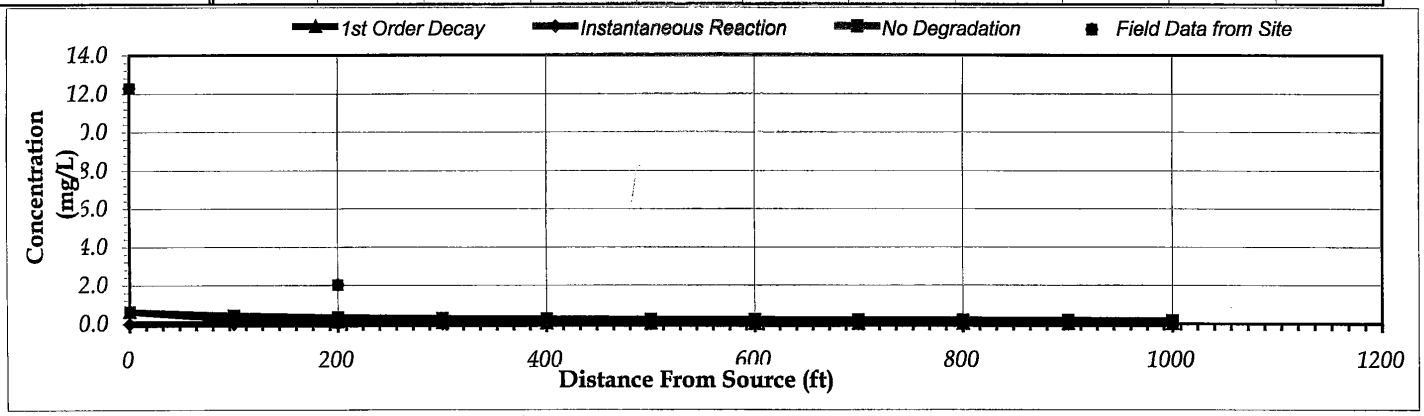
Time: 200 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.620	0.423	0.326	0.275	0.243	0.220	0.202	0.188	0.177	0.167	0.159
1st Order Decay	0.620	0.237	0.102	0.048	0.024	0.012	0.006	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		2.030								



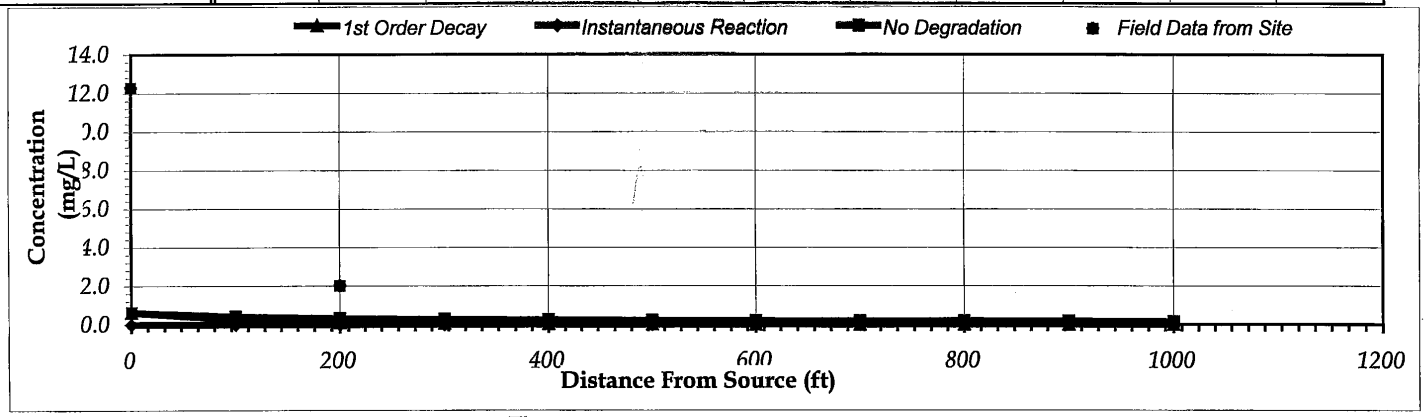
Replay Animation | Next Timestep | Prev Timestep

Time: 250 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.614	0.419	0.323	0.273	0.240	0.218	0.200	0.186	0.175	0.166	0.158
1st Order Decay	0.614	0.234	0.101	0.048	0.023	0.012	0.006	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		2.030								



Replay Animation | Next Timestep | Prev Timestep

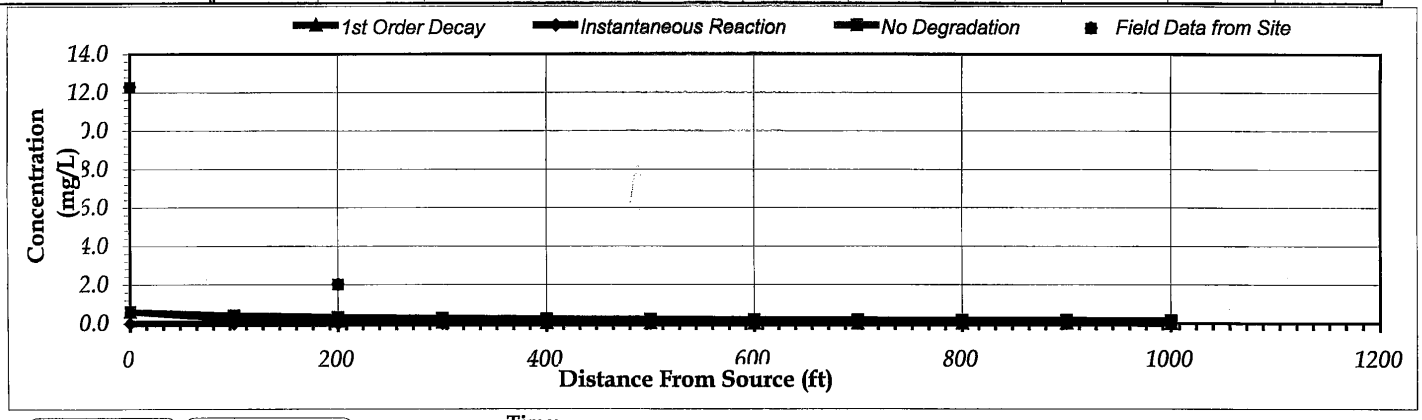
Time: 300 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.609	0.416	0.320	0.270	0.238	0.215	0.198	0.185	0.174	0.164	0.156
1st Order Decay	0.609	0.232	0.100	0.047	0.023	0.012	0.006	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		2.030								



Replay Animation | Next Timestep | Prev Timestep

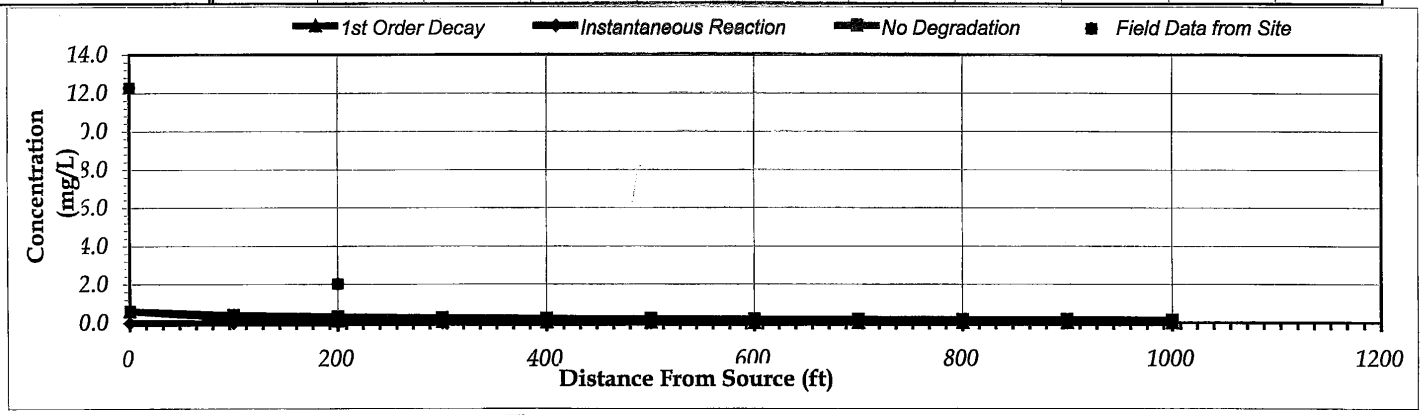
Time: 350 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.603	0.412	0.317	0.268	0.236	0.213	0.196	0.183	0.172	0.163	0.155
1st Order Decay	0.603	0.230	0.099	0.047	0.023	0.012	0.006	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		2.030								



Replay Animation | Next Timestep | Prev Timestep

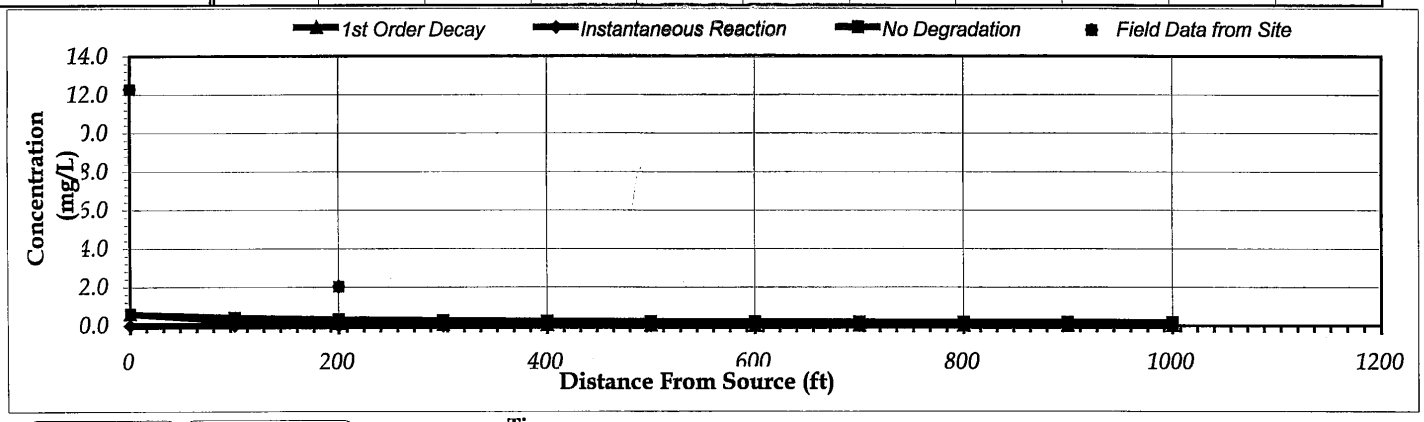
Time: 400 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.597	0.408	0.314	0.265	0.234	0.211	0.195	0.181	0.170	0.161	0.153
1st Order Decay	0.597	0.228	0.098	0.046	0.023	0.012	0.006	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		2.030								



Replay Animation | Next Timestep | Prev Timestep

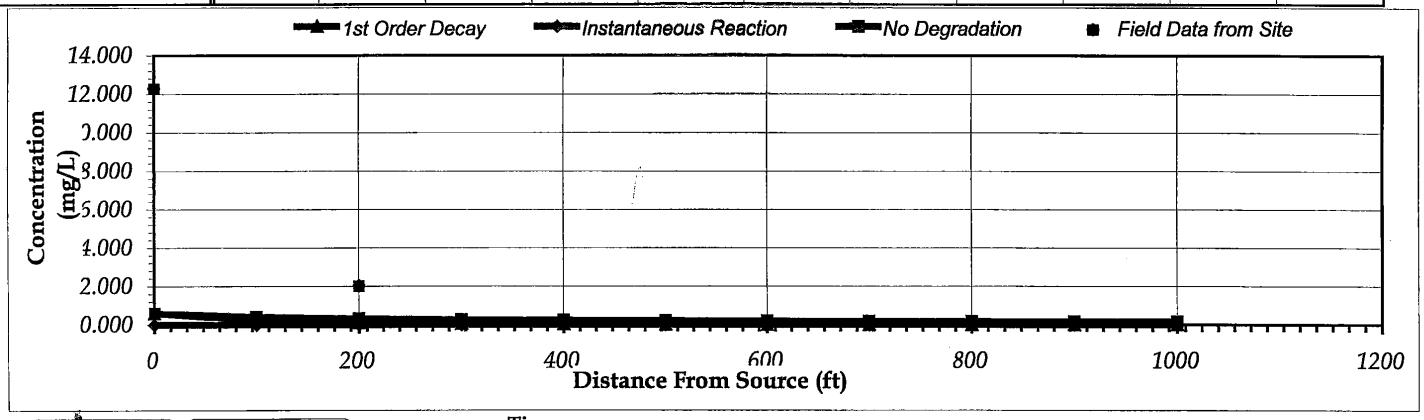
Time: 450 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.592	0.404	0.311	0.263	0.232	0.209	0.193	0.180	0.169	0.160	0.152
1st Order Decay	0.592	0.226	0.097	0.046	0.023	0.011	0.006	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		2.030								



Replay Animation | Next Timestep | Prev Timestep

Time: 500 Years

Return to Input | Recalculate This Sheet

ETHYLBENZENE 12 YEAR MATCH

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Ethylbenzene
Run Name

Data Input Instructions:

115 or 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	150.0	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0167	*(ft/ft)*
Porosity	*n*	0.2	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

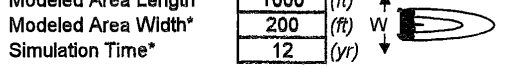
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	5.8E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	1.20	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	6	*(mg/L)*
Delta Nitrate*	*NO3*	7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	4	*(mg/L)*
Delta Sulfate*	*SO4*	0	*(mg/L)*
Observed Methane*	*CH4*	1.5	*(mg/L)*

5. GENERAL

Modeled Area Length*	1000	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	12	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 15 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*	
20	0.05	1
20	0.5	2
20	1	3
20	0.5	4
20	0.05	5

Source Halflife (see Help):

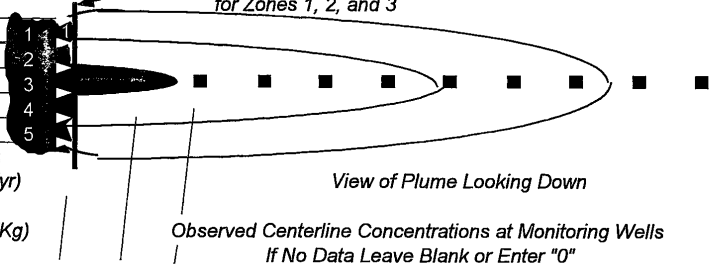
80 | >1000 *(yr)*

Inst. React. ↑ ↑ 1st Order

Soluble Mass | 825 *(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000
Concentration (mg/L)	1.0		.275								

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

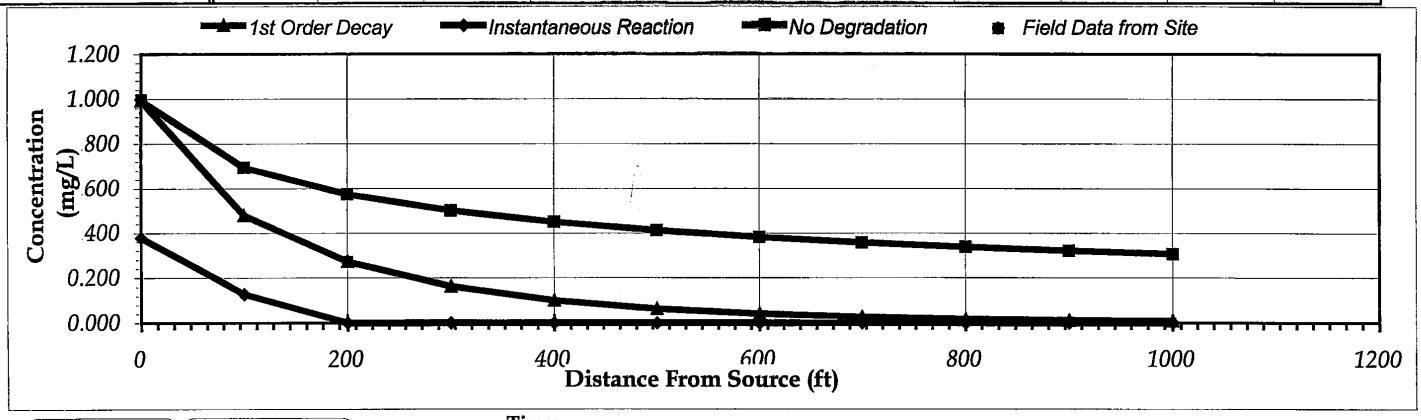
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.992	0.695	0.575	0.501	0.450	0.412	0.382	0.358	0.338	0.321	0.306
1st Order Decay	0.992	0.478	0.272	0.163	0.101	0.064	0.041	0.026	0.017	0.011	0.007
Inst. Reaction	0.379	0.128	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	1.000		0.275								



Replay Animation | Next Timestep | Prev Timestep

Time: 12 Years

Return to Input | Recalculate This Sheet

ETHYLBENZENE TRIAL & ERROR NOT NEEDED RBSL NOT EXCEEDED AT RECEPTOR

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Ethylbenzene
Run Name

Data Input Instructions:

115 (or 0.02) — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	150.0	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-04	(cm/sec)
Hydraulic Gradient	i	0.0167	(ft/ft)
Porosity	n	0.2	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

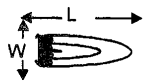
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	5.8E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	1.20	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	6	(mg/L)
Delta Nitrate*	NO3	7	(mg/L)
Observed Ferrous Iron*	Fe2+	4	(mg/L)
Delta Sulfate*	SO4	0	(mg/L)
Observed Methane*	CH4	1.5	(mg/L)

5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	500	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 15 (ft)

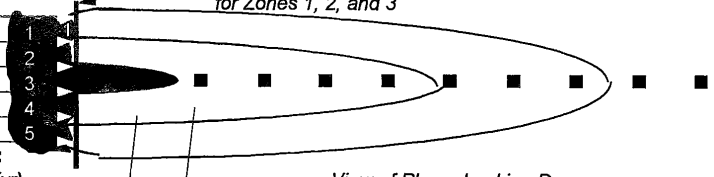
Source Zones:

Width* (ft)	Conc. (mg/L)*
20	0.05
20	0.5
20	1
20	0.5
20	0.05

Source Halflife (see Help):

80	>1000	(yr)
Inst. React.	↑ 1st Order	
Soluble Mass	825	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	1.0		.275								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

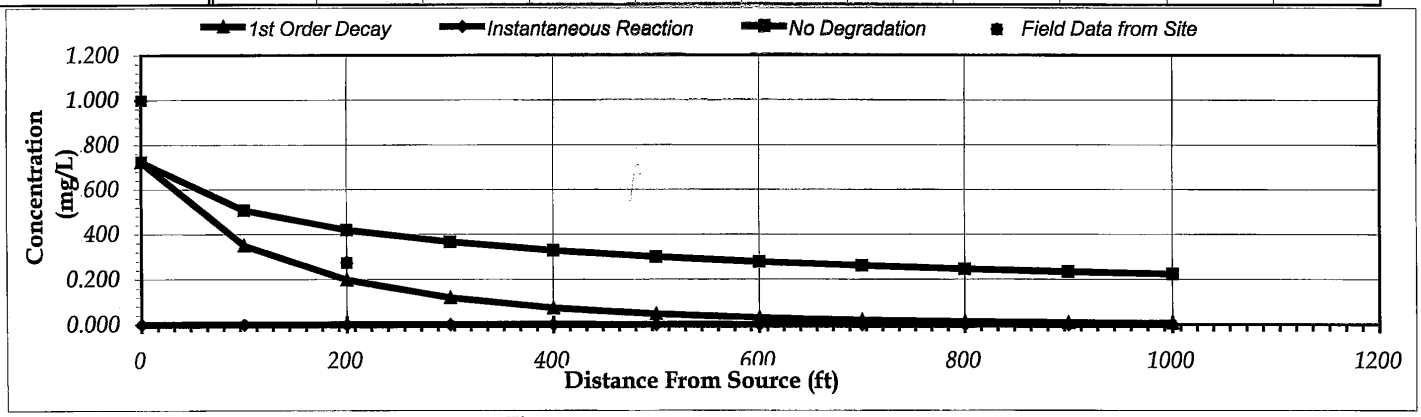
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.723	0.506	0.419	0.365	0.328	0.300	0.279	0.261	0.246	0.234	0.223
1st Order Decay	0.723	0.349	0.198	0.119	0.074	0.046	0.030	0.019	0.012	0.008	0.005
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	1.000		0.275								



Calculate Animation

Time: 500 Years

Return to Input

Recalculate This Sheet

TOLUENE 12 YEAR MATCH

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Toluene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	150.0	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-04	(cm/sec)
Hydraulic Gradient	i	0.0167	(ft/ft)
Porosity	n	0.2	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

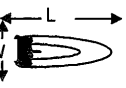
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	2.7E+0	(per yr)
or		↑ or	
Solute Half-Life	t-half	0.26	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	6	(mg/L)
Delta Nitrate*	NO3	7	(mg/L)
Observed Ferrous Iron*	Fe2+	4	(mg/L)
Delta Sulfate*	SO4	0	(mg/L)
Observed Methane*	CH4	1.5	(mg/L)

5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	12	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 15 (ft)

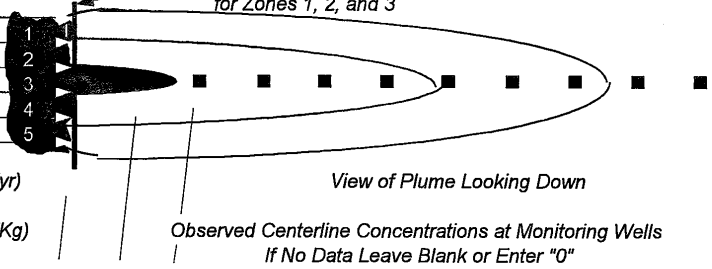
Source Zones:

Width* (ft)	Conc. (mg/L)*
20	0.1
20	5
20	20.3
20	5
20	0.1

Source Halflife (see Help):

40	70	(yr)
Inst. React.	↑ 1st Order	
Soluble Mass	825	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	20.3		.412								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

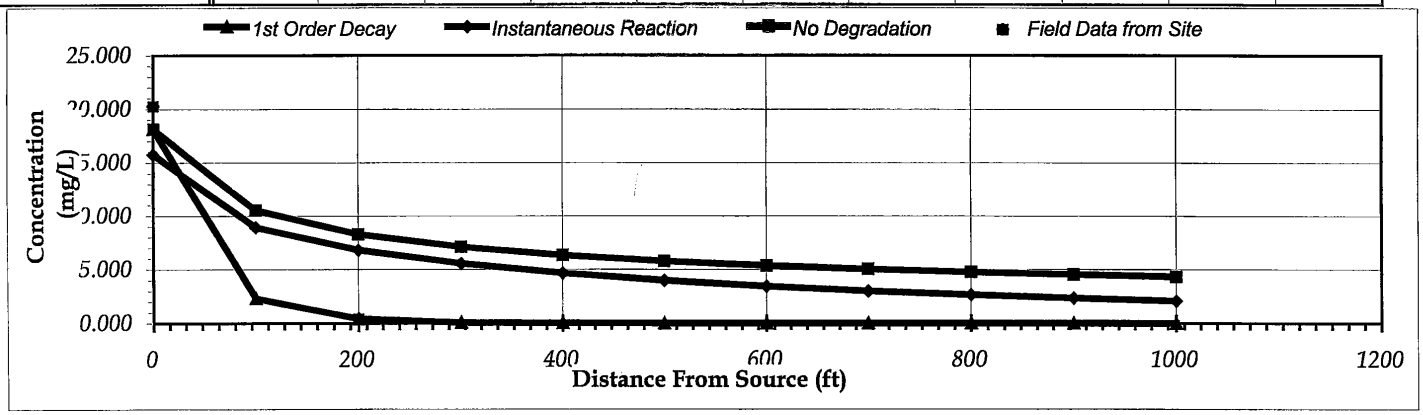
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	18.131	10.525	8.297	7.106	6.333	5.781	5.363	5.032	4.762	4.537	4.346
1st Order Decay	18.131	2.332	0.407	0.077	0.015	0.003	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	15.763	8.938	6.815	5.552	4.663	3.990	3.460	3.030	2.673	2.371	2.111
Field Data from Site	20.300		0.412								



Replay Animation | Next Timestep | Prev Timestep

Time: 12 Years

Return to Input | Recalculate This Sheet

TOLUENE TRIAL & ERROR 1000 ug/1 @ 300' ALREADY LESS AT MW-14

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Toluene
Run Name

Data Input Instructions:

115 / ↑ or / 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	150.0	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0167	*(ft/ft)*
Porosity	*n*	0.2	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

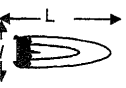
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	2.7E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.26	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	6	*(mg/L)*
Delta Nitrate*	*NO3*	7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	4	*(mg/L)*
Delta Sulfate*	*SO4*	0	*(mg/L)*
Observed Methane*	*CH4*	1.5	*(mg/L)*

5. GENERAL

Modeled Area Length*	1000	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	500	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 15 *(ft)*

Source Zones:

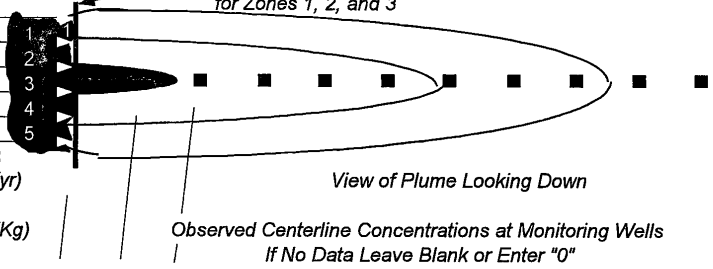
Width* (ft)	Conc. (mg/L)*
20	0.1
20	5
20	20.3
20	5
20	0.1

Source Halflife (see Help):

40	70	*(yr)*
Inst. React.	↑ 1st Order	
Soluble Mass	825	*(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	20.3		.412								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

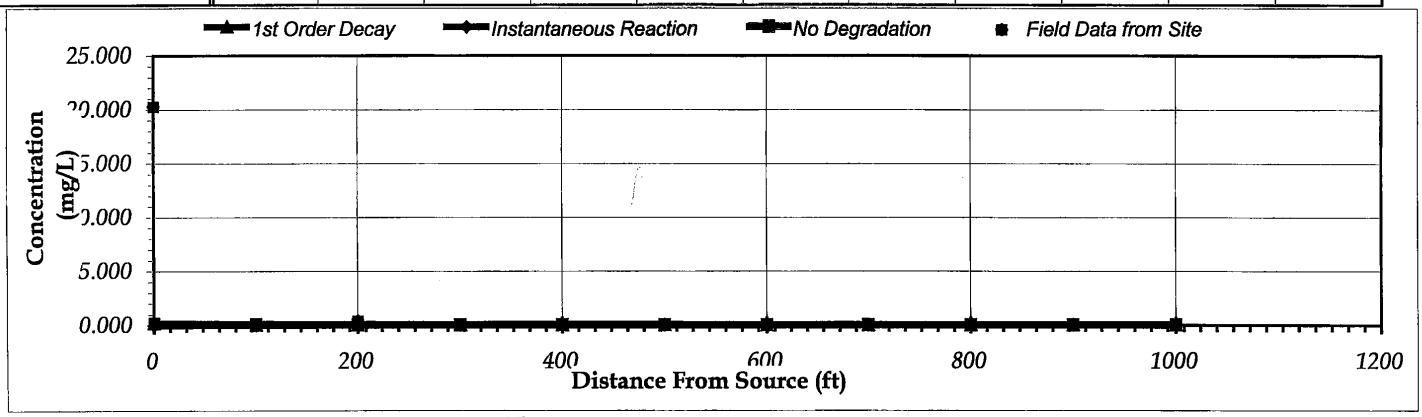
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.183	0.106	0.084	0.072	0.064	0.058	0.054	0.051	0.048	0.046	0.044
1st Order Decay	0.183	0.024	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	20.300		0.412								



Replay Animation | Next Timestep | Prev Timestep

Time: 500 Years

Return to Input | Recalculate This Sheet

XYLENE 12 YEAR MATCH

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence

Version 1.4

Purolator Courier
Xylene
Run Name

Data Input Instructions:

115 — 1. Enter value directly... or
or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	150.0	(ft/yr)
or		or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

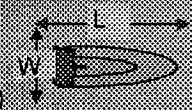
Retardation Factor*	R	1.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	6.3E-1	(per yr)
or		or	
Solute Half-Life	t-half	1.10	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	6	(mg/L)
Delta Nitrate*	NO3	7	(mg/L)
Observed Ferrous Iron*	Fe2+	4	(mg/L)
Delta Sulfate*	SO4	0	(mg/L)
Observed Methane*	CH4	1.5	(mg/L)

5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	12	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 15 (ft)

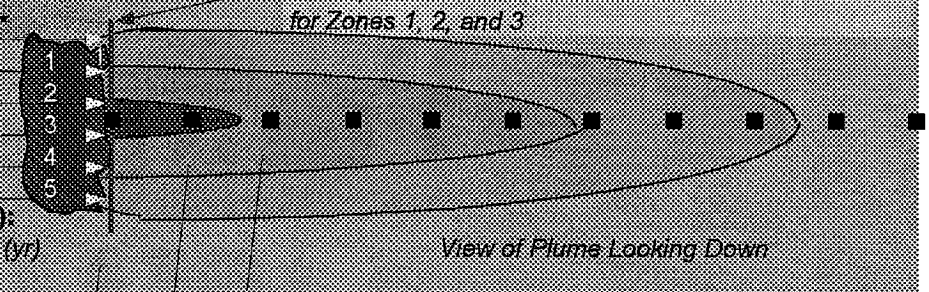
Source Zones:

Width* (ft)	Conc. (mg/L)*
28	0.01
30	1
40	9.18
30	1
28	0.01

Source Halflife (see Help):

60	200	(yr)
Inst. React.	1st Order	
Soluble Mass	2000	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	9.18	8.8	2.5								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help

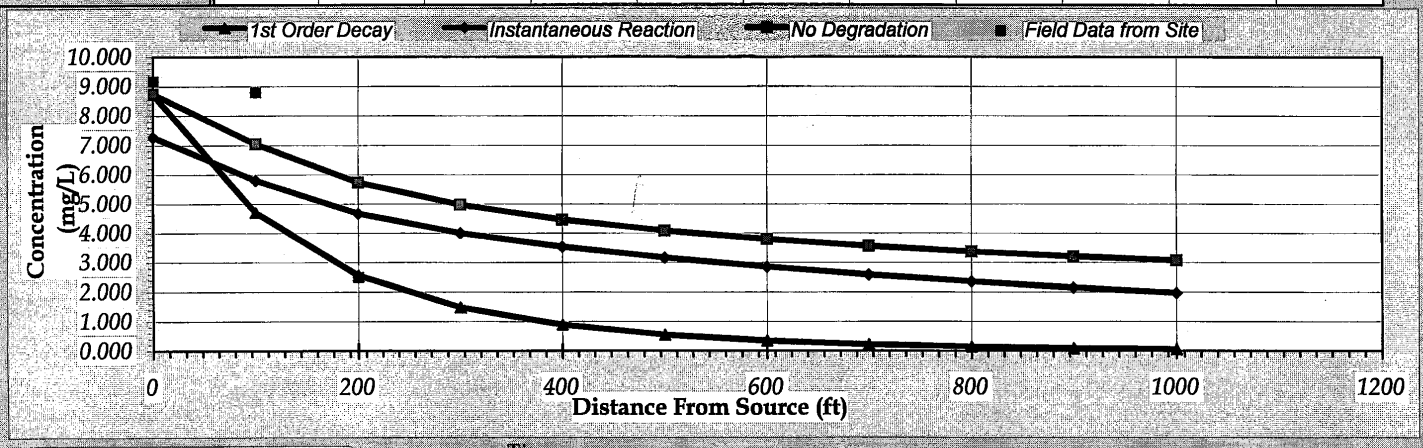
Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	8.741	7.039	5.733	4.974	4.463	4.088	3.797	3.564	3.371	3.208	3.068
1st Order Decay	8.741	4.702	2.558	1.483	0.889	0.544	0.337	0.212	0.134	0.085	0.054
Inst. Reaction	7.276	5.801	4.668	4.003	3.532	3.161	2.851	2.584	2.351	2.145	1.959
Field Data from Site	9.180	8.800	2.500								



Calculate Animation

Next Timestep

Prev Timestep

Time:

12 Years

Return to Input

Recalculate This Sheet

NAPHTHALENE 12 YEAR MATCH

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Naphthalene
Run Name

Data Input Instructions:

115 — 1. *Enter value directly....or*
↑ or — 2. *Calculate by filling in grey cells below. (To restore formulas, hit button below).*
0.02

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	150.0	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	1.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

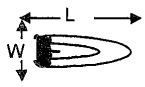
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	1.1E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.62	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	6	*(mg/L)*
Delta Nitrate*	*NO3*	7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	4	*(mg/L)*
Delta Sulfate*	*SO4*	0	*(mg/L)*
Observed Methane*	*CH4*	1.5	*(mg/L)*

5. GENERAL

Modeled Area Length*	1000	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	12	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 15 *(ft)*

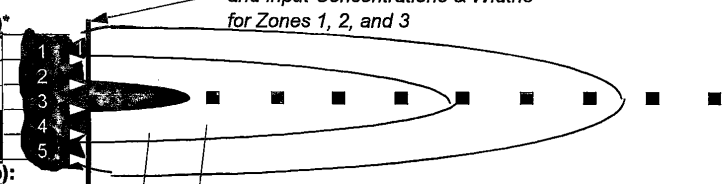
Source Zones:

Width* (ft)	Conc. (mg/L)*
30	0.1
20	0.4
15	0.927
20	0.4
30	0.1

Source Halflife (see Help):

10	200	*(yr)*
Inst. React. ↑	↑ 1st Order	
Soluble Mass	200	*(Kg)*
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.927		.115								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

Help — Recalculate This Sheet

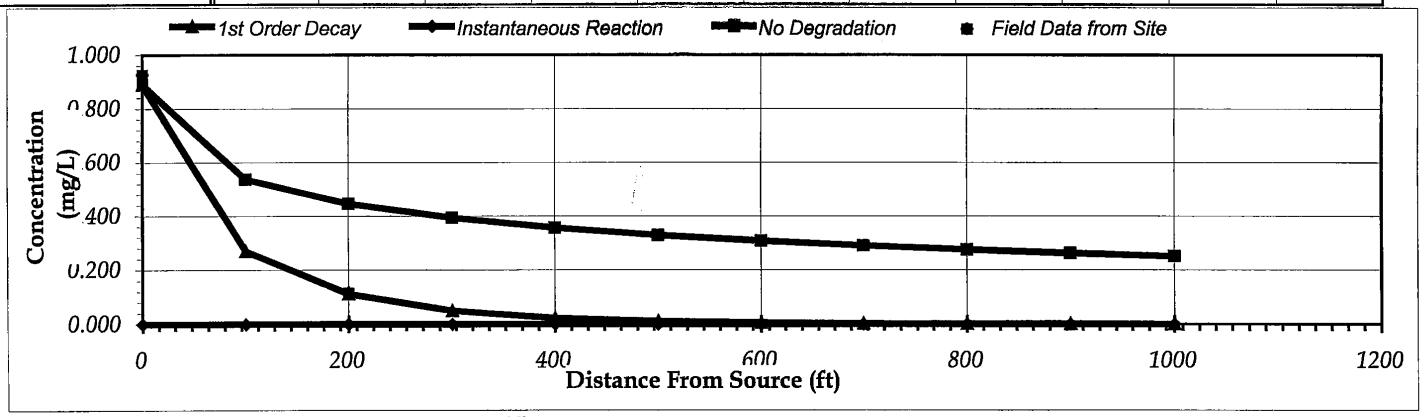
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.890	0.538	0.446	0.393	0.356	0.329	0.307	0.290	0.275	0.262	0.251
1st Order Decay	0.890	0.269	0.112	0.049	0.022	0.010	0.005	0.002	0.001	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



Calculate Animation

Time: 12 Years

Return to Input

Recalculate This Sheet

NAPHTHALENE TRIAL & ERROR TO GET 0.010 AT 300'

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Naphthalene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
or — 2. Calculate by filling in grey
0.02 cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	150.0	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	1.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

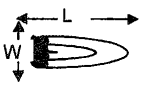
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	1.1E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.62	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	6	*(mg/L)*
Delta Nitrate*	*NO3*	7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	4	*(mg/L)*
Delta Sulfate*	*SO4*	0	*(mg/L)*
Observed Methane*	*CH4*	1.5	*(mg/L)*

5. GENERAL

Modeled Area Length*	1000	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	500	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 15 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*	
30	0.001	1
20	0.01	2
15	0.35	3
20	0.01	4
30	0.001	5

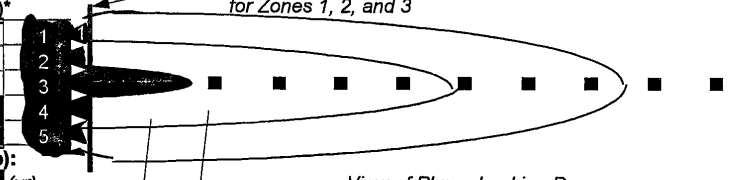
Source Halflife (see Help):

10 | >1000 *(yr)*

Inst. React. ↑ ↑ 1st Order

Soluble Mass 200 *(Kg)*
In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000
Concentration (mg/L)	.927		.115								

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

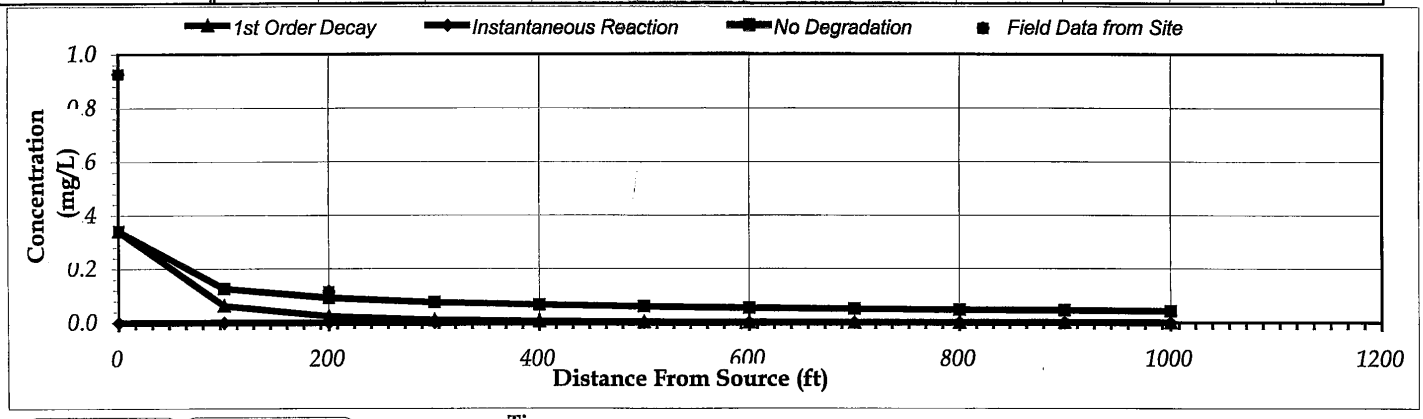
Help | Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.341	0.126	0.092	0.076	0.066	0.060	0.055	0.051	0.048	0.045	0.043
1st Order Decay	0.341	0.063	0.023	0.010	0.004	0.002	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



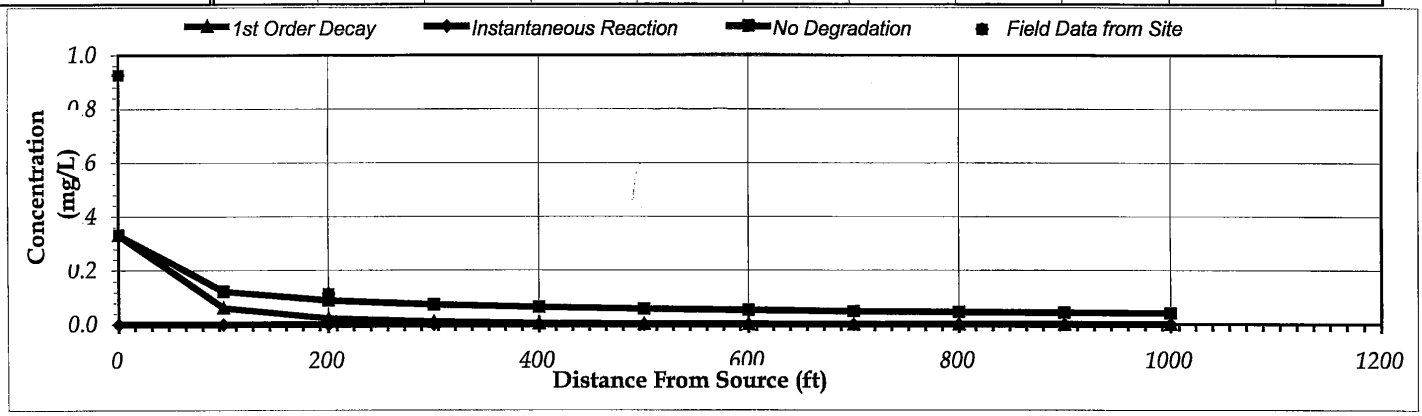
Replay Animation | Next Timestep | Prev Timestep

Time: 50 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.331	0.123	0.090	0.074	0.065	0.058	0.053	0.049	0.046	0.044	0.041
1st Order Decay	0.331	0.061	0.022	0.009	0.004	0.002	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



Replay Animation | Next Timestep | Prev Timestep

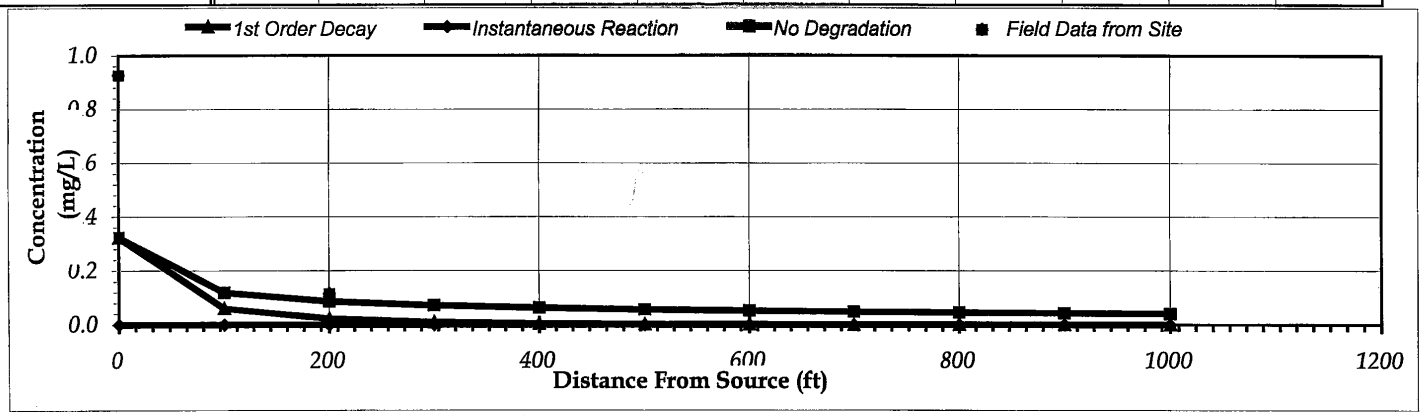
Time: 100 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.323	0.119	0.087	0.072	0.063	0.056	0.052	0.048	0.045	0.042	0.040
1st Order Decay	0.323	0.060	0.022	0.009	0.004	0.002	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



Replay Animation | Next Timestep | Prev Timestep

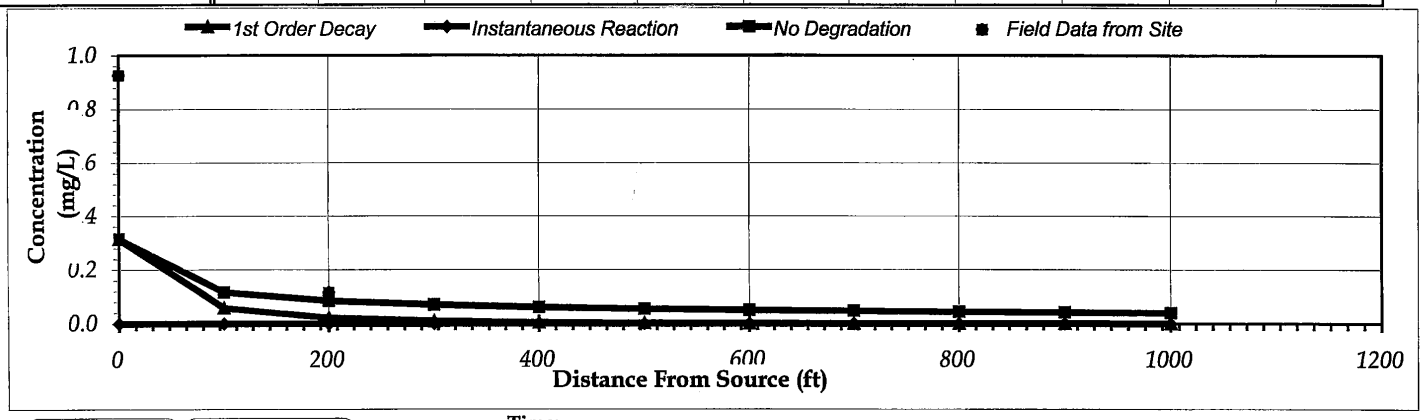
Time: 150 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.314	0.116	0.085	0.070	0.061	0.055	0.050	0.047	0.044	0.041	0.039
1st Order Decay	0.314	0.058	0.021	0.009	0.004	0.002	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



Replay Animation | Next Timestep | Prev Timestep

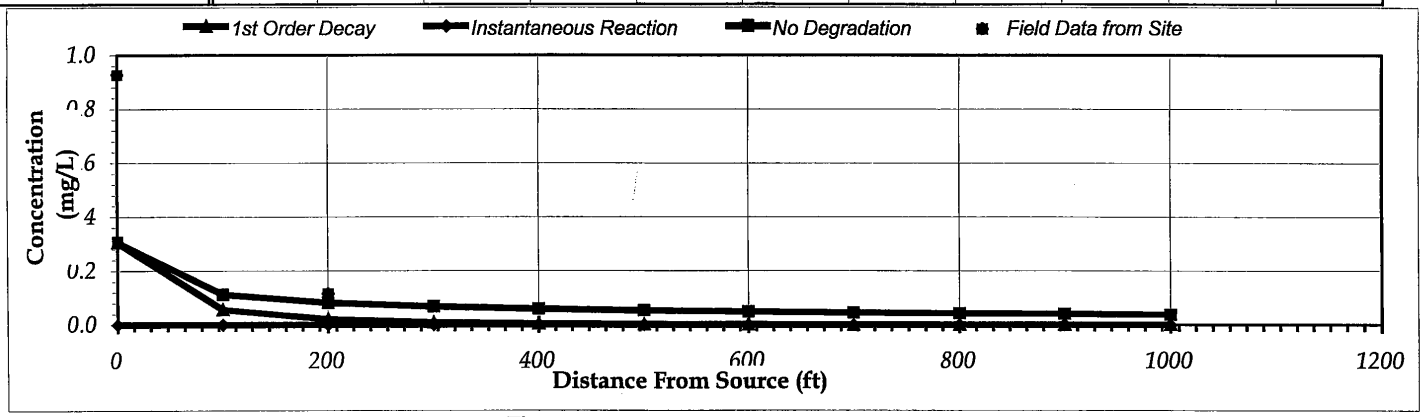
Time: 200 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.305	0.113	0.082	0.068	0.059	0.053	0.049	0.045	0.043	0.040	0.038
1st Order Decay	0.305	0.057	0.021	0.009	0.004	0.002	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



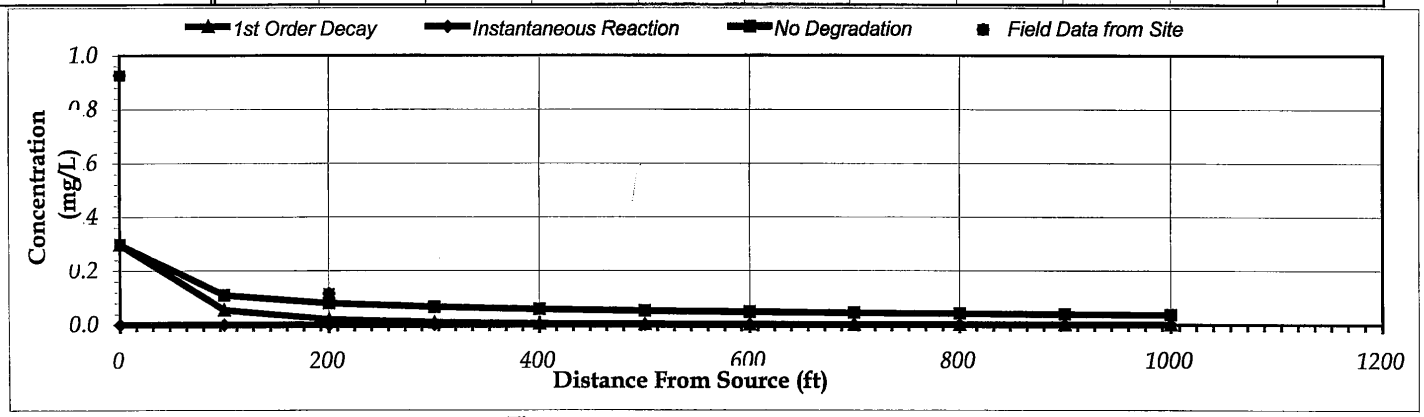
Replay Animation | Next Timestep | Prev Timestep

Time: 250 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.297	0.110	0.080	0.066	0.058	0.052	0.048	0.044	0.041	0.039	0.037
1st Order Decay	0.297	0.055	0.020	0.008	0.004	0.002	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



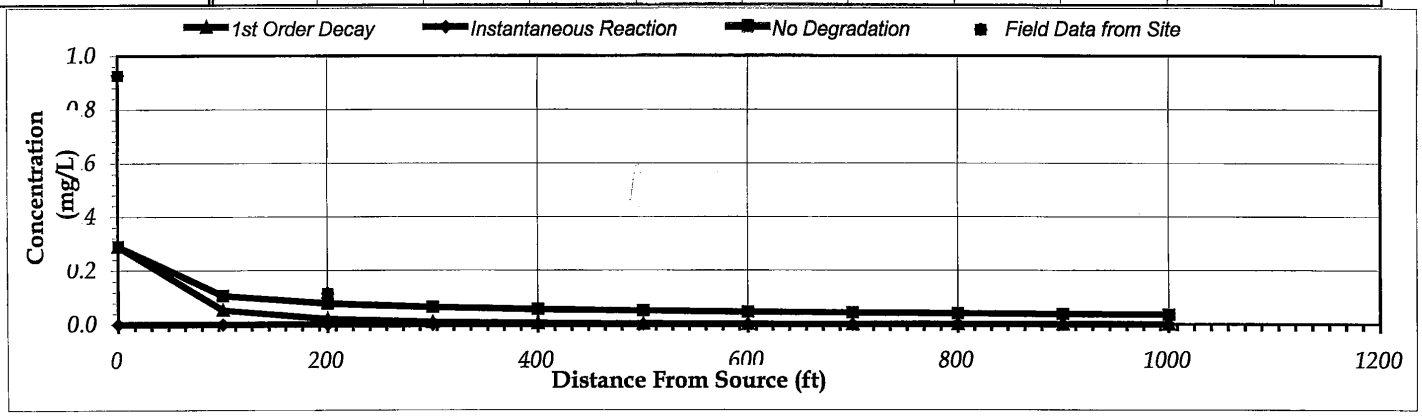
Replay Animation | Next Timestep | Prev Timestep

Time: 300 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.289	0.107	0.078	0.065	0.056	0.051	0.046	0.043	0.040	0.038	0.036
1st Order Decay	0.289	0.054	0.020	0.008	0.004	0.002	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



Replay Animation | Next Timestep | Prev Timestep

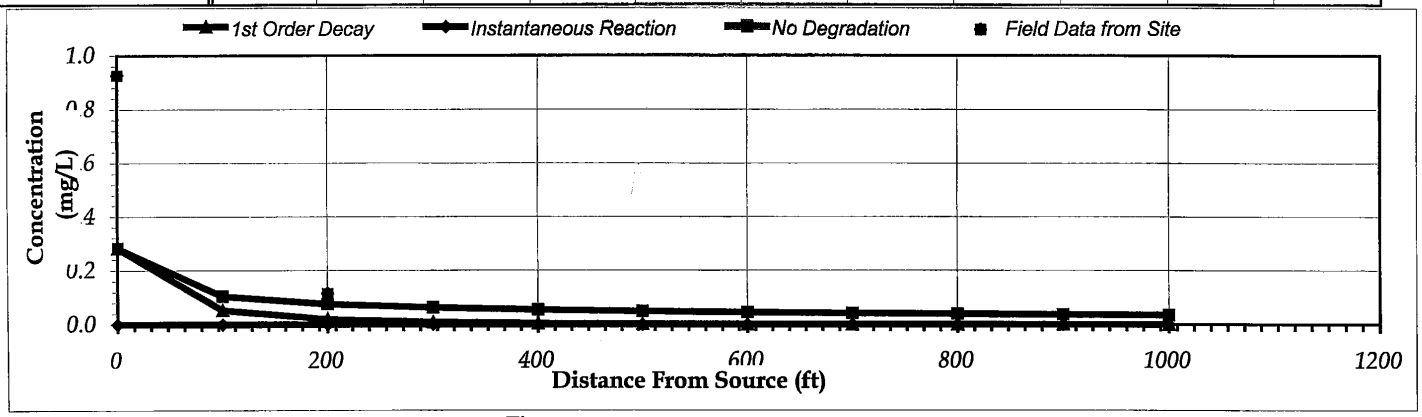
Time: 350 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.281	0.104	0.076	0.063	0.055	0.049	0.045	0.042	0.039	0.037	0.035
1st Order Decay	0.281	0.052	0.019	0.008	0.003	0.002	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



Replay Animation | Next Timestep | Prev Timestep

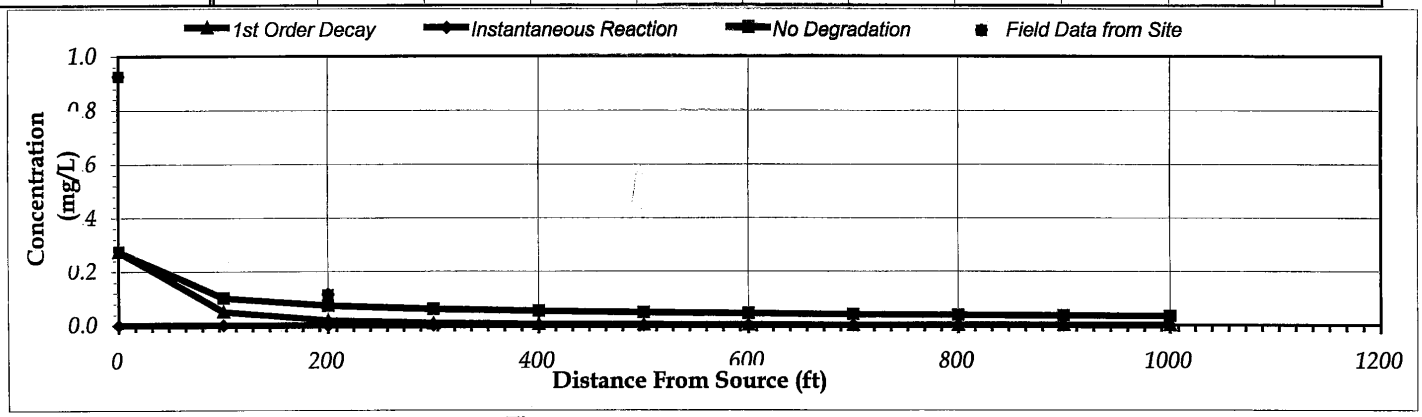
Time: 400 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.274	0.101	0.074	0.061	0.053	0.048	0.044	0.041	0.038	0.036	0.034
1st Order Decay	0.274	0.051	0.019	0.008	0.003	0.002	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



Replay Animation | Next Timestep | Prev Timestep

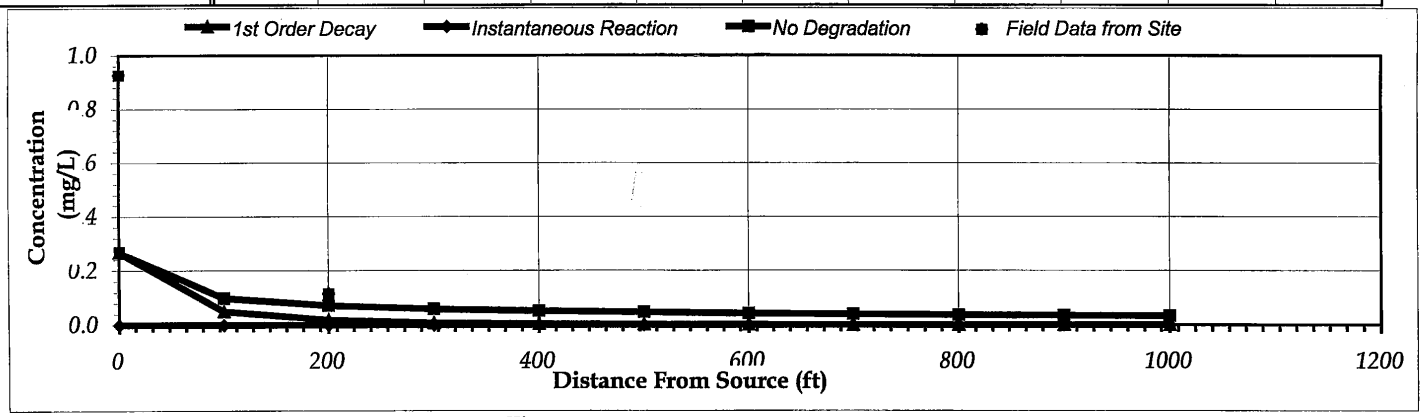
Time: 450 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.266	0.099	0.072	0.060	0.052	0.047	0.043	0.040	0.037	0.035	0.033
1st Order Decay	0.266	0.049	0.018	0.007	0.003	0.001	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927		0.115								



Replay Animation | Next Timestep | Prev Timestep

Time: 500 Years

Return to Input | Recalculate This Sheet

MTBE 12 YEAR MATCH

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier MTBE — *Run Name*

Data Input Instructions:

115 — 1. Enter value directly....or
or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	150.0	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

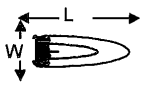
Retardation Factor*	*R*	1.0	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	8.5E-1	*(per yr)*
or		or	
Solute Half-Life	*t-half*	0.82	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	6	*(mg/L)*
Delta Nitrate*	*NO3*	7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	4	*(mg/L)*
Delta Sulfate*	*SO4*	0	*(mg/L)*
Observed Methane*	*CH4*	1.5	*(mg/L)*

5. GENERAL

Modeled Area Length*		1000	*(ft)*
Modeled Area Width*		200	*(ft)*
Simulation Time*		12	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 15 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*	
63	0.047	1
44	0.95	2
32	2.73	3
44	0.95	4
63	0.047	5

Source Halflife (see Help):

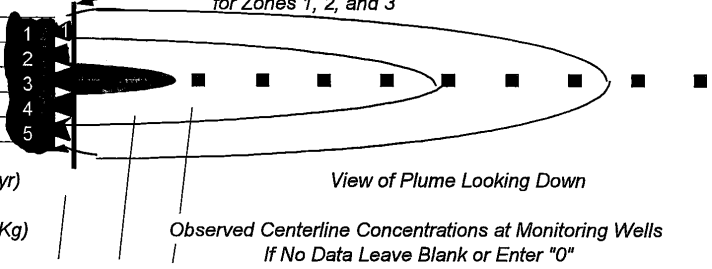
10 | 100 *(yr)*

Inst. React. | 1st Order

Soluble Mass 600 *(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000
Concentration (mg/L)	2.73		.598								

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

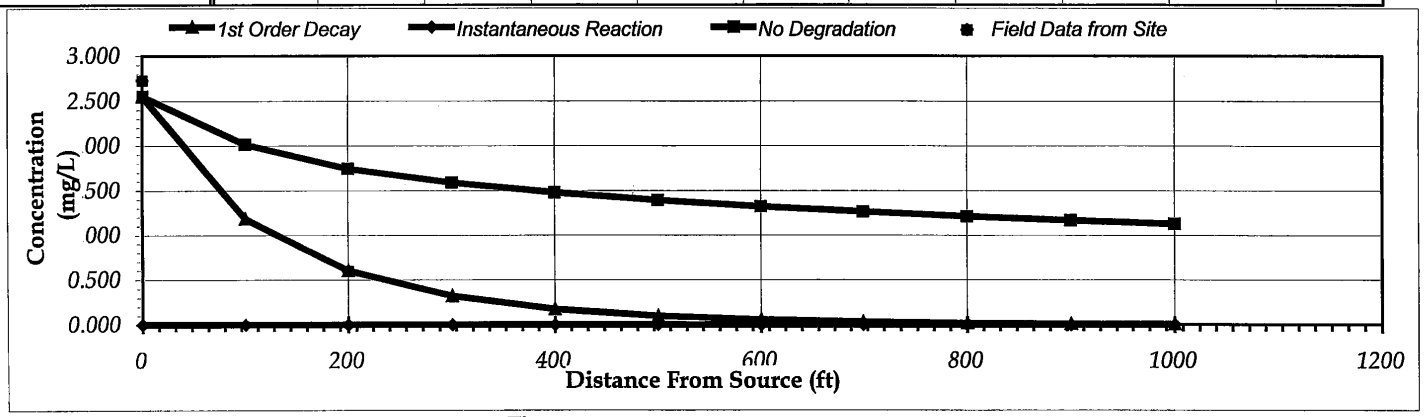
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	2.552	2.015	1.744	1.590	1.480	1.393	1.322	1.262	1.211	1.166	1.127
1st Order Decay	2.552	1.183	0.601	0.322	0.176	0.097	0.054	0.030	0.017	0.010	0.005
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730		0.598								



Calculate Animation

Time: 12 Years

Return to Input

Recalculate This Sheet

MTBE TRIAL & ERROR TO GET 0.040 AT 300'

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
MTBE
Run Name

Data Input Instructions:

115 (or 0.02) — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	150.0	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

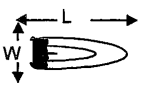
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	8.5E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	0.82	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	6	(mg/L)
Delta Nitrate*	NO3	7	(mg/L)
Observed Ferrous Iron*	Fe2+	4	(mg/L)
Delta Sulfate*	SO4	0	(mg/L)
Observed Methane*	CH4	1.5	(mg/L)

5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	500	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 15 (ft)

Source Zones:

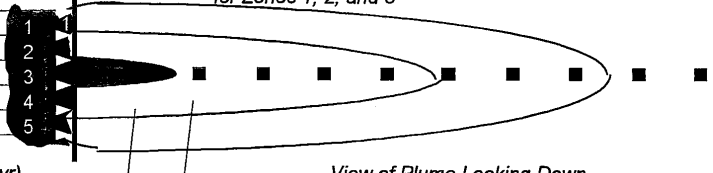
Width* (ft)	Conc. (mg/L)*
63	0.001
44	0.1
32	0.34
44	0.1
63	0.001

Source Halflife (see Help):

20	>1000	(yr)
Inst. React.	1st Order	
Soluble Mass	600	(Kg)

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	2.73		.598								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This Sheet

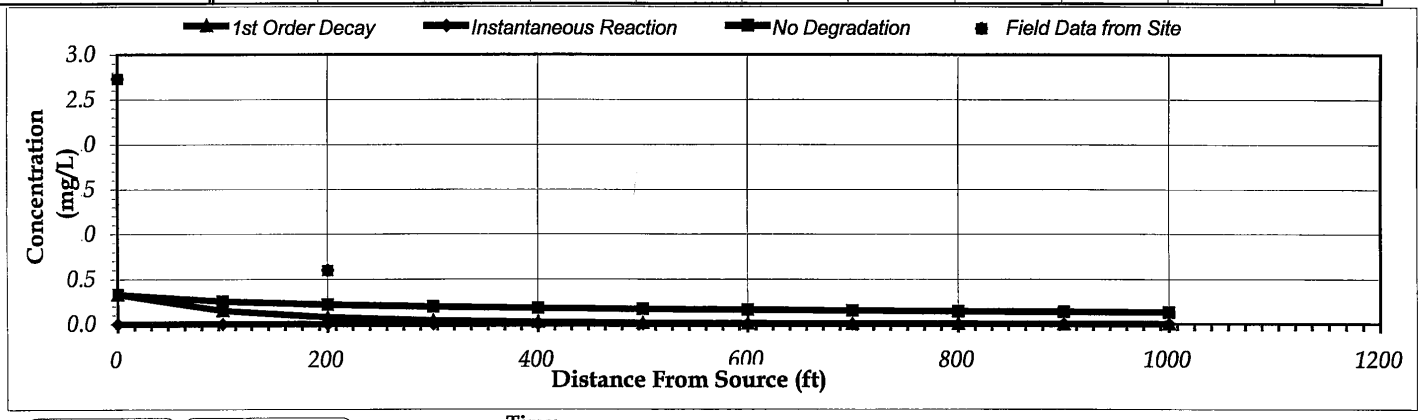
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.329	0.253	0.215	0.194	0.178	0.166	0.157	0.149	0.142	0.136	0.130
1st Order Decay	0.329	0.149	0.074	0.039	0.021	0.012	0.006	0.004	0.002	0.001	0.001
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730		0.598								



Replay Animation | Next Timestep | Prev Timestep

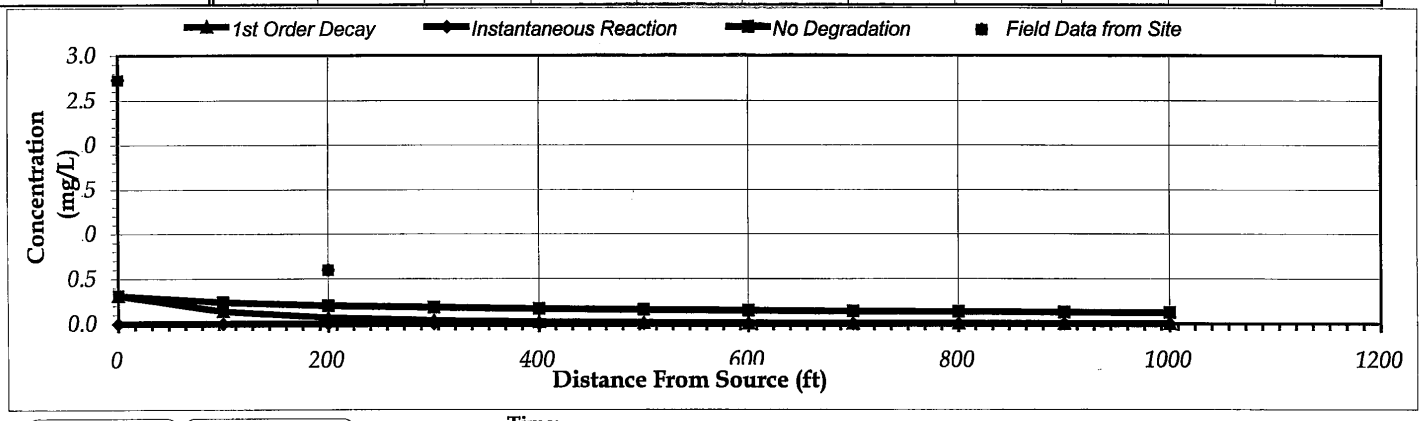
Time: 50 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.309	0.238	0.202	0.182	0.167	0.156	0.147	0.140	0.133	0.127	0.123
1st Order Decay	0.309	0.140	0.070	0.037	0.020	0.011	0.006	0.003	0.002	0.001	0.001
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730		0.598								



Replay Animation | Next Timestep | Prev Timestep

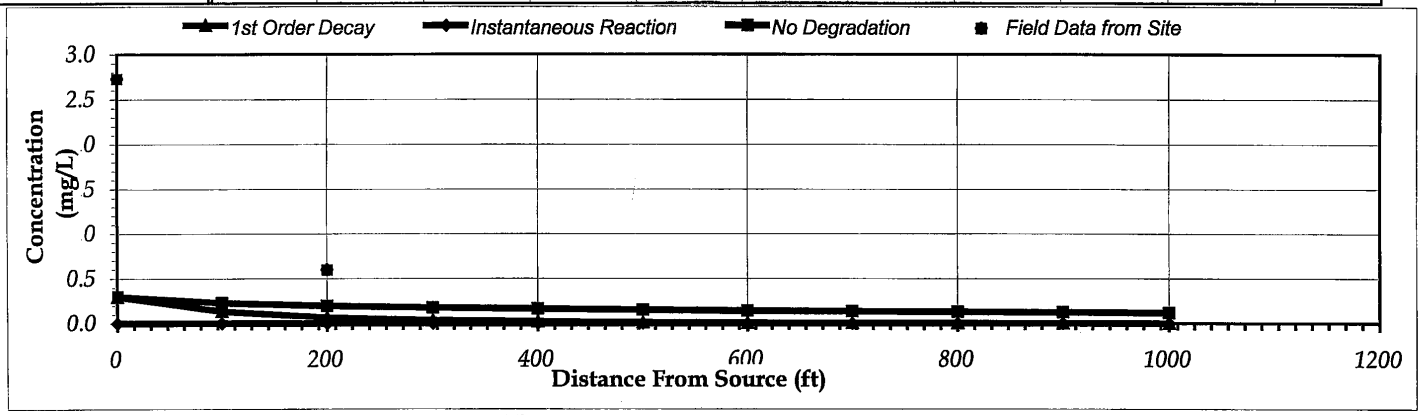
Time: 150 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.300	0.231	0.196	0.176	0.162	0.151	0.143	0.135	0.129	0.124	0.119
1st Order Decay	0.300	0.135	0.067	0.036	0.019	0.011	0.006	0.003	0.002	0.001	0.001
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730		0.598								



Replay Animation | Next Timestep | Prev Timestep

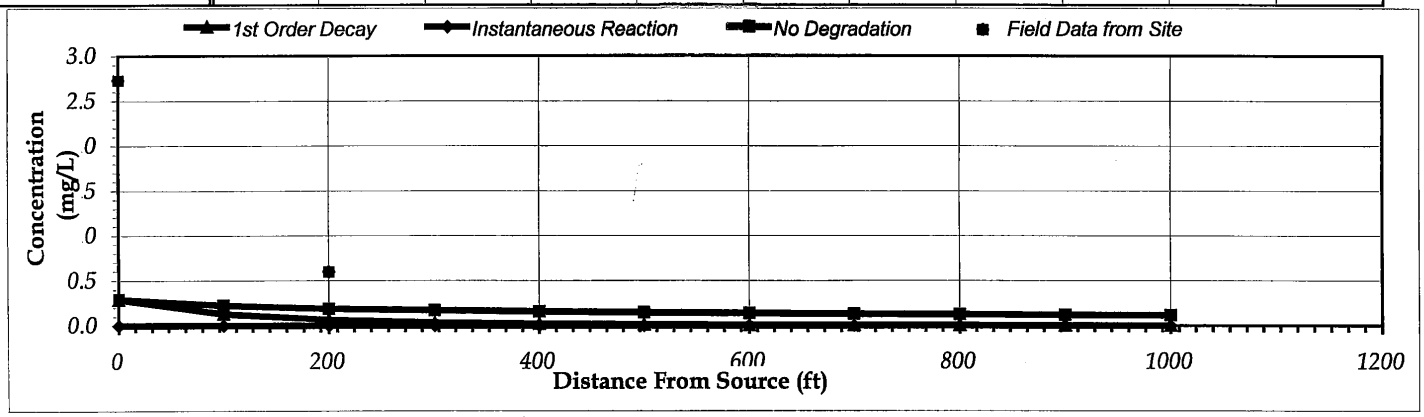
Time: 200 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.290	0.223	0.190	0.171	0.157	0.147	0.138	0.131	0.125	0.120	0.115
1st Order Decay	0.290	0.131	0.065	0.035	0.019	0.010	0.006	0.003	0.002	0.001	0.001
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730		0.598								



Replay Animation | Next Timestep | Prev Timestep

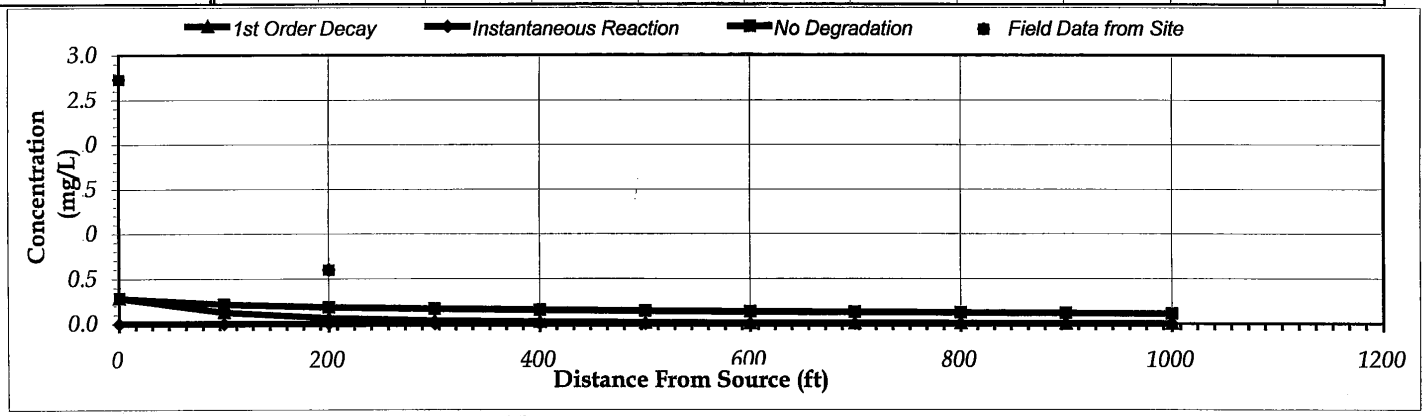
Time: 250 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.281	0.216	0.184	0.165	0.152	0.142	0.134	0.127	0.121	0.116	0.111
1st Order Decay	0.281	0.127	0.063	0.033	0.018	0.010	0.005	0.003	0.002	0.001	0.001
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730		0.598								



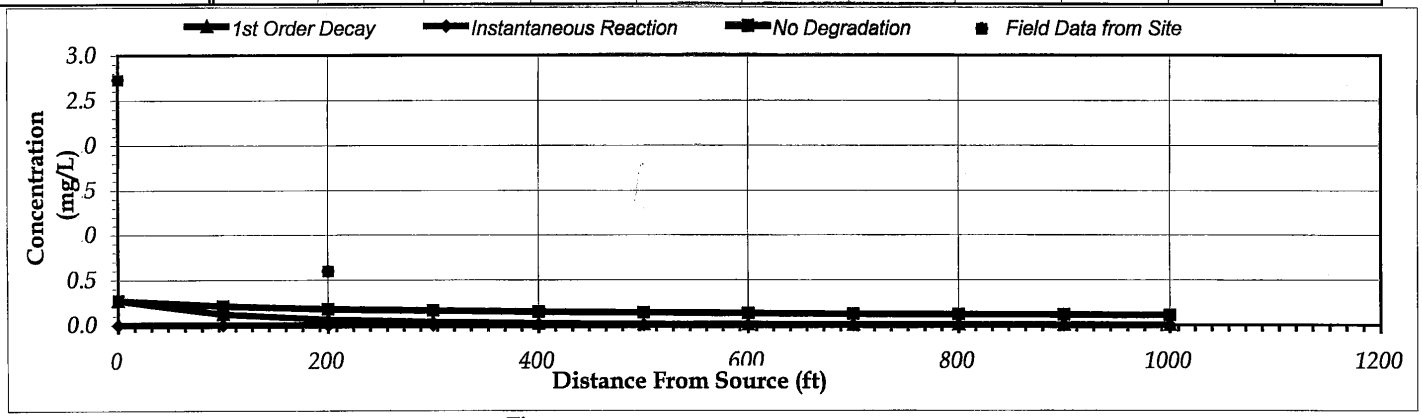
Replay Animation | Next Timestep | Prev Timestep

Time: 300 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.273	0.210	0.178	0.160	0.148	0.138	0.130	0.123	0.117	0.112	0.108
1st Order Decay	0.273	0.123	0.061	0.032	0.018	0.010	0.005	0.003	0.002	0.001	0.001
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730		0.598								



Replay Animation | Next Timestep | Prev Timestep

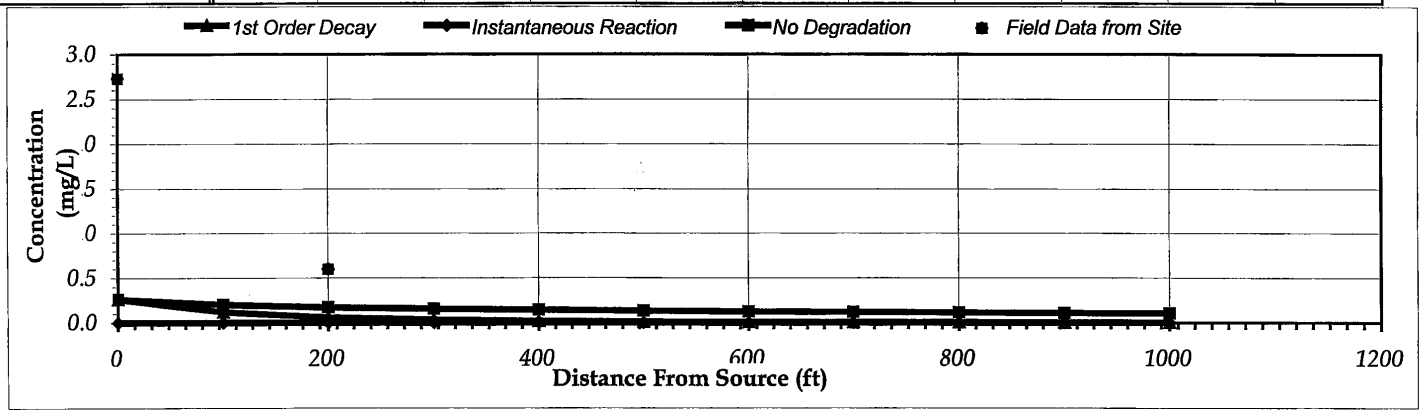
Time: 350 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.264	0.203	0.173	0.155	0.143	0.133	0.126	0.119	0.114	0.109	0.105
1st Order Decay	0.264	0.119	0.059	0.031	0.017	0.009	0.005	0.003	0.002	0.001	0.001
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730		0.598								



Replay Animation | Next Timestep | Prev Timestep

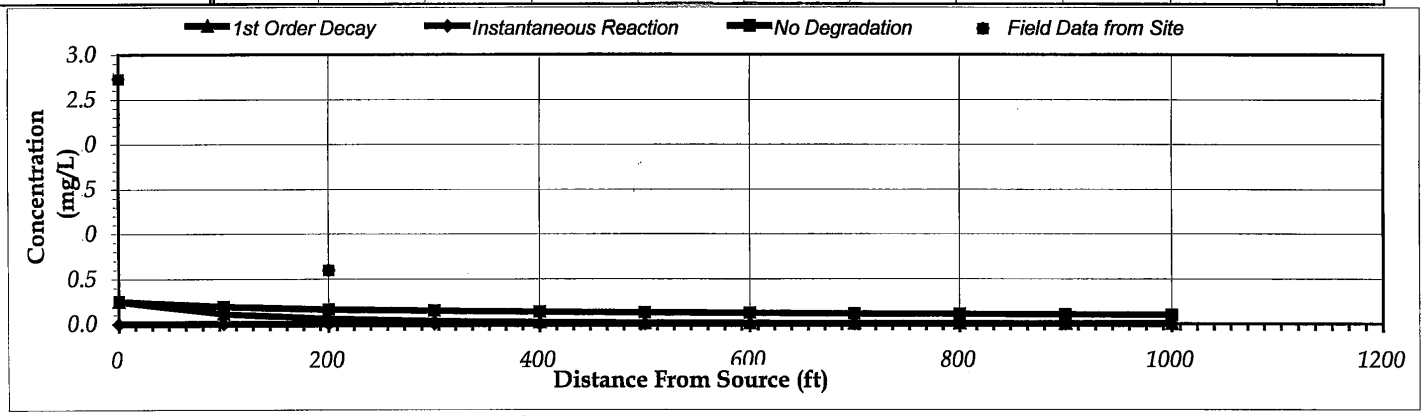
Time: 400 Years

Return to Input | Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.248	0.191	0.162	0.146	0.134	0.125	0.118	0.112	0.107	0.102	0.098
1st Order Decay	0.248	0.112	0.056	0.029	0.016	0.009	0.005	0.003	0.002	0.001	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730		0.598								



Replay Animation | Next Timestep | Prev Timestep

Time: 500 Years

Return to Input | Recalculate This Sheet

Table 5. Free-Product Recovery Rate Test Results
Monitoring Well MW-5, October 19, 2001
Former Purolator Courier Site
West Columbia, SC

Time Period	Product Thickness (ft.)	Product Volume (gals.)	Recovery Rate (gpm)	Recovery Rate (gpd)
1st 10 mins.	0.35	0.057	0.006	8.22
2nd 10 mins.	0.4	0.065	0.007	9.40
3rd 10 mins.	0.32	0.052	0.005	7.52
Average	0.357	0.058	0.006	8.38

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

APR 0 9 2012

UST 3 tech DOCKETING

BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS INC
PO BOX 854
LEXINGTON SC 29071

Re: QAPP Contractor Addendum Directive for Small Scope Contract
Solicitation # 5400003229; PO# 4600117789

Dear Mr. Shane:

Based on the award of the referenced bid package, enclosed are the information packets to conduct assessments at several facilities. Please submit the Site-specific Quality Assurance Project Plan for an IGWA, Tier I or Assessment Plan, and Assessment Component Cost Agreement as necessary, to my attention **within fifteen (15) days from the date of this correspondence.** Plan implementation shall not commence prior to receipt of written technical and financial approval from the Department. The facilities will be assigned a Cost Agreement (CA) numbers once the QAPP Contractor Addendum has been approved by the project manager. Please reference the CA numbers and Purchase Order # 4600117789 on the appropriate invoices submitted for payment. As specified in the referenced bid, **the completed invoice forms and associated reports (include contract certification number) are expected on or before the designated due date (see below) after the technical and cost approval from the project manager.**

UST Permit #	Facility	ARRA	County	Project Manager	Work Scope	Due Date*
08317	Fowler's Grocery	No	Greenville	Shrader	MW Installation	60 Days
02906	Strickland's Exxon	No	Dillon	Skowronek	MW Installation	60 Days
11728	Lawton Oil Company	No	Hampton	Hornosky	IGWA	60 Days
05878	Purolator Courier Corp.	No	Lexington	Briney	RW/ MW Installation/GWS	60 Days
14472	Southside Grocery	No	Chester	Ridgley	MW Installation	60 Days

UST Permit #	Facility	ARRA	County	Project Manager	Work Scope	Due Date*
12036	Simpsonville Short Stop	No	Greenville	Briney	MW Installation	60 Days
02093	Fort Lawn Marathon	No	Chester	Ridgley	RW/ MW Installation	60 Days

*From receipt of Notice to Proceed letter

Midland's Environmental Consultants, Inc. will perform services at the sites on behalf of the site's UST owners; however, payments will be made from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. The site's UST owners have no obligation for payment for this scope of work. **Please note, if there are any changes in the established cost agreement amounts (e.g., additional water supply wells sampled, additional well footage, etc.) contact the site's project manager for technical and/or financial approval. Failure to do so prior to submittal of invoice may result in delay of payment.**

IGWA, Tier I or Assessment Plan, Implementation and Report submittal shall be performed in accordance with the referenced contract. Per Section 3.4.2., a late fee of $50.00/day (not to exceed 20% of the cost agreement total) may be levied for each report submitted after the deadline established in the Notice to Proceed.

Please provide this office with a schedule of drilling dates and coordinate all work with the project managers before commencing work at the facility. In accordance with the bid specification, a bi-monthly status report of the project should be provided by the 5th and 20th of each month via e-mail to my attention. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. If you have any questions or need further assistance, please contact me at (803) 896-6585.

Sincerely,

Christopher S. Doll, P.G., Manager
Assessment Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

Enc: Information Packets (02093, 02906, 05878, 08317, 11728, 12036 and 14472)

cc: Chris Doll, UST Management Division (without enc)
Technical Files (02093, 02906, 05878, 08317, 11728, 12036 and 14472) with cover sheets & site maps.

D H E C
PROMOTE PROTECT PROSPER
South Carolina Department of Health
and Environmental Control

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone: 803-896-6240

MEMORANDUM

TO: Bryan Shane, Midlands Environmental Consultants, Inc.

FROM: Stephanie Briney

RE: **NOTICE TO PROCEED**

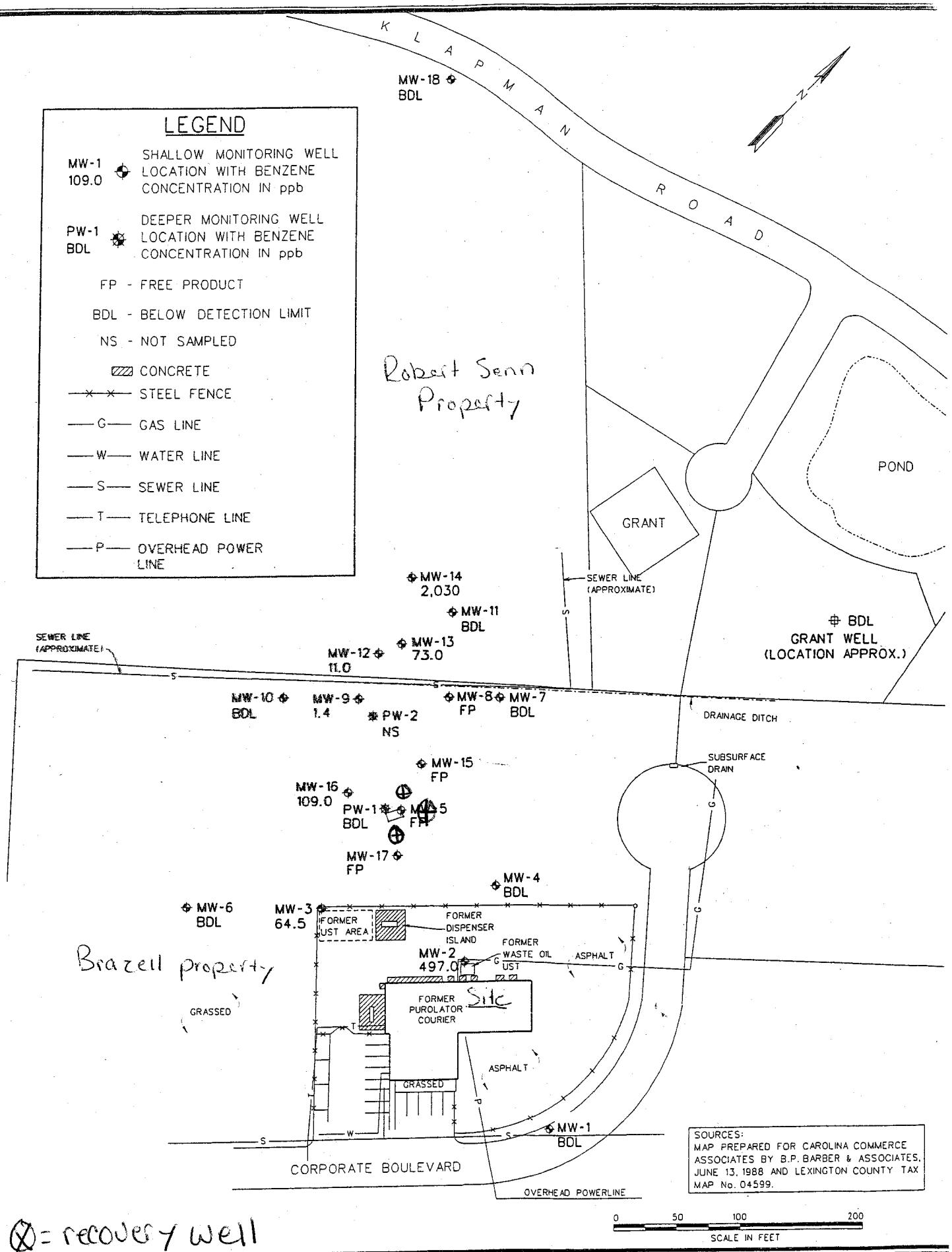
Facility Name: Purolator Courier Corp

Permit Number: 05878

County: Lexington

Work To Be Completed: install 3 recovery/monitoring wells near MW-5, remove 6 old drums, convert 8 stick up wells to surface grade, comprehensive survey, sample all monitoring wells and water supply wells.

CA# 43554



USE DRAWINGS AND THE DESIGN THEREON ARE THE PROPERTY OF DAVIS & FLOYD, INC. AND MAY NOT BE USED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF THE ENGINEER / GEOLOGIST AND ANY INFRINGEMENT WILL BE SUBJECT TO LEGAL ACTION

NO	REVISED	CHKD	DATE

DESIGNED FERGUSON | CHECKED FERGUSON | JOB NO. 050098.02

FIGURE 3
SITE MAP SHOWING BENZENE
OCTOBER 19, 2000

DAVIS & FLOYD ENGINEERS ARCHITECTS PLANNERS SCIENTISTS
GREENWOOD • CHARLESTON • COLUMBIA
SOUTH CAROLINA

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SC

OWNER/CLIENT

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2600 Bull Street
Columbia, SC 29201-1708

BUREAU OF
UNDERGROUND STORAGE TANK MANAGEMENT

Phone (803) 898-4350 Fax (803) 898-4330

AUG 25 2000

Mr. William Durham III
William Durham Company
3135 Millwood Ave.
Columbia, SC 29205

Re: Former Purolater Courier
UST Permit #05878; CP #08493, MWA #11672
Groundwater Sampling Approval
Lexington County

Dear Mr. Durham:

After review of the Ground Water Sampling Report dated March 4, 1999, the Department requests the installation of an additional monitoring well, resampling of all monitoring wells, a free product recovery rate test, and calulation of SSTLs. A Cost Agreement has been approved for this scope of work.

Cost Agreement **#08493** is approved up to the amount of the enclosed cost agreement form. The Monitoring Report submitted at the conclusion of these activities should include the following:

- A comprehensive round of ground water sampling of all wells associated with the release utilizing intrinsic parameters (nitrate, sulfate, ferrous iron, methane).

- A narrative portion documenting current site conditions and noting the names of field personnel, date, time, ambient air temperature, and general weather conditions during the sampling event. The report shall also contain well purging data, pH, specific conductivity, water temperature, PID readings (where applicable) and turbidity comments. **Please be advised that only EPA Method 8260B will be accepted for purgeable aromatics.**

- Ground-water elevations, depth to groundwater, measurable free product thickness (where applicable), total well depth and screened interval for all monitoring wells associated with the site shall be presented in tabular form, unless otherwise directed by the Department. Ground-water laboratory analytical data for all monitoring wells shall be presented in a tabular format.

- A ground-water elevation contour map of the site based on current ground-water potentiometric data.

- A CoC map based on current ground-water laboratory analytical data. The ground-water data should be adjacent to the relevant monitoring well.

- Manifests for any contaminated soil and/or groundwater removed from the site for treatment and/or disposal.

UST PROGRAM
DOCKETING # 30 Rec'd

DHEC/UST/062899

- The report must be signed and sealed by a professional geologist or engineer registered in the State of South Carolina.

All laboratories utilized must be certified within the state of South Carolina for the analysis used. Please note that all rehabilitation activities associated with a UST release must be performed by a SCDHEC certified site rehabilitation contractor as required by R.61-98. The Ground-water Monitoring Report and associated invoice should be submitted within **60 days from the date of this letter.** If the invoice is not submitted **within 120 days** from the date of this correspondence, monies allocated to pay this invoice will be uncommitted. This means that the invoice will not be processed for payment until all other committed funds are paid or monies become available.

The Bureau grants pre-approval for the transportation of the investigative derived waste (virgin petroleum contaminated soil and groundwater) from the referenced site to a permitted treatment facility. All investigative derived waste must be properly stored in labeled containers or covered with plastic as appropriate. All contaminated investigated derived waste must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest and approval letter from the receiving facility must be included as an appendix to the final report. If the levels of petroleum contamination based on laboratory analysis are below treatment levels, please contact the project manager for approval to dispose of the investigative waste on site. The SUPERB Account will not compensate for transportation or treatment of clean soil and/or ground water.

On all future correspondence, please reference the **UST Permit #05878.** On the Assessment Component invoice please reference the UST Permit identification number and cost agreement number **08493.** Questions concerning the above should be addressed to me at (803) 898-4334 or 1(800)826-5435 (within South Carolina).

Sincerely,

Pamela DuBois

Pamela DuBois, Hydrogeologist
Assessment and Corrective Action Division
Bureau of Underground Storage Tank Management
Owner/Operator Assistance Section

enc: Approved Assessment Component Cost Proposal
Monitor Well Approval Form
Assessment Component Invoice (SCDHEC Form 3664)

cc: Davis & Floyd, 240 Stoneridge Dr., Suite 200, Columbia, SC 29210 (w/ACCP, AC Invoice, and original MWA)
Financial File (w/ Approved Assessment Component Cost Proposal)
Technical File

D · H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

Monitoring Well Installation Approval Form

Date of Issue: June 28, 1999 Approval No.: 11672

Approval is hereby granted to: Davis & Floyd
(On behalf of): William Durham Company
UST Permit #: **05878**
County: Lexington

This approval is for the construction of 1 permanent monitoring well in accordance with the construction plans and technical specifications outlined in the **Tier II Assessment** Document. The wells are to be constructed within the surficial aquifer for the intended purpose of monitoring ground-water quality and/or water level(s) at the referenced facility. Approval is provided with the following conditions:

1. The latitude and longitude, surveyed elevations, boring and/or geologist logs and actual (as built) construction details for each well will be submitted with the technical report.

2. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well I.D.#, date of construction, static water level, and driller name and state certification #.

3. Well construction and sampling derived waste including, but not necessarily limited to, drill cuttings, drilling fluids, development and purge water should be managed properly and in compliance with applicable requirements. If containerized, each vessel should be clearly labeled with regard to contents, source, and date of activity.

4. A minimum of forty-eight (48) hours prior to initiation of drilling activities, please provide notice to Pamela DuBois at (803) 898-4334 or duboispm@columb26.dhec.state.sc.us.

5. Please provide ground-water quality analytical data (chemical analysis and/or water level(s)) and associated measurements (i.e., in-situ field measurements) to Pamela DuBois with the technical report.

6. Monitoring wells will be installed by or under the direct supervision of a licensed well driller certified by the State of South Carolina.

7. Monitoring wells and temporary monitoring wells will be abandoned by or under the direct supervision of a licensed well driller certified by the State of South Carolina. Temporary monitoring wells shall not remain in place for longer than 30 days from the date of installation. Monitoring wells may be abandoned only upon concurrence by this Division.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71. Please remember to have a copy of this approval on the site during well installation.

Approved by: Pamela DuBois

Pamela DuBois, Hydrogeologist
Owner/Operator Assistance Division
Bureau of UST Management

cc: Central Midlands District EQC
William Durham Co., 3135 Millwood Ave, Columbia, SC 29205
Technical File

William Durham Company

05878

FAX COVER SHEET

DATE: June 4, 1999 **TIME: 1:26 PM**

TO: **Pamela DuBois**
DHEC-Department of Underground
Storage Tank Management **FAX: 803/898-4330**

FROM:
Mr. William S. Durham, III **PHONE: 803/256-3591**
William Durham Company **FAX: 803/765-2870**
3135 Millwood Ave.
Columbia, South Carolina 29205

RE: Underground Storage Tank (UST) Owner/Operator Lease Information Sheet

NUMBER OF PAGES INCLUDING COVER SHEET: 2

MESSAGE:

Ms. DuBois:

Attached is the completed Information Sheet.

Please feel free to call if you have any questions.

Sincerely,

WILLIAM DURHAM COMPANY

RECEIVED
JUN 04 1999
DIVISION OF UNDERGROUND
STORAGE TANK MGMT.

William S. Durham, III
Broker-in-Charge

UST PROGRAM
DOCKETING # 31 Tech

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UNDERGROUND STORAGE TANK (UST) OWNER/OPERATOR LEAD INFORMATION SHEET

1. CONTRACTOR OF CHOICE

As the UST Owner/Operator of UST Permit #05878 I would like to use the contractor or person(s)* listed below and request that they represent me for: (check one)

☐ <IGWA, SLA. Rapid Assessment>
☐ Other (please specify)_____
☒ all future assessments scopes. --

Name of Contractor/Person(s) James M. Ferguson
Address Davis & Floyd, Inc.
240 Stoneridge Drive
Columbia, South Carolina 29210
Telephone Number 803-254-4337

Note: Site rehabilitation activities must be performed by a SCDHEC Certified Site Rehabilitation Contractor in accordance with R.61-98.

* indicate if the person listed is your own employee

** If you would like the contractor to perform all future assessment activities at this and/or other facilities that have confirmed releases, please provide a list of all sites on your letterhead and provide the information requested in items 2 and 3 below within the context of the letter.

2. FINANCIAL OR FAMILIAL RELATIONSHIP

Does a financial or familial relationship, as defined below, exist between you and the contractor/person that you listed above? ____ Yes __x__ No (please initial) [signature]

Financial Relationship: A connection or association through a material interest of sources of income which exceed five percent of annual gross income from a business entity.

Familial Relationship: A connection or association by family or relatives, in which a family member or relative has a material interest. Family or relatives include: father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, son-in-law, daughter-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, grandchild, great grandchild, step grandparent, step great grandparent, step grandchild, step great grandchild, or fiancee.

3. PAYMENT

You can pay the contractor and, upon the submittal of the canceled check (or a notarized statement from the contractor), be compensated from the SUPERB Account, or have payment issued directly from us to the contractor.

I request that payment be made to me after I have paid the contractor. ____ Yes ____ No (please initial)
I request that payment be made directly to the contractor. [signature] Yes ____ No (please initial)

Note: All costs must receive prior financial approval from the Department regardless of payment option.

Underground Storage Tank Owner/Operator Signature [signature]

Date June 4, 1999

RECEIVED
JUN 0 4 1999
DIVISION OF UNDERGRO
STORAGE TANK MGMT.

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

June 21, 1999

Mr. Michael A. Wilson
Resident Maintenance Engineer
South Carolina Department of Transportation (SCDOT) Lexington Maintenance Facility
P.O. Box 70
Lexington, SC 29072

Re: Application for Encroachment Permit received June 21, 1999
Purolator Courier Corporation
UST Permit #05878
Lexington County

Dear Mr. Wilson:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the referenced Application for Encroachment Permit submitted by Davis & Floyd on behalf of Purolator Courier Corporation. The application requests permission to install one permanent monitoring well in the right-of-way of S-32-1225 (Klapman Road) in Lexington, SC.

The SCDHEC considers the proposed location of the monitoring well within the right-of-way as necessary and appropriate to assess the severity and extent of ground-water contamination at the Purolator Courier Corporation site. This assessment is in the public interest of protecting the ground-water supply of the State of South Carolina. The Department, therefore, respectfully requests that the SCDOT approve the application as submitted. Should you require additional information regarding this site, feel free to contact me at (803)898-4361 or Davis & Floyd at (803)254-4337.

Sincerely,

Joel P. Padgett, P.G.
SCDOT Liaison

JPP/jpp
05878.OFF

UST PROGRAM
DOCKETING # 3 Tech

DHEC/JPP/062199

William Durham Company

05878

FAX COVER SHEET

DATE: June 4, 1999 **TIME: 1:26 PM**

TO: **Pamela DuBois**
DHEC-Department of Underground
Storage Tank Management **FAX: 803/898-4330**

FROM:
Mr. William S. Durham, III **PHONE: 803/256-3591**
William Durham Company **FAX: 803/765-2870**
3135 Millwood Ave.
Columbia, South Carolina 29205

RE: Underground Storage Tank (UST) Owner/Operator Lease Information Sheet

NUMBER OF PAGES INCLUDING COVER SHEET: 2

MESSAGE:

Ms. DuBois:

Attached is the completed Information Sheet.

Please feel free to call if you have any questions.

Sincerely,

WILLIAM DURHAM COMPANY

RECEIVED
JUN 04 1999
DIVISION OF UNDERGROUND
STORAGE TANK MGMT.

William S. Durham, III
Broker-in-Charge

UST PROGRAM
DOCKETING # 31 Tech

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UNDERGROUND STORAGE TANK (UST) OWNER/OPERATOR LEAD INFORMATION SHEET

1. CONTRACTOR OF CHOICE

As the UST Owner/Operator of UST Permit #05878 I would like to use the contractor or person(s)* listed below and request that they represent me for: (check one)

☐ <IGWA, SLA. Rapid Assessment>
☐ Other (please specify)_____
☒ all future assessments scopes. --

Name of Contractor/Person(s) James M. Ferguson
Address Davis & Floyd, Inc.
240 Stoneridge Drive
Columbia, South Carolina 29210
Telephone Number 803-254-4337

Note: Site rehabilitation activities must be performed by a SCDHEC Certified Site Rehabilitation Contractor in accordance with R.61-98.

* indicate if the person listed is your own employee

** If you would like the contractor to perform all future assessment activities at this and/or other facilities that have confirmed releases, please provide a list of all sites on your letterhead and provide the information requested in items 2 and 3 below within the context of the letter.

2. FINANCIAL OR FAMILIAL RELATIONSHIP

Does a financial or familial relationship, as defined below, exist between you and the contractor/person that you listed above? ____ Yes __x__ No (please initial) [signature]

Financial Relationship: A connection or association through a material interest of sources of income which exceed five percent of annual gross income from a business entity.

Familial Relationship: A connection or association by family or relatives, in which a family member or relative has a material interest. Family or relatives include: father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, son-in-law, daughter-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, grandchild, great grandchild, step grandparent, step great grandparent, step grandchild, step great grandchild, or fiancee.

3. PAYMENT

You can pay the contractor and, upon the submittal of the canceled check (or a notarized statement from the contractor), be compensated from the SUPERB Account, or have payment issued directly from us to the contractor.

I request that payment be made to me after I have paid the contractor. ____ Yes ____ No (please initial)
I request that payment be made directly to the contractor. [signature] Yes ____ No (please initial)

Note: All costs must receive prior financial approval from the Department regardless of payment option.

Underground Storage Tank Owner/Operator Signature [signature]

Date June 4, 1999

RECEIVED
JUN 0 4 1999
DIVISION OF UNDERGRO
STORAGE TANK MGMT.

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

DIVISION OF
UNDERGROUND STORAGE TANK MANAGEMENT

Phone (803) 898-4350 Fax (803) 898-4330

MAY 18 1999

Mr. William Durham III
William Durham
3135 Millwood Ave.
Columbia, SC 29205

Re: Former Purolator Courier
Rapid Assessment Report received March 4, 1999
UST Permit # 05878
Lexington County

Dear Mr. Durham:

The Division of Underground Storage Tank Management of the South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the Rapid Assessment Report for the referenced site. The next scope of work to be implemented is installation of additional monitoring wells downgradient of MW-14 as points of compliance, a free product recovery rate test, and resampling of all monitoring wells. Our records indicate that you have selected Davis & Floyd as your contractor to perform assessment activities at the site.

Please have your contractor complete and submit the Assessment Component Cost Proposal form within thirty days of the date of this letter. The plan should include a comprehensive round of ground water sampling of all wells associated with the release and computer modeling, utilizing intrinsic parameters (nitrate, sulfate, ferrous iron, methane), to determine site specific target levels for all CoC. The SUPERB allowable cost for each component is included on the Assessment Component Cost Proposal form. All site rehabilitation activities associated with the UST release must be performed by a SCDHEC certified site rehabilitation contractor in accordance with R.61-98.

On all correspondence or inquiries regarding this project, please reference **UST Permit #05878.** If you have any questions, please feel free to contact Pamela DuBois at (803) 898-4334 or 1-800-826-5435 (within South Carolina only).

Sincerely,

Owner/Operator Assistance Section
Assessment and Corrective Action Branch
Division of Underground Storage Tank Management

Pamela DuBois

Pamela DuBois, Hydrogeologist

Lee A. Monts

Lee A. Monts, Manager

enc: Assessment Component Cost Proposal Form

cc: Technical File
Davis & Floyd, 240 Stoneridge Dr., Suite 200, Columbia, SC 29210 (W/ CP form)

DHEC/UST/051099

UST PROGRAM
DOCKETING # 33 Rech

DAVIS & FLOYD
Engineering
Architecture
Environmental & Laboratory Services

240 Stoneridge Drive, Suite 200 Columbia, SC 29210 • (803) 254-4337 (office) (803) 254-4549 (fax)

RECEIVED
APR 2 ? 1999
DIVISION OF UNDERGROUND
STORAGE TANK MGMT.

April 27, 1999
Serial No.: AEW-144-99
File No.: 50098.01

Ms. Pamela DuBois, Hydrogeologist
Owner/Operator Assistance Section
Assessment and Corrective Action Branch
Division of Underground Storage Tank Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201-1708

RE: Former Purolator Courier, Lexington County, SC
Site ID: 05878
Response to Review of Rapid Assessment Report

Dear Ms. DuBois:

In your March 16, 1999 review of the Rapid Assessment Report (RAR) submitted for the referenced site, you requested a completed receptor survey. Please see the attached site map showing the locations of the potential receptors and the tables describing these receptors. The detail of the inset box on the map is shown on Figure 3 of the RAR. In your letter, you also ask for an explanation of why MW-10 was not sampled; in the two-tiered sampling process, MW-10 was inadvertently omitted.

If you have any questions, please contact me.

Sincerely,

DAVIS & FLOYD, INC.

00131
01035

Amy E. Whitaker

Amy E. Whitaker

AEW/aew

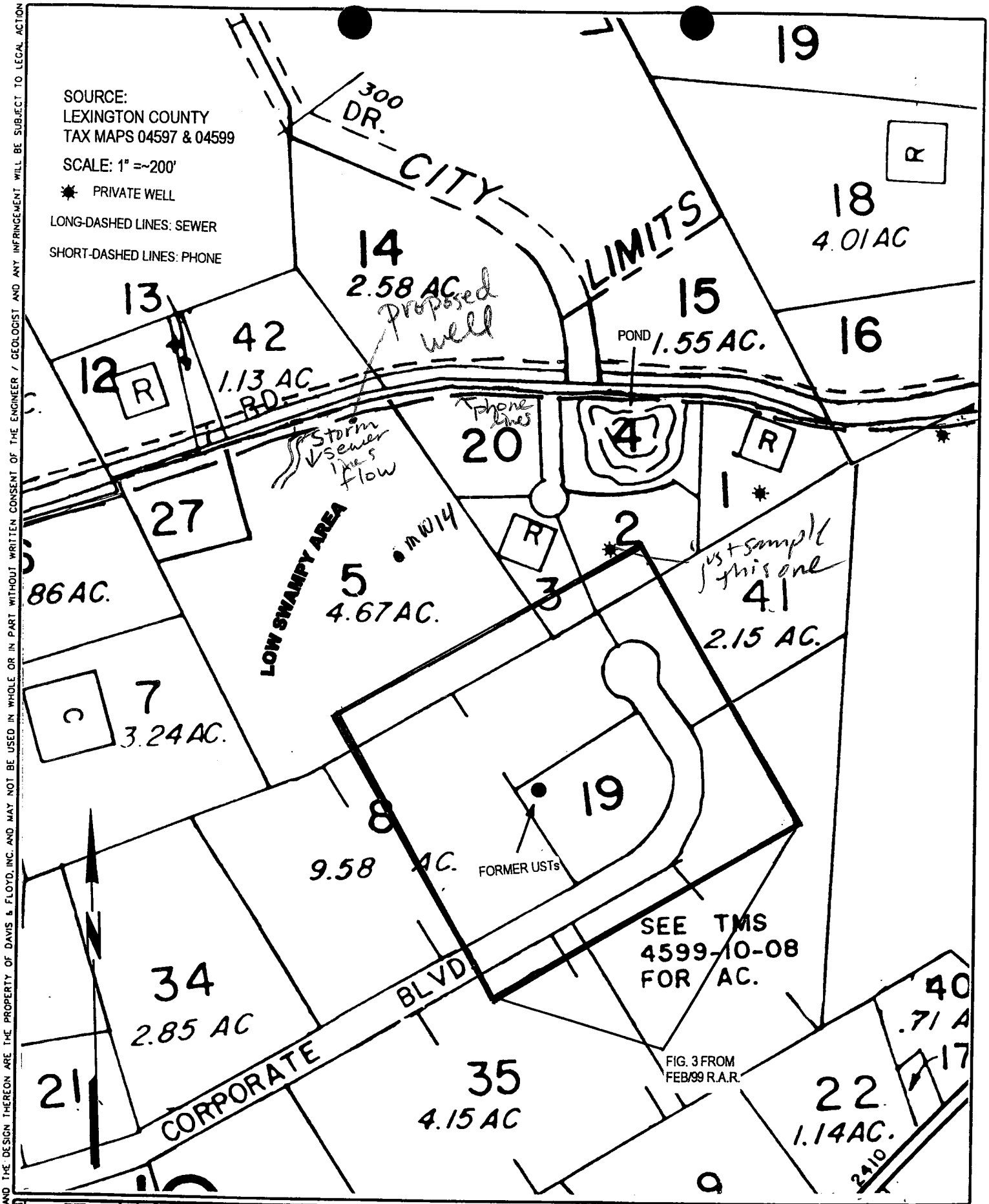
Enclosures: As stated

CP 64804

UST PROGRAM
DOCKETING # 34tech

c.c.: Mr. William Durham III

PO # 99999



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NO.	REVISED	CHKD	DATE

DESIGNED | CHECKED | JOB NO.
DRAWN | APPROVED | DATE

SITE MAP SHOWING
LOCATIONS OF THE FORMER USTs
AND RECEPTORS

DRAWING TITLE

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
GREENWOOD • CHARLESTON • COLUMBIA
SOUTH CAROLINA

FORMER PUROLATOR COURIER
LEXINGTON COUNTY, SOUTH CAROLINA

OWNER/CLIENT

13867

Utility	On-site or Distance/Direction from site	Depth to Utility
sewer line	150 ft NW	~2-10 ft
gas line	100 ft E	~2-5 ft
sewer line	850 ft NW	~2-10 ft
water line	200 ft SE	~2-10 ft
phone line	900 ft NW	~2-5 ft
phone line	100 ft SE	~2-5 ft

Describe all potential receptors and preferential pathways within a 1000-foot radius of the site.

Description of Receptor	Distance/Direction from Site
drainage ditch*	150 ft NW
low swampy area*	400 ft NW
pond	600 ft NE
private well	500 ft NE
private well	600 ft NE
private well	1000 ft NE

* dry under normal conditions

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2600 Bull Street
Columbia, SC 29201-1708

DIVISION OF
UNDERGROUND STORAGE TANK MANAGEMENT

Phone (803) 898-4350 Fax (803) 898-4330

Mr. William Durham
William Durham Company
3135 Millwood Ave.
Sumter, South Carolina 29151

MAR 16 1999

Re: Former Purolator Courier
UST Permit # 05878
Rapid Assessment Report received March 4, 1999
Lexington County

Dear Mr. Durham:

The referenced submittal has been reviewed by the Division of Underground Storage Tank Management of the South Carolina Department of Health and Environmental Control (SCDHEC). The following comments are provided:

- The Receptor Survey was not complete. The following information should be provided in tabular format: a list of all receptors within 1000 feet of the UST release, depths of underground receptors, distance of receptors from the source area. Also, a map showing the locations of these receptors, in respect to the facility, should be included. Additionally, please provide information about whether the drainage ditches in the area have standing water, or are intermittent.

- For future reference, monitoring wells containing free product should not be sampled.

- Please provide information on the reason for not sampling MW-10.

Per SCDHEC Rapid Assessment document, any required permit changes or corrections will be submitted within 15 days of notification by SCDHEC.

On all correspondence regarding this site, please reference the UST Permit # 05878. If you have any questions or would like to discuss the requested additional information, please contact Pamela DuBois at (803) 898-4334 or 1-800-826-5435 (within South Carolina only).

Sincerely,

Owner/Operator Assistance Section
Assessment and Corrective Action Branch
Division of Underground Storage Tank Management

Pamela DuBois

Pamela DuBois, Hydrogeologist

Lee A. Monts

Lee A. Monts, Manager

cc: Davis & Floyd, 240 Stoneridge Dr., Suite 200, Columbia, SC 29210
Technical File
DHEC/UST/031199

UST PROGRAM
DOCKETING # 35 Tech

DAVIS & FLOYD Engineering
Architecture
Environmental & Laboratory Services

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March 2, 1999
Serial No. JMF-113-99
Job No. 50098.01

Mr. Michael Bishop
Division of Underground Storage Tank Management
SCDHEC
2600 Bull Street
Columbia, SC 29201

RECEIVED
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DIVISION OF UNDERGROUND
STORAGE TANK MGMT.

Reference: Rapid Assessment Report
Former Purolator Courier Site
West Columbia, South Carolina
Site ID# 05878

Dear Mr. Bishop:

Please see the attached Rapid Assessment Report, which has been prepared for the former Purolator Courier site in West Columbia, South Carolina

If you have any questions about the report, please call.

Sincerely,

DAVIS & FLOYD, INC.

James M. Ferguson

JAMES MAXWELL FERGUSON REGISTERED No. 145 SOUTH CAROLINA PROFESSIONAL GEOLOGIST

James M. Ferguson, P.G.

JMF/acw

Attachments: As stated

cc: Mr. William S. Durham, Jr.

04804

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RAPID ASSESSMENT REPORT

FORMER PUROLATOR COURIER SITE

LEXINGTON COUNTY, SOUTH CAROLINA

GWPD SITE ID# 05878

RAPID ASSESSMENT REPORT
FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA
GWPD SITE ID# 05878

Prepared For:

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Job No. 50098.01

February 1999

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1.0 INTRODUCTION

1.1 Background

This report has been prepared by Davis & Floyd, Inc. (D&F) to document the assessment of contamination by petroleum released from former underground storage tanks (USTs) at the former Purolator Courier site (GWPD Site ID# 05878). The site was formerly utilized by Purolator Courier as a shipping distribution center and a vehicle maintenance shop. The former fuel distribution system consisted of two 10,000-gallon gasoline USTs which stored leaded and unleaded gasoline, associated piping, and dispensers. An additional 1000-gallon UST contained waste oil. The USTs were removed and were reported in January 1991 to be disposed of by R&M Installation and Repair, Inc. Soil excavated during tank removal was subsequently backfilled into the excavations. Documentation of UST removal and destruction and results of analyses of soil and groundwater samples from a boring adjacent to the fuel tank excavation, which indicated petroleum hydrocarbon compounds in soil and groundwater, were submitted by Mr. William S. Durham, Jr., Carolina Commerce Associates in letters to the SCDHEC dated September 24, 1991 and October 16, 1991 requesting procedural guidance.

The early phases of this assessment were completed as required under Subpart F of the South Carolina Underground Storage Tank Regulations (R.61-92), under the reimbursement provisions of the South Carolina Underground Petroleum Environmental Response Bank (SUPERB). However, due to the shortage of funds in the SUPERB account, Mr. Christopher S. Doll, SCDHEC, indicated in a letter to Mr. Durham dated January 20, 1994 that ongoing site rehabilitation should be terminated. The summary of the assessment activities up until that time were presented in an Assessment Report dated June 10, 1994 (D&F). This report recommended that additional assessment be conducted when funds were again available.

In the interim years of 1994-1998, a free-product recovery system operated at the site with limited success. Approximately 12 gallons of liquid petroleum were recovered over two years. On March 10, 1998, SCDHEC informed Mr. Durham of Carolina Commerce & Associates that SUPERB fund availability was imminent and instructed that a Rapid Assessment be performed at the former Purolator Courier site.

A Rapid Assessment Plan (RAP) for the former Purolator Courier site was accepted by SCDHEC on April 20, 1998. Initial groundwater sampling occurred in June 1998 and included the sampling of two private wells that are potential downgradient receptors. The Laboratory Analysis Report dated July 16, 1998 is in Appendix I. Full implementation of the RAP was delayed, however, because of the requirements of the adjacent landowner, who did not want vegetation to be disturbed during well installation. As such, a new RAP had to be submitted (October 1, 1998) which allowed for hand-augering of fewer wells on that property. The revised RAP included as an attachment the results of the June sampling event. The revised RAP was approved via e-mail on October 26, 1998. The drilling of seven new wells occurred on November 4, 1998. The well logs are found in Appendix II. In November, 1998, the wellhead of MW-1 was repaired and MW-1 was resurveyed when the newly-installed wells were surveyed. Samples were collected from the seven new wells and from three old wells on December 29, 1998. The Laboratory Analysis Report dated January 12, 1999 is in Appendix I.

1.2 Site Location/Geography

The site is located in Carolina Center Business Park on Corporate Boulevard approximately one-quarter mile east of the intersection of Corporate Boulevard and Chris Drive (frontage road to Interstate 26). The site is approximately one-half mile west of the City of West Columbia in Lexington County, South Carolina (Figure 1). The latitude and longitude of the site are approximately N 33° 59' 41" and W 81° 6' 13".

Land surface at the site is relatively flat at an elevation of about 270 feet above mean sea level. Double Branch, a tributary to the Saluda River, is located northwest of the site and flows to the northeast, draining a pond located west of the site and Interstate 26 (Figure 2). Small ponds are located approximately 500 feet north and northwest of the site. Stormwater drainage from the site flows to a shallow drainage ditch located about 200 feet northwest of the site. The site, as referred to in this report, includes the former Purolator Courier site and adjoining properties immediately to the northwest and southwest (also owned by Carolina Commerce Associates) as shown on Figure 3.

1.3 Regional Geology

The site is located in the Upper Coastal Plain physiographic province near the Fall Line which separates the Coastal Plain to the southeast and Piedmont to the northwest. The Coastal Plain consists of a seaward thickening wedge of unconsolidated sediments overlying crystalline bedrock. Crystalline rocks along the Fall Line in the vicinity of the site are overlain by a thin cover (less than 50 feet to about 100 feet) of unconsolidated Cretaceous and Tertiary age Coastal Plain sediments and Quaternary age alluvium. The lithology and age relationships of

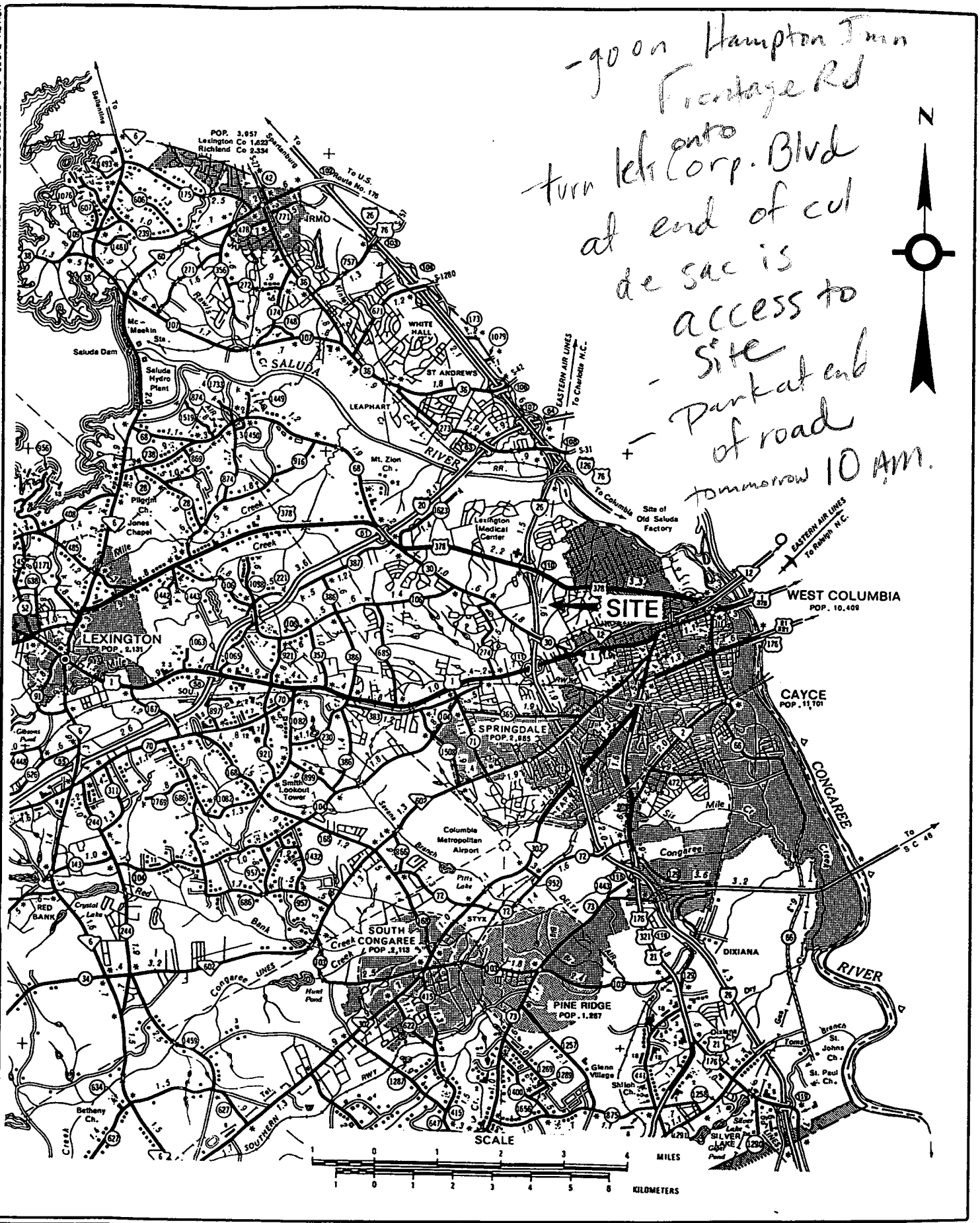

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FIGURE 1
SITE LOCATION MAP

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FORMER PUROLATOR COURIER
LEXINGTON COUNTY, SC

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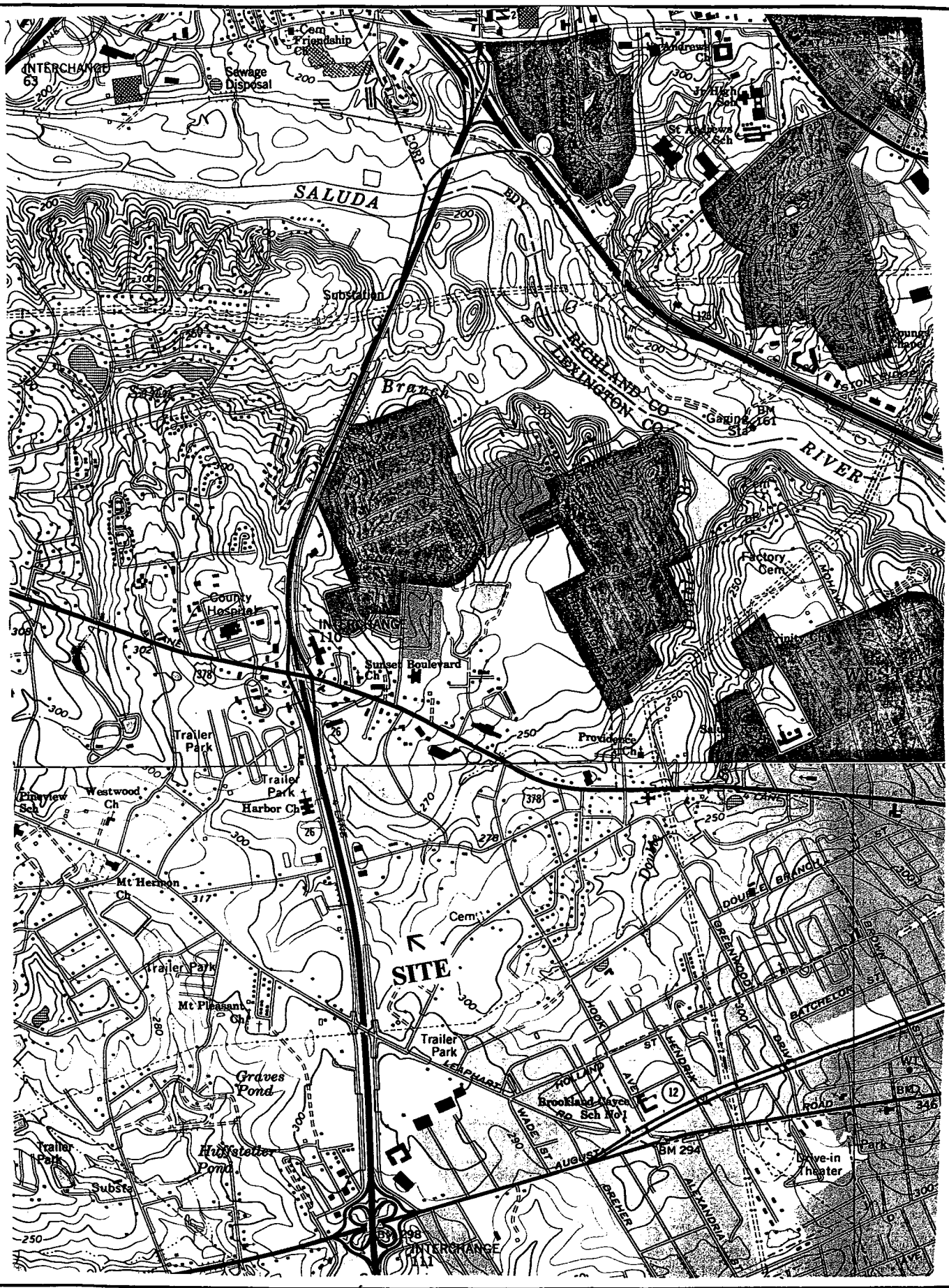

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FIGURE 2
TOPOGRAPHIC SITE MAP
USGS 1:24,000 SCALE
SW COLA. & COLA. N. QUADS
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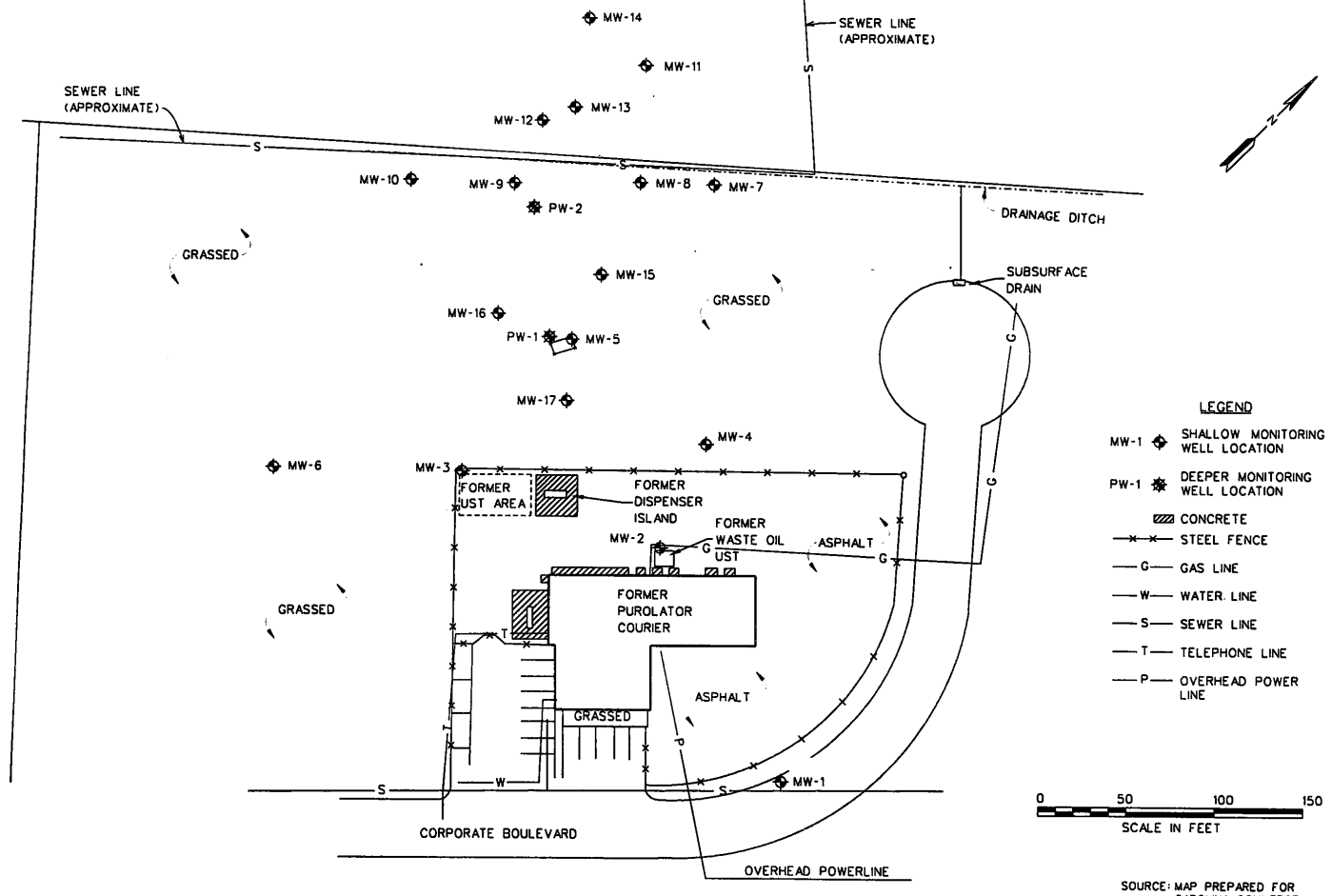

SOURCE: MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

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FIGURE 3
SITE MAP SHOWING
MONITORING WELL LOCATIONS

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Coastal Plain sediments in Lexington County were described in a report by Smith (1980), and the geology of the site vicinity was mapped by Kite (1985).

The floodplains of the Congaree River, Congaree Creek, and smaller tributaries are underlain by Quaternary age alluvium, which varies from less than 20 feet thick to as much as 40 to 50 feet thick. Higher elevations in the vicinity of the site are underlain by Tertiary age sands and clays of fluvial-deltaic origin. The site is underlain by Cretaceous-age sediments (Kite, 1985). The Cretaceous sediments consist primarily of micaceous, typically clayey coarse- to very coarse-grained sand and sandy clay, with lenses of kaolin occurring locally. The Cretaceous sediments are underlain by the Columbia Granite of late Paleozoic age, the upper part of which is typically weathered to granite saprolite, varying from about 15 to 20 feet thick to more than 50 feet thick.

2.0 METHODOLOGY

The objective of this assessment was to delineate the horizontal and vertical extent and severity of groundwater contamination at the site, to the maximum extent practicable.

The following tasks were conducted to accomplish these objectives:

1. Seven new groundwater monitoring wells were installed to enable collection of groundwater samples and determination of groundwater elevations and flow direction.
2. Borehole permeability tests were conducted to estimate aquifer hydraulic properties.
3. Groundwater samples were collected on June 25 and December 29, 1998 from the monitoring wells and chemically analyzed to assess water quality.
4. Bioscreen simulations were performed to predict the future fate of the chemicals of concern.

2.2 Drilling and Well Installation

Ten shallow monitoring wells, designated MW-1 through MW-10, had existed at the site and two telescoping (double-cased) monitoring wells designated PW-1 and PW-2 also existed at the site, adjacent to well MW-5, the worst-case shallow monitoring well, and between wells MW-8 and MW-9, located at the downgradient property boundary (Figure 3). These wells came as a result of the pre-1994 assessment activities.

On November 4, 1998, seven new shallow wells were drilled. Three of these wells were installed on Carolina Commerce property with hollow-stem auger. The remaining four wells were installed on the adjacent property to attempt to delineate the down-gradient limit of contamination. These holes were advanced by hand-auger to a depth of 8-9 feet. Lithologic well logs and well-construction details of

the new wells are in Appendix I. Depths and elevations of all wells are summarized in Table 1.

After construction, each well was developed by pumping to remove fine sediment from the filter pack and formation opposite the screen. All water discharged from monitoring wells was containerized. The containerized water was transported and disposed of in a SCDHEC approved manner.

2.3 Aquifer Testing

Borehole permeability (slug) tests were conducted at shallow wells MW-13 and MW-15 both located within the hydrocarbon plume. The tests were performed by removing the water from the well, and measuring the subsequent recovery of water level in the well to the static level at 0.1-foot intervals with an interface probe. Semi-log plots of the change in head versus time at each well were be made and hydraulic conductivity (K) values were calculated based on the "straight-line" segment of the data plot (Bouwer and Rice, 1976: Bouwer, 1989). The equation is written as

$$K = \frac{r_c^2 \ln\left(\frac{R_e}{R}\right)}{2L_e} \frac{1}{t} \ln\left(\frac{H_0}{H_t}\right)$$

The term $\ln\left(\frac{R_e}{r_w}\right)$ can be approximated by $\left[\frac{1.1}{\ln\left(\frac{L_w}{R}\right)} + \frac{A + B * \ln\left(\frac{h - L_w}{R}\right)}{\frac{L_e}{r_e}}\right]^{-1}$

TABLE 1

SUMMARY OF MONITORING WELL CONSTRUCTION
FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

WELL NO.	GROUND SURFACE ELEVATION	TOP OF CASING ELEVATION	SCREENED INTERVAL DEPTH
MW-1	99.05	98.54	4-14
MW-2	97.64	97.07	3-13
MW-3	95.56	95.41	4-14
MW-4	95.76	98.69	4-14
MW-5	95.13	96.70	4-14
MW-6	97.10	99.56	4-14
MW-7	94.60	96.71	4-14
MW-8	93.74	95.88	4-14
MW-9	92.76	94.85	4-14
MW-10	92.11	94.04	4-14
PW-1	94.29	96.50	16-21
PW-2	93.54	95.91	21-26
MW-11	93.28	92.98	4-9
MW-12	92.42	92.07	4-9
MW-13	92.75	92.56	4-9
MW-14	91.52	91.37	4-9
MW-15	94.24	93.91	3-13
MW-16	93.92	93.71	3-13
MW-17	95.01	94.63	3-13

NOTES:
1. Well elevations surveyed by D&F relative to arbitrary datum.
2. Screen interval depths below ground surface.
3. All measurements in feet.

where:

K = hydraulic conductivity

r_c = well radius

R = borehole radius

R_e = effective radial distance over which head difference y is dissipated

L_e = saturated screen length

h = aquifer thickness

H_0 = hydraulic head at time zero

H_t = hydraulic head at time t

t = time since H_0

The results of borehole permeability testing are applied in Section 3.2 and the data plots are included in Appendix II.

2.4 Groundwater Sampling and Analysis

Groundwater samples were collected on June 25 and December 29, 1998 from monitoring wells for analysis of benzene, ethylbenzene, toluene, and xylenes (BTEX) and methyl-tert-butyl-ether (MTBE), naphthalene, selected semivolatiles and lead. In addition, two downgradient private wells were sampled on June 25, 1998 and analyzed for the same parameters. During the December 1998 sampling event, groundwater from the monitoring wells was also tested for the biological indicators of ferrous iron, sulfate and nitrate. Chemical analytical results are discussed in Section 4.1 and the Laboratory Analysis Reports are included as Appendix III.

3.0 SITE HYDROGEOLOGY

3.1 Site Geology

The site is underlain by low permeability fill material, consisting of reddish to yellowish orange and white or yellowish brown clayey fine to coarse sand to a depth of about six to nine feet. The fill material is underlain by yellowish orange and white, micaceous fine to coarse sand or grayish orange clayey sand. The sand typically becomes more clayey with depth. White to yellowish orange sandy clay was encountered at most borings at depths between 12 and 16 feet. The sandy clay is underlain at the locations of wells PW-1 and PW-2 by yellow to white, clayey fine to coarse sand with some gravel to a depth of at least 32 feet. The sand becomes less clayey with depth and the amount of gravel increases.

3.2 Groundwater Occurrence and Flow

Groundwater occurs under water-table (unconfined) conditions at depths between about one to five feet. Maps of the water table based on water level measurements on June 25, 1998 (Figure 4) and December 29, 1998 (Figure 5) indicate groundwater flows from the former UST areas to the west-northwest. Groundwater elevation data is summarized on Table 2. The map for June 25 water levels depicts irregular groundwater flow, whereas the December measurements show a uniform gradient. The average horizontal hydraulic gradient was calculated to be 0.0065 ft/ft for the December 29 event.

The rate of lateral groundwater flow through the water table aquifer, expressed as the average linear groundwater velocity, is related to radial permeability of the aquifer, hydraulic gradient,

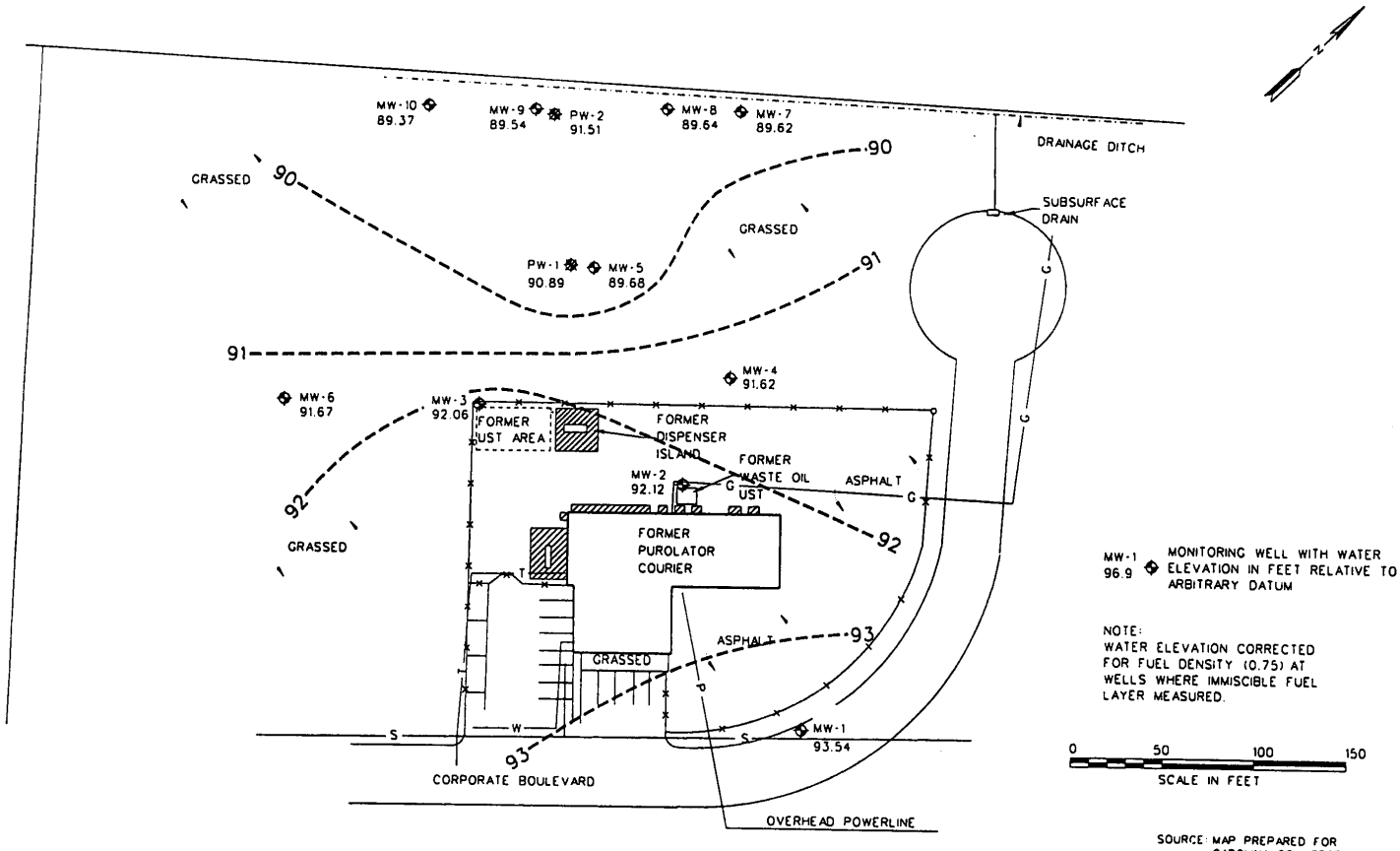

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FIGURE 4
WATER TABLE MAP
JUNE 25, 1998

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LEXINGTON COUNTY, SOUTH CAROLINA

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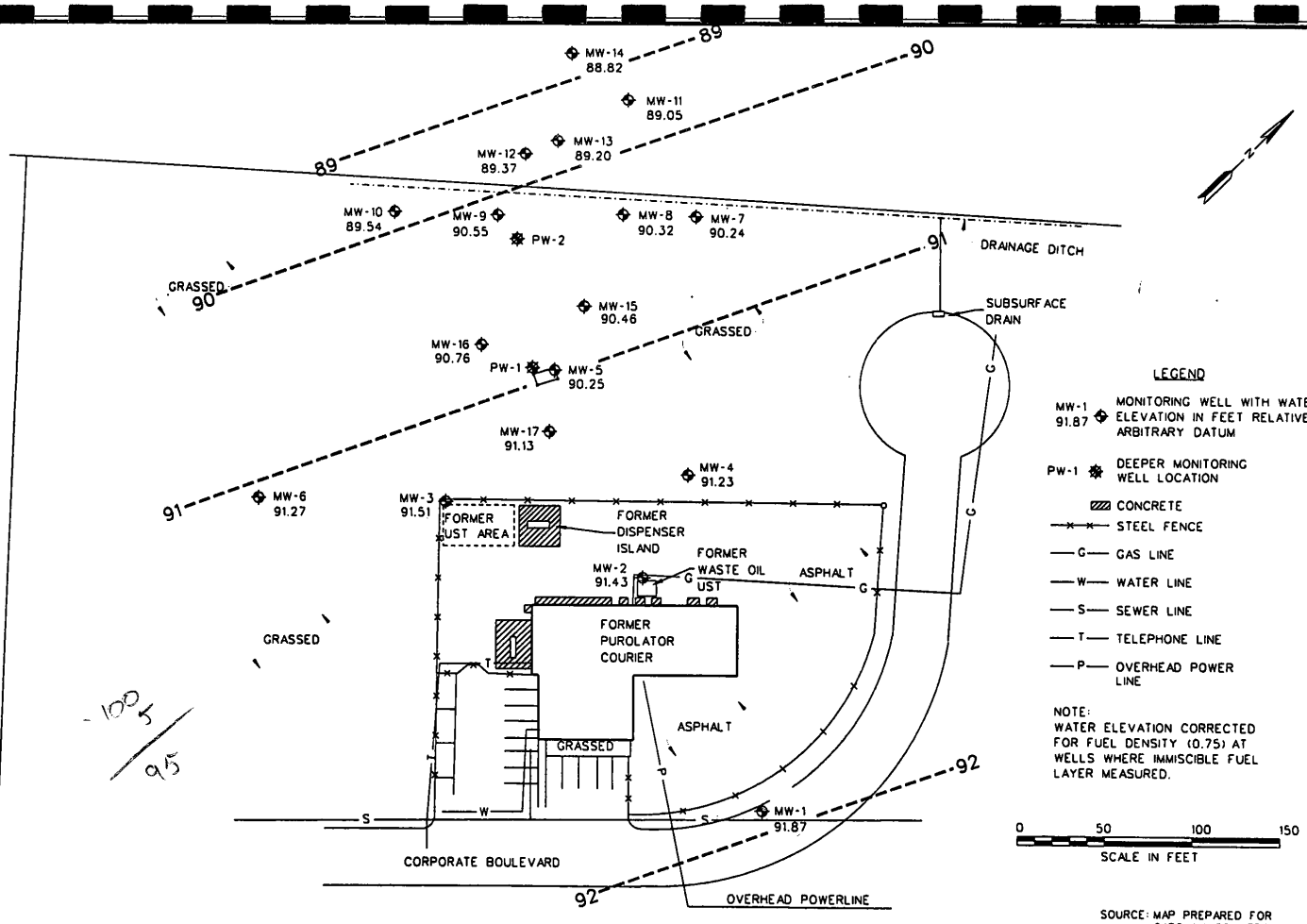

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FIGURE 5
POTENTIOMETRIC SURFACE MAP
DECEMBER 29, 1998

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LEXINGTON COUNTY, SOUTH CAROLINA

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TABLE 2
GROUNDWATER ELEVATION DATA
FORMER PUROLATOR COURIER SITE

Well	Date	Top of Casing Elevation	Depth to Groundwater	Water Table Elevation
MW-1	07/29/92	98.68	6.51	92.17
	03/30/93	98.68	1.83	96.85
	06/25/98	98.68	5.14	93.54
	12/29/98	98.54	6.67	91.87
MW-2	07/29/92	97.07	5.72	91.35
	03/30/93	97.07	2.26	94.81
	06/25/98	97.07	4.95	92.12
	12/29/98	97.07	5.64	91.43
MW-3	07/29/92	95.41	3.90	91.51
	03/30/93	95.41	1.00	94.41
	06/25/98	95.41	3.35	92.06
	12/29/98	95.41	3.90	91.51
MW-4	07/29/92	98.69	7.60	91.09
	03/30/93	98.69	4.30	94.39
	06/25/98	98.69	7.07	91.62
	12/29/98	98.69	7.46	91.23
MW-5	07/29/92	96.70	6.70	90.00*
	03/30/93	96.70	3.34	93.36
	06/25/98	96.70	7.02	89.68*
	12/29/98	96.70	6.45	90.25*
MW-6	07/29/92	99.56	8.35	91.21
	03/30/93	99.56	5.77	93.79
	06/25/98	99.56	7.89	91.67
	12/29/98	99.56	8.29	91.27
MW-7	07/29/92	96.71	7.00	89.71
	03/30/93	96.71	4.59	92.12
	06/25/98	96.71	7.09	89.62
	12/29/98	96.71	6.47	90.24
MW-8	07/29/92	95.88	6.00	89.88
	03/30/93	95.88	3.78	92.10
	06/25/98	95.88	6.24	89.64*
	12/29/98	95.88	5.56	90.32
MW-9	07/29/92	94.85	5.40	89.45
	03/30/93	94.85	3.00	91.85
	06/25/98	94.85	5.31	89.54
	12/29/98	94.85	4.30	90.55
MW-10	07/29/92	94.04	4.90	89.14
	03/30/93	94.04	3.13	90.91
	06/25/98	94.04	4.67	89.37
	12/29/98	94.04	4.50	89.54
PW-1	03/30/93	96.50	3.22	93.28
	06/25/98	96.50	5.61	90.89
	12/29/98	96.50	5.60	90.90
PW-2	03/30/93	95.91	4.42	91.49
	06/25/98	95.91	4.40	91.51
	12/29/98	95.91	6.12	89.79
MW-11	12/29/98	92.98	3.93	89.05
MW-12	12/29/98	92.07	2.70	89.37
MW-13	12/29/98	92.56	3.36	89.20
MW-14	12/29/98	91.37	2.55	88.82
MW-15	12/29/98	93.91	3.45	90.46
MW-16	12/29/98	93.71	2.95	90.76
MW-17	12/29/98	94.63	3.50	91.13

Notes:
All measurements in feet
Elevations are relative to mean sea levell
*Free-product in well

and effective porosity of the aquifer material, and was calculated using the modified Darcy equation:

$$V = \frac{K * i}{n_e}$$

where:

V = the average linear groundwater velocity (ft/day)

K = the radial permeability or hydraulic conductivity (ft/day)

i = hydraulic gradient (dimensionless)

n_e = effective porosity

Utilizing hydraulic conductivity values of 0.888 to 3.31 ft/day calculated from slug tests at wells MW-13 and MW-15, a hydraulic gradient of 0.0065, and an estimated effective porosity of 0.3, the average linear velocity of groundwater was calculated to range from 0.019 ft/day to 0.0717 ft/day, or about 7 to 26 ft/year.

4.0 SITE GROUNDWATER GEOCHEMISTRY

4.1 Lateral Extent of Hydrocarbons

Non-aqueous phase liquid petroleum occurs on the water table in the vicinity of well MW-5, and hydrocarbon compounds are dissolved in groundwater beneath the site, indicated by chemical analysis of groundwater samples as summarized on Table 3. During the June sampling event, 0.28 feet of free-product was also observed in MW-8.

Total BTEX was detected by laboratory analysis of groundwater samples from the on-site monitoring wells at concentrations ranging from below detection limits (BDL) to 78,550 micrograms per liter (µg/l) in MW-5. The highest concentrations of hydrocarbons were reported from within the liquid petroleum area at well MW-5 (78,550 µg/l) in samples collected in June 1998. Total BTEX was detected at well MW-5 at a concentration of 44,790 µg/l on December 29, 1998.

Of the newly-installed wells, only samples from MW-11 and MW-12 exceeded no Risk-Based Screening Levels (RBSL). Samples MW-13 through MW-17 exceed the concentrations for total BTEX (and commonly for each individual constituent), naphthalene, MTBE and lead. Significant contamination by petroleum hydrocarbon compounds occurs from the former UST area to the Carolina Commerce Associates property boundary and beyond, as depicted on Figures 7-13.

1/12 .3 X

TABLE 3

DET LIMITS

Summary of Groundwater Quality at the Former Purolator Courier Site in West Columbia, South Carolina, 1998

Well	Date	pH	Conductivity	Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	Xylenes	Benzo (A) anthracene	Benzo (B) Fluoranthene	Benzo (K) Fluoranthene	Chrysene	Dibenz (A,H) anthracene	Lead	1,2-dibromoethane
MDL/RBSL				1.0/5.0	1.0/700	5.0/40	2.0/10	1.0/1,000	1.0/10,000	10.0/10	10.0/10	10.0/10	10.0/10	10.0/10	0.005/0.015	5.0/10
MW-2	06/25/98	5.7	175	**101**	5.4	8.4	3.0	2.1	18.4	BDL	BDL	BDL	BDL	BDL	0.0099	BDL
MW-3	06/25/98	6.3	125	**69.9**	186	**53.0**	**93.1**	9.9	636	BDL	BDL	BDL	BDL	BDL	0.014	BDL
MW-4	06/25/98	4.6	90	BDL	BDL	25.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.018**	BDL
MW-5	06/25/98	6.0	103	**12,300**	**3,950**	*	*	**38,500**	**23,800**	*	*	*	*	*	**0.065**	*
MW-6	06/25/98	6.5	588	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.0077	BDL
MW-7	06/25/98	5.0	60	BDL	BDL	8.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-8	06/25/98	6.0	68	**609**	**1,390**	*	**522**	**6,240**	8,800	BDL	BDL	BDL	BDL	BDL	0.0057	BDL
MW-9	06/25/98	5.8	92	**1,180**	103	**732**	**54.1**	34.2	238	BDL	BDL	BDL	BDL	BDL	**0.077**	BDL
PW-1	06/25/98	5.8	136	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
PW-2	06/25/98	7.4	360	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.5**	BDL
MW-1	12/29/98	5.5	133	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.03**	BDL
MW-5	12/29/98	5.5	98	**10,800**	**1,780**	**2,730**	**927**	**20,300**	9,180	*	*	*	*	*	**0.043**	*
MW-7	12/29/98	4.2	55	BDL	BDL	6.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-9	12/29/98	4.7	63	BDL	BDL	13.4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.013	BDL
MW-11	12/29/98	4.6	73	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.014	BDL
MW-12	12/29/98	5.2	47	BDL	BDL	6.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.013	BDL
MW-13	12/29/98	6.0	116	**3,710**	637	**752**	**242**	**2,460**	2,730	BDL	BDL	BDL	BDL	BDL	**0.025**	BDL
MW-14	12/29/98	6.4	180	**4,250**	671	**941**	**273**	**1,470**	2,410	BDL	BDL	BDL	BDL	BDL	**0.021**	BDL
MW-15	12/29/98	5.7	89	**7,870**	**834**	**1,820**	**785**	**11,700**	4,460	BDL	BDL	BDL	BDL	BDL	**0.027**	BDL
MW-16	12/29/98	5.2	108	**104**	48.4	**116**	**64.1**	20.8	58.5	BDL	BDL	BDL	BDL	BDL	**0.05**	BDL
MW-17	12/29/98	4.5	110	**1,340**	480	**330**	**433**	**3,150**	3,180	BDL	BDL	BDL	BDL	BDL	**0.062**	BDL

FP — MW-5

FP — MW-8

FP — MW-5

Injune
none in
Dec.

Notes:
MDL=method detection limit
RBSL=risk based screening level
BDL=Below detection limit
pH given in pH units
Conductivity in micromhos per centimeter (µmho/cm)
Lead in milligrams per liter (mg/L)
Volatiles and semi-volatiles in micrograms per liter (µg/L)
MTBE=Methyl-Tert-Butyl Ether
Concentrations exceeding the RBSL shown in **bold**
*matrix interference prevented precise determination

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-1

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 12-29-98 LWR submitted by: A. Whitaker
Sampling Personnel: J.G.M
Site Personnel: -
Regulatory Personnel: -
Weather Conditions: Overcast Temp.: 50
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 98.68 msl (yes/no)
(B) Depth to Immiscible Layer: - ft.
(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)
(D) Depth to Groundwater: 6.67 ft.
(E) Groundwater Elevation: (A)-(D)= 92.01 msl (yes/no)
(F) Total Well Depth = ~~6.68~~ 12.0 ft.
(G) Length of Water Column: (F)-(D)= 5.33 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.86 gals.
Method of Well Evacuation Bail Start Time: 1555
Method of Sample Collection Bail Time: 1610
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.3 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / (moderate) / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)					
Time (military)	1357	1359	1603		
pH (S.U.)	5.4	5.4	5.5		
Sp. Cond. (umhos/cm)	131	131	133		
Water Temp. (°C)	19	19	19		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	4	4	4		

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 1.0
~~Casing~~ Water in Casing

FORM COMPLETED BY: John L McMakin (SIGNATURE)
DATE: 12-29-98

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-5

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 12-29-98 LWR submitted by: A. Whitaker
Sampling Personnel: J.L.M
Site Personnel: –
Regulatory Personnel: –
Weather Conditions: Overcast Temp.: 50
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 96.70 msl (yes/no)
(B) Depth to Immiscible Layer: 5.55 ft.
(C) Immiscible Layer Elevation: (A)–(B)= 91.15 msl (yes/no)
(D) Depth to Groundwater: 6.45 ft.
(E) Groundwater Elevation: (A)–(D)= 90.35 msl (yes/no)
(F) Total Well Depth = 14.0 ft.
(G) Length of Water Column: (F)–(D)= 7.55 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.2 gals.
Method of Well Evacuation Bail Start Time: 1635
Method of Sample Collection Bail Time: 1659
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.2	2.4	3.6		
Time (military)	1640	1645	1650		
pH (S.U.)	5.5	5.5	5.5		
Sp. Cond. (umhos/cm)	100	98	98		
Water Temp. (°C)	18	15	15		
Odor (subjective)*	4	4	4		
Turbidity (subjective)**	2	2	2		

* (1)None (2)Slight (3)Moderate (4)Strange
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 8.8

FORM COMPLETED BY: [signature] (SIGNATURE)
DATE: 12-29-98

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW - 7

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 12-29-98 LWR submitted by: A. Whitaker
Sampling Personnel: d.c.m
Site Personnel: -
Regulatory Personnel: -
Weather Conditions: Overcast Temp.: 50
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 96.71 msl (yes/no)
(B) Depth to Immiscible Layer: ~ ft.
(C) Immiscible Layer Elevation: (A)-(B)= ~ msl (yes/no)
(D) Depth to Groundwater: 6.47 ft.
(E) Groundwater Elevation: (A)-(D)= 90.24 msl (yes/no)
(F) Total Well Depth = 15.00 ft.
(G) Length of Water Column: (F)-(D)= 8.53 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.4 gals.
Method of Well Evacuation Bail Start Time: 1453
Method of Sample Collection Bail Time: 1510
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID Map ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.5 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.4	2.8	DRY @ 3 V		
Time (military)	1456	1459	1502		
pH (S.U.)	4.3	4.2	4.2		
Sp. Cond. (umhos/cm)	57	55	55		
Water Temp. (°C)	16	16	16		
Odor (subjective)*	2	2	2		
Turbidity (subjective)**	3	2	2		

* (1)None (2)Slight (3)Moderate (4)Stronge

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 0.0
NO LOCK
NO CAP

FORM COMPLETED BY: L. McMahon PE (signature)
DATE: 12-29-98

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-9

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 12-29-98 LWR submitted by: A. Whitaker
Sampling Personnel: J.C.M
Site Personnel: —
Regulatory Personnel: —
Weather Conditions: Overcast Temp.: 50
Well Diameter: 2.0 in.
(A) Top of Well Elevation: 94.85 msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 4.30 ft.
(E) Groundwater Elevation: (A)-(D)= _____ msl (yes/no)
(F) Total Well Depth = 14.72 ft.
(G) Length of Water Column: (F)-(D)= 10.42 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.7 gals.
Method of Well Evacuation Bail Start Time: 1414
Method of Sample Collection Bail Time: 1426
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 1.5 ft.
Casing Type (PVC) (Steel) (Other) _____
Dedicated Pump or (Bailer) (yes/no) Type _____
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / (high))

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.7	3.4	5.1		
Time (military)	1417	1420	1423		
pH (S.U.)	4.8	4.7	4.7		
Sp. Cond. (umhos/cm)	64	62	63		
Water Temp. (°C)	14	14	14		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	3	2	2		

* (1)None (2)Slight (3)Moderate (4)Stronge

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 1.0
NO LOCK

FORM COMPLETED BY: J. McMahon (SIGNATURE)
DATE: 12-29-98

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-11

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 12-29-98 LWR submitted by: A. Whitaker
Sampling Personnel: JLM
Site Personnel: -
Regulatory Personnel: -
Weather Conditions: Overcast Temp.: 40's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: _____ msl (yes/no)
(B) Depth to Immiscible Layer: - ft.
(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)
(D) Depth to Groundwater: 3.93 ft.
(E) Groundwater Elevation: (A)-(D)= _____ msl (yes/no)
(F) Total Well Depth = 8.6 ft.
(G) Length of Water Column: (F)-(D)= 4.67 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.76 gals.
Method of Well Evacuation Bail Start Time: 1028
Method of Sample Collection Bail Time: 1040
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.1 ft.
Casing Type (PVC) (Steel) (Other) _____
Dedicated Pump or (Bailer) (yes/no) Type _____
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / (high))

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT. MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	0.76	2.0	3.0		
Time (military)	1029	1032	1036		
pH (S.U.)	4.7	4.6	4.6		
Sp. Cond. (umhos/cm)	75	75	73		
Water Temp. (°C)	15	15	15		
Odor (subjective)*	2	2	2		
Turbidity (subjective)**	4	4	4		

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 0

110 Lock

FORM COMPLETED BY: [signature] (SIGNATURE)
DATE: 12-29-98

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FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-12

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 12-29-98 LWR submitted by: A. Whitaker
Sampling Personnel: J.C.M
Site Personnel: -
Regulatory Personnel: -
Weather Conditions: Overcast Temp.: 40's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: _____ msl (yes/no)
(B) Depth to Immiscible Layer: - ft.
(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)
(D) Depth to Groundwater: 2.70 ft.
(E) Groundwater Elevation: (A)-(D)= _____ msl (yes/no)
(F) Total Well Depth = 7.83 ft.
(G) Length of Water Column: (F)-(D)= 5.13 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.84 gals.
Method of Well Evacuation Bail Start Time: 1125
Method of Sample Collection Bail Time: 1138
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.1 ft.
Casing Type (PVC) (Steel) (Other) _____
Dedicated Pump or (Bailer) (yes/no) Type _____
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.0	2.0	3.0		
Time (military)	1126	1130	1133		
pH (S.U.)	5.4	5.2	5.2		
Sp. Cond. (umhos/cm)	44	47	47		
Water Temp. (°C)	15	15	15		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	4	4	4		

* (1)None (2)Slight (3)Moderate (4)Strong
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 0.6

NO Lock

FORM COMPLETED BY: John P McWilliams (SIGNATURE)
DATE: 12-29-98

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FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-13

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 12-29-98 LWR submitted by: A. Whitaker
Sampling Personnel: J.G.M
Site Personnel: -
Regulatory Personnel: -
Weather Conditions: Overcast Temp.: 40's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: _____ msl (yes/no)
(B) Depth to Immiscible Layer: - ft.
(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)
(D) Depth to Groundwater: 3.36 ft.
(E) Groundwater Elevation: (A)-(D)= _____ msl (yes/no)
(F) Total Well Depth = 8.2 ft.
(G) Length of Water Column: (F)-(D)= 4.84 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.79 gals.
Method of Well Evacuation Bail Start Time: 1053
Method of Sample Collection Bail Time: 1108
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.1 ft.
Casing Type (PVC) (Steel) (Other) _____
Dedicated Pump or Bailer (yes/no) Type _____
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)					
Time (military)	1059	1103	1105		
pH (S.U.)	6.0	6.0	6.0		
Sp. Cond. (umhos/cm)	115	120	116		
Water Temp. (°C)	14	14	14		
Odor (subjective)*	2	2	2		
Turbidity (subjective)**	4	4	4		

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 1.5

No Lock

FORM COMPLETED BY: John T. McMahon (SIGNATURE)
DATE: 12-29-98

D&F Form48 (3/94)

DAVIS & FLOYD

ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS

CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-14

Client: Former Purolator Courier

Site Name: W. Columbia Job No.: 50098.01

Date: 12-29-98 LWR submitted by: A. Whitaker

Sampling Personnel: VLM

Site Personnel: -

Regulatory Personnel: -

Weather Conditions: Overcast Temp.: 40's

Well Diameter: 2.0 in.

(A) Top of Well Elevation: _____ msl (yes/no)

(B) Depth to Immiscible Layer: - ft.

(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)

(D) Depth to Groundwater: 2.55 ft.

(E) Groundwater Elevation: (A)-(D)= _____ msl (yes/no)

(F) Total Well Depth = 8.15 ft.

(G) Length of Water Column: (F)-(D)= 5.6 ft.

Casing Volume = (G) x Volume in gal./ft.= 0.91 gals.

Method of Well Evacuation Bail Start Time: 0950

Method of Sample Collection Bail Time: 1005

Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)

Well Completion: Protective Casing (yes/no) Flush (yes/no)

Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)

Locked at Arrival (yes/no) Departure (yes/no)

Well Casing (height above/depth below) ground: 0.1 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or (Bailer) (yes/no) Type _____

Protective Post/Abutment (yes/no) Concrete Pad (yes/no)

Well Integrity Satisfactory (yes/no) If no, explain below.

Well Yield (low / (moderate) / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.0	2.0	3.0		
Time (military)	0954	0958	1000		
pH (S.U.)	6.5	6.4	6.4		
Sp. Cond. (umhos/cm)	183	180	180		
Water Temp. (°C)	14	14	14		
Odor (subjective)*	3	3	3		
Turbidity (subjective)**	4	4	4		

* (1)None (2)Slight (3)Moderate (4)Stronge

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 1.0

NO Lock

FORM COMPLETED BY: John L. McMahan III (SIGNATURE)

DATE: 12-29-98

D&F Form48 (3/94)

DAVIS & FLOYD
ENGINEERS ARCHITECTS PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-15 Dup

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 12-29-98 LWR submitted by: A. Whitaker
Sampling Personnel: J.C.M
Site Personnel: –
Regulatory Personnel: –
Weather Conditions: Overcast Temp.: 40's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: _____ msl (yes/no)
(B) Depth to Immiscible Layer: – ft.
(C) Immiscible Layer Elevation: (A)–(B)= – msl (yes/no)
(D) Depth to Groundwater: 3.45 ft.
(E) Groundwater Elevation: (A)–(D)= _____ msl (yes/no)
(F) Total Well Depth = 13.05 ft.
(G) Length of Water Column: (F)–(D)= 9.6 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.6 gals.
Method of Well Evacuation Bail Start Time: 1223
Method of Sample Collection Bail Time: 1242
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.1 ft.
Casing Type (PVC) (Steel) (Other) _____
Dedicated Pump or Bailer (yes/no) Type _____
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume (Dup)	5th Volume
Volume Purged (gallons)	1.6	3.2	4.8		
Time (military)	1227	1233	1239		
pH (S.U.)	5.6	5.7	5.7	5.6	
Sp. Cond. (umhos/cm)	89	89	89	88	
Water Temp. (°C)	15	15	15	15	
Odor (subjective)*	2	2	2	2	
Turbidity (subjective)**	4	3	3	3	

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 4.0 / 4.0
No Lock
Wrote on metal tag well #, water in casing

FORM COMPLETED BY: John J. McMahon III (SIGNATURE)
DATE: 12-29-98

D&F Form48 (3/94)

DAVIS & FLOYD
ENGINEERS ARCHITECTS PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-16

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 12-29-98 LWR submitted by: A. Whitaker
Sampling Personnel: J.G.M
Site Personnel: -
Regulatory Personnel: -
Weather Conditions: overcast Temp.: 40's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: _____ msl (yes/no)
(B) Depth to Immiscible Layer: ~ ft.
(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)
(D) Depth to Groundwater: 2.95 ft.
(E) Groundwater Elevation: (A)-(D)= _____ msl (yes/no)
(F) Total Well Depth = 12.80 ft.
(G) Length of Water Column: (F)-(D)= 9.85 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.6 gals.
Method of Well Evacuation Bail Start Time: 1309
Method of Sample Collection Bail Time: 1325
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.1 ft.
Casing Type (PVC) (Steel) (Other) _____
Dedicated Pump or Bailer (yes/no) Type _____
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.6	3.2	4.8		
Time (military)	1311	1315	1319		
pH (S.U.)	5.3	5.3	5.2		
Sp. Cond. (umhos/cm)	110	108	105		
Water Temp. (°C)	15	15	15		
Odor (subjective)*	2	2	2		
Turbidity (subjective)**	4	4	4		

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 4.0
X10 Lock
water in casing, wrote well # on plate

FORM COMPLETED BY: [signature] JD
(SIGNATURE)
DATE: 12-29-98

D&F Form48 (3/94)

DAVIS & FLOYD
ENGINEERS ARCHITECTS PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-17

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 12-29-98 LWR submitted by: A. Whitaker
Sampling Personnel: J.L.M
Site Personnel: -
Regulatory Personnel: -
Weather Conditions: Overcast Temp.: 40's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: _____ msl (yes/no)
(B) Depth to Immiscible Layer: - ft.
(C) Immiscible Layer Elevation: (A)-(B)= - msl (yes/no)
(D) Depth to Groundwater: 3.5 ft.
(E) Groundwater Elevation: (A)-(D)= _____ msl (yes/no)
(F) Total Well Depth = 13.0 ft.
(G) Length of Water Column: (F)-(D)= 9.5 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.6 gals.
Method of Well Evacuation Bail Start Time: 1343
Method of Sample Collection Bail Time: 1353
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.1 ft.
Casing Type (PVC) (Steel) (Other) _____
Dedicated Pump or (Bailer) (yes/no) Type _____
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / (high))

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.6	3.2	4.8		
Time (military)	1345	1348	1350		
pH (S.U.)	4.9	4.5	4.5		
Sp. Cond. (umhos/cm)	110	110	110		
Water Temp. (°C)	17	17	17		
Odor (subjective)*	3	3	3		
Turbidity (subjective)**	4	4	4		

* (1)None (2)Slight (3)Moderate (4)Stronge

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron - 0.8
No Lock
water in casing, wrote well # on plate

FORM COMPLETED BY: J. L. McMeekin (SIGNATURE)
DATE 12-29-98

D&F Form48 (3/94)

DAVIS & FLOYD Engineering Architecture Environmental & Laboratory Services

WATER LEVEL DATA REPORT

CLIENT: Carolina Commerce JOB. NO.: 56098.01

LOCATION: Columbia, SC DATE: 12-29-98

Well #	Top of Casing Elevation	Water Level		Product Level		Product Thickness	Comments
		Depth	Elevation	Depth	Elevation		
MW-10	94.04	4.5	89.54	—	—		
PW-2	—	6.12	—	—	—		
PW-1	—	5.6	—	—	—		
MW-3	95.88	5.56	90.32	—	—		NO cap
MW-2	97.07	5.64	91.43	—	—		water in casing
MW-3	95.41	3.90	91.51	—	—		
MW-4	98.69	7.46	91.23	—	—		
MW-6	99.56	8.29	91.27	—	—		

PERSONNEL:

Employee Name	Employee #	Arrival Time	Departure Time	Arrival Time	Departure Time	Travel Time In Hours	Total Time
John T McMahon III	—	—	—	—	—	—	—

EQUIPMENT AND SUPPLIES USED: _____

LOGIN REPORT (ln01)
Dec 30 1998, 02:24 pm

Login Number: L98123001
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date		Due PR Date
L98123001-01	MW-1	29-DEC-98 16:10	30-DEC-98	S	13-JAN-99
8260: FOR EDB ONLY					

				PH	Remarks
GW/ChemW	S	FL/FE2+	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	P	GC/8021/BTEX+MTB+NAP	REF 121-1 *1		
GW/ChemW	C	GC/8021/BENZ			
GW/ChemW	C	GC/8021/ET_BENZ			
GW/ChemW	C	GC/8021/MTBE			
GW/ChemW	C	GC/8021/NAPH			
GW/ChemW	C	GC/8021/TOLU			
GW/ChemW	C	GC/8021/XYLE			
GW/ChemW	S	VO/8260	REF 126-1 *2		
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3	NA	
GW/ChemW	S	TM/PB/6010	RM 121 *4	~~2~~ LD	
GW/ChemW	S	WC/NO3	REF 121-1 *5	~~2~~	
GW/ChemW	S	WC/SO4	REF 121-1 *6	NA	

L98123001-02	MW-5	29-DEC-98 16:59	30-DEC-98	S	13-JAN-99
8260: FOR EDB ONLY					

				PH	Remarks
GW/ChemW	S	FL/FE2+	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	P	GC/8021/BTEX+MTB+NAP	REF 121-1 *1		
GW/ChemW	C	GC/8021/BENZ			
GW/ChemW	C	GC/8021/ET_BENZ			
GW/ChemW	C	GC/8021/MTBE			
GW/ChemW	C	GC/8021/NAPH			
GW/ChemW	C	GC/8021/TOLU			
GW/ChemW	C	GC/8021/XYLE			
GW/ChemW	S	VO/8260	REF 126-1 *2		
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S	TM/PB/6010	RM 121 *4	~~2~~ LD	
GW/ChemW	S	WC/NO3	REF 121-1 *5	~~2~~	
GW/ChemW	S	WC/SO4	REF 121-1 *6	NA	

L98123001-03	MW-7	29-DEC-98 15:10	30-DEC-98	S	13-JAN-99
8260: FOR EDB ONLY					

				PH	Remarks
GW/ChemW	S	FL/FE2+	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	P	GC/8021/BTEX+MTB+NAP	REF 121-1 *1		

COC Record (Present/Absent)
Sample Condition (Intact/Broken/Leaking)
Info on COC Records and Samples Agree (Yes/No)
Sample Temp. 4 *Received on Ice (Yes/No)*

Work request (Present/Absent)
Quote Number NA

Reviewed: 1-7-99 *Date*

Signature: 1.4.99 *Date*

LOGIN REPORT (ln01)
Dec 30 1998, 02:24 pm

Login Number: L98123001
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	Due PR Date
GW/ChemW	C GC/8021/BENZ			
GW/ChemW	C GC/8021/ET_BENZ			
GW/ChemW	C GC/8021/MTBE			
GW/ChemW	C GC/8021/NAPH			
GW/ChemW	C GC/8021/TOLU			
GW/ChemW	C GC/8021/XYLE			
GW/ChemW	S VO/8260	REF 126-1 *2		
GW/ChemW	S SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S TM/PB/6010	RM 121 *4		
GW/ChemW	S WC/NO3	REF 121-1 *5		
GW/ChemW	S WC/SO4	REF 121-1 *6		
L98123001-04	MW-9	29-DEC-98 14:26	30-DEC-98	S 13-JAN-99
8260:	FOR EDB ONLY			
GW/ChemW	S FL/FE2+	*0		
GW/ChemW	S FL/PH	*0		
GW/ChemW	P GC/8021/BTEX+MTB+NAP	REF 121-1 *1		
GW/ChemW	C GC/8021/BENZ			
GW/ChemW	C GC/8021/ET_BENZ			
GW/ChemW	C GC/8021/MTBE			
GW/ChemW	C GC/8021/NAPH			
GW/ChemW	C GC/8021/TOLU			
GW/ChemW	C GC/8021/XYLE			
GW/ChemW	S VO/8260	REF 126-1 *2		
GW/ChemW	S SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S TM/PB/6010	RM 121 *4		
GW/ChemW	S WC/NO3	REF 121-1 *5		
GW/ChemW	S WC/SO4	REF 121-1 *6		
L98123001-05	MW-11	29-DEC-98 10:40	30-DEC-98	S 13-JAN-99
8260:	FOR EDB ONLY			
GW/ChemW	S FL/FE2+	*0		
GW/ChemW	S FL/PH	*0		
GW/ChemW	P GC/8021/BTEX+MTB+NAP	REF 121-1 *1		
GW/ChemW	C GC/8021/BENZ			
GW/ChemW	C GC/8021/ET_BENZ			
GW/ChemW	C GC/8021/MTBE			
GW/ChemW	C GC/8021/NAPH			
GW/ChemW	C GC/8021/TOLU			
GW/ChemW	C GC/8021/XYLE			

PH NA

Remarks

LOGIN REPORT (ln01)
Dec 30 1998, 02:24 pm

Login Number: L98123001
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	Due PR Date
GW/ChemW S VO/8260		REF 126-1 *2	NA	
GW/ChemW S SV/PNA/8270		REF 121-1 *3	1	
GW/ChemW S TM/PB/6010		RM 121 *4	v2	
GW/ChemW S WC/NO3		REF 121-1 *5	1	
GW/ChemW S WC/SO4		REF 121-1 *6	NA	
L98123001-06	MW-12	29-DEC-98 11:38	30-DEC-98 S	13-JAN-99
8260: FOR EDB ONLY				
			PH	Remarks
GW/ChemW S FL/FE2+		*0	NA	
GW/ChemW S FL/PH		*0		
GW/ChemW P GC/8021/BTEX+MTB+NAP		REF 121-1 *1		
GW/ChemW C GC/8021/BENZ				
GW/ChemW C GC/8021/ET_BENZ				
GW/ChemW C GC/8021/MTBE				
GW/ChemW C GC/8021/NAPH				
GW/ChemW C GC/8021/TOLU				
GW/ChemW C GC/8021/XYLE				
GW/ChemW S VO/8260		REF 126-1 *2		
GW/ChemW S SV/PNA/8270		REF 121-1 *3	1	
GW/ChemW S TM/PB/6010		RM 121 *4	v2	
GW/ChemW S WC/NO3		REF 121-1 *5	1	
GW/ChemW S WC/SO4		REF 121-1 *6	NA	
L98123001-07	MW-13	29-DEC-98 11:08	30-DEC-98 S	13-JAN-99
8260: FOR EDB ONLY				
			PH	Remarks
GW/ChemW S FL/FE2+		*0	NA	
GW/ChemW S FL/PH		*0		
GW/ChemW P GC/8021/BTEX+MTB+NAP		REF 121-1 *1		
GW/ChemW C GC/8021/BENZ				
GW/ChemW C GC/8021/ET_BENZ				
GW/ChemW C GC/8021/MTBE				
GW/ChemW C GC/8021/NAPH				
GW/ChemW C GC/8021/TOLU				
GW/ChemW C GC/8021/XYLE				
GW/ChemW S VO/8260		REF 126-1 *2		
GW/ChemW S SV/PNA/8270		REF 121-1 *3	1	
GW/ChemW S TM/PB/6010		RM 121 *4	v2	
GW/ChemW S WC/NO3		REF 121-1 *5	1	
GW/ChemW S WC/SO4		REF 121-1 *6	NA	

LOGIN REPORT (ln01)
Dec 30 1998, 02:24 pm

Login Number: L98123001
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date		Due PR Date
L98123001-08	MW-14	29-DEC-98 10:08	30-DEC-98	S	13-JAN-99
8260:	FOR EDB ONLY				

				PH	Remarks
GW/ChemW	S	FL/FE2+	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	P	GC/8021/BTEX+MTB+NAP	REF 121-1 *1		
GW/ChemW	C	GC/8021/BENZ			
GW/ChemW	C	GC/8021/ET_BENZ			
GW/ChemW	C	GC/8021/MTBE			
GW/ChemW	C	GC/8021/NAPH			
GW/ChemW	C	GC/8021/TOLU			
GW/ChemW	C	GC/8021/XYLE			
GW/ChemW	S	VO/8260	REF 126-1 *2		
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S	TM/PB/6010	RM 121 *4	V2	
GW/ChemW	S	WC/NO3	REF 121-1 *5	1	
GW/ChemW	S	WC/SO4	REF 121-1 *6	NA	

L98123001-09	MW-15	29-DEC-98 12:42	30-DEC-98	S	13-JAN-99
8260:	FOR EDB ONLY				

				PH	Remarks
GW/ChemW	S	FL/FE2+	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	P	GC/8021/BTEX+MTB+NAP	REF 121-1 *1		
GW/ChemW	C	GC/8021/BENZ			
GW/ChemW	C	GC/8021/ET_BENZ			
GW/ChemW	C	GC/8021/MTBE			
GW/ChemW	C	GC/8021/NAPH			
GW/ChemW	C	GC/8021/TOLU			
GW/ChemW	C	GC/8021/XYLE			
GW/ChemW	S	VO/8260	REF 126-1 *2		
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S	TM/PB/6010	RM 121 *4	V2	
GW/ChemW	S	WC/NO3	REF 121-1 *5	1	
GW/ChemW	S	WC/SO4	REF 121-1 *6	NA	

L98123001-10	MW-15 DUP.	29-DEC-98 12:42	30-DEC-98	S	13-JAN-99
8260:	FOR EDB ONLY				

				PH	Remarks
GW/ChemW	S	FL/FE2+	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	P	GC/8021/BTEX+MTB+NAP	REF 121-1 *1	1	

LOGIN REPORT (ln01)
Dec 30 1998, 02:24 pm

Login Number: L98123001
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	PR	Due Date
GW/ChemW	C GC/8021/BENZ		NA		
GW/ChemW	C GC/8021/ET_BENZ				
GW/ChemW	C GC/8021/MTBE				
GW/ChemW	C GC/8021/NAPH				
GW/ChemW	C GC/8021/TOLU				
GW/ChemW	C GC/8021/XYLE				
GW/ChemW	S VO/8260	REF 126-1 *2			
GW/ChemW	S SV/PNA/8270	REF 121-1 *3			
GW/ChemW	S TM/PB/6010	RM 121 *4	v2		
GW/ChemW	S WC/NO3	REF 121-1 *5			
GW/ChemW	S WC/SO4	REF 121-1 *6	NA		

L98123001-11 MW-16 29-DEC-98 13:25 30-DEC-98 S 13-JAN-99
8260: FOR EDB ONLY

			PH	Remarks
GW/ChemW	S FL/FE2+	*0	NA	
GW/ChemW	S FL/PH	*0		
GW/ChemW	P GC/8021/BTEX+MTB+NAP	REF 121-1 *1		
GW/ChemW	C GC/8021/BENZ			
GW/ChemW	C GC/8021/ET_BENZ			
GW/ChemW	C GC/8021/MTBE			
GW/ChemW	C GC/8021/NAPH			
GW/ChemW	C GC/8021/TOLU			
GW/ChemW	C GC/8021/XYLE			
GW/ChemW	S VO/8260	REF 126-1 *2		
GW/ChemW	S SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S TM/PB/6010	RM 121 *4	v2	
GW/ChemW	S WC/NO3	REF 121-1 *5		
GW/ChemW	S WC/SO4	REF 121-1 *6	NA	

L98123001-12 MW-17 29-DEC-98 13:53 30-DEC-98 S 13-JAN-99
8260: FOR EDB ONLY

			PH	Remarks
GW/ChemW	S FL/FE2+	*0	NA	
GW/ChemW	S FL/PH	*0		
GW/ChemW	P GC/8021/BTEX+MTB+NAP	REF 121-1 *1		
GW/ChemW	C GC/8021/BENZ			
GW/ChemW	C GC/8021/ET_BENZ			
GW/ChemW	C GC/8021/MTBE			
GW/ChemW	C GC/8021/NAPH			
GW/ChemW	C GC/8021/TOLU			
GW/ChemW	C GC/8021/XYLE			

LOGIN REPORT (ln01)
Dec 30 1998, 02:24 pm

Login Number: L98123001
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	Due PR Date
GW/ChemW	S VO/8260	REF 126-1 *2	NA	
GW/ChemW	S SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S TM/PB/6010	RM 121 *4		
GW/ChemW	S WC/NO3	REF 121-1 *5		
GW/ChemW	S WC/SO4	REF 121-1 *6	NA	
L98123001-13	TRIP BLANK		28-DEC-98 10:00 30-DEC-98	S 13-JAN-99
8260:	FOR EDB ONLY			
GW/ChemW	S VO/8260	REF 126-1 *1		
GW/ChemW	P GC/8021/BTEX+MTB+NAP	REF 121-1 *2		
GW/ChemW	C GC/8021/BENZ			
GW/ChemW	C GC/8021/ET_BENZ			
GW/ChemW	C GC/8021/MTBE			
GW/ChemW	C GC/8021/NAPH			
GW/ChemW	C GC/8021/TOLU			
GW/ChemW	C GC/8021/XYLE			

PH	Remarks
NA	

L98123001

DAVIS & FLOYD

Chain of Custody Form

Page __ of __

816 East Durst Street, Greenwood, S.C. 29649 Phone (803)229-5211 Fax (803)229-7119

PROJ. NO.: 50098.01

PROJECT NAME: Former Purolator Courier

SAMPLERS NAME/AFFILIATION:(PRINTED): John McMahon TD

SAMPLE NO.	DATE	GRAB	TIME	COMP	TIME ON	TIME OFF	SAMPLE DESCRIPTION	NO. OF BOTTLES	CONTAINERS (PARAMETERS ON BACK) 1: 40ml G	2: 40ml G	3: 2.5 Liter G	4: 250ml P	5: 250ml P	6: 500ml P	7: 125ml P	8	9	10	11	12	13	14	15	SAMPLE TYPE	POTENTIAL HAZARD
	12-28-98	X	1000				Trip Blank	4	2	2														DW	
	12-29-98	X	1008				MW-14	9	2	2	1	1	1	1	1									GW	
		X	1042				MW-11	9	2	2	1	1	1	1	1										
		X	1108				MW-13	9	2	2	1	1	1	1	1										
		X	1138				MW-12	9	2	2	1	1	1	1	1										
		X	1242				MW-15	9	2	2	1	1	1	1	1										
		X	1242				MW-15 DUP	9	2	2	1	1	1	1	1										
		X	1325				MW-16	9	2	2	1	1	1	1	1										
		X	1353				MW-17	9	2	2	1	1	1	1	1										
		X	1426				MW-9	9	2	2	1	1	1	1	1										
		X	1540				MW-7	9	2	2	1	1	1	1	1										
		X	1610				MW-1	9	2	2	1	1	1	1	1										
		X	1645				MW-5	9	2	2	1	1	1	1	1										

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
John McMahon	12-30-98 0806				

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY: (SIGNATURE)	DATE / TIME	CLIENT CONTACT:	
		Mary M. Davis	12/30/98 0800	RESULTS SENT TO:	DATE:

DW-DRINKING WATER WW-WASTE WATER HW-HAZARDOUS WATER SD-SOLID AB-ABSORBENT TUBE
GW-GROUND WATER RC-RCRA SW-SURFACE WATER IM-IMPINGER SOLUTION F -FILTERS

LISTING OF PARAMETERS

PARAMETER	METHOD No.	PRESERVATIVE	DISSOLVED	TOTAL
1. BTEX, Napth., MTBE		HCL		X
2. EDB		HCL		X
3. PAH		NONE		X
4. Lead		HNO3		X
5. NO3		H2SO4		X
6. SO4		NONE		X
7. pH, Ferrous Iron (Field)		NONE		X
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				

REMARKS:

DAVIS & FLOYD
ENGINEERS ARCHITECTS PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Dup
Well No.: MW-2

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by:
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 90's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 4.95 ft.
(E) Groundwater Elevation: (A)-(D)= msl (yes/no)
(F) Total Well Depth = 12.33 ft.
(G) Length of Water Column: (F)-(D)= 7.38 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.2 gals.
Method of Well Evacuation Bail Start Time: 1035
Method of Sample Collection Bail Time: 1111
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MBP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.3 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	Dup 4th Volume	5th Volume
Volume Purged (gallons)	1.2	2.4	3.6		
Time (military)	1105	1107	1109		
pH (S.U.)	5.5	5.7	5.7	5.7	
Sp. Cond. (umhos/cm)	178	JLM ~~302~~ 175	175	175	
Water Temp. (°C)	27	27	26	25	
Odor (subjective)*	2	2	2	2	
Turbidity (subjective)**	3	3	3	3	

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: ~~Ferrous Iron~~

FORM COMPLETED BY: John L McMaster (SIGNATURE)
DATE: 6-25-98

D&F Form48 (3/94)

DAVIS & FLOYD

ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS

CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-3

Client: Former Purolator Courier

Site Name: W. Columbia Job No.: 50098.01

Date: 6-25-98 LWR submitted by: _____

Sampling Personnel: JLM / WSB

Site Personnel: _____

Regulatory Personnel: _____

Weather Conditions: Clear Temp.: 90's

Well Diameter: 2. in.

(A) Top of Well Elevation: _____ msl (yes/no)

(B) Depth to Immiscible Layer: — ft.

(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)

(D) Depth to Groundwater: 3.35 ft.

(E) Groundwater Elevation: (A)-(D)= _____ msl (yes/no)

(F) Total Well Depth = 13.35 ft.

(G) Length of Water Column: (F)-(D)= 10.0 ft.

Casing Volume = (G) x Volume in gal./ft.= 1.63 gals.

Method of Well Evacuation Bail Start Time: 1125

Method of Sample Collection Bail Time: 1135

Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID Map ID Label (yes/no).

Well Completion: Protective Casing (yes/no) Flush (yes/no)

Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)

Locked at Arrival (yes/no) Departure (yes/no)

Well Casing (height above/depth below) ground: 0.3 ft.

Casing Type (PVC) (Steel) (Other) _____

Dedicated Pump or Bailer (yes/no) Type _____

Protective Post/Abutment (yes/no) Concrete Pad (yes/no)

Well Integrity Satisfactory (yes/no) If no, explain below.

Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.6	3.2	4.8		
Time (military)	1129	1131	1133		
pH (S.U.)	6.0	6.2	6.3		
Sp. Cond. (umhos/cm)	124	124	125		
Water Temp. (°C)	22	23	22		
Odor (subjective)*	2	2	2		
Turbidity (subjective)**	3	3	3		

* (1)None (2)Slight (3)Moderate (4)Stronge

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron -

FORM COMPLETED BY: John L McMahon III
(SIGNATURE)

DATE: 6-29-98

D&F Form48 (3/94)

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ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-4

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by:
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 90's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 7.07 ft.
(E) Groundwater Elevation: (A)-(D)= msl (yes/no)
(F) Total Well Depth = 14.50 ft.
(G) Length of Water Column: (F)-(D)= 7.43 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.2 gals.
Method of Well Evacuation Bail Start Time: 1401
Method of Sample Collection Bail Time: 1413
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID Map ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 3.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.2	2.4			
Time (military)	1403	DBY @ 1d			
pH (S.U.)	4.6				
Sp. Cond. (umhos/cm)	90				
Water Temp. (°C)	24				
Odor (subjective)*	1				
Turbidity (subjective)**	5				

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: ~~Ferrous Iron~~ - No Lock

FORM COMPLETED BY: John L McMakin III (SIGNATURE)
DATE: 6-25-98

D&F Form48 (3/94)

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PLANNERS SCIENTISTS
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FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-5

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by:
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 90's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: msl (yes/no)
(B) Depth to Immiscible Layer: 5.46 ft.
(C) Immiscible Layer Elevation: (A)-(B)= msl (yes/no)
(D) Depth to Groundwater: 7.02 ft.
(E) Groundwater Elevation: (A)-(D)= msl (yes/no)
(F) Total Well Depth = 14.0 ft.
(G) Length of Water Column: (F)-(D)= 6.98 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.1 gals.
Method of Well Evacuation Bail Start Time: 1742
Method of Sample Collection Bail Time: 1750
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below. Fence
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.1	2.2	3.3		
Time (military)	1745	1747	1749		
pH (S.U.)	6.0	6.0	6.0		
Sp. Cond. (umhos/cm)	106	103	103		
Water Temp. (°C)	23	23	23		
Odor (subjective)*	4	4	4		
Turbidity (subjective)**	2	2	2		

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron -

FORM COMPLETED BY: John J. McMahon III (SIGNATURE)
DATE: 6-25-98

D&F Form48 (3/94)

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FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-6

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by:
Sampling Personnel: JCM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 90's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: msl (yes/no)
(B) Depth to Immiscible Layer: ft.
(C) Immiscible Layer Elevation: (A)-(B)= msl (yes/no)
(D) Depth to Groundwater: 7.89 ft.
(E) Groundwater Elevation: (A)-(D)= msl (yes/no)
(F) Total Well Depth = 15.60 ft.
(G) Length of Water Column: (F)-(D)= 7.71 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.3 gals.
Method of Well Evacuation Bail Start Time: 1155
Method of Sample Collection Bail Time: 1207
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID Map ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 3.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.3	2.6	3.9		
Time (military)	1159	1201	1205		
pH (S.U.)	6.3	6.4	6.5		
Sp. Cond. (umhos/cm)	580	587	588		
Water Temp. (°C)	21	20	20		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	4	4	4		

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: ~~Ferrous Iron~~ - Cut Lock

FORM COMPLETED BY: John L McMeekin IV (SIGNATURE)
DATE: 6-25-98

D&F Form48 (3/94)

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PLANNERS SCIENTISTS
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FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-7

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by:
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 90's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 7.09 ft.
(E) Groundwater Elevation: (A)-(D)= msl (yes/no)
(F) Total Well Depth = 15.00 ft.
(G) Length of Water Column: (F)-(D)= 7.91 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.3 gals.
Method of Well Evacuation Bail Start Time: 1656
Method of Sample Collection Bail Time: 1710
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (~~height above~~/depth below) ground: 1.5 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	~~JLM 1300~~ 1.3	2.6	DRY @ 2.6		
Time (military)	1701	1703			
pH (S.U.)	4.7	5.0			
Sp. Cond. (umhos/cm)	60	60			
Water Temp. (°C)	21	20			
Odor (subjective)*	1	1			
Turbidity (subjective)**	3	3			

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: ~~Ferrous Iron~~ NO LOCK, NO well Cap

FORM COMPLETED BY: John L McMahan III (SIGNATURE)
DATE: 6-25-98

D&F Form48 (3/94)

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-8

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by:
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 100
Well Diameter: 2.0 in.
(A) Top of Well Elevation: msl (yes/no)
(B) Depth to Immiscible Layer: 5.96 ft.
(C) Immiscible Layer Elevation: (A)-(B)= msl (yes/no)
(D) Depth to Groundwater: 6.24 ft.
(E) Groundwater Elevation: (A)-(D)= msl (yes/no)
(F) Total Well Depth = 15.07 ft.
(G) Length of Water Column: (F)-(D)= 8.83 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.5 gals.
Method of Well Evacuation Bail Start Time: 1608
Method of Sample Collection Bail Time: 1630
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.5	3.0 DRY @ 2	4.5		
Time (military)	1610	1614			
pH (S.U.)	6.1	6.0			
Sp. Cond. (umhos/cm)	65	68			
Water Temp. (°C)	21	21			
Odor (subjective)*	3	3			
Turbidity (subjective)**	3	3			

* (1)None (2)Slight (3)Moderate (4)Stronge

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: ~~Ferrous Iron~~ - NO LOCK, NO well Cap

FORM COMPLETED BY: John J. McMahon Jr. (SIGNATURE)
DATE: 6-25-98

D&F Form48 (3/94)

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-9

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by: _____
Sampling Personnel: JLM / WSB
Site Personnel: _____
Regulatory Personnel: _____
Weather Conditions: Clear Temp.: 100
Well Diameter: 2.0 in.
(A) Top of Well Elevation: _____ msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)–(B)= — msl (yes/no)
(D) Depth to Groundwater: 5.31 ft.
(E) Groundwater Elevation: (A)–(D)= _____ msl (yes/no)
(F) Total Well Depth = 14.72 ft.
(G) Length of Water Column: (F)–(D)= 9.41 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.5 gals.
Method of Well Evacuation Bail Start Time: 1513
Method of Sample Collection Bail Time: 1524
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID Map ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.0 ft.
Casing Type (PVC) (Steel) (Other) _____
Dedicated Pump or Bailer (yes/no) Type _____
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.5	3.0	4.5		
Time (military)	1518	1519	1522		
pH (S.U.)	5.9	5.8	5.8		
Sp. Cond. (umhos/cm)	90	9.2			
Water Temp. (°C)	21	21	20		
Odor (subjective)*	2	2	2		
Turbidity (subjective)**	3	3	3		

* (1)None (2)Slight (3)Moderate (4)Stronge

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: ~~Ferrous Iron~~ - NO LOCK

FORM COMPLETED BY: John L. McMahan PE
(SIGNATURE)
DATE: 6-25-98

D&F Form48 (3/94)

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: PW-1

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by:
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 90's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 5.61 ft.
(E) Groundwater Elevation: (A)-(D)= msl (yes/no)
(F) Total Well Depth = 22.53 ft.
(G) Length of Water Column: (F)-(D)= 16.92 ft.
Casing Volume = (G) x Volume in gal./ft.= 2.8 gals.
Method of Well Evacuation Bail Start Time: 1723
Method of Sample Collection Bail Time: 1734
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID Map ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (Height above/depth below) ground: 2.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or (Bailer) (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	2.8	5.6	8.4		
Time (military)	1726	1729	1732		
pH (S.U.)	5.6	5.8	5.8		
Sp. Cond. (umhos/cm)	133	141	136		
Water Temp. (°C)	20	19	19		
Odor (subjective)*	1	1	1		
Turbidity (subjective)**	3	3	3		

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: ~~Ferrous Iron~~ - NO LOCK

FORM COMPLETED BY: John L. McMahan III (SIGNATURE)
DATE: 6-25-98

D&F Form48 (3/94)

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: PW-2

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by:
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 1000
Well Diameter: 2.0 in.
(A) Top of Well Elevation: msl (yes/no)
(B) Depth to Immiscible Layer: — ft.
(C) Immiscible Layer Elevation: (A)-(B)= — msl (yes/no)
(D) Depth to Groundwater: 4.40 ft.
(E) Groundwater Elevation: (A)-(D)= msl (yes/no)
(F) Total Well Depth = 23.72 ft.
(G) Length of Water Column: (F)-(D)= 19.32 ft.
Casing Volume = (G) x Volume in gal./ft.= 3.2 gals.
Method of Well Evacuation Bail Start Time: 1529
Method of Sample Collection Bail Time: ~~1553~~ 1638 JLM
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID Map ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 2.0 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./FT.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	3.4 DRY @	10			
Time (military)	1638				
pH (S.U.)	7.4				
Sp. Cond. (umhos/cm)	360				
Water Temp. (°C)	22				
Odor (subjective)*	1				
Turbidity (subjective)**	3				

* (1)None (2)Slight (3)Moderate (4)Stronge

** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: ~~Ferrous Iron~~ NO LOCK

FORM COMPLETED BY: John L McMahan (SIGNATURE)
DATE 6-25-98

D&F Form48 (3/94)

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PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-10

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by:
Sampling Personnel: JLM / WSB
Site Personnel:
Regulatory Personnel:
Weather Conditions: Clear Temp.: 90's
Well Diameter: 2.0 in.
(A) Top of Well Elevation: msl (yes/no)
(B) Depth to Immiscible Layer: ~ ft.
(C) Immiscible Layer Elevation: (A)-(B)= ~ msl (yes/no)
(D) Depth to Groundwater: 4.67 ft.
(E) Groundwater Elevation: (A)-(D)= msl (yes/no)
(F) Total Well Depth = 14.85 ft.
(G) Length of Water Column: (F)-(D)= 10.18 ft.
Casing Volume = (G) x Volume in gal./ft.= 1.7 gals.
Method of Well Evacuation Bail Start Time: 1437
Method of Sample Collection Bail Time: 1455
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID Map ID Label (yes/no)
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 1.5 ft.
Casing Type (PVC) (Steel) (Other)
Dedicated Pump or Bailer (yes/no) Type
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	1.7 DRY @ 1.1				
Time (military)	1445				
pH (S.U.)	5.5				
Sp. Cond. (umhos/cm)	80				
Water Temp. (°C)	21				
Odor (subjective)*	1				
Turbidity (subjective)**	3				

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: ~~Ferrous Iron~~ NO Lock

FORM COMPLETED BY: (SIGNATURE)
DATE: 6-25-98

D&F Form48 (3/94)

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIELD DATA LOG
FOR GROUNDWATER SAMPLE COLLECTION/ GROUNDWATER ELEVATION MEASUREMENTS

Well No.: MW-1

Client: Former Purolator Courier
Site Name: W. Columbia Job No.: 50098.01
Date: 6-25-98 LWR submitted by: _____
Sampling Personnel: JLM / WSB
Site Personnel: _____
Regulatory Personnel: _____
Weather Conditions: _____ Temp.: _____
Well Diameter: 2.0 in.
(A) Top of Well Elevation: _____ msl (yes/no)
(B) Depth to Immiscible Layer: _____ ft.
(C) Immiscible Layer Elevation: (A)-(B)= _____ msl (yes/no)
(D) Depth to Groundwater: 5.14 ft.
(E) Groundwater Elevation: (A)-(D)= _____ msl (yes/no)
(F) Total Well Depth = 6.68 ft.
(G) Length of Water Column: (F)-(D)= 1.54 ft.
Casing Volume = (G) x Volume in gal./ft.= 0.25 gals.
Method of Well Evacuation Bail Start Time: _____
Method of Sample Collection Bail Time: _____
Chain-of-Custody Form Started (yes/no)

Source(s) of Well ID MAP ID Label (yes/no).
Well Completion: Protective Casing (yes/no) Flush (yes/no)
Flush-Mount Cover Seal Intact (yes/no) Locking Cap (yes/no)
Locked at Arrival (yes/no) Departure (yes/no)
Well Casing (height above/depth below) ground: 0.3 ft.
Casing Type (PVC) (Steel) (Other) _____
Dedicated Pump or bailer (yes/no) Type _____
Protective Post/Abutment (yes/no) Concrete Pad (yes/no)
Well Integrity Satisfactory (yes/no) If no, explain below.
Well Yield (low) / moderate / high)

WELL VOLUME DATA

DIA. OF PIPE (in.)	VOLUME IN GAL./Ft.
1.0	0.041
2.0	0.163
3.0	0.367
4.0	0.653
5.0	1.020
6.0	1.470

TO CONVERT GAL/FT TO LITERS/FT, MULTIPLY ABOVE FIGURES BY 3.8 LITERS/GALLON.

FIELD ANALYSES

	1st Volume	2nd Volume	3rd Volume	4th Volume	5th Volume
Volume Purged (gallons)	DRY @ 1U				
Time (military)					
pH (S.U.)	Did not Recharge sufficiently To sample				
Sp. Cond. (umhos/cm)					
Water Temp. (°C)					
Odor (subjective)*					
Turbidity (subjective)**					

* (1)None (2)Slight (3)Moderate (4)Stronge
** (1)Clear (2)Slightly Turbid (3)Moderately Turbid (4)Very Turbid (5)Extremely Turbid

Comments/Observations/Recommendations: Ferrous Iron- No Protective Cover over well Lose easily removed.

FORM COMPLETED BY: _____ (SIGNATURE)
DATE: _____

D&F Form48 (3/94)

LOGIN REPORT (ln01)
Jun 26 1998, 01:43 pm

Login Number: L98062605
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	Due PR Date
L98062605-01	MW-2	25-JUN-98 11:11	26-JUN-98 S	08-JUL-98
8260/TCL: EDB				

				PH	Remarks
GW/ChemW	S	FL/GWE/MSL	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	S	FL/SPCO	*0		
GW/ChemW	S	FL/TEMP/C	*0		
GW/ChemW	S	GC/BTEX+MTB+NAP/8020	REF 121-1 *1		
GW/ChemW	S	VO/8260/TCL	REF 126-1 *2		
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S	TM/PB/7421	RM 121 *4	12	

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	Due PR Date
L98062605-02	MW-2 DUP.	25-JUN-98 11:11	26-JUN-98 S	08-JUL-98
8260/TCL: EDB				

				PH	Remarks
GW/ChemW	S	FL/GWE/MSL	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	S	FL/SPCO	*0		
GW/ChemW	S	FL/TEMP/C	*0		
GW/ChemW	S	GC/BTEX+MTB+NAP/8020	REF 121-1 *1		
GW/ChemW	S	VO/8260/TCL	REF 126-1 *2		
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S	TM/PB/7421	RM 121 *4	12	

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	Due PR Date
L98062605-03	MW-3	25-JUN-98 11:35	26-JUN-98 S	08-JUL-98
8260/TCL: EDB				

				PH	Remarks
GW/ChemW	S	FL/GWE/MSL	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	S	FL/SPCO	*0		
GW/ChemW	S	FL/TEMP/C	*0		
GW/ChemW	S	GC/BTEX+MTB+NAP/8020	REF 121-1 *1		
GW/ChemW	S	VO/8260/TCL	REF 126-1 *2		
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S	TM/PB/7421	RM 121 *4	12	

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	Due PR Date
L98062605-04	MW-4	25-JUN-98 14:13	26-JUN-98 S	08-JUL-98
8260/TCL: EDB				

				PH	Remarks
GW/ChemW	S	FL/GWE/MSL	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	S	FL/SPCO	*0		

COC Record (Present/Absent)
Sample Condition (Intact/Broken/Leaking)
Info on COC Records and Samples Agree (Yes/No)
Sample Temp. 4 *Received on Ice (Yes/No)*

Work request (Present/Absent)
Quote Number NA

Reviewed: 7-8-98 *Date*

Signature: 6.29.98 *Date*

LOGIN REPORT (ln01)
Jun 26 1998, 01:43 pm

Login Number: L98062605
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	PR	Due Date
GW/ChemW	S FL/TEMP/C	*0			
GW/ChemW	S GC/BTEX+MTB+NAP/8020	REF 121-1 *1			
GW/ChemW	S VO/8260/TCL	REF 126-1 *2			
GW/ChemW	S SV/PNA/8270	REF 121-1 *3			
GW/ChemW	S TM/PB/7421	RM 121 *4			
L98062605-05	MW-5	25-JUN-98 17:50	26-JUN-98	S	08-JUL-98
8260/TCL: EDB					
GW/ChemW	S FL/GWE/MSL	*0			
GW/ChemW	S FL/PH	*0			
GW/ChemW	S FL/SPCO	*0			
GW/ChemW	S FL/TEMP/C	*0			
GW/ChemW	S GC/BTEX+MTB+NAP/8020	REF 121-1 *1			
GW/ChemW	S VO/8260/TCL	REF 126-1 *2			
GW/ChemW	S SV/PNA/8270	REF 121-1 *3			
GW/ChemW	S TM/PB/7421	RM 121 *4			
L98062605-06	MW-6	25-JUN-98 13:35	26-JUN-98	S	08-JUL-98
8260/TCL: EDB					
GW/ChemW	S FL/GWE/MSL	*0			
GW/ChemW	S FL/PH	*0			
GW/ChemW	S FL/SPCO	*0			
GW/ChemW	S FL/TEMP/C	*0			
GW/ChemW	S GC/BTEX+MTB+NAP/8020	REF 121-1 *1			
GW/ChemW	S VO/8260/TCL	REF 126-1 *2			
GW/ChemW	S SV/PNA/8270	REF 121-1 *3			
GW/ChemW	S TM/PB/7421	RM 121 *4			
L98062605-07	MW-7	25-JUN-98 17:10	26-JUN-98	S	08-JUL-98
8260/TCL: EDB					
GW/ChemW	S FL/GWE/MSL	*0			
GW/ChemW	S FL/PH	*0			
GW/ChemW	S FL/SPCO	*0			
GW/ChemW	S FL/TEMP/C	*0			
GW/ChemW	S GC/BTEX+MTB+NAP/8020	REF 121-1 *1			
GW/ChemW	S VO/8260/TCL	REF 126-1 *2			
GW/ChemW	S SV/PNA/8270	REF 121-1 *3			
GW/ChemW	S TM/PB/7421	RM 121 *4			

PH Remarks

NA

LOGIN REPORT (ln01)
Jun 26 1998, 01:43 pm

Login Number: L98062605
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date		Due PR Date
L98062605-08	MW-8	25-JUN-98 16:30	26-JUN-98	S	08-JUL-98
8260/TCL: EDB					

				PH	Remarks
GW/ChemW	S	FL/GWE/MSL	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	S	FL/SPCO	*0		
GW/ChemW	S	FL/TEMP/C	*0		
GW/ChemW	S	GC/BTEX+MTB+NAP/8020	REF 121-1 *1		
GW/ChemW	S	VO/8260/TCL	REF 126-1 *2		
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S	TM/PB/7421	RM 121 *4	LD	

L98062605-09	MW-9	25-JUN-98 15:24	26-JUN-98	S	08-JUL-98
8260/TCL: EDB					

				PH	Remarks
GW/ChemW	S	FL/GWE/MSL	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	S	FL/SPCO	*0		
GW/ChemW	S	FL/TEMP/C	*0		
GW/ChemW	S	GC/BTEX+MTB+NAP/8020	REF 121-1 *1		
GW/ChemW	S	VO/8260/TCL	REF 126-1 *2		
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S	TM/PB/7421	RM 121 *4	LD	

L98062605-10	PW-1	25-JUN-98 17:34	26-JUN-98	S	08-JUL-98
8260/TCL: EDB					

				PH	Remarks
GW/ChemW	S	FL/GWE/MSL	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	S	FL/SPCO	*0		
GW/ChemW	S	FL/TEMP/C	*0		
GW/ChemW	S	GC/BTEX+MTB+NAP/8020	REF 121-1 *1		
GW/ChemW	S	VO/8260/TCL	REF 126-1 *2		
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3		
GW/ChemW	S	TM/PB/7421	RM 121 *4	LD	

L98062605-11	PW-2	25-JUN-98 16:38	26-JUN-98	S	08-JUL-98
8260/TCL: EDB					

				PH	Remarks
GW/ChemW	S	FL/GWE/MSL	*0	NA	
GW/ChemW	S	FL/PH	*0		
GW/ChemW	S	FL/SPCO	*0		

LOGIN REPORT (ln01)
Jun 26 1998, 01:43 pm

Login Number: L98062605
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number	Client Sample Number	Collect Date	Receive Date	PR	Due Date
GW/ChemW	S FL/TEMP/C	*0			
GW/ChemW	S GC/BTEX+MTB+NAP/8020	REF 121-1 *1			
GW/ChemW	S VO/8260/TCL	REF 126-1 *2			
GW/ChemW	S SV/PNA/8270	REF 121-1 *3			
GW/ChemW	S TM/PB/7421	RM 121 *4			
L98062605-12	MR. GRANT WELL		25-JUN-98 13:35	26-JUN-98 S	08-JUL-98
8260/TCL: EDB					
GW/ChemW	S FL/GWE/MSL	*0			
GW/ChemW	S FL/PH	*0			
GW/ChemW	S FL/SPCO	*0			
GW/ChemW	S FL/TEMP/C	*0			
GW/ChemW	S GC/BTEX+MTB+NAP/8020	REF 121-1 *1			
GW/ChemW	S VO/8260/TCL	REF 126-1 *2			
GW/ChemW	S SV/PNA/8270	REF 121-1 *3			
GW/ChemW	S TM/PB/7421	RM 121 *4			
L98062605-13	LUCAS WELL		25-JUN-98 13:45	26-JUN-98 S	08-JUL-98
8260/TCL: EDB					
GW/ChemW	S FL/GWE/MSL	*0			
GW/ChemW	S FL/PH	*0			
GW/ChemW	S FL/SPCO	*0			
GW/ChemW	S FL/TEMP/C	*0			
GW/ChemW	S GC/BTEX+MTB+NAP/8020	REF 121-1 *1			
GW/ChemW	S VO/8260/TCL	REF 126-1 *2			
GW/ChemW	S SV/PNA/8270	REF 121-1 *3			
GW/ChemW	S TM/PB/7421	RM 121 *4			
L98062605-14	TRIP BLANK		24-JUN-98 17:30	26-JUN-98 S	08-JUL-98
8260/TCL: EDB					
GW/ChemW	S VO/8260/TCL	REF 126-1 *1			
GW/ChemW	S GC/BTEX+MTB+NAP/8020	REF 126-1 *2			
L98062605-15	MW-10		25-JUN-98 14:55	26-JUN-98	08-JUL-98
GW/ChemW	S FL/GWE/MSL	*0			
GW/ChemW	S FL/PH	*0			
GW/ChemW	S FL/SPCO	*0			
GW/ChemW	S FL/TEMP/C	*0			

PH NA — Remarks

LOGIN REPORT (ln01)
Jun 26 1998, 01:43 pm

Login Number: L98062605
Account: CARCOM CAROLINA COMMERCE ASSOCIATES
Project: 50098.01 GROUNDWATER SAMPLING & ANALYSIS

Laboratory Sample Number		Client Sample Number	Collect Date	Receive Date	Due PR Date
GW/ChemW	S	GC/BTEX+MTB+NAP/8020	REF 121-1 *1	NA	
GW/ChemW	S	VO/8260/TCL	REF 126-1 *2	1	
GW/ChemW	S	SV/PNA/8270	REF 121-1 *3	1	
GW/ChemW	S	TM/PB/7421	RM 121 *4	12	

DAVIS & FLOYD

Chain of Custody Form

816 East Durst Street, Greenwood, S.C. 29649 Phone (803)229-5211 Fax (803)229-7119

PROJ. NO. 50098.01 | PROJECT NAME: Former Purolator Courier

SAMPLERS NAME/AFFILIATION:(PRINTED): John McMahon

SAMPLE NO.	DATE	GRAB	TIME	COMP	TIME ON	TIME OFF	SAMPLE DESCRIPTION	NO. OF BOTTLES	1 40ml G	2 40ml G	3 2.5 Liter G	4 250ml P	5 250ml P	6 500ml P	7 125ml P	8	9	10	11	12	13	14	15	SAMPLE TYPE	POTENTIAL HAZARD
	6/25/98	X	1730				Trip Blank	6	2	2	1	1												DW	
	6/25/98	X	1111				MW-2	6	2	2	1	1												GW	
		X	1111				MW-2 Dup	6	2	2	1	1													
		X	1135				MW-3	6	2	2	1	1													
		X	1207				MW-6	6	2	2	1	1													
		X	1335				Mr Grant Well	6	2	2	1	1													
		X	1345				Lucas Well	6	2	2	1	1												DW	
		X	1413				MW-4	6	2	2	1	1												DW	
		X	1524				MW-9	6	2	2	1	1												GW	
		X	1636				PW-2	6	2	2	1	1													
		X	1630				MW-8	6	2	2	1	1													
		X	1710				MW-7	7	2	2	2	1													
		X	1734				PW-1	6	2	2	1	1													
		X	1750				MW-5	6	2	2	1	1													
		X	1455				MW-10	6	2	2	1	1													

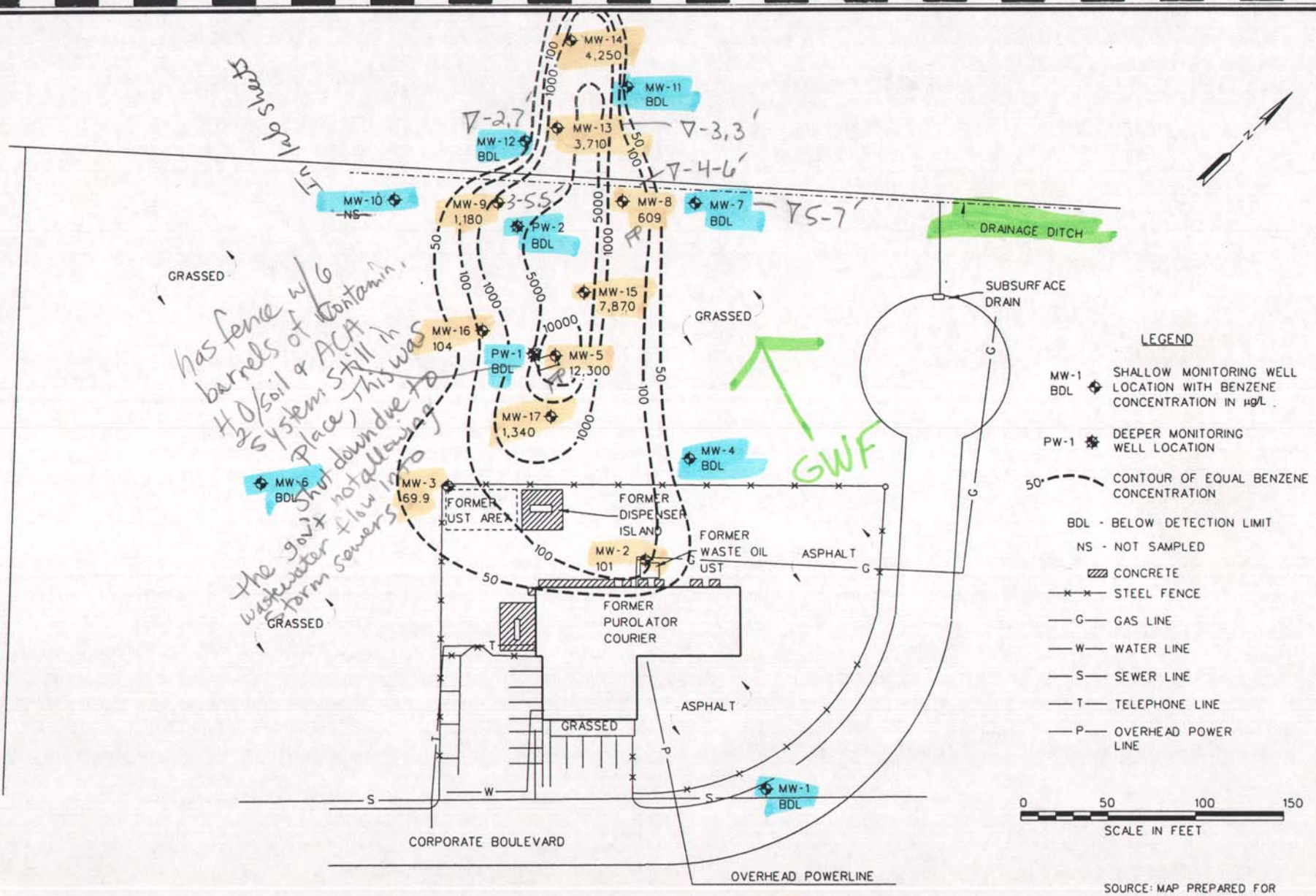
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)	RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
John McMahon	6-26-98 0800				
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED FOR LAB BY: (SIGNATURE)	DATE / TIME	CLIENT CONTACT:	
		Wa. L. McCall	6.26.98 0800	RESULTS SENT TO:	DATE:

DW-DRINKING WATER WW-WASTE WATER HW-HAZARDOUS WATER SD-SOLID AB-ABSORBENT TUBE
GW-GROUND WATER RC-RCRA SW-SURFACE WATER IM-IMPINGER SOLUTION F -FILTERS

LISTING OF PARAMETERS

PARAMETER	METHOD No.	PRESERVATIVE	DISSOLVED	TOTAL
1. BTEX, Napth., MTBE		HCL		X
2. EDB		HCL		X
3. PAH		NONE		X
4. Lead		HNO3		X
5. NO3		H2SO4		X
6. SO4		NONE		X
7. pH, Ferrous Iron (Field)		NONE		X
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				

REMARKS:



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NO	REVISED	CHKD	DATE
1	ADDED NEW WELLS	JF	1/99

DESIGNED	CHECKED	JOB NO.
WHITAKER	WHITAKER	50098.01
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 1999

DRAWING TITLE

FIGURE 6
APPROXIMATE 1998 EXTENT
OF BENZENE PLUME

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PLANNERS SCIENTISTS
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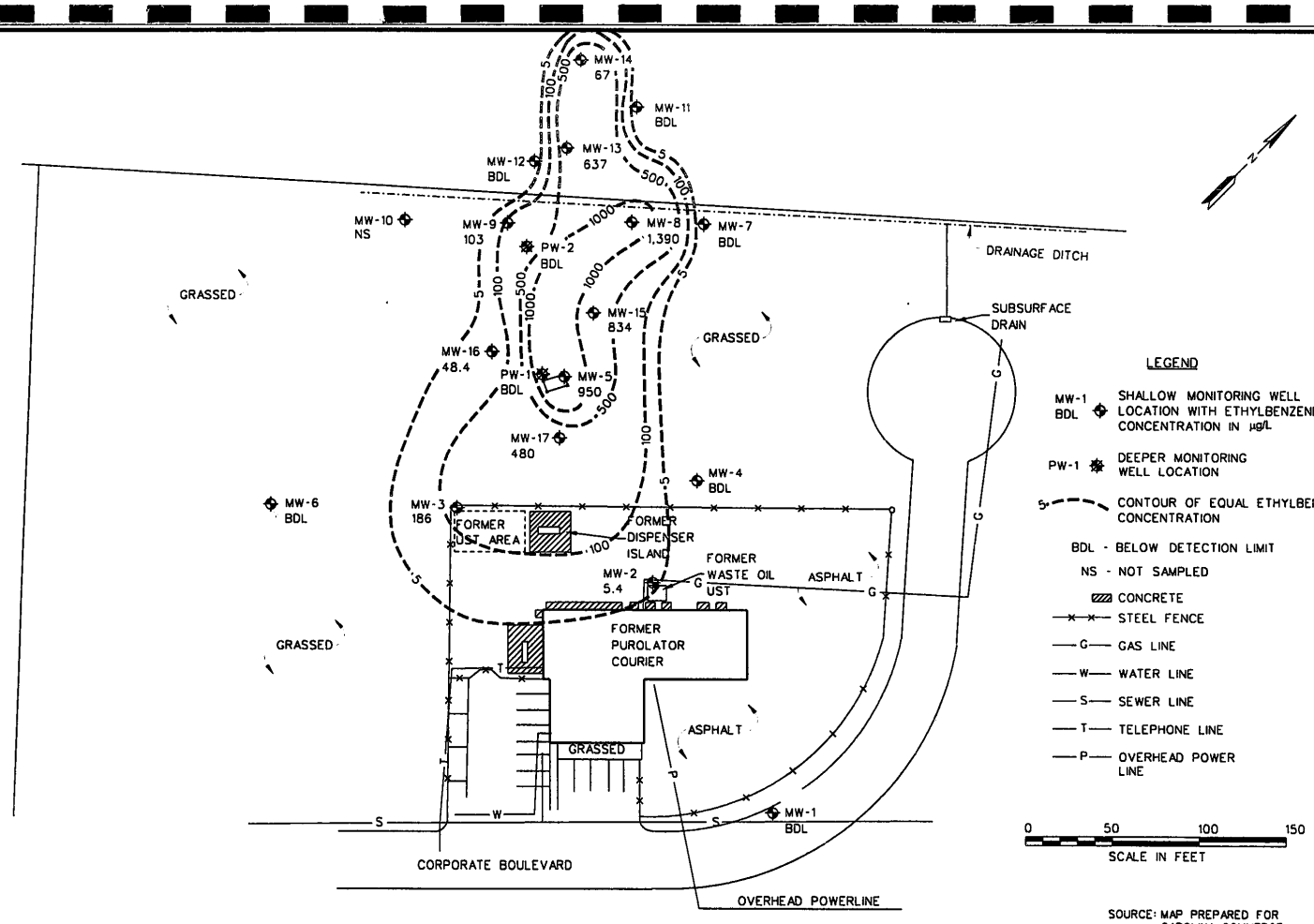
SOUTH CAROLINA

OWNER / CLIENT

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

...\50098-01\ss\benzene.dgn Jan. 25, 1999 10:36:32



SOURCE: MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

NO	REVISED	CHKD	DATE
1	ADDED NEW WELLS	✓	1/99

DESIGNED	CHECKED	JOB NO.
WHITAKER	WHITAKER	50098.01
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STEVENS	FERGUSON	JAN. 1999

FIGURE 7
APPROXIMATE 1998 EXTENT
OF ETHYLBENZENE PLUME

DRAWING TITLE

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LEXINGTON COUNTY, SOUTH CAROLINA

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...\50098-01\ss\ethylben.dgn Jan. 25, 1999 10:38:18

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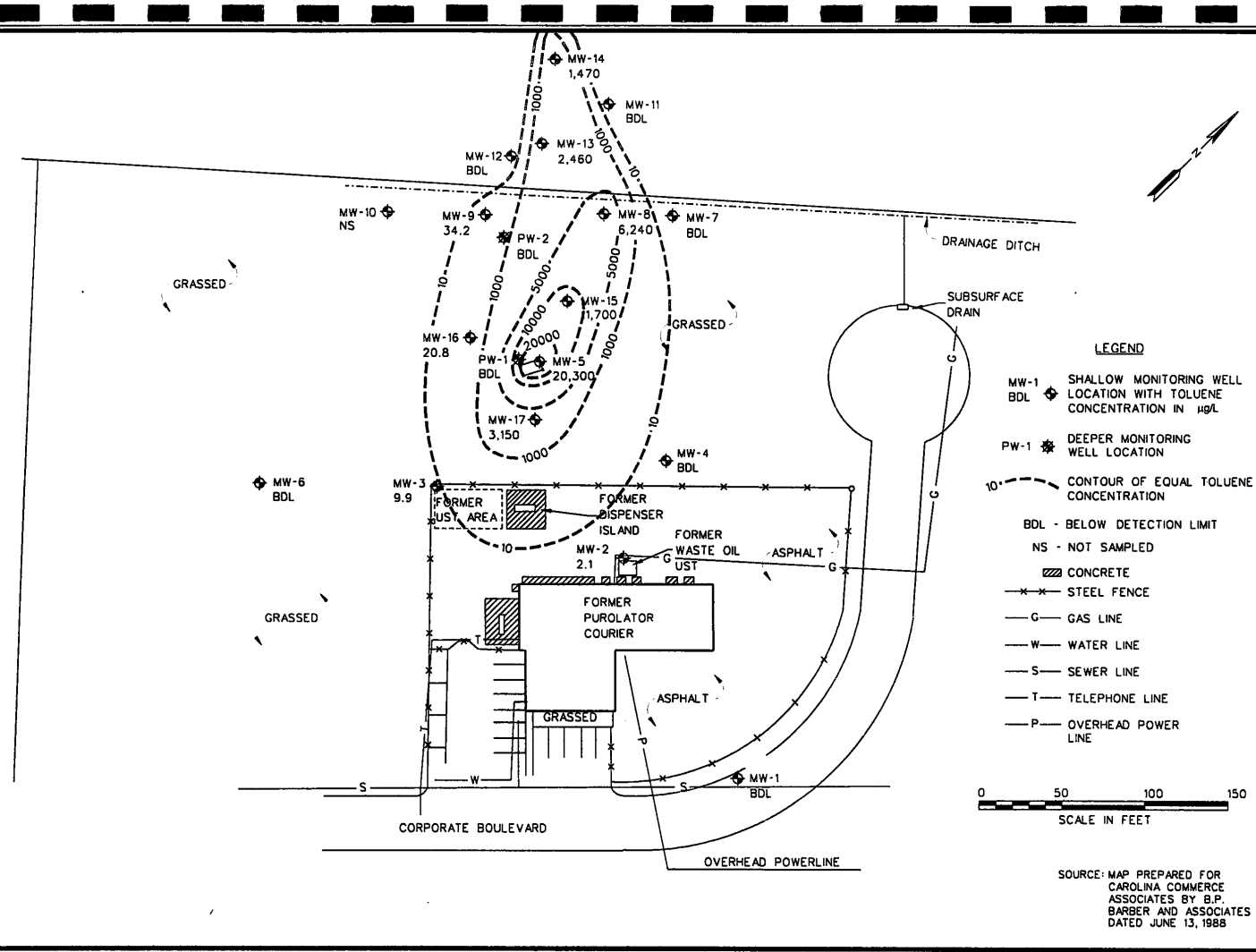

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NO	REVISED	CHKD	DATE
1	ADDED NEW WELLS		

DESIGNED	CHECKED	JOB NO.
WHITAKER	WHITAKER	50098.01
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 1999

FIGURE 8
APPROXIMATE 1998 EXTENT OF TOLUENE PLUME

DRAWING TITLE

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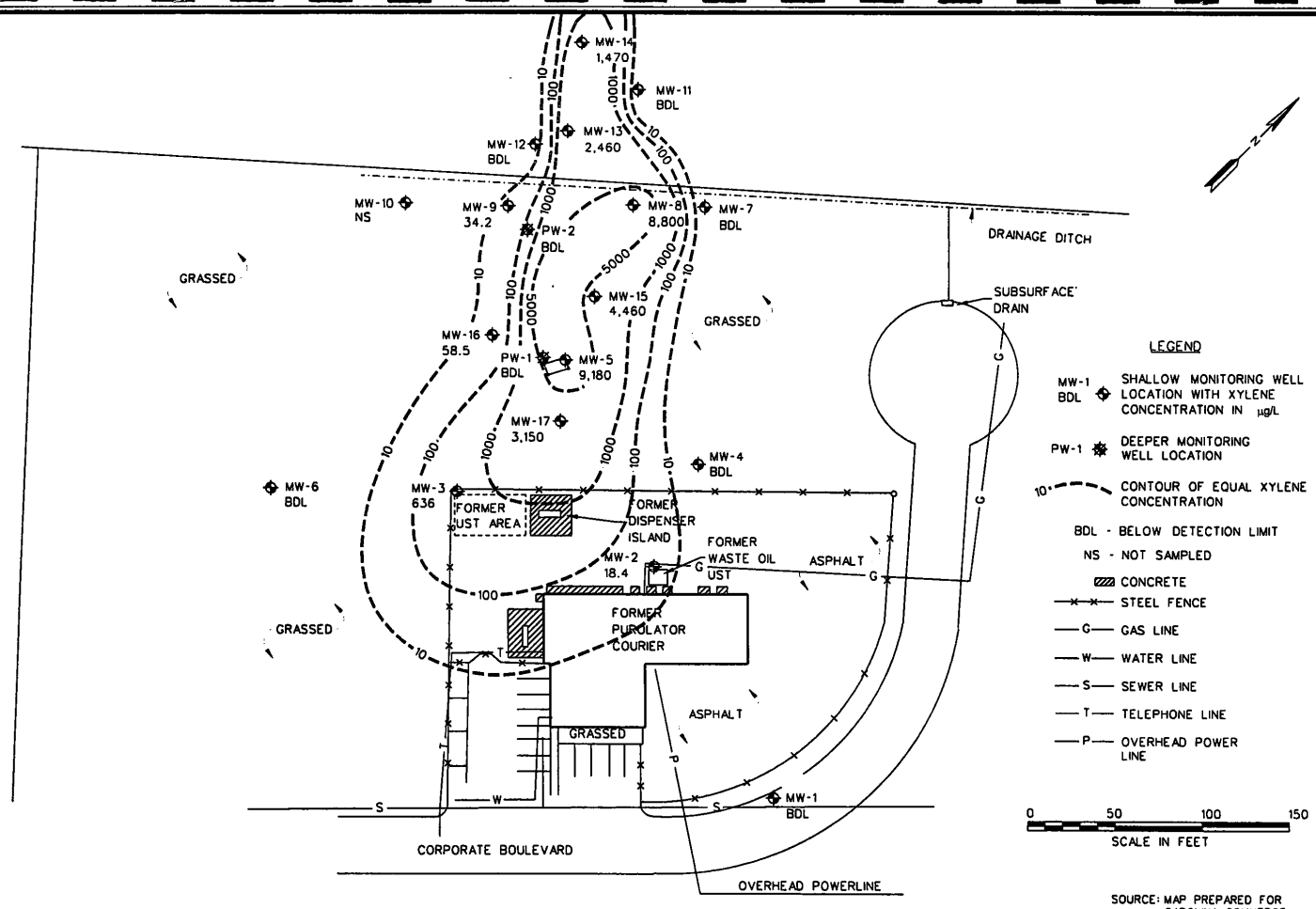

SOURCE: MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

NO	REVISED	CHKD	DATE
1	ADDED NEW WELLS	JF	1/99

DESIGNED	CHECKED	JOB NO.
WHITAKER	WHITAKER	50098.01
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 1999

FIGURE 9
APPROXIMATE 1998 EXTENT
OF XYLENE PLUME

DRAWING TITLE

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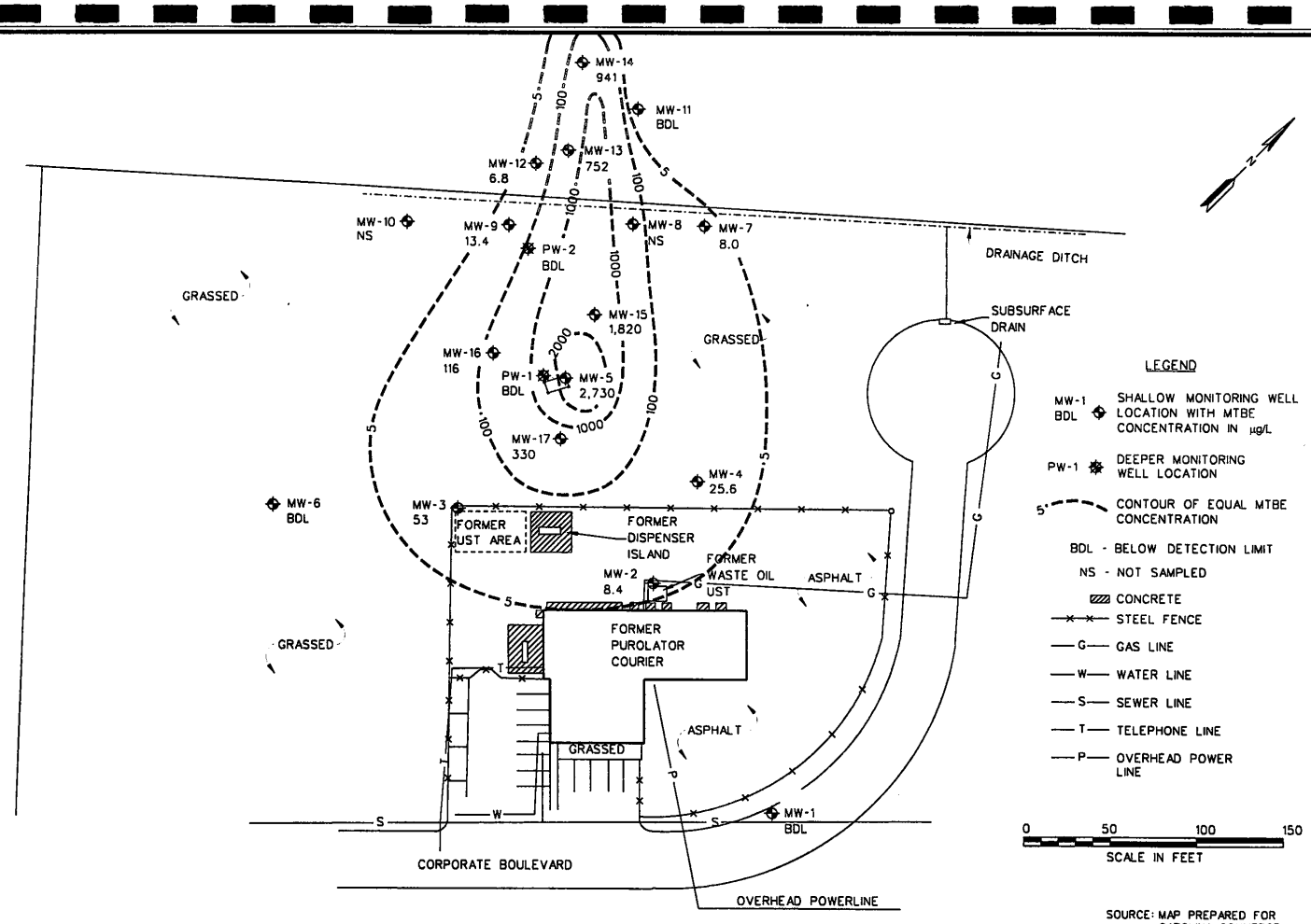

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NO.	REVISED	CHKD	DATE
1	ADDED NEW WELLS	JF	1/99

DESIGNED	CHECKED	JOB NO.
WHITAKER	WHITAKER	50098.01
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 1999

FIGURE 10
APPROXIMATE 1998 EXTENT OF MTBE PLUME

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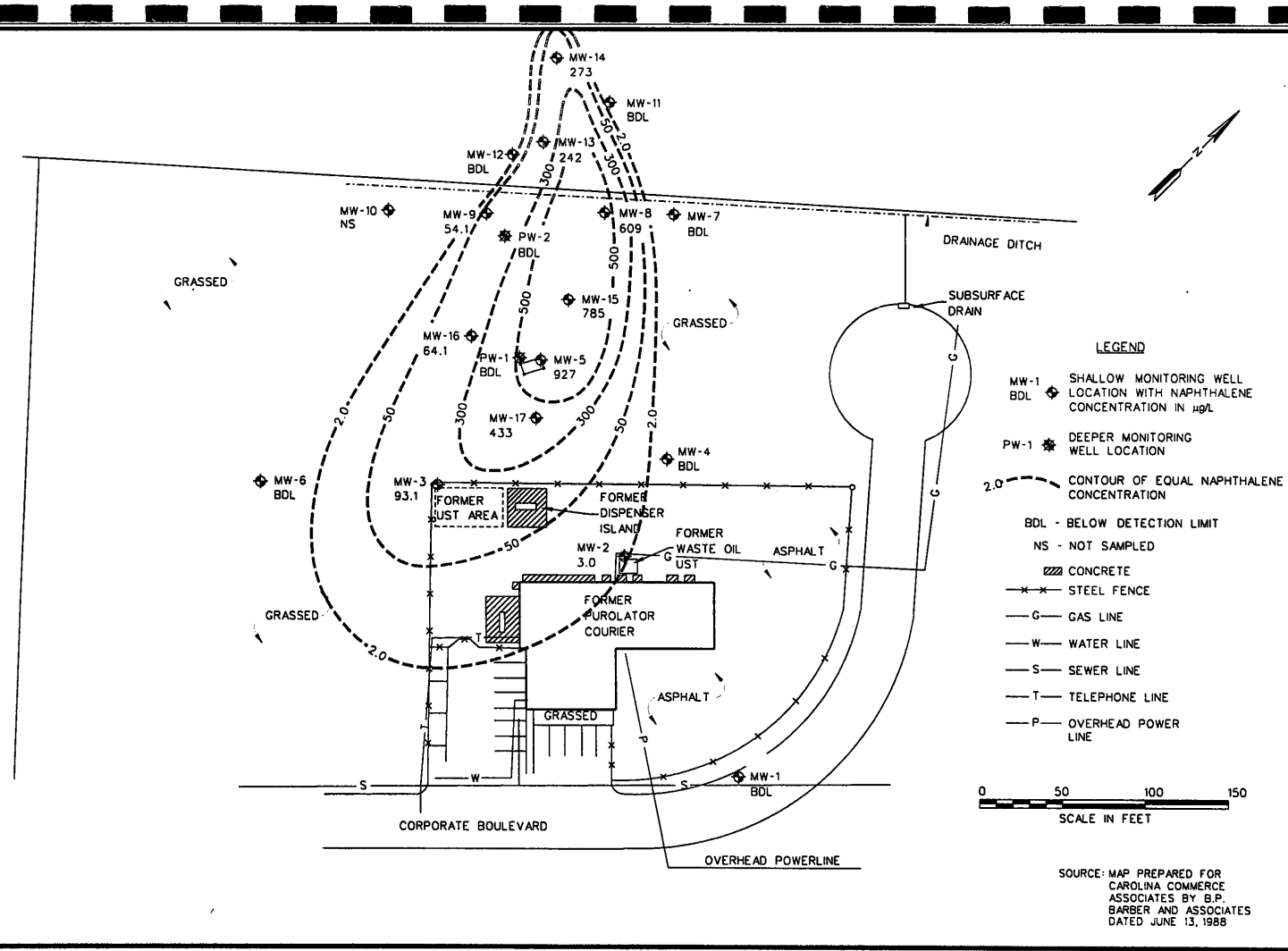

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NO	REVISED	CHKD	DATE
1	ADDED NEW WELLS	JF	1/99

DESIGNED	CHECKED	JOB NO.
WHITAKER	WHITAKER	50098.01
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 1999

DRAWING TITLE

FIGURE 11
APPROXIMATE 1998 EXTENT OF NAPHTHALENE PLUME

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FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

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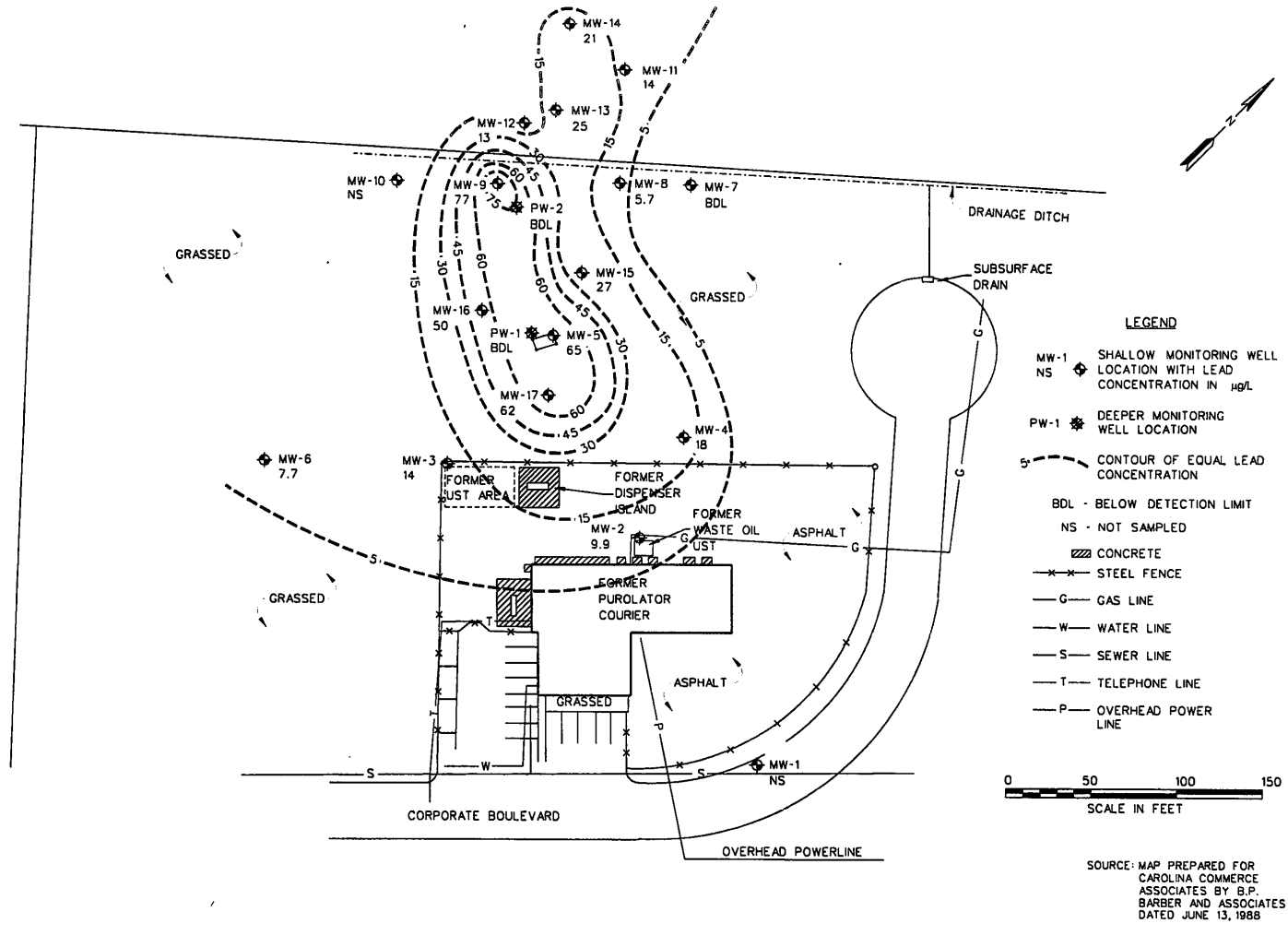

SOURCE: MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

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NO	REVISED	CHKD	DATE
1	ADDED NEW WELLS	JF	1/99

DESIGNED	CHECKED	JOB NO.
WHITAKER	WHITAKER	50098.01
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 1999

FIGURE 12
LEAD CONCENTRATIONS IN 1998

DRAWING TITLE

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SOUTH CAROLINA

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

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Sulfate, nitrate and ferrous iron concentrations combined with groundwater pH (Tables 3 and 4) indicate a generally oxidizing natural environment, which becomes anaerobic with contaminant migration and associated degradation. The anaerobic degradation seems to proceed from nitrate-based to sulfate-based to iron-reduction based with time, as the highest concentration of ferrous iron is in MW-5, in the source area of contamination.

4.2 Vertical Extent of Hydrocarbons

Hydrocarbon compounds were detected at deep well PW-1, located adjacent to worst-case shallow well MW-5, and trace hydrocarbon concentrations were detected at deep well PW-2, near the Carolina Commerce Associates property boundary.

No hydrocarbon compounds were detected in groundwater samples collected from PW-1 and PW-2 screened from 16 to 21 feet, adjacent to worst-case shallow monitoring well MW-5, indicating that significant groundwater contamination does not occur at this depth in this area.

4.3 Results of Private Well Sampling

On June 25, 1998, water samples were collected from the two closest private wells, which supply water to two residences nearby. These wells are potential downgradient receptors, so the sampling and analysis was conducted to determine whether the contaminants had reached these residential water supplies. No VOCs or SVOCs were detected in the private-well water above their respective method detection limits. The laboratory results are summarized in Table 5 and contained in the July 16, 1998 Laboratory Analysis Report (Appendix III)

Table 4

Summary of Biological Indicators
Former Purolator Courier

Well	Date	Fe^{2+}	SO_4	NO_3
MW-1	12/29/98	1.0	<3.0	3.5
MW-5	12/29/98	8.8	<3.0	1.4
MW-7	12/29/98	<0.20	4.4	2.9
MW-9	12/29/98	1.0	9.2	<0.050
MW-11	12/29/98	<0.20	3.0	3.6
MW-12	12/29/98	0.60	6.6	<0.050
MW-13	12/29/98	1.5	3.0	<0.050
MW-14	12/29/98	1.8	<3.0	<0.050
MW-15	12/29/98	4.0	3.0	1.8
MW-16	12/29/98	4.0	4.2	0.16
MW-17	12/29/98	0.80	3.2	6.4

All measurements in milligrams per liter (mg/L)

Table 5

Summary of Groundwater Quality in
Private Wells Adjacent Former Purolator Courier Site
West Columbia, South Carolina

Parameter	MDL	RBSL	$Well_G$	$Well_L$
			06/25/98	
Benzene	1.0	5.0	BDL	BDL
Ethylbenzene	1.0	700	BDL	BDL
MTBE	5.0	40	BDL	BDL
Naphthalene	2.0	10	BDL	BDL
Toluene	1.0	1,000	BDL	BDL
Xylenes	1.0	10,000	BDL	BDL
Benzo (A) anthracene	10.0	10	BDL	BDL
Benzo (B) fluoranthene	10.0	10	BDL	BDL
Benzo (K) fluoranthene	10.0	10	BDL	BDL
Chrysene	10.0	10	BDL	BDL
Dibenz (A,H) anthracene	10.0	10	BDL	BDL
Lead	0.005	0.015	BDL	BDL
1,2-dibromoethane	5.0	10	BDL	BDL

Notes:
MDL=method detection limit
RBSL=risk based screening level
BDL=Below detection limit
Lead in milligrams per liter (mg/L)
Volatiles and semi-volatiles in micrograms per liter (µg/L)
MTBE=Methyl-Tert-Butyl Ether

5.0 CONTAMINANT FATE MODELING RESULTS

Using laboratory-analysis data from the June and December 1998 sampling events, hydraulic-gradient data and slug-test data, the contaminant modeling software Bioscreen, developed by the United States Environmental Protection Agency (USEPA), was used to predict future contaminant fate. The Bioscreen model is based upon Domenico's (1987) analytical model for the three-dimensional transport of a decomposing contaminant, which was developed for use on petroleum-contamination sites. The model does not account for the formation of daughter products produced during degradation. Assumptions inherent in the Bioscreen model are that the aquifer is isotropic and homogenous, that groundwater flow is fast enough that molecular diffusion can be ignored and that adsorption is a reversible process represented by a linear isotherm (USEPA, 1996)

A conservative approach was used during model simulations. As such, values selected for variables such as constituent half-life (e.g. Howard and others, 1991), effective porosity and total organic carbon were meant to develop worst-case scenarios. Current conditions were simulated assuming the age of the release to be ten years, as the tanks closed in 1991, and the peak of release likely predated that time. The first constituent fitted to the model was benzene and the masses of the other constituents were estimated based on their relative proportions to benzene in gasoline. The closest downgradient receptor is a wetland in an ill-defined depression along Double Branch approximately 100 feet beyond MW-14. As such, the closest receptor, the boundary of this wetland, is about 300 feet from the of source contamination: the free-product in the vicinity of MW-5. Simulations to determine the maximum extent of contamination were run at intervals to fifteen hundred years. The data entered into the models and the results of the modeling are summarized in Table 4. Copies of the Bioscreen output are included in Appendix IV.

TABLE 6
RESULTS OF
CONTAMINANT FATE MODELING
FORMER PUROLATOR COURIER SITE

Model Variables	Contaminant with RBSL					
	Benzene 5 µg/l	Ethylbenzene 700 µg/l	Toluene 1000 µg/l	Xylenes 10,000 µg/l	MTBE 40 µg/l	Napthalene 10 µg/l
K (cm/s)	0.005	0.005	0.00038	0.005	0.005	0.005
i (ft/ft)	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065
n	0.30	0.30	0.30	0.30	0.30	0.30
L_p (ft)	280	280	280	280	280	280
R	1.0	1.0	1.0	1.0	1.0	1.0
$t_{1/2}$ (year)	2.00	0.63	0.08	1.00	1.00	0.710
length (ft)	1000	1000	500	500	500	500
width (ft)	200	200	200	200	200	200
thickness (ft)	20	20	20	20	20	20
mass (kg)	2500	365	825	1800	600	200
first order decay	yes	no	no	yes	yes	no
no degradation	no	yes	yes	no	no	yes
Time duration	Is the RBSL exceeded at 300 feet					
10 years	yes	no	no	no	yes	yes
50 years	yes	no	yes	no	yes	yes
100 years	yes	no	yes	no	yes	yes
1000 years	yes	no	yes	no	no	yes
1500 years	no	no	no	no	no	yes

notes:
K= Hydraulic conductivity
i= Hydraulic gradient
n= effective porosity
L_p=estimated plume length
R= retardation factor
$t_{1/2}$= solute half life
length; width= dimensions of modelled area
thickness= aquifer thickness
mass= solute mass

Initial attempts to simulate current conditions underpredicted the detection of benzene in the most downgradient area at MW-14. By increasing the hydraulic conductivity approximately three-fold from that determined by slug tests, the model predicted results closely matching the recent analytical data. This calibration suggests that hydraulic conductivities determined from the slug tests are less than the effective hydraulic conductivity of the aquifer. This is supported by the observation of unconsolidated, coarse-grained zones of fill atop the generally fine-grained rock. These zones likely have higher hydraulic conductivities than the prevailing hydraulic conductivity of the underlying rock.

The Bioscreen model predicts that benzene, MTBE and napthalene currently exceed the Risk Based Screening Level (RBSL) at the receptor and that toluene will in the future (Table 4).

The Bioscreen model was then used to backwards-model to determine Site-Specific Target Levels (SSTLs) for the various contaminants. The SSTLs were developed using the same hydrologic and contaminant-decay conditions as in the predictive models (Table 4). The SSTL's were determined for MW-5 and MW-14. The concentrations of the SSTLs are such that, assuming the current conditions, the model predicts that the RBSLs will not be exceeded at the closest receptor in the future. For several of the contaminants, the SSTL is currently exceeded (Table 5).

TABLE 7

Site-Specific Target Levels (SSTLs)
Former Purolator Courier
West Columbia, South Carolina

Contaminant	Well	
	MW-5	MW-14
Benzene	**30**	**9**
Ethylbenzene	**1000**	780
Toluene	**3000**	**1200**
Xylenes	300,000	16,000
Naphthalene	**200**	**45**
MBTE	**300**	**70**

Notes:
all concentrations are given in µg/l
-Bold type indicates that the
SSTL is currently exceeded

6.0 CONCLUSIONS

The former Purolator Courier site is largely underlain by fill material, which, in turn is underlain by fine to coarse sand or grayish orange clayey sand, typically becoming more clayey with depth. White to yellowish orange sandy clay was encountered at most borings at depths around 12 feet.

Groundwater occurs under water-table (unconfined) conditions at depths between about one to five feet. The direction of groundwater flow is to the west-northwest from the former UST areas. The average linear velocity of groundwater within the water-table aquifer at the site was calculated to range from approximately 0.019 ft/day to 0.0717 ft/day, or about 7 to 26 ft/year.

Although drinking water is supplied to Carolina Center Business Park and the former Purolator Courier site by the City of West Columbia Water system, drinking water is supplied by wells in the vicinity of the site. The sampling of the two closest private wells to the site indicated no presence of VOCs or SVOCs.

Sulfate, nitrate and ferrous iron concentrations combined with groundwater pH (Tables 3 and 4) indicate a generally oxidizing natural environment, which becomes anaerobic with contaminant migration and associated degradation. The anaerobic degradation seems to proceed from nitrate-based to sulfate-based to iron-reduction based with time.

Non-aqueous phase liquid petroleum occurs on the water table in the vicinity of well MW-5 and MW-8, dissolved hydrocarbon compounds have contaminated groundwater beneath the site and contaminated groundwater has migrated downgradient of the site to the Senn property. Significant concentrations of hydrocarbons have apparently not migrated downward below the upper 25 to 30 feet of the shallow aquifer system, based on groundwater quality of samples collected from deeper wells PW-1 and PW-2.

The potential receptors in the downgradient of the drainage ditch and sewer line (Figure 3) do not seem to act as preferential pathways for contaminant migration. This condition is deduced by the indication that the contaminant plume crosses these features without change in shape or presumed concentration (Figures 6-12). As such, the next closest receptor to the BTEX plume is a wetland approximately 300 feet downgradient of MW-5. Based on groundwater quality data collected in 1998, Bioscreen (USEPA, 1996) model predicts that benzene, MTBE and napthalene currently exceed the Risk Based Screening Level (RBSL) at the receptor and that toluene will in the future. SSTLs for MW-5 and MW-14 were computed based on backwards-modeling with the Bioscreen software. SSTLs for benzene, ethylbenzene, toluene, naphthalene and MBTE are exceeded at MW-5. SSTLs for benzene, toluene, naphthalene and MBTE are exceeded at MW-14.

7.0 RECOMMENDATIONS

7.1 Recovery System

Based on the current contaminant concentrations at MW-5 and MW-14, which exceed the SSTLs predicted by the Bioscreen model, it is recommended that a pumping well be installed and operated in the vicinity of MW-5. Such an operation will aid in removing free-product from the soil, thus reducing the source. A pumping well will also modify shallow groundwater flow such that the contaminated groundwater will be drawn into the pumping well instead of moving downgradient toward the receptors. A pumping well had been proposed earlier in the history of the site. However, the generation of wastewater was problematic, as the City would not allow it to be discharged into the sewer system, so the project was never implemented. A repeat response as such from the City would again thwart the operation of a pumping well.

In lieu of a pumping recovery well, in the past a free-product skimming device was used. This was an ineffective remedial method and is not recommended again.

7.2 Monitoring Program

Long-term monitoring will be necessary to evaluate seasonal water level trends and migration of the hydrocarbon plume, as well as the effectiveness of remedial action. At a minimum, the monitoring program should include the following:

- Water/petroleum-level measurement is recommended at sufficiently frequent intervals to monitor natural seasonal water level fluctuations and movement of the liquid hydrocarbon layer.

- Groundwater samples from the on-site monitoring wells, additional off-site monitoring wells recommended previously, and selected water-supply wells in the immediate vicinity of the site including the Grant and Brewer wells, should be chemically analyzed on a routine basis for BTEX and MTBE. Quarterly sampling of monitoring wells is recommended.

- Monitoring data should be evaluated and discussed in quarterly monitoring reports to the SCDHEC describing the extent and severity of contamination and effectiveness of remedial action, when implemented.

8.0 SELECTED REFERENCES

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DAVIS & FLOYD

TEST BORING/WELL LOG

Boring/ Well No.: MW-11

Client: Carolina Commerce Associates	Job No: 50098.01	Page: 1 of 1
Location: West Columbia	County: Lexington	State: SC
Drilled By: Cypress Bay	Logged By: Amy E. Whitaker	Date Completed: 11-4-98
Drilling Method: Hand Augered	Sampling Method.: Cuttings	Depth Drilled: 9
Grout: Concrete	Seal: bentonite	Filter Pack: 3-9'
Casing Type: PVC	Casing Diameter: 2"	Casing Depth: 2"-4'
Screen Type: PVC; Slot Size: 0.010in	Screen Diameter: 2"	Screen Depth: 4-9 ft
Land Surface Elev.: ; Survey Datum:	Casing Height: ; Casing Elev.:	Water Level: 6 ft

Depth	Sample	Predom. Lithology	Additional Observations	Well Construction
0	X	Sandy fill	Light yellowish brown fine/med sand; dry; unconsolidated	
1				
2				
3			3 ft: yellowish brown fine/med sand, slightly clayey (clay clumps sand together); dry; unconsolidated	
4			4 ft: same with occasional gravel to 3-4 cm diameter	
			4.5 ft: increasingly more clay bonded lumps	
5			5 ft: light yellow-gray clayey fine sand; dry (clay lumps slightly moist); crumbly	
6		Clay fill	6 ft: light gray sandy clay; slightly moist; plastic	
7		Sandy fill	7 ft: Light gray clayey coarse sand; moist; plastic	
8		Sand	7.5 ft: red-orange clayey coarse sand; wet; plastic clumps	
			8-9 ft: same but yellow-orange	

MW-11

South Carolina DHEC
Department of Health and Environmental Control

Water Well Record
Ground Water Protection Division
2600 Bull Street, Columbia, SC 29201, (803) 734-5331

County: *Lexington*

System Name:

Latitude:

Longitude:

Distance and Direction from Road Intersections:
See attached site location map

Street Address and City of Well Location:
See attached site map

Sketch Map

4. Owner of Well: *Former Purolator Courier Site*

Address:

Telephone No.:

Engineer: *Davis and Floyd, Inc.*

Address: *240 Stone Ridge Road, Suite 200, Columbia, SC*

Telephone No.: *803-254-4337*

5. WELL DEPTH (Completed) *9* ft.

Date Started: *11-4-98*

Date Completed: *11-4-98*

6. ☐ Mud Rotary ☐ Air Rotary ☐ Jetted ☐ Driven ☒ Bored ☐ Cable Tool ☐ Dug ☐ Other

7. USE:
☐ Domestic ☐ Irrigation ☐ Test ☐ Public Supply-Permit No. ☐ Air Conditioning ☒ Monitor Well ☐ Industry ☐ Commercial ☐ Other

8. CASING: ☒ Threaded ☐ Welded
Diam.: *2"*
Type: ☒ PVC ☐ Steel ☐ Galvanized ☐ Other
2 in. to *4* ft. depth
_____ in. to _____ ft. depth

Height: Above/Below Surface _____ ft.
Weight _____ lbs./ft.
Drive Shoe? ☐ Yes ☐ No

2. CUTTING SAMPLES: ☒ Yes ☐ No

Geophysical Logs: ☐ Yes ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Clayey SAND	*9*	*9*

Indicate Water Bearing Zones

(Use a 2nd sheet if needed)

REMARKS

9. SCREEN:
Type: *PVC (Schedule 40)*
Slot/Guage: *.010* Diam.: *2"*
Set Between: *4* ft. and *9* ft. Length: *5'*
_____ ft. and _____ ft.
Sieve Analysis ☐ Yes(please enclose) ☒ No

NOTE: MULTIPLE SCREENS USE SECOND SHEET

10. STATIC WATER LEVEL
6 ft. below land surface after 24 hours.

11. PUMPING LEVEL Below Land Surface
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

12. WATER QUALITY
Chemical Analysis ☒ Yes ☐ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed From *3* ft. to *9*
Effective Size *#2* Uniformity Coefficient _____

14. WELL GROUTED? ☒ Yes ☐ No
Neat Cement ☐ Sand Cement ☐ Concrete ☒ Other ☐ _____
Depth *2* From *0* To *2* ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
_____ _____ ft. _____ direction
Type Well Disinfected upon completion ☐ Yes ☐ No
Type _____
Amount _____

16. PUMP: Date _____ Not Installed ☒
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of Drop Pipe _____ ft. Capacity _____ gpm
TYPE: ☐ Submersible ☐ Jet (Shallow) ☐ Turbine ☐ Jet (Deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Registered Business Name: *CYPRESS BAY GEOLOGICAL* Date: *11/08/1998*

Address: *262 Geology Lane, Walterboro, SC 29488*

Signed: _____ Authorized Representative

Cert. No.: *835*

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring/ Well No.: MW-12

Client: Carolina Commerce Associates	Job No: 50098.01	Page: 1 of 1
Location: West Columbia	County: Lexington	State: SC
Drilled By: Cypress Bay	Logged By: Amy E. Whitaker	Date Completed: 11-4-98
Drilling Method: Hand Augered	Sampling Method.: Cuttings	Depth Drilled: 8
Grout: Concrete	Seal: bentonite	Filter Pack: 3-9 ft
Casing Type: PVC	Casing Diameter: 2"	Casing Depth: 2"-4 ft
Screen Type: PVC; Slot Size: 0.010in	Screen Diameter: 2"	Screen Depth: 3-8ft.
Land Surface Elev.: ; Survey Datum:	Casing Height: ; Casing Elev.:	Water Level: 6 ft

Depth	Sample	Predom. Lithology	Additional Observations	Well Construction
0	X	clayey sand fill	Light yellowish gray loose sand; dry 4 ft: yellowish brown clayey sand 5 ft gray clayey sand; brown mottle; very moist; plastic 5.1 ft: light gray clayey fill; slight odor; moist	
		sand	7-8 ft. Orange-yellow clayey sand; wet; strong odor **Bottom of well**	

MW-12

South Carolina
HEC
Dept of Health and Environmental Control

Water Well Record
Ground Water Protection Division
2600 Bull Street, Columbia, SC 29201, (803) 734-5331

.exington — System Name:

Latitude: — Longitude:

ce and Direction from Road Intersections:
attached site location map

reet Address and City of Well Location:
ee attached site map

Sketch Map

4. Owner of Well: *Former Purolator Courier Site*
Address:
Telephone No.:

Engineer: *Davis and Floyd, Inc.*
Address: *240 Stone Ridge Road, Suite 200, Columbia, SC*
Telephone No.: *803-254-4337*

5. WELL DEPTH (Completed) *9* ft. — Date Started: *11-4-98* — Date Completed: *11-4-98*

6. ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable Tool ☐ Other

7. USE:
☐ Domestic ☐ Public Supply-Permit No. ☐ Industry
☐ Irrigation ☐ Air Conditioning ☐ Commercial
☐ Test ☒ Monitor Well ☐ Other

8. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to 4 ft. depth
in. to ft. depth
Height: Above/Below Surface ft.
Weight lbs./ft.
Drive Shoe? ☐ Yes ☐ No

9. SCREEN:
Type: *PVC (Schedule 40)* Diam.: 2"
Slot/Guage: .010 Length: 5'
Set Between: 4 ft. and 9 ft.
ft. and ft.
Sieve Analysis ☐ Yes(please enclose) ☒ No
NOTE: MULTIPLE SCREENS USE SECOND SHEET

10. STATIC WATER LEVEL
6 ft. below land surface after 24 hours.

11. PUMPING LEVEL Below Land Surface
ft. after hrs. Pumping G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield:

12. WATER QUALITY
Chemical Analysis ☒ Yes ☐ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed From 3 ft. to 9
Effective Size #2 Uniformity Coefficient

14. WELL GROUTED? ☒ Yes ☐ No
Neat Cement ☐ Sand Cement ☐ Concrete ☒ Other ☐
Depth 2 From 0 To 2 ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
ft. direction
Type Well Disinfected upon completion ☐ Yes ☐ No
Type
Amount

16. PUMP: Date Not Installed ☒
Mfr. Name: Model No.:
H.P. Volts Length of Drop Pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (Shallow) ☐ Turbine
☐ Jet (Deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: *CYPRESS BAY GEOLOGICAL* Date: *11/08/1998*
Address: *262 Geology Lane, Walterboro, SC 29488*
Signed: *Jim A. Pennington* Authorized Representative
Cert. No.: *835*

2. CUTTING SAMPLES: ☒ Yes ☐ No
Geophysical Logs: ☐ Yes ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Clayey SAND	9	9

*icate Water Bearing Zones
Use a 2nd sheet if needed)
MARKS

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring/ Well No.: MW-13

Client: Carolina Commerce Associates	Job No: 50098.01	Page: 1 of 1
Location: West Columbia	County: Lexington	State: SC
Drilled By: Cypress Bay	Logged By: Amy E. Whitaker	Date Completed: 11-4-98
Drilling Method: Hand Augered	Sampling Method: Cuttings	Depth Drilled: 8.5
Grout: Concrete	Seal: Bentonite	Filter Pack: 3-9ft
Casing Type: PVC	Casing Diameter: 2"	Casing Depth: 2"-4'
Screen Type: PVC; Slot Size: 0.010in	Screen Diameter: 2"	Screen Depth: 3.5-8.5 ft.
Land Surface Elev.: ; Survey Datum:	Casing Height: ; Casing Elev.:	Water Level: 6 ft

Depth	Sample	Predom. Lithology	Additional Observations	Well Construction
0		Sandy fill	Light yellow-gray loose sand; dry	
			3 ft. yellow-brown slightly clayey sand w/gravel; dry; unconsolidated	
			4 ft: gray clayey sand; clay cements sand into clumps; slightly moist; plastic. Becomes contaminated at 4-4.5 ft.	
			5 ft: fill now red	
		clay	5.5 ft: gray clay; slightly moist	
		sand	7 ft: grayish-yellow clayey sand; wet; strong odor	
			8.5 ft: red clayey sand streaked with black; wet; strong odor **Bottom of well**	

MW-13

South Carolina DHEC
Department of Health and Environmental Control

Water Well Record
Ground Water Protection Division
2600 Bull Street, Columbia, SC 29201, (803) 734-5331

Lexington System Name:

Latitude: Longitude:

Distance and Direction from Road Intersections:
See attached site location map

Street Address and City of Well Location:
See attached site map

Sketch Map

4. Owner of Well: *Former Purolator Courier Site*
Address:
Telephone No.:

Engineer: *Davis and Floyd, Inc.*
Address: *240 Stone Ridge Road, Suite 200, Columbia, SC*
Telephone No.: *803-254-4337*

5. WELL DEPTH (Completed) *9* ft. Date Started: *11-4-98* Date Completed: *11-4-98*

6. ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable Tool ☐ Other

7. USE: ☐ Domestic ☐ Public Supply-Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test ☒ Monitor Well ☐ Other

8. CASING: ☒ Threaded ☐ Welded
Diam.: *2"*
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to *4* ft. depth
_____ in. to _____ ft. depth
Height: Above/Below Surface _____ ft.
Weight _____ lbs./ft.
Drive Shoe? ☐ Yes ☐ No

9. SCREEN:
Type: *PVC (Schedule 40)* Diam.: *2"*
Slot/Guage: *.010* Length: *5'*
Set Between: *4* ft. and *9* ft.
_____ ft. and _____ ft.
Sieve Analysis ☐ Yes(please enclose) ☒ No
NOTE: MULTIPLE SCREENS USE SECOND SHEET

10. STATIC WATER LEVEL
6 ft. below land surface after 24 hours.

11. PUMPING LEVEL Below Land Surface
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield: _____

12. WATER QUALITY
Chemical Analysis ☒ Yes ☐ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed From *3* ft. to *9*
Effective Size *#2* Uniformity Coefficient _____

14. WELL GROUTED? ☒ Yes ☐ No
Neat Cement ☐ Sand Cement ☐ Concrete ☒ Other ☐ _____
Depth *2* From *0* To *2* ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
_____ ft. _____ direction
Type Well Disinfected upon completion ☐ Yes ☐ No
Type _____
Amount _____

16. PUMP: Date _____ Not Installed ☒
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of Drop Pipe _____ ft. Capacity _____ gpm
TYPE: ☐ Submersible ☐ Jet (Shallow) ☐ Turbine ☐ Jet (Deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: *CYPRESS BAY GEOLOGICAL* Date: *11/08/1998*
Address: *262 Geology Lane, Walterboro, SC 29488*
Signed: _____ Authorized Representative
Cert. No.: *835*

2. CUTTING SAMPLES: ☒ Yes ☐ No
Geophysical Logs: ☐ Yes ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Clayey SAND	*9*	*9*

*Indicate Water Bearing Zones

(Use a 2nd sheet if needed)
REMARKS

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring/ Well No.: MW-14

Client: Carolina Commerce Associates	Job No: 50098.01	Page: 1 of 1
Location: West Columbia	County: Lexington	State: SC
Drilled By: Cypress Bay	Logged By: Amy E. Whitaker	Date Completed: 11-4-98
Drilling Method: Hand Augered	Sampling Method.: Cuttings	Depth Drilled: 8.5
Grout: concrete	Seal: bentonite	Filter Pack: 3-9'
Casing Type: PVC	Casing Diameter: 2"	Casing Depth: 2"-4 ft
Screen Type: PVC; Slot Size: 0.010in	Screen Diameter: 2"	Screen Depth: 3.5-8.5
Land Surface Elev.: ; Survey Datum:	Casing Height: ; Casing Elev.:	Water Level: 6ft

Depth	Sample	Predom. Lithology	Additional Observations	Well Construction
0	X	Sandy fill	Yellow-gray loose sand; dry	
			4 ft: reddish-gray clayey sand; moist; plastic	
			5 ft: gray clayey sand; slightly moist; plastic; slight odor	
			5.5 ft: Gray clayey sand; definite odor	
		clayey sand	Orange clayey sand, streaked greenish-black; wet; strong odor	

South Carolina
DHEC
Department of Health and Environmental Control

MW-K

Water Well Record
Ground Water Protection Division
2600 Bull Street, Columbia, SC 29201, (803) 734-5331

County: *Lexington* System Name:

Latitude: Longitude:

Distance and Direction from Road Intersections:
See attached site location map

Street Address and City of Well Location:
See attached site map

Sketch Map

2. CUTTING SAMPLES: ☒ Yes ☐ No

Geophysical Logs: ☐ Yes ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Clayey SAND	9	9

Indicate Water Bearing Zones

(Use a 2nd sheet if needed)

REMARKS

4. Owner of Well: *Former Purolator Courier Site*

Address:

Telephone No.:

Engineer: *Davis and Floyd, Inc.*

Address: *240 Stone Ridge Road, Suite 200, Columbia, SC*

Telephone No.: *803-254-4337*

5. WELL DEPTH (Completed) *9* ft. Date Started: *11-4-98* Date Completed: *11-4-98*

6. ☐ Mud Rotary ☐ Air Rotary ☐ Jetted ☐ Driven ☒ Bored ☐ Cable Tool ☐ Dug ☐ Other

7. USE: ☐ Domestic ☐ Irrigation ☐ Test ☐ Public Supply-Permit No. ☐ Air Conditioning ☒ Monitor Well ☐ Industry ☐ Commercial ☐ Other

8. CASING: ☒ Threaded ☐ Welded
Diam.: *2"*
Type: ☒ PVC ☐ Steel ☐ Galvanized ☐ Other
2 in. to *4* ft. depth
in. to ft. depth

Height: Above/Below Surface ft.
Weight lbs./ft.
Drive Shoe? ☐ Yes ☐ No

9. SCREEN:
Type: *PVC (Schedule 40)*
Slot/Guage: *.010* Diam.: *2"*
Set Between: *4* ft. and *9* ft. Length: *5'*
ft. and ft.
Sieve Analysis ☐ Yes(please enclose) ☒ No

NOTE: MULTIPLE SCREENS USE SECOND SHEET

10. STATIC WATER LEVEL *6* ft. below land surface after 24 hours.

11. PUMPING LEVEL Below Land Surface
ft. after hrs. Pumping G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield:

12. WATER QUALITY
Chemical Analysis ☒ Yes ☐ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed From *3* ft. to *9*
Effective Size *#2* Uniformity Coefficient

14. WELL GROUTED? ☒ Yes ☐ No
Neat Cement ☐ Sand Cement ☐ Concrete ☒ Other ☐
Depth *2* From *0* To *2* ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction
Type Well Disinfected upon completion ☐ Yes ☐ No Type Amount

16. PUMP: Date Not Installed ☒
Mfr. Name: Model No.:
H.P. Volts Length of Drop Pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (Deep) ☐ Jet (Shallow) ☐ Reciprocating ☐ Turbine ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Registered Business Name: *CYPRESS BAY GEOLOGICAL* Date: *11/08/1998*

Address: *262 Geology Lane, Walterboro, SC 29488*

Signed: [signature] Authorized Representative Cert. No.: *835*

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring/ Well No.: MW-15

Client: Carolina Commerce Associates	Job No: 50098.01	Page: 1 of 2
Location: West Columbia	County: Lexington	State: SC
Drilled By: Cypress Bay	Logged By: Amy E. Whitaker	Date Completed: 11-4-98
Drilling Method: HSA	Sampling Method.: cuttings	Depth Drilled: 13'
Grout: concrete	Seal: bentonite	Filter Pack: 2-13 ft
Casing Type: PVC	Casing Diameter: 2"	Casing Depth: 2"-3'
Screen Type: PVC; Slot Size: 0.010in	Screen Diameter: 2"	Screen Depth: 3-13 ft.
Land Surface Elev.: ; Survey Datum:	Casing Height: ; Casing Elev.:	Water Level: 7 ft

Depth	Sample	Predom. Lithology	Additional Observations	Well Construction
0	X	Sand	Reddish brown sandy soil; slightly clayey; some gravel pieces; has odor	
1				
2				
3				
4				
5				
6				
7			Gray sandy clay; wet; strong odor	
8				

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring/ Well No.: MW-15

Client: Carolina Commerce Associates

Job No: 50098.01

Depth	Sample	Predom. Lithology	Additional Observations	Well Construction
9	X			
10			Tan clayey sand; wet, odor	
11				
12			Light tan clayey coarse sand	
13			**Bottom of Well**	

MW-15

South Carolina
DHEC
Department of Health and Environmental Control

Water Well Record
Ground Water Protection Division
2600 Bull Street, Columbia, SC 29201, (803) 734-5331

County: *Lexington* System Name:

Latitude: Longitude:

Distance and Direction from Road Intersections:
See attached site location map

Street Address and City of Well Location:
See attached site map

Sketch Map

4. Owner of Well: *Former Purolator Courier Site*
Address:
Telephone No.:

Engineer: *Davis and Floyd, Inc.*
Address: *240 Stone Ridge Road, Suite 200, Columbia, SC*
Telephone No.: *803-254-4337*

5. WELL DEPTH (Completed) *13* ft. Date Started: *11-4-98* Date Completed: *11-4-98*

6. ☐ Mud Rotary ☐ Air Rotary ☐ Jetted ☐ Driven ☒ Bored ☐ Cable Tool ☐ Dug ☐ Other

7. USE: ☐ Domestic ☐ Irrigation ☐ Test ☐ Public Supply-Permit No. ☐ Air Conditioning ☒ Monitor Well ☐ Industry ☐ Commercial ☐ Other

2. CUTTING SAMPLES: ☒ Yes ☐ No
Geophysical Logs: ☐ Yes ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Clayey SAND	*13*	*13*

Indicate Water Bearing Zones (Use a 2nd sheet if needed)

REMARKS

8. CASING: ☒ Threaded ☐ Welded
Diam.: *2"*
Type: ☒ PVC ☐ Steel ☐ Galvanized ☐ Other
2 in. to *3* ft. depth
in. to ft. depth

Height: Above/Below Surface ft.
Weight lbs./ft.
Drive Shoe? ☐ Yes ☐ No

9. SCREEN:
Type: *PVC (Schedule 40)* Diam.: *2"*
Slot/Guage: *.010* Length: *10'*
Set Between: *3* ft. and *13* ft.
ft. and ft.
Sieve Analysis ☐ Yes(please enclose) ☒ No
NOTE: MULTIPLE SCREENS USE SECOND SHEET

10. STATIC WATER LEVEL *7* ft. below land surface after 24 hours.

11. PUMPING LEVEL Below Land Surface
ft. after hrs. Pumping G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield:

12. WATER QUALITY
Chemical Analysis ☒ Yes ☐ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed From *2* ft. to *13*
Effective Size *#2* Uniformity Coefficient

14. WELL GROUTED? ☒ Yes ☐ No
Neat Cement ☐ Sand Cement ☐ Concrete ☒ Other ☐
Depth *1* From *0* To *1* ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction
Type Well Disinfected upon completion ☐ Yes ☐ No Type Amount

16. PUMP: Date Not Installed ☒
Mfr. Name: Model No.:
H.P. Volts Length of Drop Pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (Shallow) ☐ Turbine ☐ Jet (Deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: *CYPRESS BAY GEOLOGICAL* Date: *11/08/1998*
Address: *262 Geology Lane, Walterboro, SC 29488*
Signed: Authorized Representative
Cert. No.: *835*

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring/ Well No.: MW-16

Client: Carolina Commerce Associates		Job No: 50098.01	Page: 1 of 2
Location: West Columbia		County: Lexington	State: SC
Drilled By: Cypress Bay		Logged By: Amy E. Whitaker	Date Completed: 11-4-98
Drilling Method: HSA		Sampling Method.: cuttings	Depth Drilled: 13'
Grout: Concrete		Seal: Bentonite	Filter Pack: 2-13'
Casing Type: PVC		Casing Diameter: 2"	Casing Depth: 2"-3 ft
Screen Type: PVC	Slot Size: 0.010in	Screen Diameter: 2"	Screen Depth: 3-13 ft.
Land Surface Elev.:	Survey Datum:	Casing Height:	Casing Elev.: Water Level: 7 ft

Depth	Sample	Predom. Lithology	Additional Observations	Well Construction
0		clayey sand	Reddish-brown slightly clayey sandy soil; dry ~5 ft. drill encounters hard object 8 ft. yellowish brown clayey sand; slight odor	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring/ Well No.: MW-16

Client: Carolina Commerce Associates

Job No: 50098.01

Page: 2 of 2

Depth	Sample	Predom. Lithology	Additional Observations	Well Construction
	X			
		Clayey sand	Light gray to white clayey sand; wet; odor	
			Bottom of well	

South Carolina DHEC
Department of Health and Environmental Control

Water Well Record
Ground Water Protection Division
2600 Bull Street, Columbia, SC 29201, (803) 734-5331

MW-16

County: *Lexington* System Name:

Latitude: Longitude:

Distance and Direction from Road Intersections:
See attached site location map

Street Address and City of Well Location:
See attached site map

Sketch Map

4. Owner of Well: *Former Purolator Courier Site*
Address:
Telephone No.:

Engineer: *Davis and Floyd, Inc.*
Address: *240 Stone Ridge Road, Suite 200, Columbia, SC*
Telephone No.: *803-254-4337*

5. WELL DEPTH (Completed) *13* ft. Date Started: *11-4-98* Date Completed: *11-4-98*

6. ☐ Mud Rotary ☐ Jetted ☒ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable Tool ☐ Other

7. USE: ☐ Domestic ☐ Public Supply-Permit No. ☐ Industry ☐ Irrigation ☐ Air Conditioning ☐ Commercial ☐ Test ☒ Monitor Well ☐ Other

2. CUTTING SAMPLES: ☒ Yes ☐ No
Geophysical Logs: ☐ Yes ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Clayey SAND	*13*	*13*

Indicate Water Bearing Zones (Use a 2nd sheet if needed)

REMARKS

8. CASING: ☒ Threaded ☐ Welded
Diam.: *2"*
Type: ☒ PVC ☐ Galvanized ☐ Steel ☐ Other
2 in. to *3* ft. depth
in. to ft. depth

Height: Above/Below Surface ft.
Weight lbs./ft.
Drive Shoe? ☐ Yes ☐ No

9. SCREEN:
Type: *PVC (Schedule 40)* Diam.: *2"*
Slot/Guage: *.010* Length: *10'*
Set Between: *3* ft. and *13* ft.
ft. and ft.
Sieve Analysis ☐ Yes(please enclose) ☒ No
NOTE: MULTIPLE SCREENS USE SECOND SHEET

10. STATIC WATER LEVEL
7 ft. below land surface after 24 hours.

11. PUMPING LEVEL Below Land Surface
ft. after hrs. Pumping G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield:

12. WATER QUALITY
Chemical Analysis ☒ Yes ☐ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed From *2* ft. to *13*
Effective Size *#2* Uniformity Coefficient

14. WELL GROUTED? ☒ Yes ☐ No
Neat Cement ☐ Sand Cement ☐ Concrete ☒ Other ☐
Depth *1* From *0* To *1* ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ft. direction
Type Well Disinfected upon completion ☐ Yes ☐ No Type Amount

16. PUMP: Date Not Installed ☒
Mfr. Name: Model No.:
H.P. Volts Length of Drop Pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (Shallow) ☐ Turbine ☐ Jet (Deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: *CYPRESS BAY GEOLOGICAL* Date: *11/08/1998*
Address: *26 Geology Lane, Walterboro, SC 29488*
Signed: *Jim A. Pennington* Authorized Representative
Cert. No.: *835*

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring/ Well No.: MW-17

Client: Carolina Commerce Associates	Job No: 50098.01	Page: 1 of 2
Location: West Columbia	County: Lexington	State: SC
Drilled By: Cypress Bay	Logged By: Amy E. Whitaker	Date Completed: 11-4-98
Drilling Method: HSA	Sampling Method.: cuttings	Depth Drilled: 13'
Grout: Concrete	Seal: Bentonite	Filter Pack: 2-13 ft
Casing Type: PVC	Casing Diameter: 2"	Casing Depth: 2'-3 ft
Screen Type: PVC; Slot Size: 0.010in	Screen Diameter: 2"	Screen Depth: 3-13 ft.
Land Surface Elev.: ; Survey Datum:	Casing Height: ; Casing Elev.:	Water Level: 7 ft

Depth	Sample	Predom. Lithology	Additional Observations	Well Construction
0	X	Sand	Reddish-brown sand; gasoline odor	
1				
2				
3				
4				
5			~5 ft: red clayey sand; slightly moist; gasoline odor	
		Clayey Sand		
6			~6 ft: light red-brown clayey sand	
7			~7-10 ft: tan clayey coarse sand; wet; slight odor	
8				

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring/ Well No.: MW-17

Client: Carolina Commerce Associates

Job No: 50098.01

Depth	Sample	Predom. Lithology	Additional Observations	Well Construction
9	X	Clayey sand		
10				
11		Sandy clay	Light tan sandy clay; wet; slight odor	
12			**Bottom of well**	

South Carolina
DHEC
Department of Health and Environmental Control

Water Well Record
Ground Water Protection Division
2600 Bull Street, Columbia, SC 29201, (803) 734-5331

MW - 17

County: Lexington
System Name:

Latitude:
Longitude:

Distance and Direction from Road Intersections:
See attached site location map

Street Address and City of Well Location:
See attached site map

Sketch Map

4. Owner of Well: Former Purolator Courier Site
Address:
Telephone No.:

Engineer: Davis and Floyd, Inc.
Address: 240 Stone Ridge Road, Suite 200, Columbia, SC
Telephone No.: 803-254-4337

5. WELL DEPTH (Completed) 13 ft.
Date Started: 11-4-98
Date Completed: 11-4-98

6. ☐ Mud Rotary ☐ Air Rotary ☐ Jetted ☐ Driven ☒ Bored ☐ Cable Tool ☐ Dug ☐ Other

7. USE: ☐ Domestic ☐ Irrigation ☐ Test ☐ Public Supply-Permit No. ☐ Air Conditioning ☒ Monitor Well ☐ Industry ☐ Commercial ☐ Other

2. CUTTING SAMPLES: ☒ Yes ☐ No
Geophysical Logs: ☐ Yes ☒ No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Clayey SAND	13	13

Water Bearing Zones

a 2nd sheet if needed)
ARKS

8. CASING: ☒ Threaded ☐ Welded
Diam.: 2"
Type: ☒ PVC ☐ Steel ☐ Galvanized ☐ Other
2 in. to 3 ft. depth
in. to ft. depth
Height: Above/Below Surface ft.
Weight lbs./ft.
Drive Shoe? ☐ Yes ☐ No

9. SCREEN:
Type: PVC (Schedule 40)
Slot/Guage: .010 Diam.: 2"
Set Between: 3 ft. and 13 ft. Length: 10'
ft. and ft.
Sieve Analysis ☐ Yes(please enclose) ☒ No
NOTE: MULTIPLE SCREENS USE SECOND SHEET

10. STATIC WATER LEVEL
7 ft. below land surface after 24 hours.

11. PUMPING LEVEL Below Land Surface
ft. after hrs. Pumping G.P.M.
Pumping Test: ☐ Yes (please enclose) ☒ No
Yield:

12. WATER QUALITY
Chemical Analysis ☒ Yes ☐ No Bacterial Analysis ☐ Yes ☒ No
Please enclose lab results.

13. ARTIFICIAL FILTER (gravel pack) ☒ Yes ☐ No
Installed From 2 ft. to 13
Effective Size #2 Uniformity Coefficient

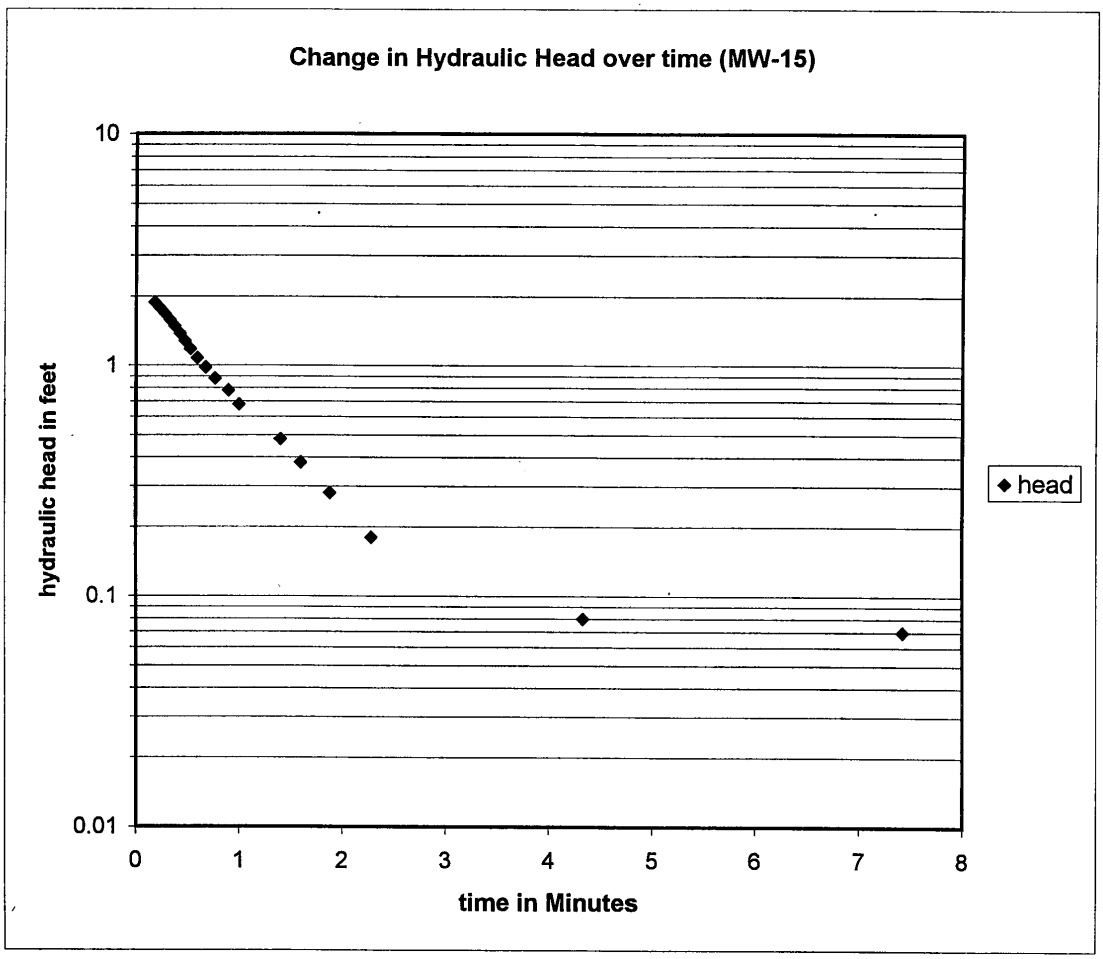
14. WELL GROUTED? ☒ Yes ☐ No
Neat Cement ☐ Sand Cement ☐ Concrete ☒ Other ☐
Depth 1 From 0 To 1 ft.

15. NEAREST SOURCE OF POSSIBLE CONTAMINATION:
ft. direction
Type Well Disinfected upon completion ☐ Yes ☐ No
Type
Amount

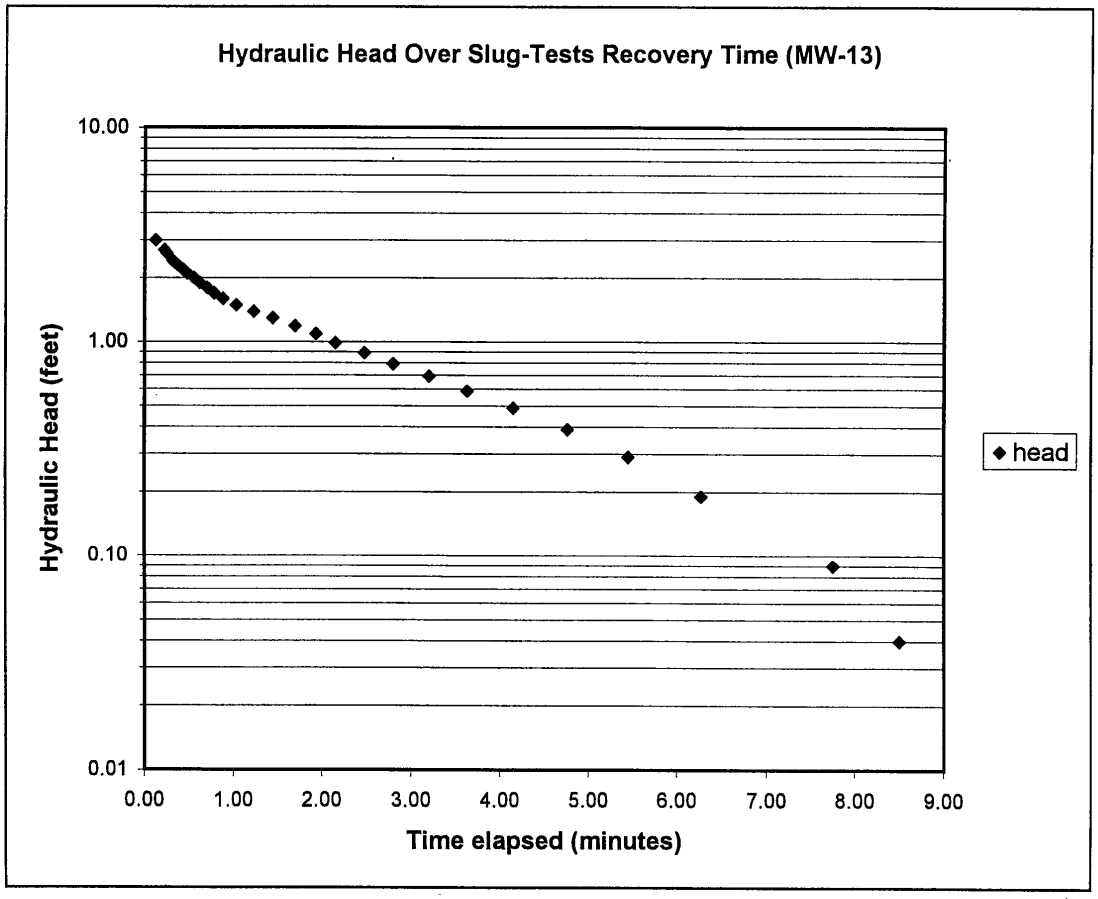
16. PUMP: Date
Not Installed ☒
Mfr. Name:
Model No.:
H.P. Volts Length of Drop Pipe ft. Capacity gpm
TYPE: ☐ Submersible ☐ Jet (Shallow) ☐ Turbine ☐ Jet (Deep) ☐ Reciprocating ☐ Centrifugal

17. WATER WELL CONTRACTOR'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.
Registered Business Name: CYPRESS BAY GEOLOGICAL
Date: 11/08/1998
Address: 200 Geology Lane, Walterboro, SC 29488
Signed: [signature] Authorized Representative
Cert. No.: 835

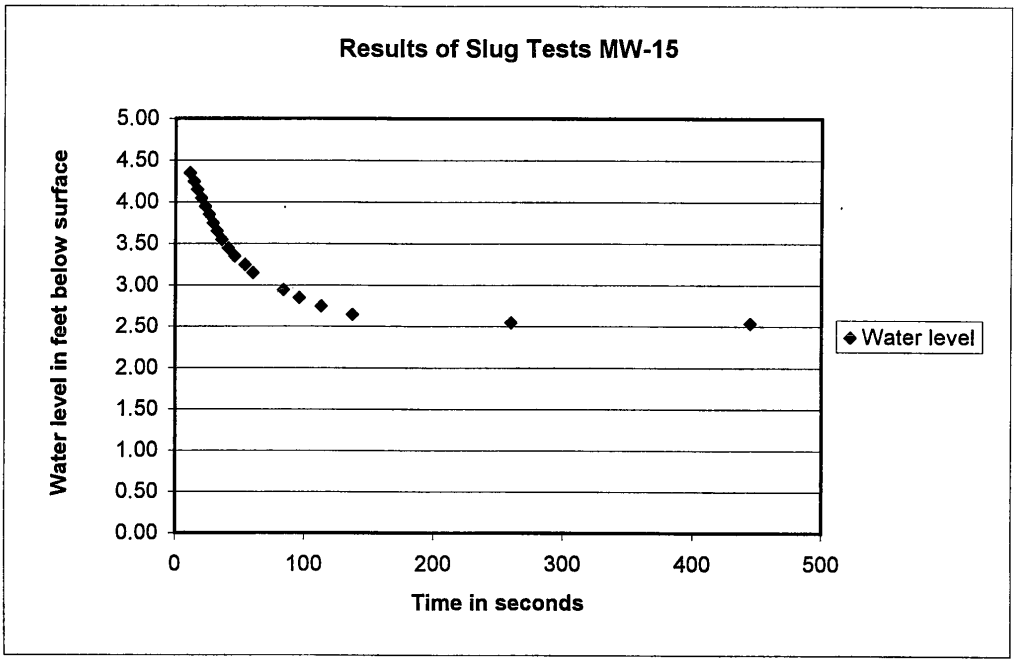
minutes	head
0.18	1.88
0.23	1.78
0.28	1.68
0.33	1.58
0.38	1.48
0.43	1.38
0.48	1.28
0.53	1.18
0.6	1.08
0.68	0.98
0.77	0.88
0.9	0.78
1	0.68
1.4	0.48
1.6	0.38
1.88	0.28
2.28	0.18
4.33	0.08
7.42	0.07



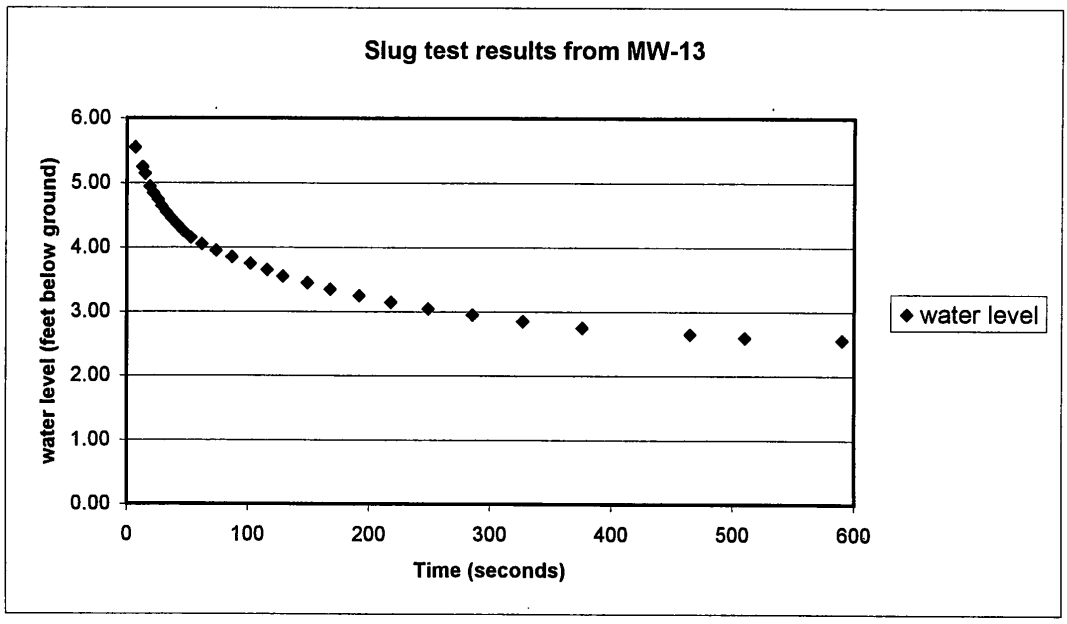
minutes	head
0.12	2.99
0.22	2.69
0.25	2.59
0.32	2.39
0.37	2.29
0.43	2.19
0.48	2.09
0.55	1.99
0.62	1.89
0.7	1.79
0.78	1.69
0.88	1.59
1.03	1.49
1.23	1.39
1.45	1.29
1.7	1.19
1.93	1.09
2.15	0.99
2.48	0.89
2.8	0.79
3.2	0.69
3.63	0.59
4.15	0.49
4.77	0.39
5.45	0.29
6.27	0.19
7.75	0.09
8.5	0.04



Seconds	Water level
11	4.35
14	4.25
17	4.15
20	4.05
23	3.95
26	3.85
29	3.75
32	3.65
36	3.55
41	3.45
46	3.35
54	3.25
60	3.15
84	2.95
96	2.85
113	2.75
137	2.65
260	2.55
445	2.54



seconds	water level
7	5.55
13	5.25
15	5.15
19	4.95
22	4.85
26	4.75
29	4.65
33	4.55
37	4.45
42	4.35
47	4.25
53	4.15
62	4.05
74	3.95
87	3.85
102	3.75
116	3.65
129	3.55
149	3.45
168	3.35
192	3.25
218	3.15
249	3.05
286	2.95
327	2.85
376	2.75
465	2.65
510	2.60
590	2.56



Assuming 20 ft aquifer thickness & 6" hole

$$K = \frac{r^2 \ln(R_e/R)}{2L_e} \frac{1}{t} \ln\left(\frac{H_t}{H_o}\right)$$

$$\ln\left(\frac{R_e}{R}\right) \approx \left[\frac{1.1}{\ln\left(\frac{L_w}{R}\right)} + \frac{A + B\ln[(h - L_w)/R]}{L_e/r_e}\right]^{-1}$$

$$\ln\left(\frac{R_e}{R}\right) \approx \left[\frac{1.1}{\ln\left(\frac{8.20\,ft}{0.25\,ft}\right)} + \frac{1.5 + 0.6\ln[(20\,ft - 8.20\,ft)/0.25\,ft]}{\left(5\,ft/0.0833\,ft\right)}\right]^{-1}$$

$$\ln\left(\frac{R_e}{R}\right) \approx \left[\frac{1.1}{3.49} + \frac{1.5 + 3.85}{60.0}\right]^{-1}$$

$$\ln\left(\frac{R_e}{R}\right) \approx [0.315 + 0.0892]^{-1} = \boxed{2.47}$$

$$K = \frac{(0.0833\,ft)^2 \cdot 2.47}{2(5\,ft)} \cdot \frac{1}{t} \ln\left(\frac{H_t}{H_o}\right)$$

$$\frac{1}{t} \ln\left(\frac{H_t}{H_o}\right) = \frac{1}{t_2 - t_1}\left[\ln\left(\frac{H_1}{H_2}\right)\right]$$

$$\frac{1}{t} \ln\left(\frac{H_t}{H_o}\right) = \frac{1}{(4.17\,min - 2.48\,min)}\left[\ln\left(\frac{0.89\,ft}{0.39\,ft}\right)\right]$$

$$\frac{1}{t} \ln\left(\frac{H_t}{H_o}\right) = \frac{0.825}{2.29\,min}$$

$K = 0.00171 \text{ ft} \cdot \frac{0.825}{2.29 \text{ min}}$

$K = 0.000617 \text{ ft/min}$

0.888 ft/day

Assuming 20ft aquifer thickness & 6 inch hole

$$K = \frac{r^2 \ln(Re/R)}{2Le} \frac{1}{t} \ln\left(\frac{H_t}{H_0}\right)$$

$$\ln\left(\frac{Re}{R}\right) \approx \left[\frac{1.1}{\ln\left(\frac{Lw}{R}\right)} + \frac{A + B \ln[(h - Lw)/R]}{Le/re}\right]^{-1}$$

$$\ln\left(\frac{Re}{R}\right) \approx \left[\frac{1.1}{\ln\left(\frac{13.05ft}{0.25ft}\right)} + \frac{1.5 + 0.6 \ln[(20ft - 13.05ft)/0.25ft]}{\left(\frac{5ft}{0.0833ft}\right)}\right]^{-1}$$

$$\ln\left(\frac{Re}{R}\right) \approx \left[\frac{1.1}{3.96} + \frac{1.5 + 2.00}{60.0}\right]^{-1}$$

$$\ln\left(\frac{Re}{R}\right) \approx \left[0.278 + 0.0583\right]^{-1} = 2.97$$

$$K = \frac{(0.0833ft)^2 \cdot 2.97}{2(5ft)} \cdot \frac{1}{t} \ln\left(\frac{Ht}{H_0}\right)$$

$$\frac{1}{t} \ln\left(\frac{H_t}{H_0}\right) = \frac{1}{t_2 - t_1} \ln\left(\frac{H_1}{H_2}\right)$$

$$\frac{1}{t} \ln\left(\frac{H_t}{H_0}\right) = \frac{1}{(2.28min - 1.4min)} \ln\left(\frac{0.48ft}{0.18ft}\right)$$

$$\frac{1}{t} \ln\left(\frac{H_t}{H_0}\right) = \frac{0.981}{0.88min}$$

PAGE _____ OF _____ JOB NO. _____
CLIENT _____
SUBJECT _____
CALCULATED BY _____ DATE _____
CHECKED BY _____ DATE _____

$K = 0.00206\,ft \cdot \frac{0.981}{0.88\,min}$

$K = 0.00230\,ft/min$

3.31

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Benzene
Run Name

Data Input Instructions:

115 or 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	112.1	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

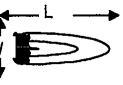
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	3.5E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	2.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.65	(mg/L)
Delta Nitrate*	NO3	0.7	(mg/L)
Observed Ferrous Iron*	Fe2+	16.6	(mg/L)
Delta Sulfate*	SO4	22.4	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	10	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 (ft)

Source Zones:

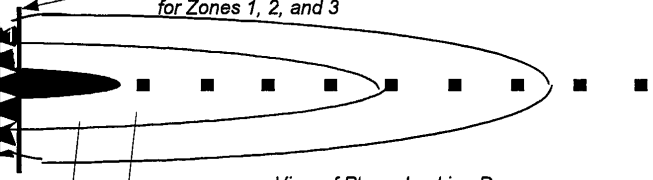
Width* (ft)	Conc. (mg/L)*
10	0.057
32	4.5
32	12.3
32	4.5
10	0.057

Source Halflife (see Help):

40 (yr) | Inst. React. ↑ 100 1st Order

Soluble Mass 2500 (Kg)
In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	12.3		4.5								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This Sheet

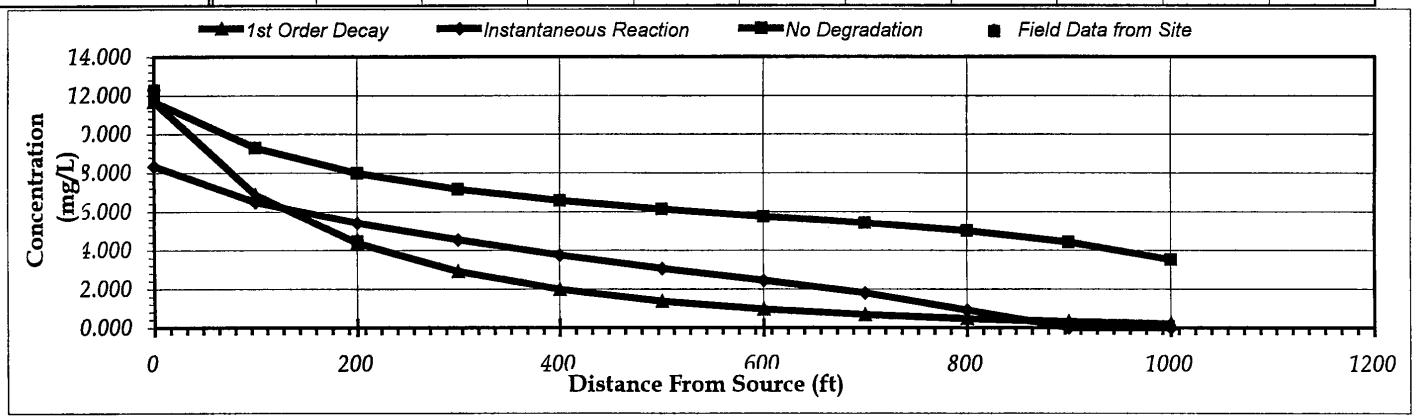
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	11.677	9.284	7.975	7.164	6.575	6.119	5.746	5.405	5.007	4.414	3.516
1st Order Decay	11.677	6.872	4.369	2.905	1.974	1.360	0.946	0.662	0.463	0.318	0.207
Inst. Reaction	8.340	6.487	5.408	4.536	3.753	3.060	2.436	1.794	0.892	0.000	0.000
Field Data from Site	12.300		4.500								



Calculate Animation

Time: 10 Years

Return to Input

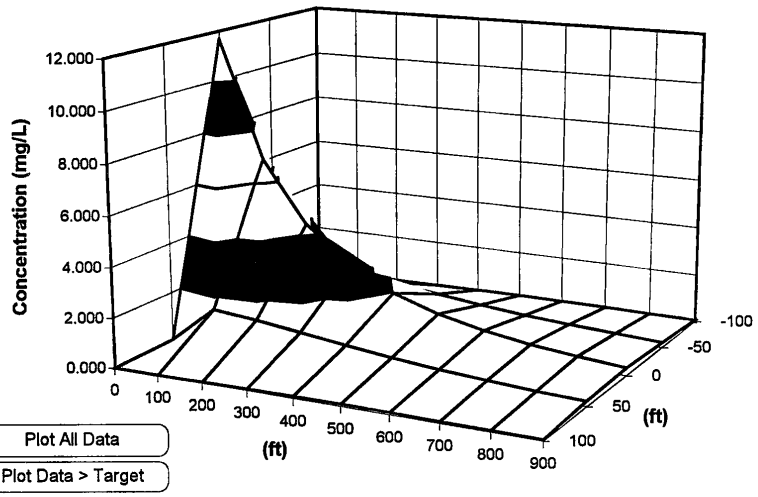
Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000
100	0.000	0.002	0.030	0.063	0.084	0.092	0.090	0.082	0.071	0.058	0.043
50	0.054	1.546	1.385	1.151	0.910	0.699	0.528	0.394	0.290	0.208	0.140
0	11.677	6.872	4.369	2.905	1.974	1.360	0.946	0.662	0.463	0.318	0.207
-50	0.054	1.546	1.385	1.151	0.910	0.699	0.528	0.394	0.290	0.208	0.140
-100	0.000	0.002	0.030	0.063	0.084	0.092	0.090	0.082	0.071	0.058	0.043
MASS FLUX (mg/day)	3.6E+4	2.6E+4	1.9E+4	1.4E+4	1.0E+4	7.7E+3	5.7E+3	4.2E+3	3.1E+3	2.2E+3	1.5E+3

Model to Display:
- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 10 Years Target Level: 0.005 mg/L Displayed Model: 1st Order Decay



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	126.6	(Kg)
- Actual Plume Mass	39.3	(Kg)
= Plume Mass Removed by Biodeg	87.4	(Kg) (69 %)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	2500.0	(Kg)
Contam. Mass in Source Now (t=10Years)	2373.4	(Kg)
Current Volume of Groundwater in Plume	35.1	(ac-ft)
Flowrate of Water Through Source Zone	1.791	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Benzene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

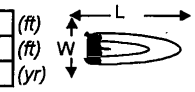
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	3.5E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	2.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	1000	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	50	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*
10	0.057
32	4.5
32	12.3
32	4.5
10	0.057

Source Halflife (see Help):

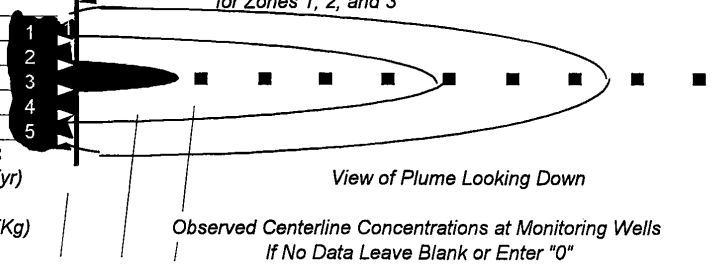
40 | 100 *(yr)*

Inst. React. ↑↑ 1st Order

Soluble Mass 2500 *(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	12.3		4.5								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

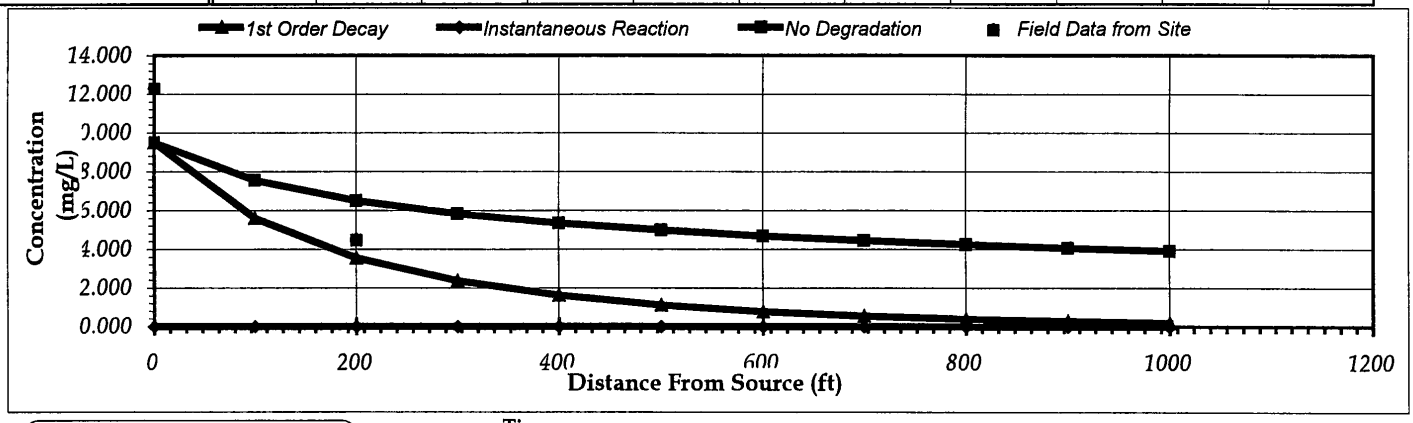
Help | Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	9.485	7.541	6.478	5.819	5.341	4.971	4.675	4.429	4.223	4.046	3.892
1st Order Decay	9.485	5.582	3.549	2.360	1.603	1.105	0.769	0.539	0.380	0.270	0.192
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		4.500								



Calculate Animation

Time: 50 Years

Return to Input

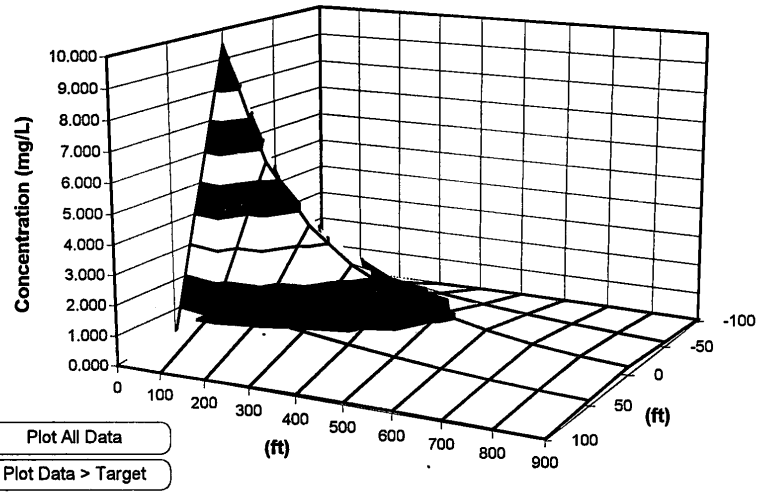
Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000
100	0.000	0.002	0.024	0.051	0.069	0.075	0.073	0.067	0.058	0.049	0.040
50	0.044	1.256	1.125	0.935	0.739	0.568	0.429	0.321	0.238	0.176	0.130
0	9.485	5.582	3.549	2.360	1.603	1.105	0.769	0.539	0.380	0.270	0.192
-50	0.044	1.256	1.125	0.935	0.739	0.568	0.429	0.321	0.238	0.176	0.130
-100	0.000	0.002	0.024	0.051	0.069	0.075	0.073	0.067	0.058	0.049	0.040
MASS FLUX (mg/day)	3.6E+4	2.1E+4	1.5E+4	1.1E+4	8.4E+3	6.2E+3	4.6E+3	3.4E+3	2.5E+3	1.9E+3	1.4E+3

Model to Display:
- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 50 Years Target Level: 0.005 mg/L Displayed Model: 1st Order Decay



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	(Kg)
- Actual Plume Mass	Can't Calc.	(Kg)
= Plume Mass Removed by Biodeg	-	(Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	2500.0	(Kg)
Contam. Mass in Source Now (t=50Years)	1927.9	(Kg)
Current Volume of Groundwater in Plume	Can't Calc.	(ac-ft)
Flowrate of Water Through Source Zone	Can't Calc.	(ac-ft/yr)

Mass HELP Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Benzene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	112.1	(ft/yr)
or		or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

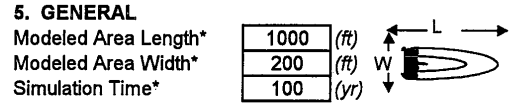
Retardation Factor*	R	1.0	(-)
or		or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	3.5E-1	(per yr)
or		or	
Solute Half-Life	t-half	2.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.65	(mg/L)
Delta Nitrate*	NO3	0.7	(mg/L)
Observed Ferrous Iron*	Fe2+	16.6	(mg/L)
Delta Sulfate*	SO4	22.4	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	100	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
10	0.057
32	4.5
32	12.3
32	4.5
10	0.057

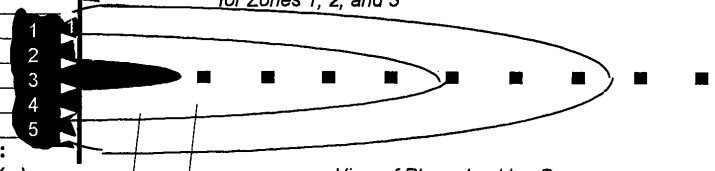
Source Halflife (see Help): 40 | 100 (yr)

Inst. React. | 1st Order

Soluble Mass 2500 (Kg)

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	12.3
100	
200	4.5
300	
400	
500	
600	
700	
800	
900	
1000	

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

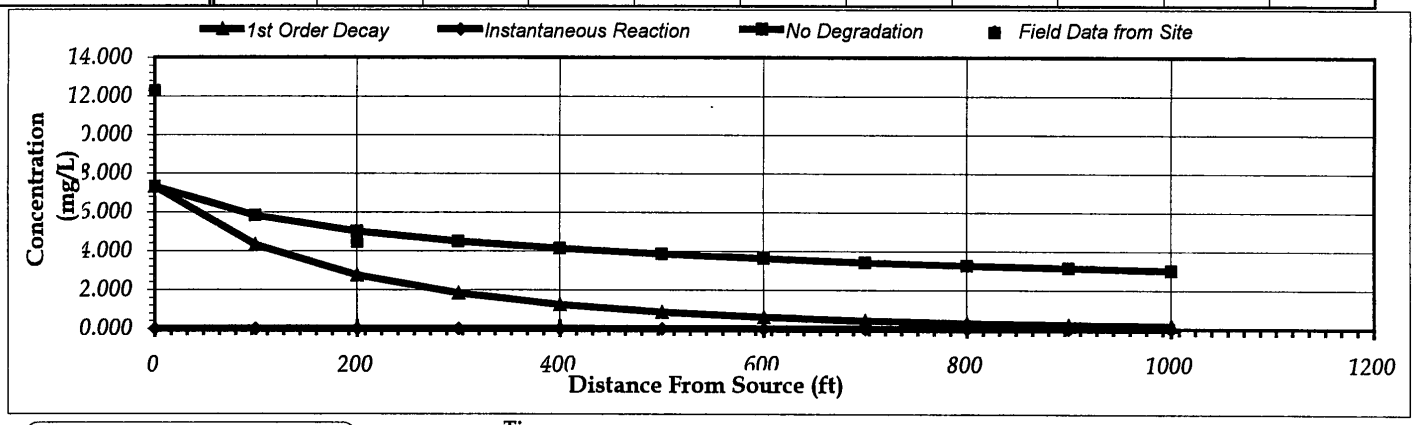
Help | Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	7.314	5.815	4.995	4.487	4.119	3.834	3.605	3.416	3.256	3.120	3.002
1st Order Decay	7.314	4.304	2.737	1.820	1.236	0.852	0.593	0.416	0.293	0.208	0.148
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		4.500								



Calculate Animation

Time: 100 Years

Return to Input

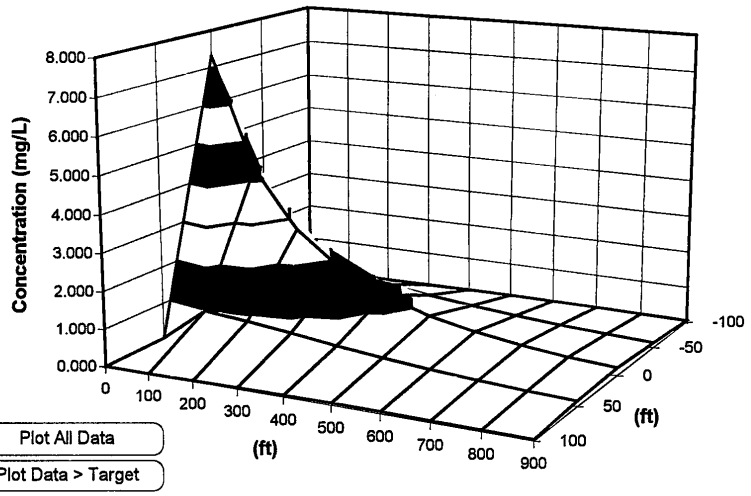
Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000
100	0.000	0.002	0.019	0.040	0.053	0.058	0.057	0.052	0.045	0.038	0.031
50	0.034	0.968	0.867	0.721	0.570	0.438	0.331	0.247	0.184	0.136	0.100
0	7.314	4.304	2.737	1.820	1.236	0.852	0.593	0.416	0.293	0.208	0.148
-50	0.034	0.968	0.867	0.721	0.570	0.438	0.331	0.247	0.184	0.136	0.100
-100	0.000	0.002	0.019	0.040	0.053	0.058	0.057	0.052	0.045	0.038	0.031
MASS FLUX (mg/day)	3.6E+4	1.6E+4	1.2E+4	8.7E+3	6.5E+3	4.8E+3	3.6E+3	2.6E+3	2.0E+3	1.4E+3	1.1E+3

Model to Display:
- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 100 Years Target Level: 0.005 mg/L Displayed Model: 1st Order Decay



Plot All Data
Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	(Kg)
- Actual Plume Mass	Can't Calc.	(Kg)
= Plume Mass Removed by Biodeg	-	(Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	2500.0	(Kg)
Contam. Mass in Source Now (t=100Years)	1486.7	(Kg)
Current Volume of Groundwater in Plume	Can't Calc.	(ac-ft)
Flowrate of Water Through Source Zone	Can't Calc.	(ac-ft/yr)

Mass HELP Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Benzene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

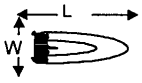
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	3.5E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	2.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*		1000	*(ft)*
Modeled Area Width*		200	*(ft)*
Simulation Time*		1000	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

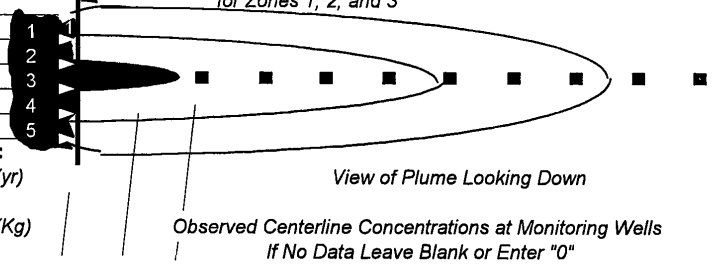
Source Zones:

Width* (ft)	Conc. (mg/L)*
10	0.057
32	4.5
32	12.3
32	4.5
10	0.057

Source Halflife (see Help):

40	100	*(yr)*
Inst. React. ↖	↑ 1st Order	
Soluble Mass	2500	*(Kg)*
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	12.3		4.5								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This Sheet

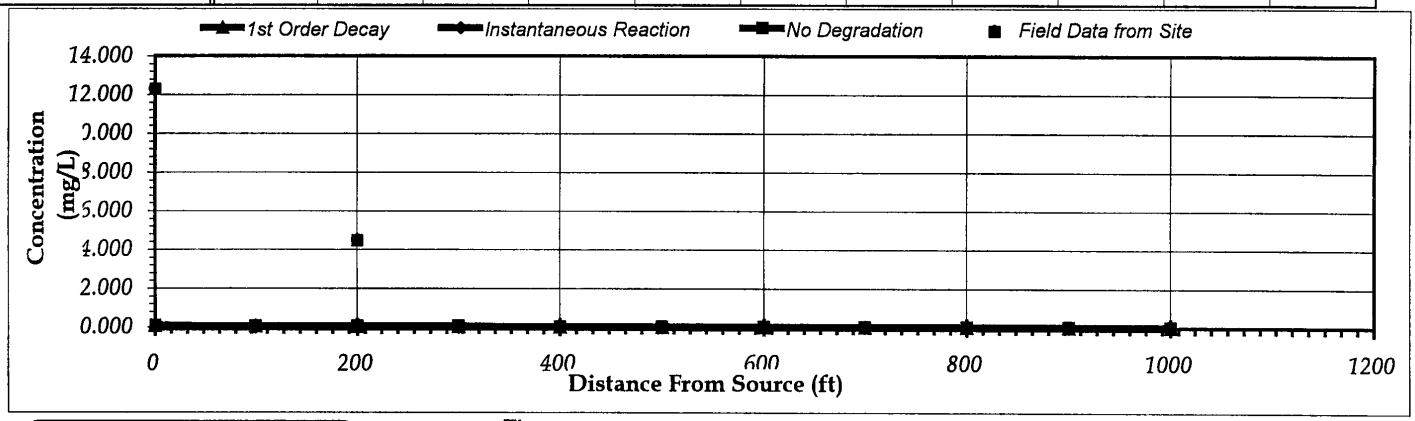
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.068	0.054	0.046	0.042	0.038	0.036	0.034	0.032	0.030	0.029	0.028
1st Order Decay	0.068	0.040	0.025	0.017	0.011	0.008	0.006	0.004	0.003	0.002	0.001
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		4.500								



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet

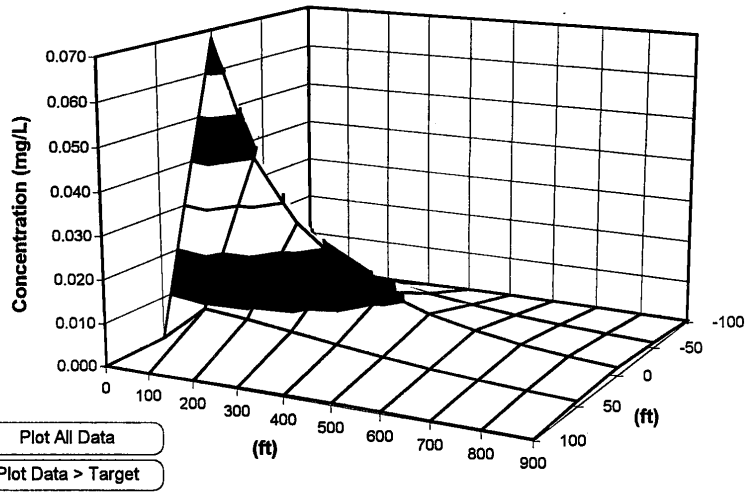
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000
100	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000
50	0.000	0.009	0.008	0.007	0.005	0.004	0.003	0.002	0.002	0.001	0.001
0	0.068	0.040	0.025	0.017	0.011	0.008	0.006	0.004	0.003	0.002	0.001
-50	0.000	0.009	0.008	0.007	0.005	0.004	0.003	0.002	0.002	0.001	0.001
-100	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000
MASS FLUX (mg/day)	3.6E+4	1.5E+2	1.1E+2	8.1E+1	6.0E+1	4.5E+1	3.3E+1	2.5E+1	1.8E+1	1.3E+1	1.0E+1

Model to Display:

- *No Degradation Model*
- *1st Order Decay Model*
- *Instantaneous Reaction Model*

Time: **1000 Years** Target Level: **0.005** mg/L Displayed Model: **1st Order Decay**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years): 2500.0 *(Kg)*

Contam. Mass in Source Now (t=1000Years): 13.8 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Benzene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

Retardation Factor*	*R*	1.0	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	3.5E-1	*(per yr)*
or		or	
Solute Half-Life	*t-half*	2.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	1000	*(ft)*	L
Modeled Area Width*	200	*(ft)*	W
Simulation Time*	1500	*(yr)*	

6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*
10	0.057
32	4.5
32	12.3
32	4.5
10	0.057

Source Halflife (see Help):

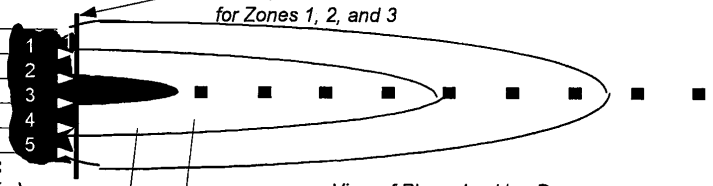
40 | 100 *(yr)*

Inst. React. | 1st Order

Soluble Mass 2500 *(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	12.3		4.5								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

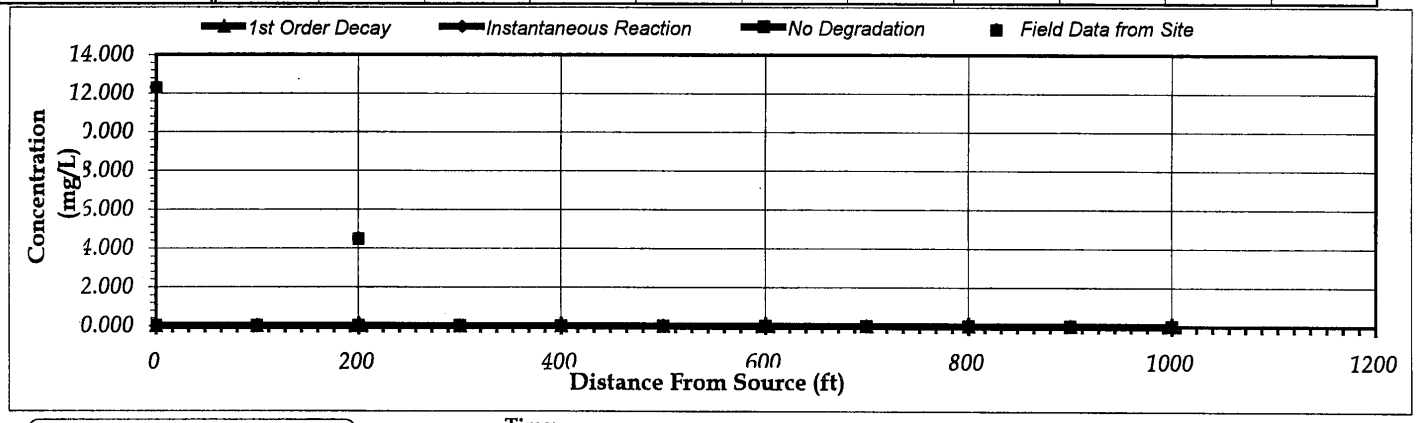
Help | Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.005	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002
1st Order Decay	0.005	0.003	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	12.300		4.500								



Calculate Animation

Time: 1,500 Years

Return to Input

Recalculate This Sheet

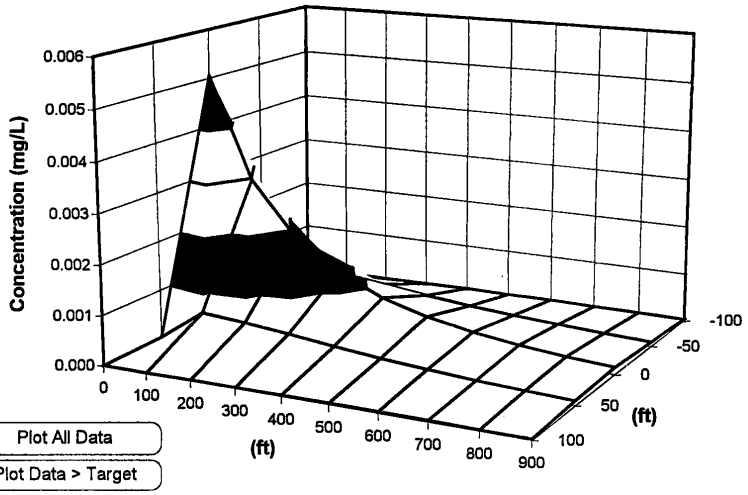
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.005	0.003	0.002	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000
-50	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MASS FLUX (mg/day)	3.6E+4	1.1E+1	8.1E+0	6.0E+0	4.5E+0	3.3E+0	2.5E+0	1.8E+0	1.4E+0	1.0E+0	7.4E-1

Model to Display:

- *No Degradation Model*
- *1st Order Decay Model*
- *Instantaneous Reaction Model*

Time: **1500 Years** Target Level: **0.005** mg/L Displayed Model: **1st Order Decay**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	*(Kg)*
- Actual Plume Mass	Can't Calc.	*(Kg)*
= Plume Mass Removed by Biodeg	-	*(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years)	2500.0	*(Kg)*
Contam. Mass in Source Now (t=1500Years)	1.0	*(Kg)*
Current Volume of Groundwater in Plume	Can't Calc.	*(ac-ft)*
Flowrate of Water Through Source Zone	Can't Calc.	*(ac-ft/yr)*

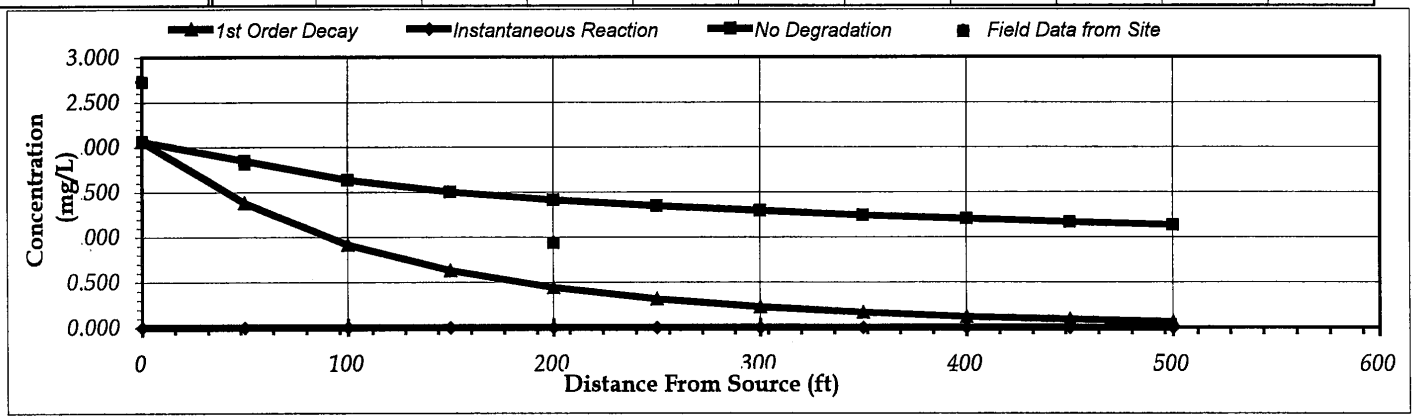
Mass HELP

Recalculate

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	2.062	1.844	1.630	1.502	1.413	1.345	1.290	1.243	1.202	1.165	1.133
1st Order Decay	2.062	1.379	0.912	0.628	0.442	0.315	0.226	0.163	0.118	0.085	0.062
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730	1.820			0.941						



Calculate Animation

Time: 50 Years

Return to Input

Recalculate This Sheet

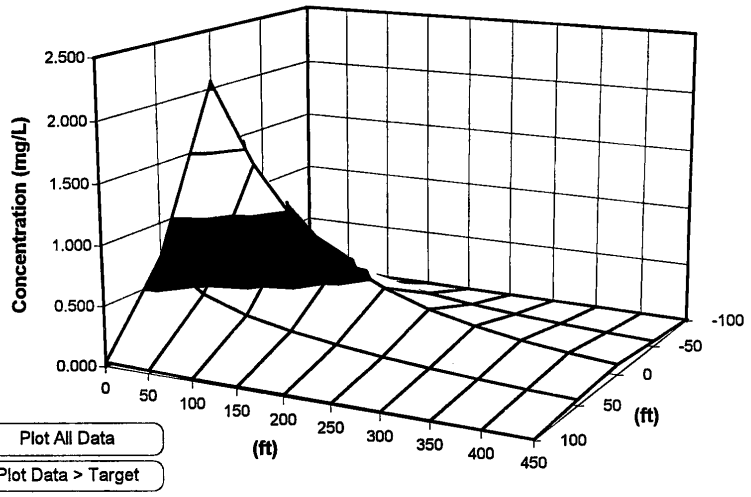
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓	*Distance from Source (ft)* 0	50	100	150	200	250	300	350	400	450	500
100	0.036	0.026	0.021	0.020	0.018	0.017	0.015	0.013	0.011	0.009	0.007
50	0.718	0.441	0.314	0.239	0.184	0.142	0.109	0.083	0.063	0.048	0.036
0	2.062	1.379	0.912	0.628	0.442	0.315	0.226	0.163	0.118	0.085	0.062
-50	0.718	0.441	0.314	0.239	0.184	0.142	0.109	0.083	0.063	0.048	0.036
-100	0.036	0.026	0.021	0.020	0.018	0.017	0.015	0.013	0.011	0.009	0.007
MASS FLUX (mg/day)	9.2E+3	6.0E+3	4.1E+3	3.0E+3	2.2E+3	1.6E+3	1.2E+3	9.2E+2	6.9E+2	5.2E+2	3.9E+2

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: **50 Years** Target Level: **0.005** mg/L Displayed Model: **1st Order Decay**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years): 600.0 *(Kg)*

Contam. Mass in Source Now (t=50Years): 453.2 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier MTBE
Run Name

Data Input Instructions:

115 — 1. *Enter value directly....or*
↑ or — 2. *Calculate by filling in grey cells below. (To restore formulas, hit button below).*
0.02

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

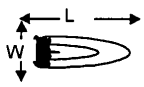
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	6.9E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	1.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	100	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

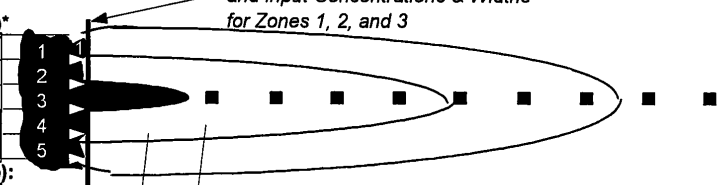
Source Zones:

Width* (ft)	Conc. (mg/L)*
63	0.047
44	0.95
32	2.73
44	0.95
63	0.047

Source Halflife (see Help):

6	100	*(yr)*
Inst. React.	↑ 1st Order	
Soluble Mass	600	*(Kg)*
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	2.73	1.82			.941						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

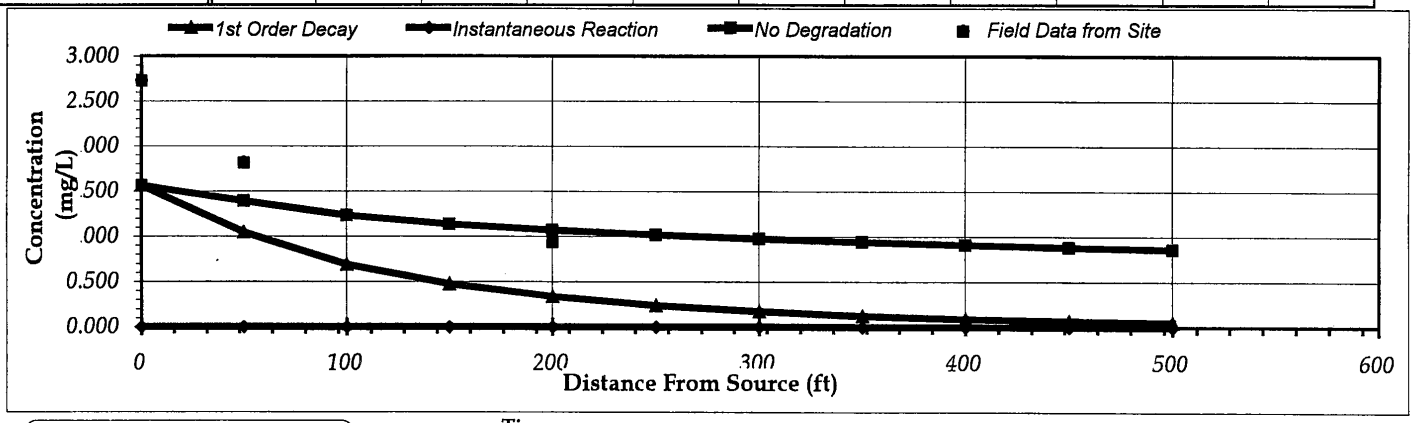
Help — Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	1.558	1.393	1.231	1.135	1.068	1.016	0.974	0.939	0.908	0.880	0.856
1st Order Decay	1.558	1.042	0.689	0.475	0.334	0.238	0.171	0.123	0.089	0.064	0.047
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730	1.820			0.941						



Calculate Animation

Time: 100 Years

Return to Input

Recalculate This Sheet

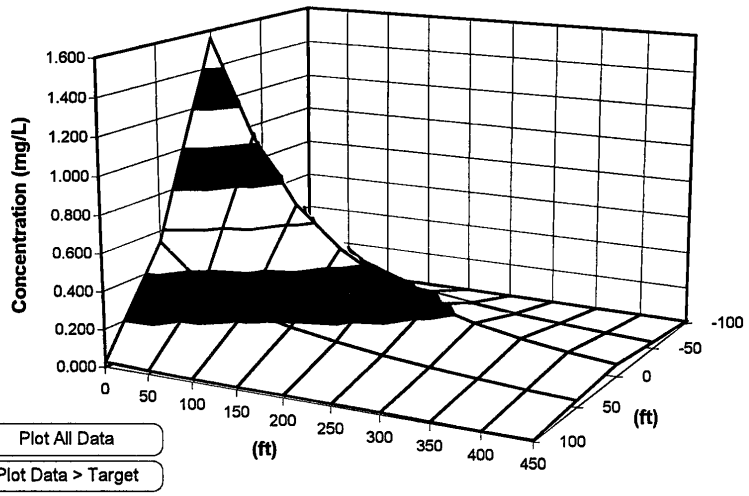
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓	*Distance from Source (ft)* 0	50	100	150	200	250	300	350	400	450	500
100	0.027	0.020	0.016	0.015	0.014	0.013	0.011	0.010	0.008	0.007	0.006
50	0.542	0.333	0.237	0.180	0.139	0.107	0.082	0.063	0.047	0.036	0.027
0	1.558	1.042	0.689	0.475	0.334	0.238	0.171	0.123	0.089	0.064	0.047
-50	0.542	0.333	0.237	0.180	0.139	0.107	0.082	0.063	0.047	0.036	0.027
-100	0.027	0.020	0.016	0.015	0.014	0.013	0.011	0.010	0.008	0.007	0.006
MASS FLUX (mg/day)	9.2E+3	4.6E+3	3.1E+3	2.3E+3	1.7E+3	1.2E+3	9.3E+2	7.0E+2	5.2E+2	3.9E+2	2.9E+2

Model to Display:

- *No Degradation Model*
- *1st Order Decay Model*
- *Instantaneous Reaction Model*

Time: **100 Years** Target Level: **0.005** mg/L Displayed Model: **1st Order Decay**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years): 600.0 *(Kg)*

Contam. Mass in Source Now (t=100Years): 342.4 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier MTBE — *Run Name*

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	112.1	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

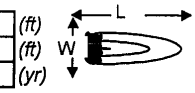
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	6.9E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	1.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.65	(mg/L)
Delta Nitrate*	NO3	0.7	(mg/L)
Observed Ferrous Iron*	Fe2+	16.6	(mg/L)
Delta Sulfate*	SO4	22.4	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	1000	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
63	0.047
44	0.95
32	2.73
44	0.95
63	0.047

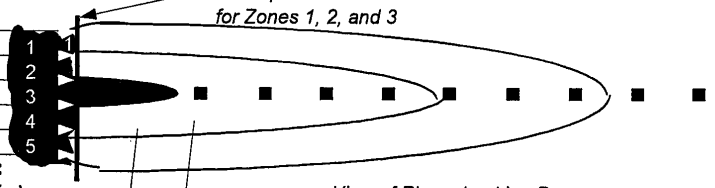
Source Halflife (see Help): 6 (yr)

Inst. React. ↑ ↑ 1st Order

Soluble Mass 600 (Kg)

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	2.73	1.82			.941						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

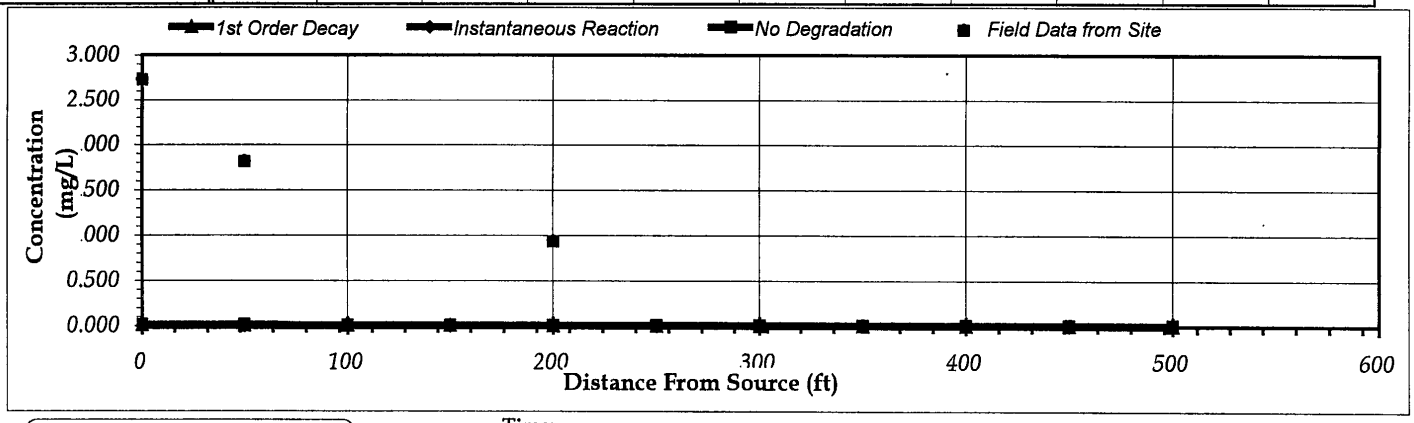
Help — Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.010	0.009	0.008	0.007	0.007	0.007	0.006	0.006	0.006	0.006	0.005
1st Order Decay	0.010	0.007	0.004	0.003	0.002	0.002	0.001	0.001	0.001	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730	1.820			0.941						



Calculate Animation

Time: 100 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓	*Distance from Source (ft)* 0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
0	0.010	0.007	0.004	0.003	0.002	0.002	0.001	0.001	0.001	0.000	0.000
-50	0.003	0.002	0.002	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MASS FLUX (mg/day)	9.2E+3	2.9E+1	2.0E+1	1.4E+1	1.1E+1	8.0E+0	6.0E+0	4.5E+0	3.3E+0	2.5E+0	1.9E+0

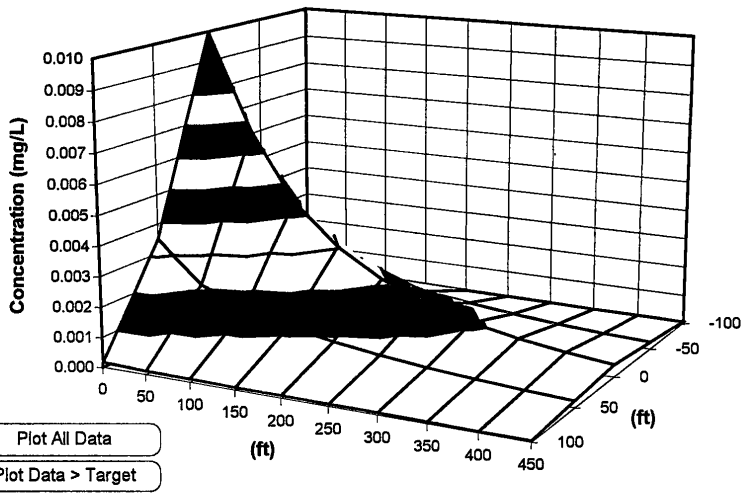
Model to Display:

No Degradation Model

1st Order Decay Model

Instantaneous Reaction Model

Time: **1000 Years** Target Level: **0.005** mg/L Displayed Model: **1st Order Decay**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years): 600.0 *(Kg)*

Contam. Mass in Source Now (t=1000Years): 2.2 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier MTBE — *Run Name*

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	112.1	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

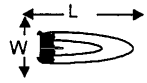
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	6.9E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	1.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.65	(mg/L)
Delta Nitrate*	NO3	0.7	(mg/L)
Observed Ferrous Iron*	Fe2+	16.6	(mg/L)
Delta Sulfate*	SO4	22.4	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	1500	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 (ft)

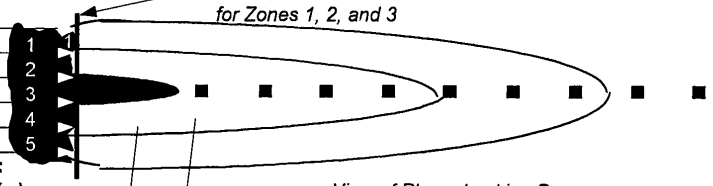
Source Zones:

Width* (ft)	Conc. (mg/L)*
63	0.047
44	0.95
32	2.73
44	0.95
63	0.047

Source Halflife (see Help):

6	100	(yr)
Inst. React.	↑ 1st Order	
Soluble Mass	600	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	2.73	1.82			.941						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

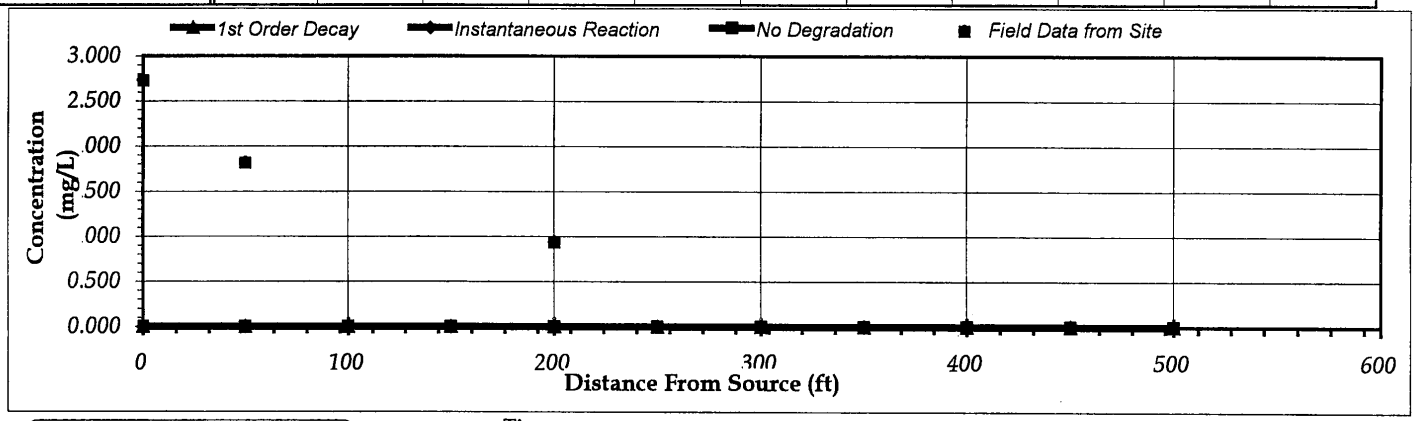
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1st Order Decay	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730	1.820			0.941						



Calculate Animation

Time: 1,500 Years

Return to Input

Recalculate This Sheet

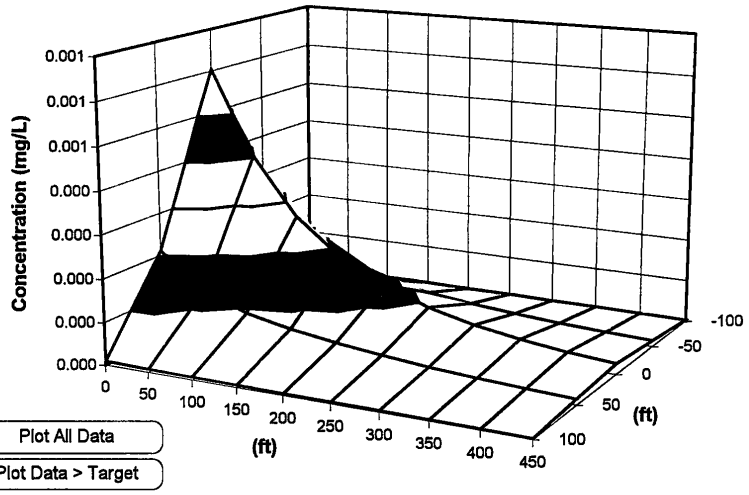
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / *Distance from Source (ft)*	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MASS FLUX (mg/day)	9.2E+3	1.8E+0	1.2E+0	8.7E-1	6.5E-1	4.8E-1	3.6E-1	2.7E-1	2.0E-1	1.5E-1	1.1E-1

Model to Display:

- *No Degradation Model*
- *1st Order Decay Model*
- *Instantaneous Reaction Model*

Time: **1500 Years** Target Level: **0.005** mg/L Displayed Model: **1st Order Decay**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years): 600.0 *(Kg)*

Contam. Mass in Source Now (t=1500Years): 0.1 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Naphthalene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	22.4	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	1.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	9.8E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.71	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	10	*(yr)*

6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

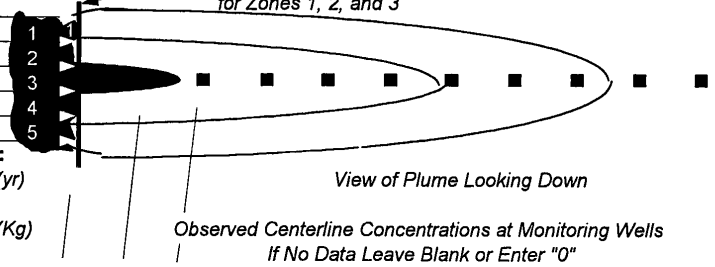
Source Zones:

Width* (ft)	Conc. (mg/L)*
30	0.1
20	0.4
15	0.927
20	0.4
30	0.1

Source Halflife (see Help):

20 | >1000 *(yr)*
Inst. React. ↑ ↑ 1st Order
Soluble Mass 200 *(Kg)*
In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.927	.785	.609		.27						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

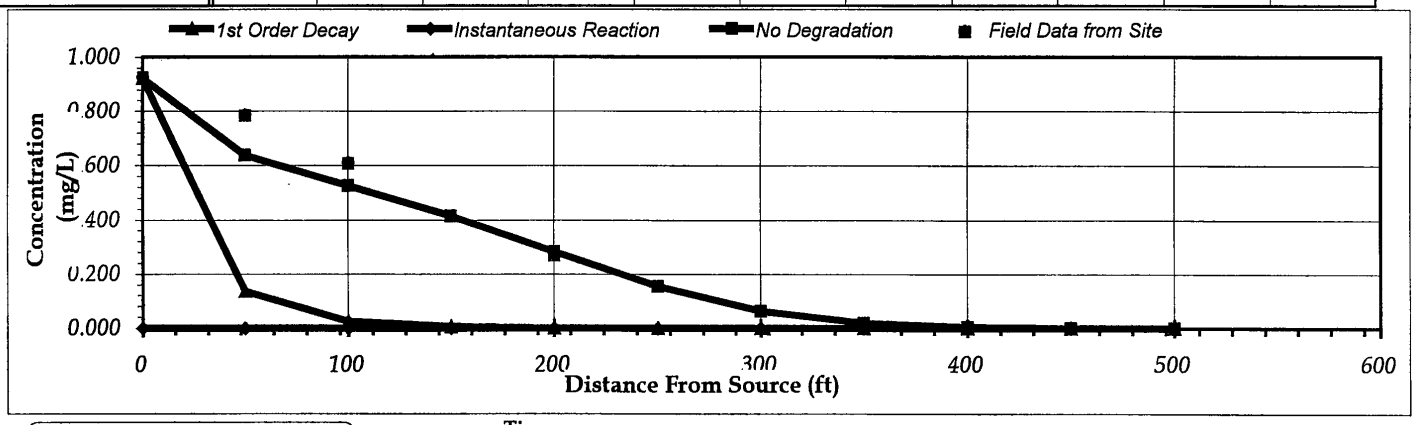
Help | Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.921	0.638	0.525	0.413	0.282	0.153	0.062	0.018	0.004	0.001	0.000
1st Order Decay	0.921	0.136	0.024	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927	0.785	0.609		0.270						



Calculate Animation

Time: 10 Years

Return to Input

Recalculate This Sheet

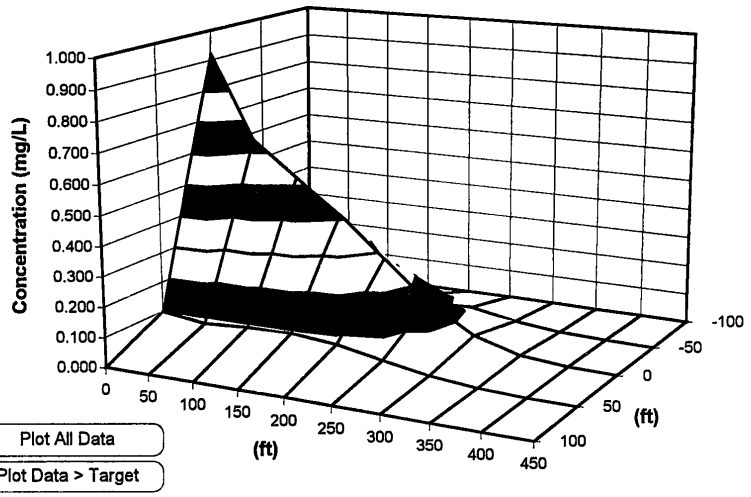
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.000	0.001	0.002	0.002	0.001	0.001	0.000	0.000	0.000
50	0.099	0.080	0.089	0.092	0.077	0.049	0.023	0.007	0.002	0.000	0.000
0	0.921	0.638	0.525	0.413	0.282	0.153	0.062	0.018	0.004	0.001	0.000
-50	0.099	0.080	0.089	0.092	0.077	0.049	0.023	0.007	0.002	0.000	0.000
-100	0.000	0.000	0.000	0.001	0.002	0.002	0.001	0.001	0.000	0.000	0.000
MASS FLUX (mg/day)	3.7E+2	4.2E+2	3.7E+2	3.1E+2	2.3E+2	1.3E+2	5.7E+1	1.8E+1	3.8E+0	5.5E-1	5.4E-2

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 10 Years Target Level: 0.005 mg/L Displayed Model: No Degradation



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	1.4	(Kg)
- Actual Plume Mass	1.4	(Kg)
= Plume Mass Removed by Biodeg	0.0	(Kg)
	0 %	

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	200.0	(Kg)
Contam. Mass in Source Now (t=10Years)	198.6	(Kg)
Current Volume of Groundwater in Plume	8.3	(ac-ft)
Flowrate of Water Through Source Zone	0.355	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier / *Naphthalene* — *Run Name*

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	22.4	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	1.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

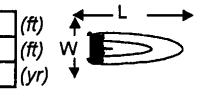
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	9.8E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	0.71	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.65	(mg/L)
Delta Nitrate*	NO3	0.7	(mg/L)
Observed Ferrous Iron*	Fe2+	16.6	(mg/L)
Delta Sulfate*	SO4	22.4	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	50	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 (ft)

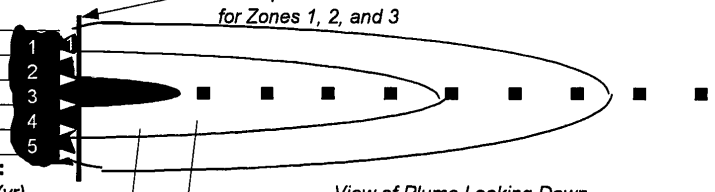
Source Zones:

Width* (ft)	Conc. (mg/L)*
30	0.1
20	0.4
15	0.927
20	0.4
30	0.1

Source Halflife (see Help):

20	>1000	(yr)
Inst. React.	↑ 1st Order	
Soluble Mass	200	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.927	.785	.609		.27						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

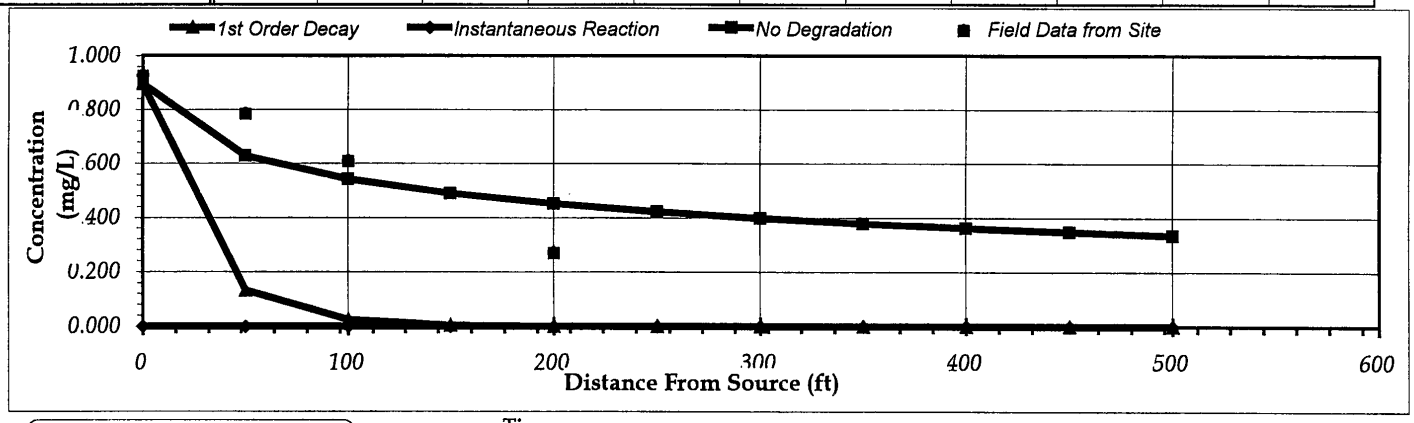
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.896	0.629	0.542	0.488	0.450	0.421	0.397	0.377	0.360	0.345	0.332
1st Order Decay	0.896	0.132	0.024	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927	0.785	0.609		0.270						



Calculate Animation

Time:
50 Years

Return to Input

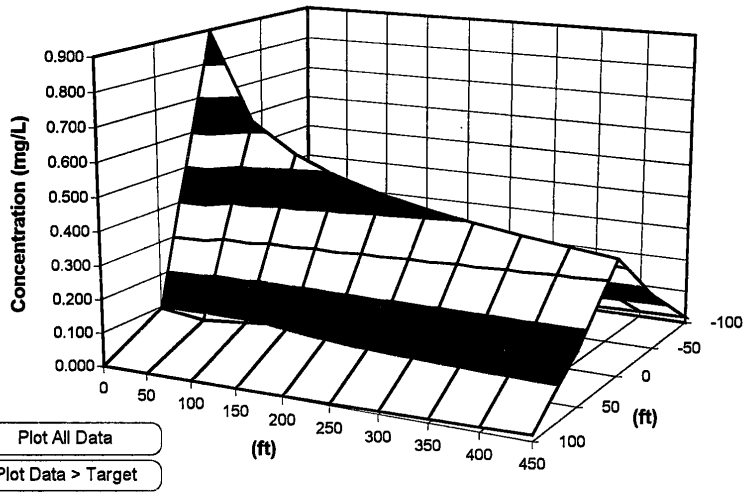
Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.000	0.002	0.003	0.006	0.008	0.011	0.014	0.018	0.021
50	0.097	0.079	0.092	0.108	0.123	0.134	0.144	0.151	0.157	0.161	0.164
0	0.896	0.629	0.542	0.488	0.450	0.421	0.397	0.377	0.360	0.345	0.332
-50	0.097	0.079	0.092	0.108	0.123	0.134	0.144	0.151	0.157	0.161	0.164
-100	0.000	0.000	0.000	0.002	0.003	0.006	0.008	0.011	0.014	0.018	0.021
MASS FLUX (mg/day)	3.7E+2	4.1E+2	3.8E+2	3.7E+2	3.7E+2	3.7E+2	3.7E+2	3.7E+2	3.7E+2	3.7E+2	3.7E+2

Model to Display:
- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: **50 Years** Target Level: **0.005** mg/L Displayed Model: **No Degradation**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	(Kg)
- Actual Plume Mass	Can't Calc.	(Kg)
= Plume Mass Removed by Biodeg	-	(Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	200.0	(Kg)
Contam. Mass in Source Now (t=50Years)	193.3	(Kg)
Current Volume of Groundwater in Plume	Can't Calc.	(ac-ft)
Flowrate of Water Through Source Zone	Can't Calc.	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Naphthalene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	22.4	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	1.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

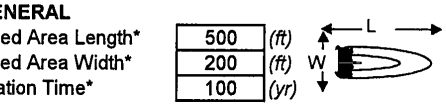
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	9.8E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.71	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*		500	*(ft)*
Modeled Area Width*		200	*(ft)*
Simulation Time*		100	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*
30	0.1
20	0.4
15	0.927
20	0.4
30	0.1

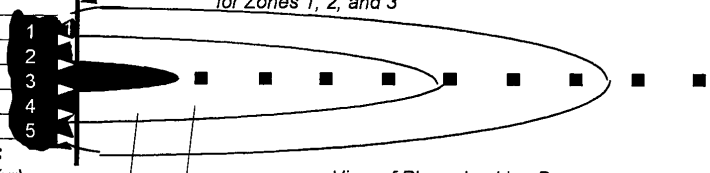
Source Halflife (see Help):

20 | >1000 *(yr)*

Inst. React. ↑ or ↑ 1st Order

Soluble Mass In Source NAPL, Soil: 200 *(Kg)*

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.927	.785	.609		.27						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

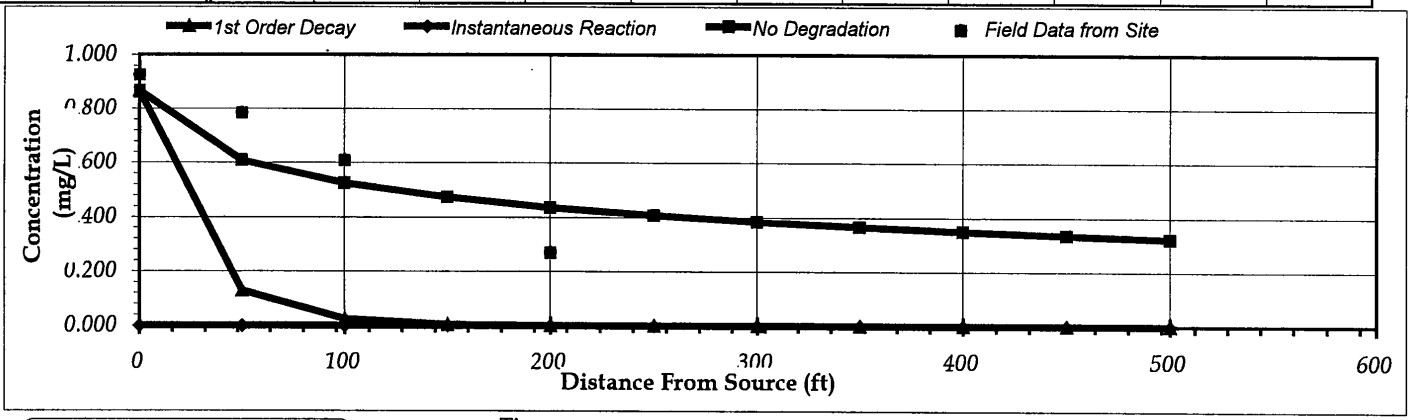
Help | Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.866	0.608	0.524	0.472	0.435	0.406	0.383	0.364	0.348	0.334	0.321
1st Order Decay	0.866	0.127	0.023	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927	0.785	0.609		0.270						



Calculate Animation

Time: 50 Years

Return to Input

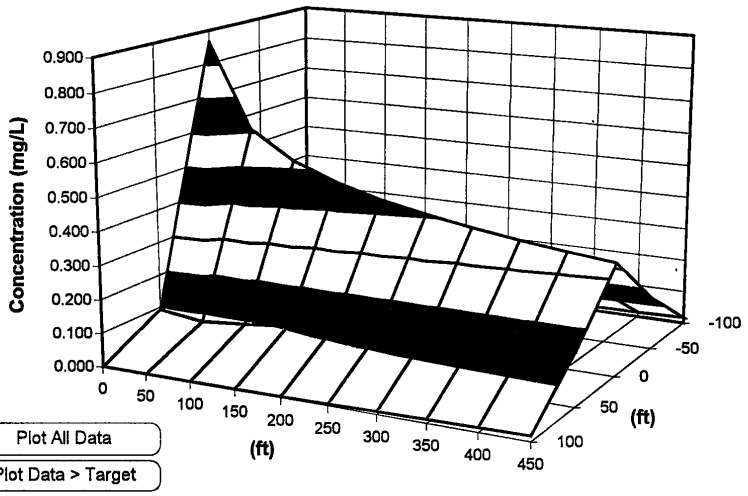
Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.000	0.002	0.003	0.005	0.008	0.011	0.014	0.017	0.020
50	0.093	0.077	0.089	0.105	0.118	0.130	0.139	0.146	0.152	0.156	0.159
0	0.866	0.608	0.524	0.472	0.435	0.406	0.383	0.364	0.348	0.334	0.321
-50	0.093	0.077	0.089	0.105	0.118	0.130	0.139	0.146	0.152	0.156	0.159
-100	0.000	0.000	0.000	0.002	0.003	0.005	0.008	0.011	0.014	0.017	0.020
MASS FLUX (mg/day)	3.7E+2	4.0E+2	3.7E+2	3.6E+2	3.5E+2	3.5E+2	3.5E+2	3.5E+2	3.5E+2	3.5E+2	3.5E+2

Model to Display:
- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 100 Years Target Level: 0.005 mg/L Displayed Model: No Degradation



Plot All Data
Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	(Kg)
- Actual Plume Mass	Can't Calc.	(Kg)
= Plume Mass Removed by Biodeg	-	(Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	200.0	(Kg)
Contam. Mass in Source Now (t=100Years)	186.8	(Kg)
Current Volume of Groundwater in Plume	Can't Calc.	(ac-ft)
Flowrate of Water Through Source Zone	Can't Calc.	(ac-ft/yr)

Mass HELP Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Naphthalene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	22.4	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	1.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

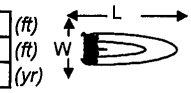
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	9.8E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.71	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	1000	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

Source Zones:

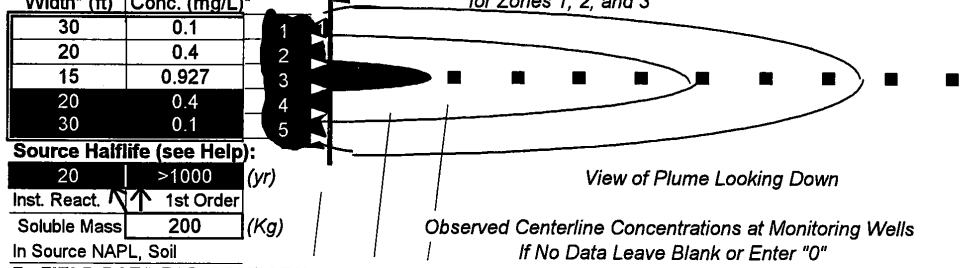
Width* (ft)	Conc. (mg/L)*
30	0.1
20	0.4
15	0.927
20	0.4
30	0.1

Source Halflife (see Help):

20	>1000	*(yr)*
Inst. React. ↑	↑ 1st Order	
Soluble Mass	200	*(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.927	.785	.609		.27						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

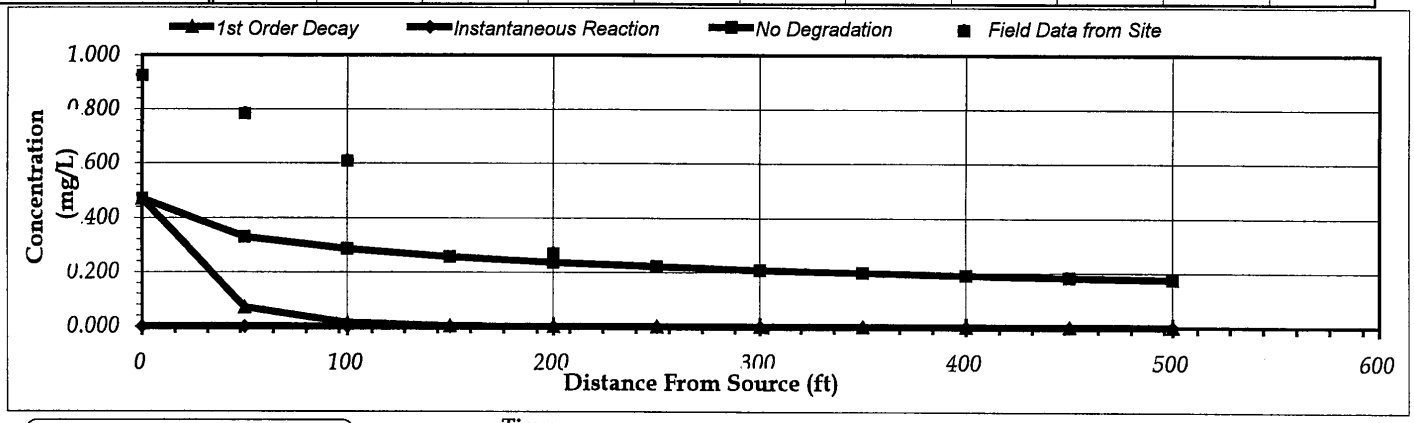
Help | Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.468	0.329	0.283	0.255	0.235	0.220	0.207	0.197	0.188	0.180	0.174
1st Order Decay	0.468	0.069	0.012	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927	0.785	0.609		0.270						



Calculate Animation

Time: 50 Years

Return to Input

Recalculate This Sheet

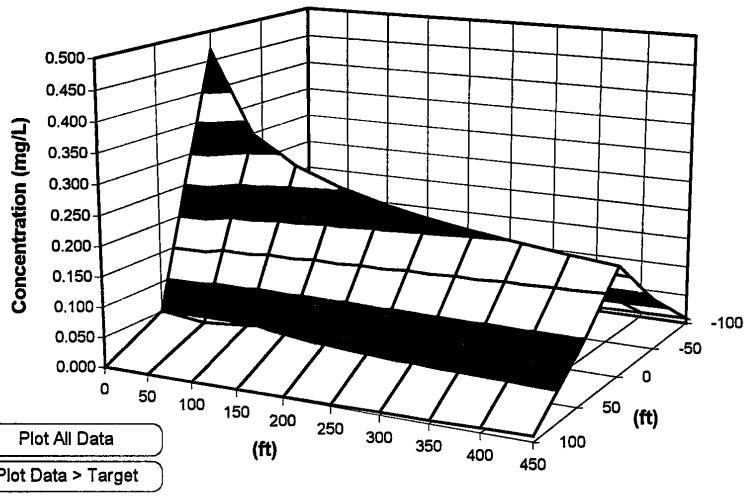
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.000	0.001	0.002	0.003	0.004	0.006	0.007	0.009	0.011
50	0.050	0.041	0.048	0.057	0.064	0.070	0.075	0.079	0.082	0.084	0.086
0	0.468	0.329	0.283	0.255	0.235	0.220	0.207	0.197	0.188	0.180	0.174
-50	0.050	0.041	0.048	0.057	0.064	0.070	0.075	0.079	0.082	0.084	0.086
-100	0.000	0.000	0.000	0.001	0.002	0.003	0.004	0.006	0.007	0.009	0.011
MASS FLUX (mg/day)	3.7E+2	2.1E+2	2.0E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2

Model to Display:

- *No Degradation Model*
- *1st Order Decay Model*
- *Instantaneous Reaction Model*

Time: **1000 Years** Target Level: **0.005** mg/L Displayed Model: **No Degradation**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	*(Kg)*
- Actual Plume Mass	Can't Calc.	*(Kg)*
= Plume Mass Removed by Biodeg	-	*(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years)	200.0	*(Kg)*
Contam. Mass in Source Now (t=1000Years)	101.0	*(Kg)*
Current Volume of Groundwater in Plume	Can't Calc.	*(ac-ft)*
Flowrate of Water Through Source Zone	Can't Calc.	*(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Naphthalene
Run Name

Data Input Instructions:

115 or 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	22.4	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	1.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

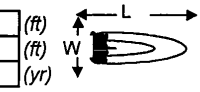
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	9.8E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	0.71	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.65	(mg/L)
Delta Nitrate*	NO3	0.7	(mg/L)
Observed Ferrous Iron*	Fe2+	16.6	(mg/L)
Delta Sulfate*	SO4	22.4	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	1500	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
30	0.1
20	0.4
15	0.927
20	0.4
30	0.1

Source Halflife (see Help):

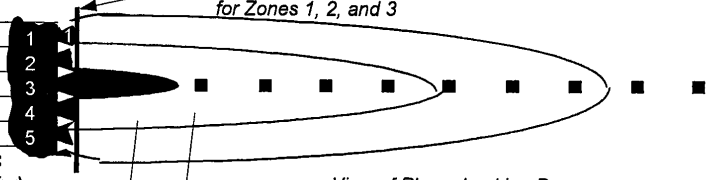
20 | >1000 (yr)

Inst. React. ↑↑ 1st Order

Soluble Mass 200 (Kg)

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.927	.785	.609		.27						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This Sheet

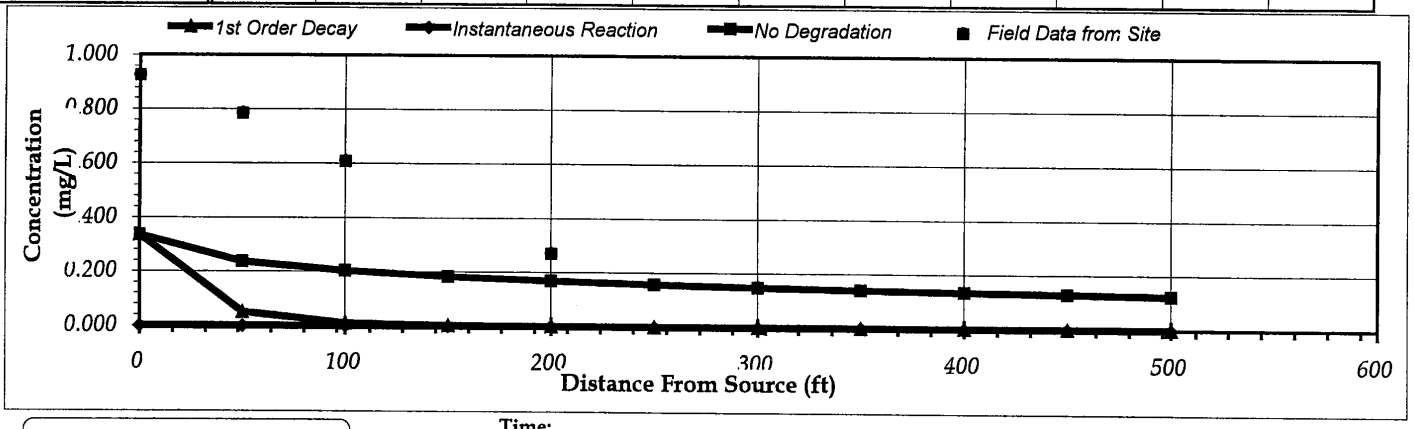
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.333	0.234	0.201	0.181	0.167	0.156	0.147	0.140	0.134	0.128	0.123
1st Order Decay	0.333	0.049	0.009	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927	0.785	0.609		0.270						



Calculate Animation

Time: 50 Years

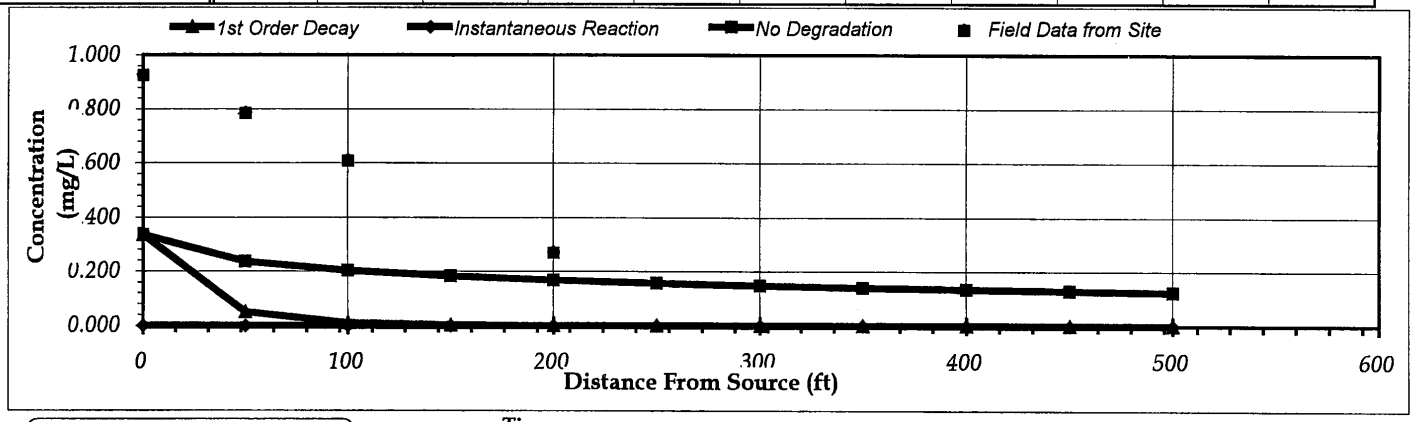
Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.333	0.234	0.201	0.181	0.167	0.156	0.147	0.140	0.134	0.128	0.123
1st Order Decay	0.333	0.049	0.009	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.927	0.785	0.609		0.270						



Calculate Animation

Time: 1,500 Years

Return to Input

Recalculate This Sheet

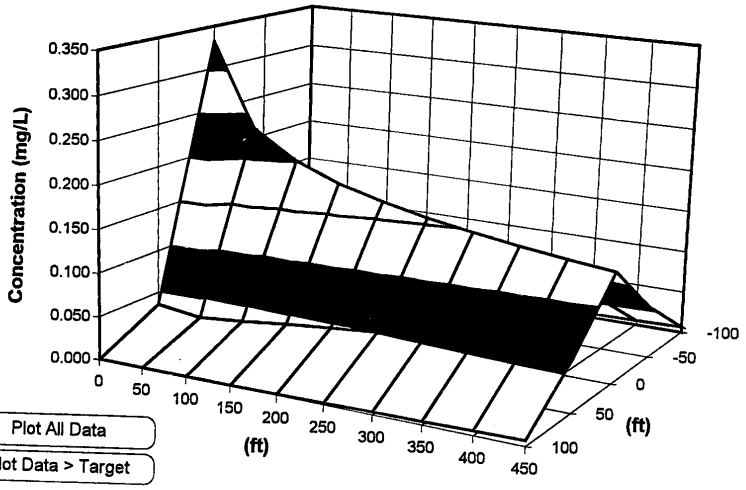
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft) →	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.000	0.001	0.001	0.002	0.003	0.004	0.005	0.007	0.008
50	0.036	0.029	0.034	0.040	0.046	0.050	0.053	0.056	0.058	0.060	0.061
0	0.333	0.234	0.201	0.181	0.167	0.156	0.147	0.140	0.134	0.128	0.123
-50	0.036	0.029	0.034	0.040	0.046	0.050	0.053	0.056	0.058	0.060	0.061
-100	0.000	0.000	0.000	0.001	0.001	0.002	0.003	0.004	0.005	0.007	0.008
MASS FLUX (mg/day)	3.7E+2	1.5E+2	1.4E+2	1.4E+2	1.4E+2	1.4E+2	1.4E+2	1.4E+2	1.4E+2	1.4E+2	1.4E+2

Model to Display:

- *No Degradation Model*
- *1st Order Decay Model*
- *Instantaneous Reaction Model*

Time: **1500 Years** Target Level: **0.005** mg/L Displayed Model: **No Degradation**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years): 200.0 *(Kg)*

Contam. Mass in Source Now (t=1500Years): 71.8 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier MTBE — *Run Name*

Data Input Instructions:

115 or 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

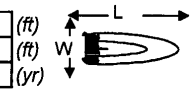
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	6.9E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	1.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	10	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

Source Zones:

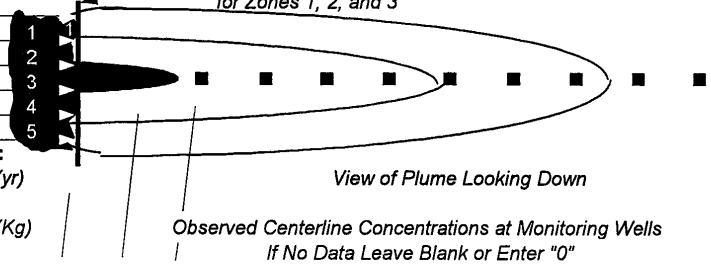
Width* (ft)	Conc. (mg/L)*
63	0.047
44	0.95
32	2.73
44	0.95
63	0.047

Source Halflife (see Help):

6 (Inst. React.) | 100 (1st Order) *(yr)*

Soluble Mass 600 *(Kg)* In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	2.73	1.82			.941						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

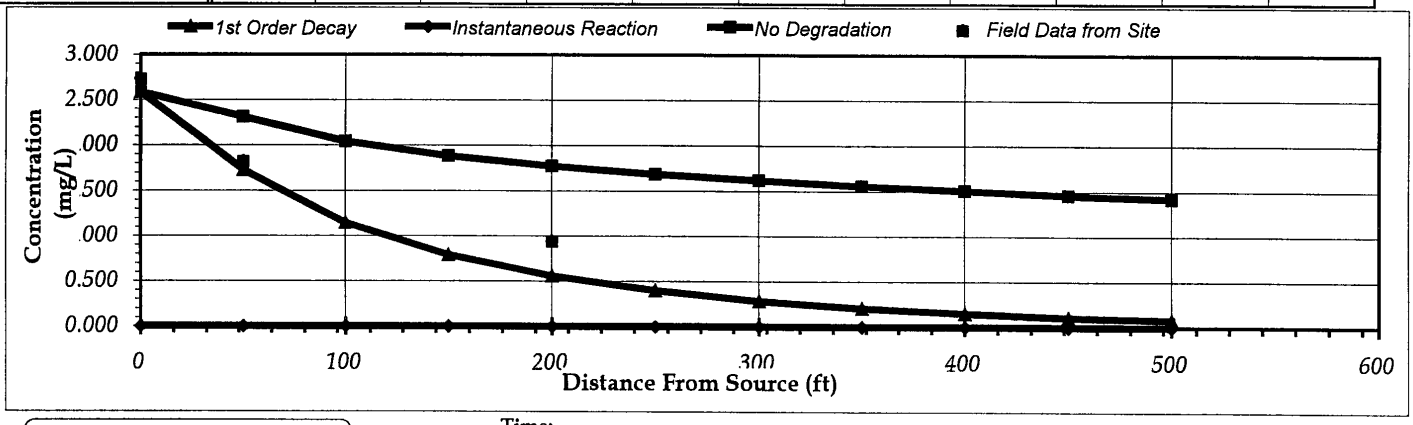
Help | Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	2.581	2.308	2.040	1.880	1.769	1.684	1.614	1.556	1.504	1.459	1.418
1st Order Decay	2.581	1.726	1.141	0.787	0.554	0.394	0.283	0.204	0.147	0.107	0.078
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	2.730	1.820			0.941						



Calculate Animation

Time: 10 Years

Return to Input

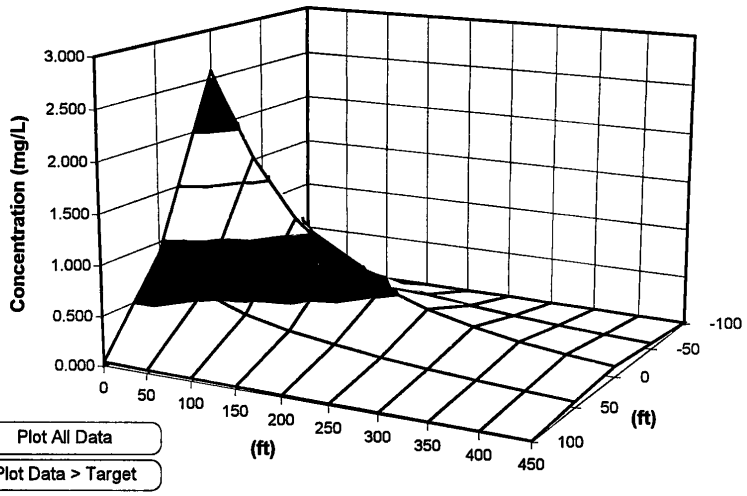
Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.044	0.033	0.026	0.025	0.023	0.021	0.019	0.016	0.014	0.011	0.009
50	0.898	0.552	0.393	0.299	0.231	0.178	0.136	0.104	0.079	0.059	0.045
0	2.581	1.726	1.141	0.787	0.554	0.394	0.283	0.204	0.147	0.107	0.078
-50	0.898	0.552	0.393	0.299	0.231	0.178	0.136	0.104	0.079	0.059	0.045
-100	0.044	0.033	0.026	0.025	0.023	0.021	0.019	0.016	0.014	0.011	0.009
MASS FLUX (mg/day)	9.2E+3	7.5E+3	5.2E+3	3.7E+3	2.8E+3	2.1E+3	1.5E+3	1.2E+3	8.7E+2	6.5E+2	4.8E+2

Model to Display:
- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 10 Years Target Level: 0.005 mg/L Displayed Model: 1st Order Decay



Plot All Data
Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	(Kg)
- Actual Plume Mass	Can't Calc.	(Kg)
= Plume Mass Removed by Biodeg	-	(Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	600.0	(Kg)
Contam. Mass in Source Now (t=10Years)	567.3	(Kg)
Current Volume of Groundwater in Plume	Can't Calc.	(ac-ft)
Flowrate of Water Through Source Zone	Can't Calc.	(ac-ft/yr)

Mass HELP Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier MTBE — *Run Name*

Data Input Instructions:

115 (or 0.02) — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

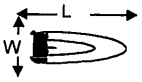
Retardation Factor*	*R*	1.0	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	6.9E-1	*(per yr)*
or		or	
Solute Half-Life	*t-half*	1.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	50	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*	
63	0.047	1
44	0.95	2
32	2.73	3
44	0.95	4
63	0.047	5

Source Halflife (see Help):

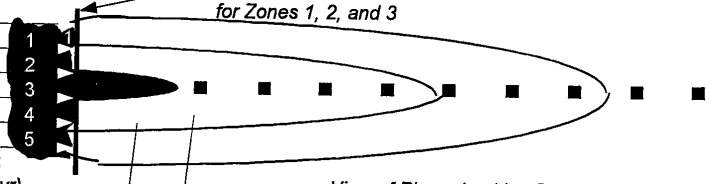
6 | 100 *(yr)*

Inst. React. | 1st Order

Soluble Mass 600 *(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	2.73	1.82			.941						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier Xylenes — *Run Name*

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

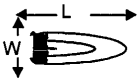
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	6.9E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	1.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	10	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

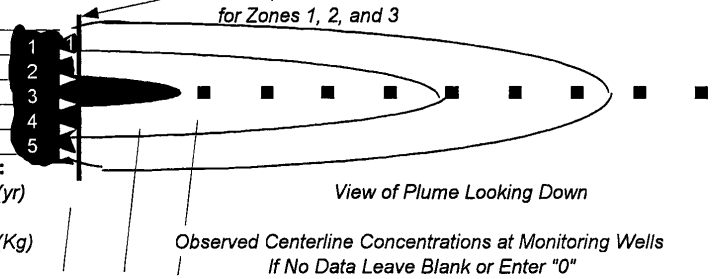
Source Zones:

Width* (ft)	Conc. (mg/L)*
30	0.1
25	2.508
20	9.18
25	2.508
30	0.1

Source Halflife (see Help):

30	200	*(yr)*
Inst. React. ↑	↑ 1st Order	
Soluble Mass	1800	*(Kg)*
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	9.18			2.46	1.47						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

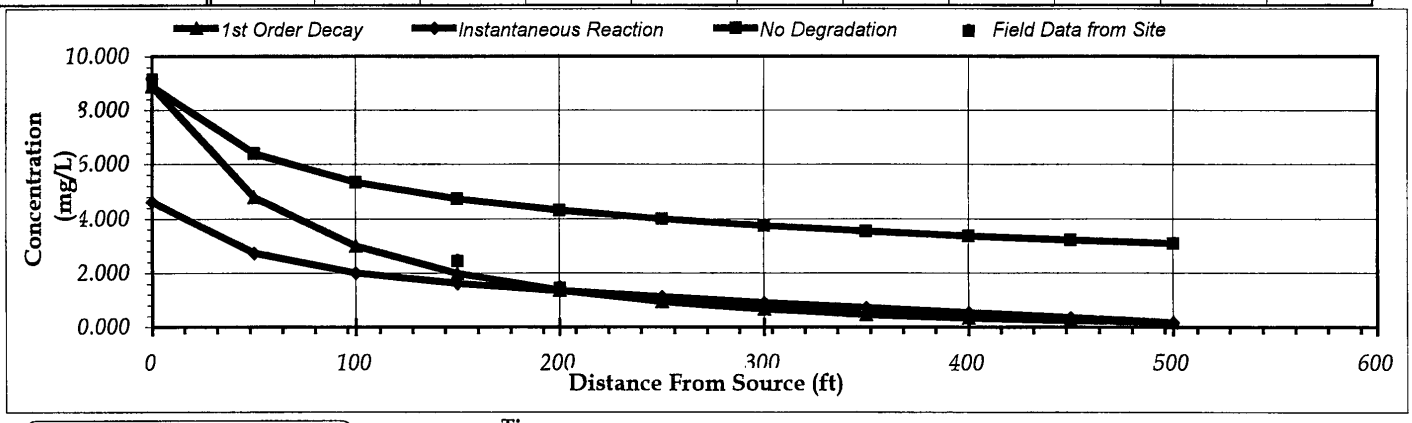
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	8.879	6.389	5.334	4.731	4.311	3.992	3.738	3.528	3.352	3.201	3.070
1st Order Decay	8.879	4.779	2.984	1.980	1.349	0.934	0.654	0.462	0.328	0.235	0.168
Inst. Reaction	4.617	2.735	2.000	1.613	1.341	1.114	0.906	0.710	0.522	0.343	0.171
Field Data from Site	9.180			2.460	1.470						



Calculate Animation

Time: 10 Years

Return to Input

Recalculate This Sheet

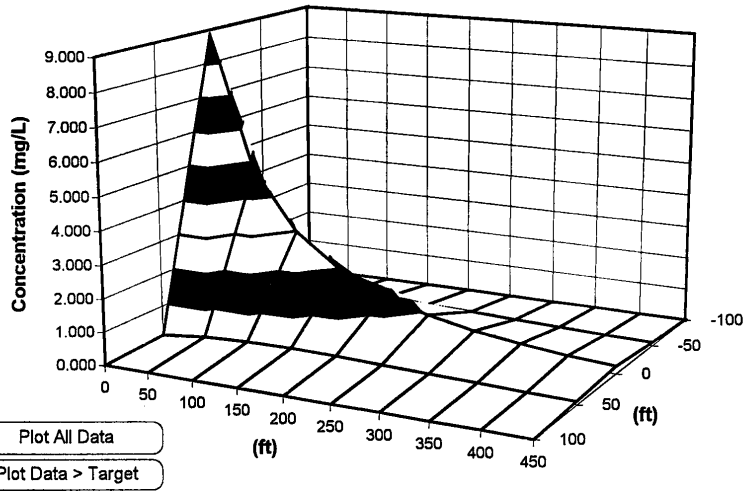
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.001	0.002	0.004	0.006	0.007	0.008	0.008	0.008	0.008
50	0.097	0.236	0.304	0.311	0.287	0.247	0.204	0.164	0.129	0.101	0.077
0	8.879	4.779	2.984	1.980	1.349	0.934	0.654	0.462	0.328	0.235	0.168
-50	0.097	0.236	0.304	0.311	0.287	0.247	0.204	0.164	0.129	0.101	0.077
-100	0.000	0.000	0.001	0.002	0.004	0.006	0.007	0.008	0.008	0.008	0.008
MASS FLUX (mg/day)	1.6E+4	1.4E+4	9.4E+3	6.8E+3	5.0E+3	3.8E+3	2.8E+3	2.1E+3	1.6E+3	1.2E+3	8.8E+2

Model to Display:

- *No Degradation Model*
- *1st Order Decay Model*
- *Instantaneous Reaction Model*

Time: **10 Years** Target Level: **0.005** mg/L Displayed Model: **1st Order Decay**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	*(Kg)*
- Actual Plume Mass	Can't Calc.	*(Kg)*
= Plume Mass Removed by Biodeg	-	*(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years)	1800.0	*(Kg)*
Contam. Mass in Source Now (t=10Years)	1741.0	*(Kg)*
Current Volume of Groundwater in Plume	Can't Calc.	*(ac-ft)*
Flowrate of Water Through Source Zone	Can't Calc.	*(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier Xylenes — *Run Name*

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

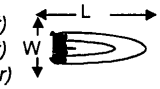
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	6.9E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	1.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	50	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*
30	0.1
25	2.508
20	9.18
25	2.508
30	0.1

Source Halflife (see Help):

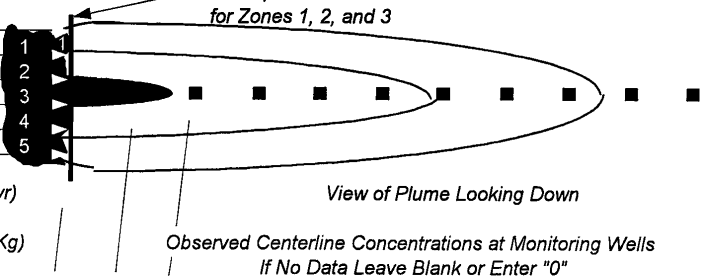
30 | 200 *(yr)*

Inst. React. ↑ ↑ 1st Order

Soluble Mass | 1800 *(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	9.18			2.46	1.47						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

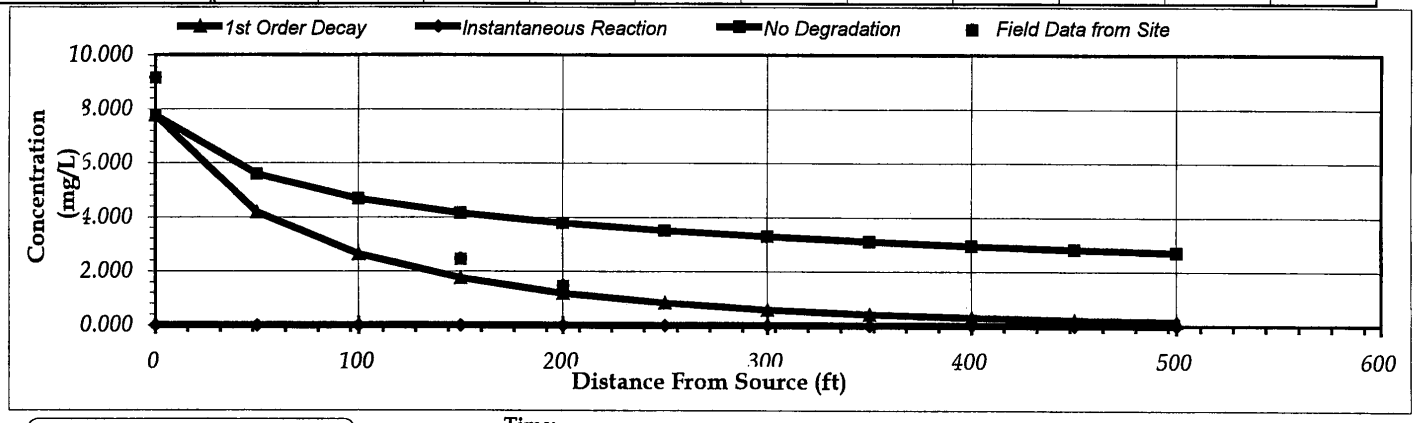
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	7.772	5.592	4.668	4.141	3.773	3.494	3.271	3.088	2.934	2.802	2.687
1st Order Decay	7.772	4.182	2.612	1.733	1.181	0.818	0.573	0.404	0.287	0.205	0.147
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	9.180			2.460	1.470						



Calculate Animation

Time: 50 Years

Return to Input

Recalculate This Sheet

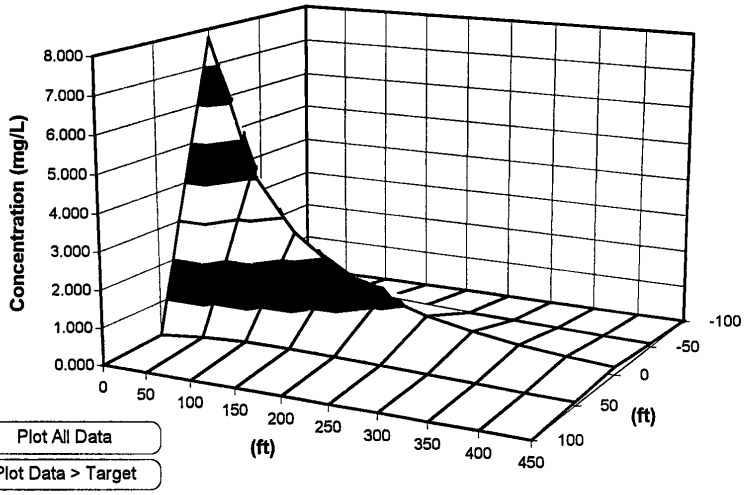
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓	*Distance from Source (ft)* 0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.001	0.002	0.003	0.005	0.006	0.007	0.007	0.007	0.007
50	0.085	0.206	0.266	0.273	0.251	0.216	0.179	0.144	0.113	0.088	0.068
0	7.772	4.182	2.612	1.733	1.181	0.818	0.573	0.404	0.287	0.205	0.147
-50	0.085	0.206	0.266	0.273	0.251	0.216	0.179	0.144	0.113	0.088	0.068
-100	0.000	0.000	0.001	0.002	0.003	0.005	0.006	0.007	0.007	0.007	0.007
MASS FLUX (mg/day)	1.6E+4	1.2E+4	8.2E+3	5.9E+3	4.4E+3	3.3E+3	2.5E+3	1.8E+3	1.4E+3	1.0E+3	7.7E+2

Model to Display:

- *No Degradation Model*
- *1st Order Decay Model*
- *Instantaneous Reaction Model*

Time: **50 Years** Target Level: **0.005** mg/L Displayed Model: **1st Order Decay**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years): 1800.0 *(Kg)*

Contam. Mass in Source Now (t=50Years): 1523.9 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Xylenes
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

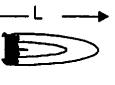
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	6.9E-1	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	1.00	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	100	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*
30	0.1
25	2.508
20	9.18
25	2.508
30	0.1

Source Halflife (see Help):

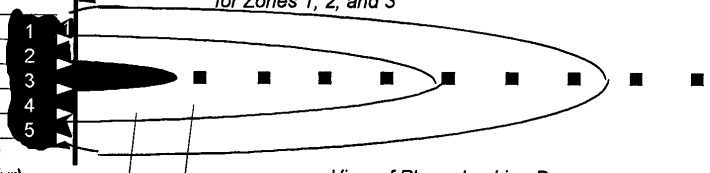
30 | 200 *(yr)*

Inst. React. ↑ ↑ 1st Order

Soluble Mass 1800 *(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	9.18			2.46	1.47						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This Sheet

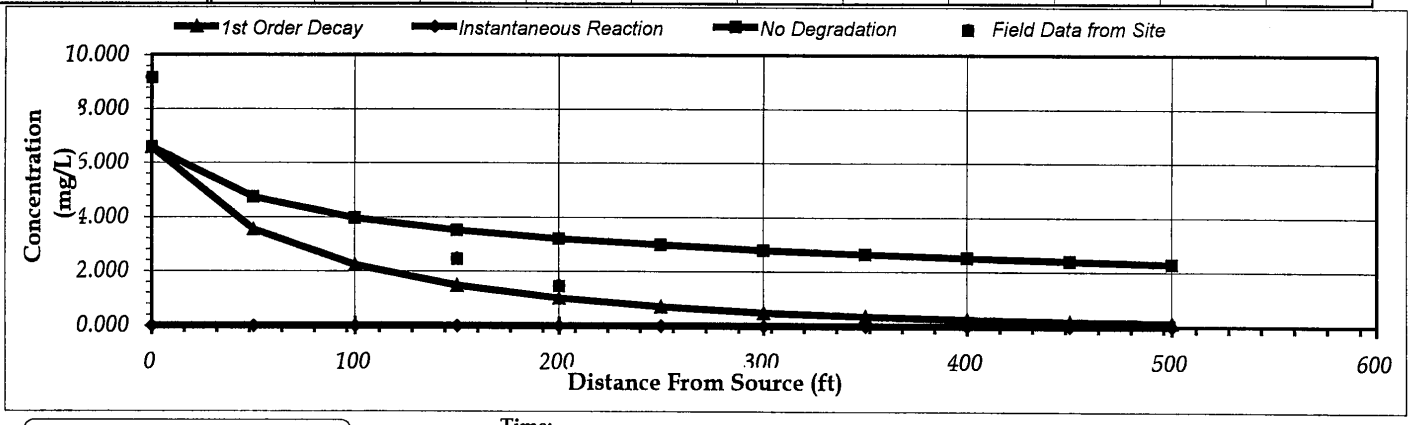
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	6.580	4.734	3.952	3.506	3.194	2.958	2.769	2.615	2.484	2.372	2.275
1st Order Decay	6.580	3.541	2.211	1.467	1.000	0.692	0.485	0.342	0.243	0.174	0.125
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	9.180			2.460	1.470						



Calculate Animation

Time: 50 Years

Return to Input

Recalculate This Sheet

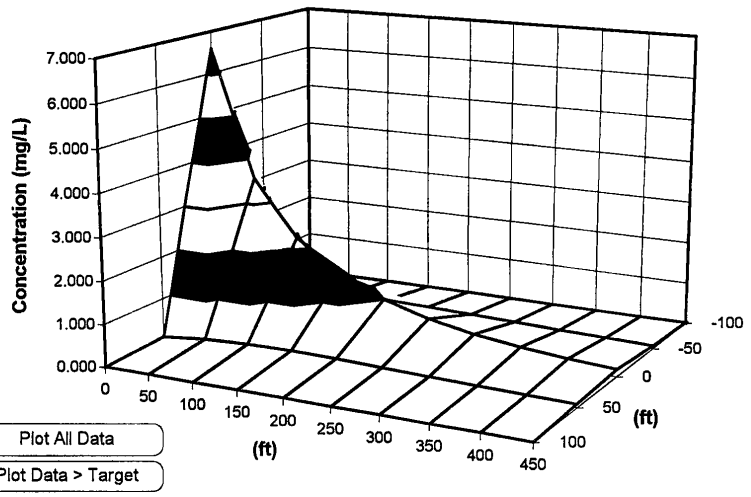
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.006	0.006	0.006
50	0.072	0.175	0.225	0.231	0.213	0.183	0.151	0.122	0.096	0.075	0.057
0	6.580	3.541	2.211	1.467	1.000	0.692	0.485	0.342	0.243	0.174	0.125
-50	0.072	0.175	0.225	0.231	0.213	0.183	0.151	0.122	0.096	0.075	0.057
-100	0.000	0.000	0.001	0.002	0.003	0.004	0.005	0.006	0.006	0.006	0.006
MASS FLUX (mg/day)	1.6E+4	1.0E+4	6.9E+3	5.0E+3	3.7E+3	2.8E+3	2.1E+3	1.6E+3	1.2E+3	8.7E+2	6.5E+2

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 100 Years Target Level: 0.005 mg/L Displayed Model: 1st Order Decay



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	(Kg)
- Actual Plume Mass	Can't Calc.	(Kg)
= Plume Mass Removed by Biodeg	-	(Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	1800.0	(Kg)
Contam. Mass in Source Now (t=100Years)	1290.1	(Kg)
Current Volume of Groundwater in Plume	Can't Calc.	(ac-ft)
Flowrate of Water Through Source Zone	Can't Calc.	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier Xylenes — *Run Name*

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	112.1	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

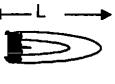
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	6.9E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	1.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.65	(mg/L)
Delta Nitrate*	NO3	0.7	(mg/L)
Observed Ferrous Iron*	Fe2+	16.6	(mg/L)
Delta Sulfate*	SO4	22.4	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	1000	(yr)



6. SOURCE DATA

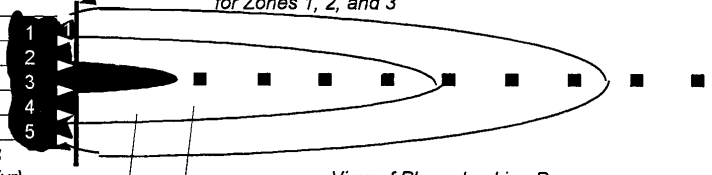
Source Thickness in Sat.Zone* 20 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
30	0.1
25	2.508
20	9.18
25	2.508
30	0.1

Source Halflife (see Help):
30 | 200 (yr)
Inst. React. ↑ ↑ 1st Order
Soluble Mass 1800 (Kg)
In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	9.18			2.46	1.47						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — View Output

RUN ARRAY — View Output

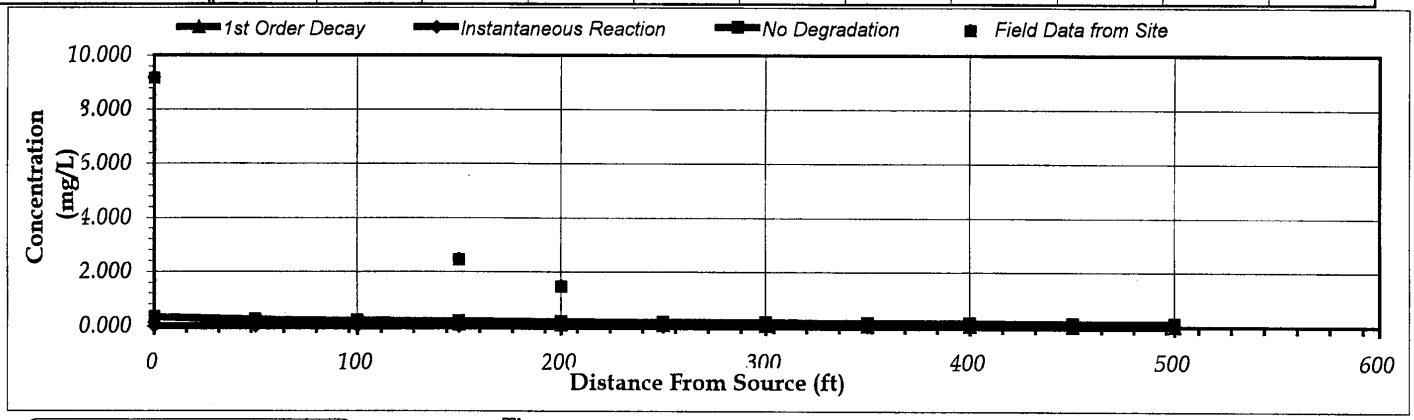
Help — Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.328	0.236	0.197	0.175	0.159	0.148	0.138	0.130	0.124	0.118	0.114
1st Order Decay	0.328	0.177	0.110	0.073	0.050	0.035	0.024	0.017	0.012	0.009	0.006
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	9.180			2.460	1.470						



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / *Distance from Source (ft)*	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.004	0.009	0.011	0.012	0.011	0.009	0.008	0.006	0.005	0.004	0.003
0	0.328	0.177	0.110	0.073	0.050	0.035	0.024	0.017	0.012	0.009	0.006
-50	0.004	0.009	0.011	0.012	0.011	0.009	0.008	0.006	0.005	0.004	0.003
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MASS FLUX (mg/day)	1.6E+4	5.1E+2	3.5E+2	2.5E+2	1.9E+2	1.4E+2	1.0E+2	7.8E+1	5.8E+1	4.4E+1	3.3E+1

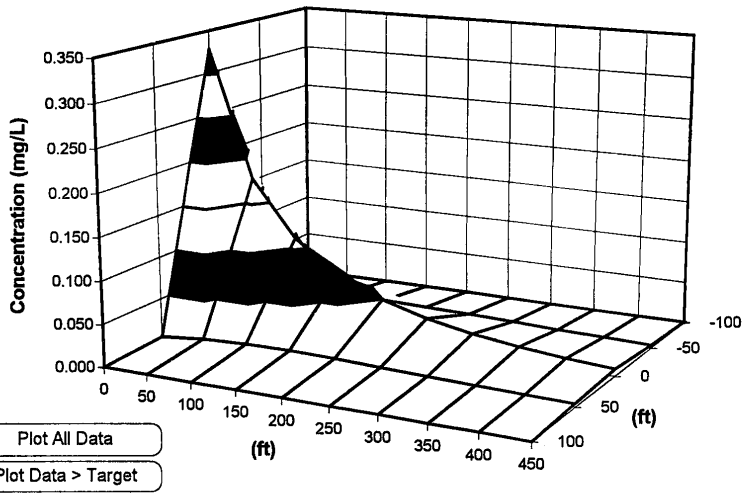
Model to Display:

No Degradation Model

1st Order Decay Model

Instantaneous Reaction Model

Time: **1000 Years** Target Level: **0.005** mg/L Displayed Model: **1st Order Decay**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years): 1800.0 *(Kg)*

Contam. Mass in Source Now (t=1000Years): 64.4 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier Xylenes — *Run Name*

Data Input Instructions:

115 (or 0.02) — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	112.1	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

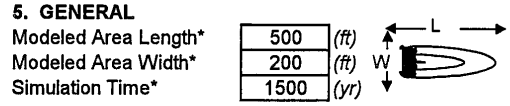
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	6.9E-1	(per yr)
or		↑ or	
Solute Half-Life	t-half	1.00	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.65	(mg/L)
Delta Nitrate*	NO3	0.7	(mg/L)
Observed Ferrous Iron*	Fe2+	16.6	(mg/L)
Delta Sulfate*	SO4	22.4	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

5. GENERAL

Modeled Area Length*	500	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	1500	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 (ft)

Source Zones:

Width* (ft)	Conc. (mg/L)*
30	0.1
25	2.508
20	9.18
25	2.508
30	0.1

Source Halflife (see Help):

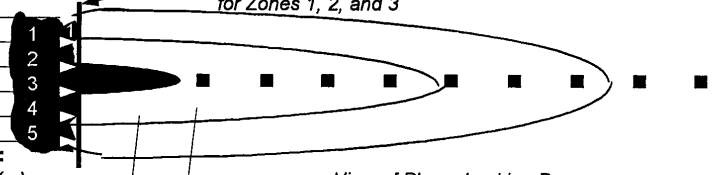
30 | 200 (yr)

Inst. React. ↑↑ 1st Order

Soluble Mass 1800 (Kg)

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	9.18			2.46	1.47						
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

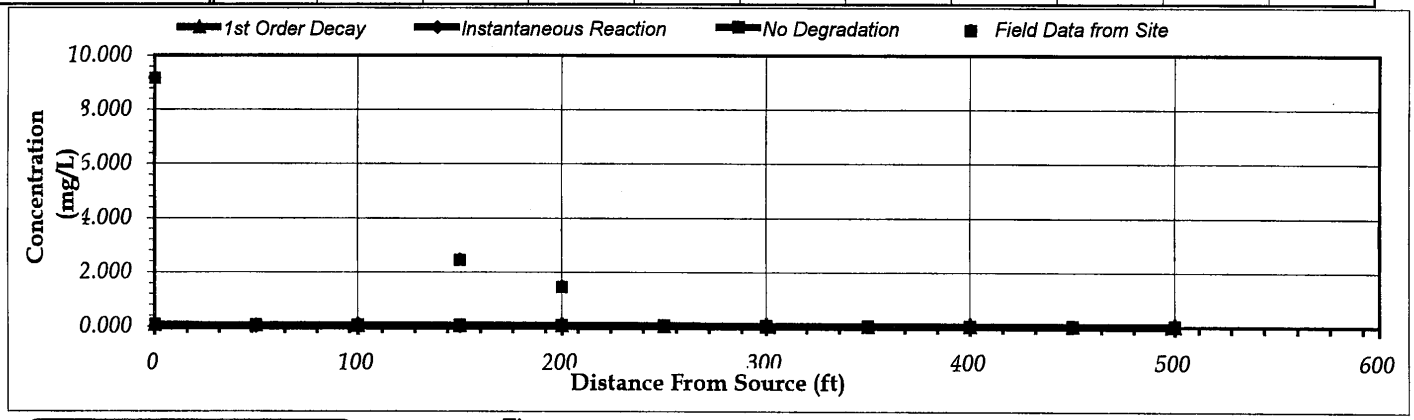
Help | Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	0.062	0.045	0.037	0.033	0.030	0.028	0.026	0.025	0.023	0.022	0.021
1st Order Decay	0.062	0.033	0.021	0.014	0.009	0.007	0.005	0.003	0.002	0.002	0.001
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	9.180			2.460	1.470						



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet

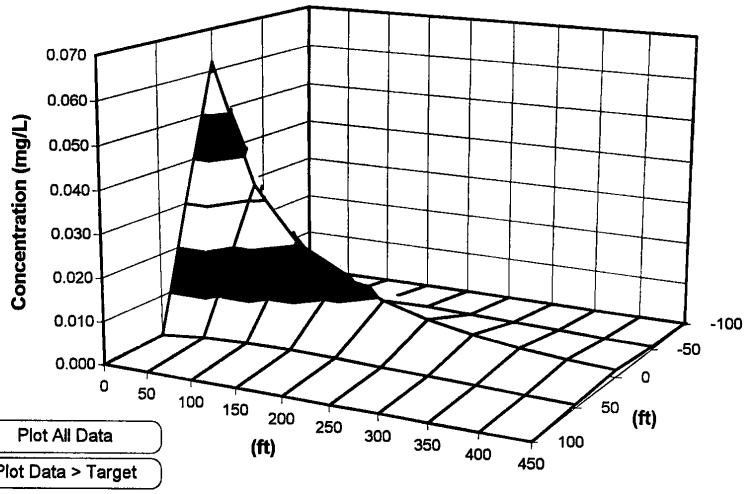
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
0	0.062	0.033	0.021	0.014	0.009	0.007	0.005	0.003	0.002	0.002	0.001
-50	0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MASS FLUX (mg/day)	1.6E+4	9.6E+1	6.6E+1	4.8E+1	3.5E+1	2.6E+1	2.0E+1	1.5E+1	1.1E+1	8.2E+0	6.2E+0

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: **1500 Years** Target Level: **0.005** mg/L Displayed Model: **1st Order Decay**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years): 1800.0 *(Kg)*

Contam. Mass in Source Now (t=1500Years): 12.2 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier / *Toluene* — *Run Name*

Data Input Instructions:

115 (or 0.02) — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	8.5	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	3.8E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

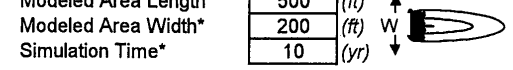
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	9.0E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.08	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	10	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

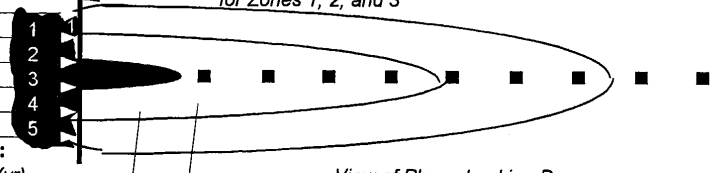
Source Zones:

Width* (ft)	Conc. (mg/L)*
20	2.5
20	10
20	20.3
20	10
20	2.5

Source Halflife (see Help):

200	400	*(yr)*
Inst. React.	↑ 1st Order	
Soluble Mass	825	*(Kg)*
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	20.3	11.7	6.24								
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This Sheet

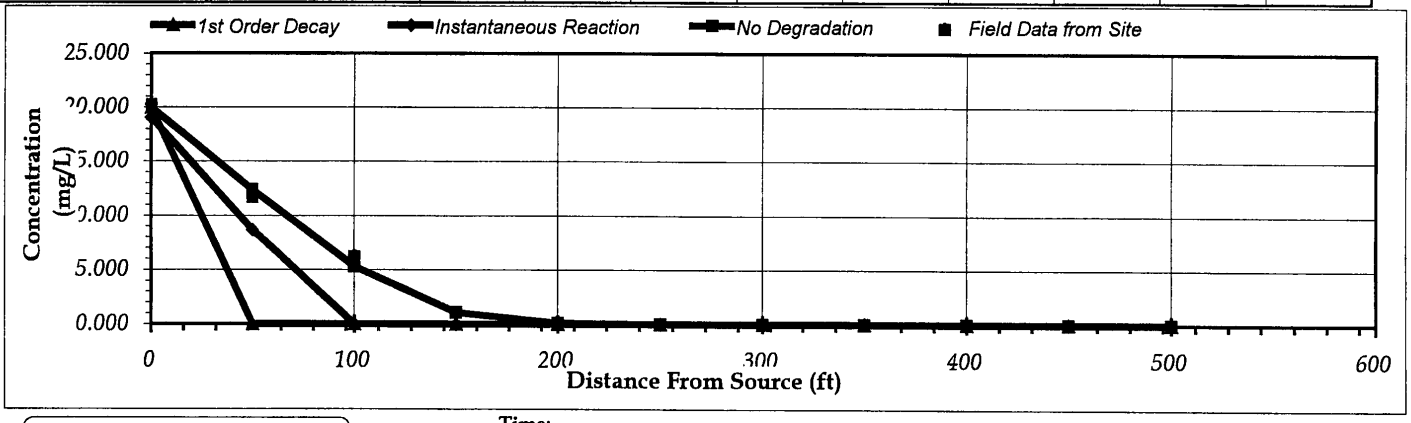
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	19.980	12.343	5.252	1.062	0.086	0.003	0.000	0.000	0.000	0.000	0.000
1st Order Decay	19.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	19.063	8.634	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	20.300	11.700	6.240								



Calculate Animation

Time: 10 Years

Return to Input

Recalculate This Sheet

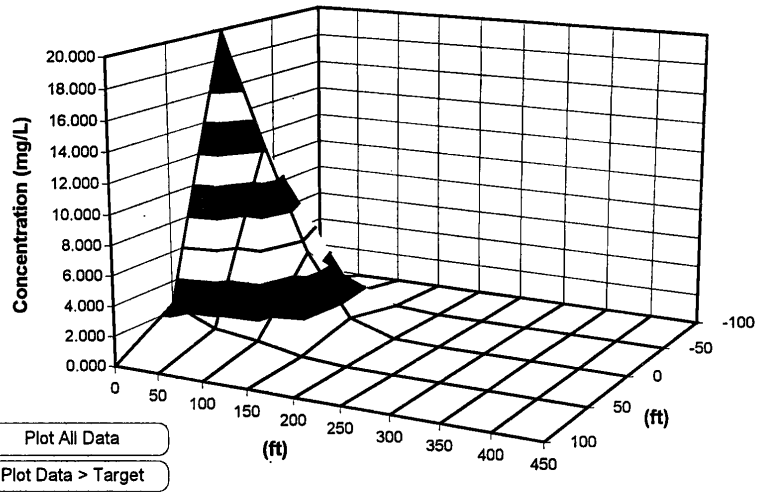
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
50	2.461	1.189	0.793	0.219	0.022	0.001	0.000	0.000	0.000	0.000	0.000
0	19.980	12.343	5.252	1.062	0.086	0.003	0.000	0.000	0.000	0.000	0.000
-50	2.461	1.189	0.793	0.219	0.022	0.001	0.000	0.000	0.000	0.000	0.000
-100	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MASS FLUX (mg/day)	3.6E+3	2.9E+3	1.4E+3	3.0E+2	2.6E+1	8.3E-1	9.4E-3	3.6E-5	4.7E-8	2.1E-11	0.0E+0

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: **10 Years** Target Level: **0.005** mg/L Displayed Model: **No Degradation**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	13.0	(Kg)
- Actual Plume Mass	13.0	(Kg)
= Plume Mass Removed by Biodeg	0.0	(Kg)
	0 %	

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	825.0	(Kg)
Contam. Mass in Source Now (t=10Years)	812.0	(Kg)
Current Volume of Groundwater in Plume	5.2	(ac-ft)
Flowrate of Water Through Source Zone	0.117	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Toluene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	8.5	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	3.8E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

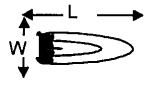
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	9.0E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.08	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	50	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

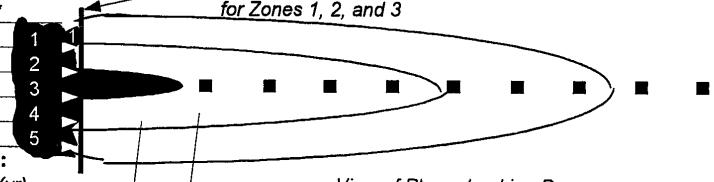
Source Zones:

Width* (ft)	Conc. (mg/L)*
20	2.5
20	10
20	20.3
20	10
20	2.5

Source Halflife (see Help):

200	400	*(yr)*
Inst. React.	↑ 1st Order	
Soluble Mass	825	*(Kg)*
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	20.3	11.7	6.24								
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

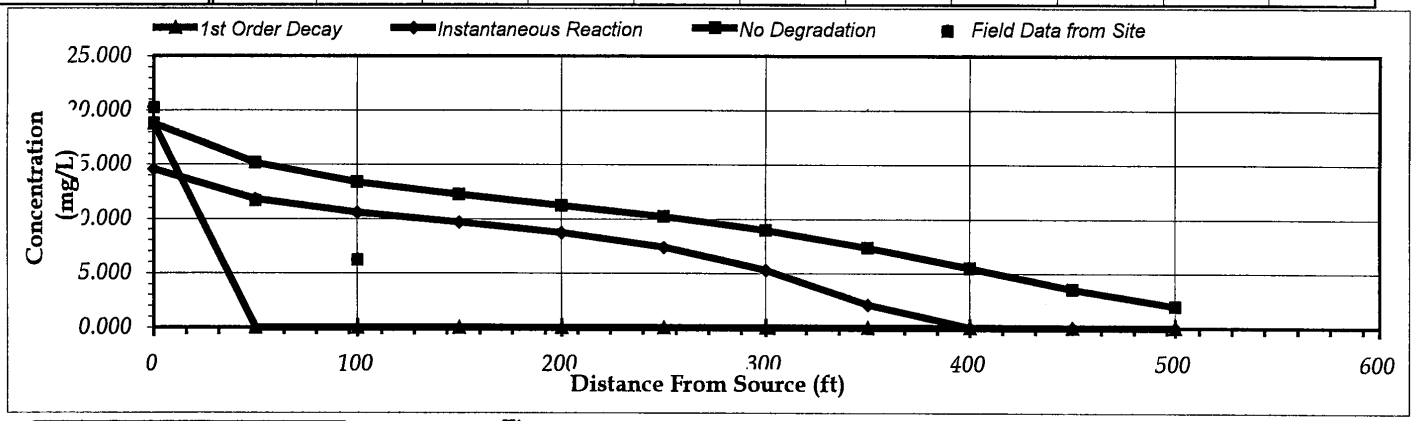
Help — Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	18.750	15.147	13.380	12.202	11.221	10.203	8.947	7.338	5.452	3.548	1.979
1st Order Decay	18.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	14.573	11.810	10.555	9.660	8.709	7.369	5.254	2.112	0.000	0.000	0.000
Field Data from Site	20.300	11.700	6.240								



Calculate Animation

Time: 50 Years

Return to Input

Recalculate This Sheet

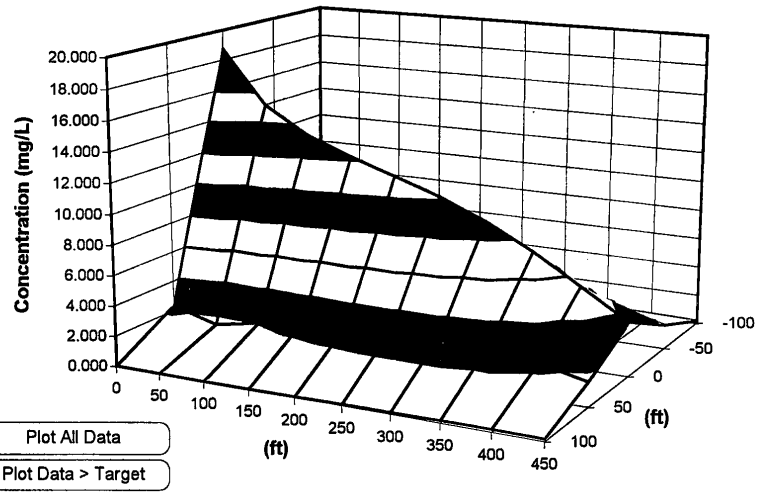
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.003	0.016	0.045	0.086	0.131	0.166	0.175	0.152	0.108
50	2.309	1.459	2.021	2.514	2.897	3.124	3.128	2.852	2.311	1.616	0.958
0	18.750	15.147	13.380	12.202	11.221	10.203	8.947	7.338	5.452	3.548	1.979
-50	2.309	1.459	2.021	2.514	2.897	3.124	3.128	2.852	2.311	1.616	0.958
-100	0.000	0.000	0.003	0.016	0.045	0.086	0.131	0.166	0.175	0.152	0.108
MASS FLUX (mg/day)	3.6E+3	3.6E+3	3.5E+3	3.4E+3	3.4E+3	3.3E+3	3.1E+3	2.6E+3	2.1E+3	1.4E+3	8.1E+2

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: **50 Years** Target Level: **0.005** mg/L Displayed Model: **No Degradation**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	63.0	(Kg)
- Actual Plume Mass	63.0	(Kg)
= Plume Mass Removed by Biodeg	0.0	(Kg)
	0 %	

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	825.0	(Kg)
Contam. Mass in Source Now (t=50Years)	762.0	(Kg)
Current Volume of Groundwater in Plume	16.9	(ac-ft)
Flowrate of Water Through Source Zone	0.117	(ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Toluene
Run Name

Data Input Instructions:

115 or 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	8.5	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	3.8E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

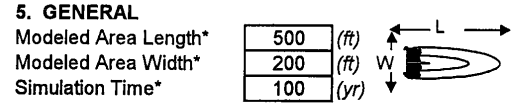
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	9.0E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.08	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	100	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*	
20	2.5	1
20	10	2
20	20.3	3
20	10	4
20	2.5	5

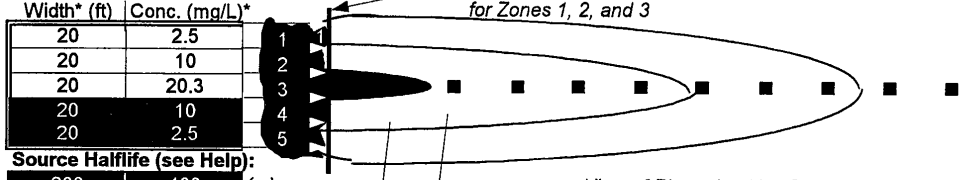
Source Halflife (see Help):

200 | 400 *(yr)*

Inst. React. ↑ ↑ 1st Order

Soluble Mass 825 *(Kg)*
In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	20.3	11.7	6.24								
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This Sheet

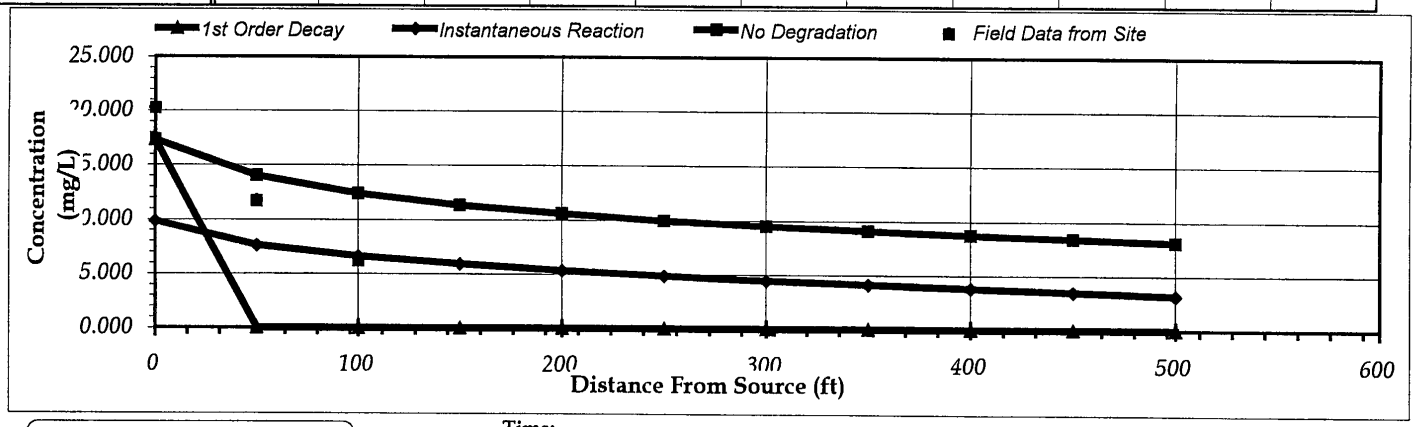
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	17.318	13.994	12.374	11.331	10.560	9.957	9.466	9.057	8.704	8.385	8.074
1st Order Decay	17.318	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	9.857	7.618	6.581	5.887	5.328	4.854	4.450	4.101	3.791	3.496	3.171
Field Data from Site	20.300	11.700	6.240								



Calculate Animation

Time: 100 Years

Return to Input

Recalculate This Sheet

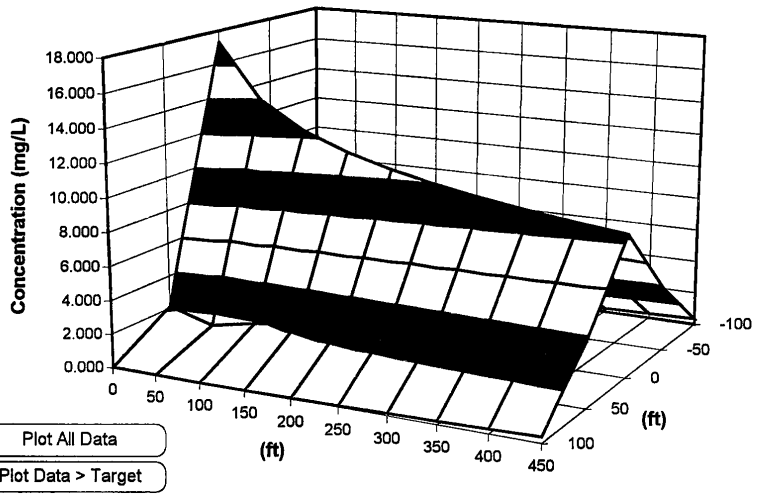
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.002	0.015	0.042	0.084	0.138	0.204	0.279	0.359	0.442
50	2.133	1.348	1.869	2.335	2.727	3.048	3.309	3.520	3.688	3.819	3.908
0	17.318	13.994	12.374	11.331	10.560	9.957	9.466	9.057	8.704	8.385	8.074
-50	2.133	1.348	1.869	2.335	2.727	3.048	3.309	3.520	3.688	3.819	3.908
-100	0.000	0.000	0.002	0.015	0.042	0.084	0.138	0.204	0.279	0.359	0.442
MASS FLUX (mg/day)	3.6E+3	3.3E+3	3.2E+3	3.2E+3	3.2E+3	3.2E+3	3.2E+3	3.3E+3	3.3E+3	3.3E+3	3.3E+3

Model to Display:

- *No Degradation Model*
- *1st Order Decay Model*
- *Instantaneous Reaction Model*

Time: **100 Years** Target Level: **0.005** mg/L Displayed Model: **No Degradation**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	121.2	*(Kg)*
- Actual Plume Mass	121.2	*(Kg)*
= Plume Mass Removed by Biodeg	0.0	*(Kg)*
	0 %	

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years)	825.0	*(Kg)*
Contam. Mass in Source Now (t=100Years)	703.8	*(Kg)*
Current Volume of Groundwater in Plume	16.9	*(ac-ft)*
Flowrate of Water Through Source Zone	0.117	*(ac-ft/yr)*

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Toluene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	8.5	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	3.8E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

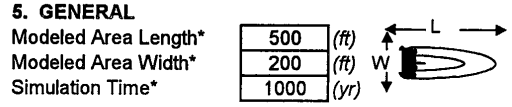
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	9.0E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.08	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	1000	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

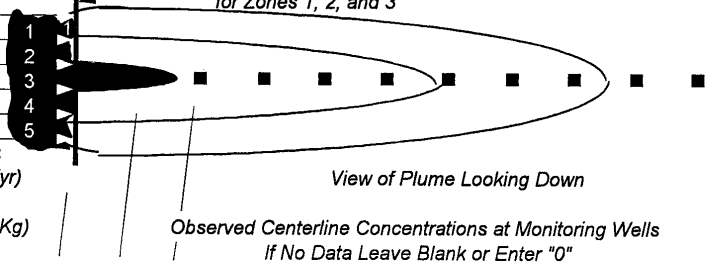
Source Zones:

Width* (ft)	Conc. (mg/L)*
20	2.5
20	10
20	20.3
20	10
20	2.5

Source Halflife (see Help):

200	400	*(yr)*
Inst. React. ↑	↑ 1st Order	
Soluble Mass	825	*(Kg)*
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	20.3	11.7	6.24								
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

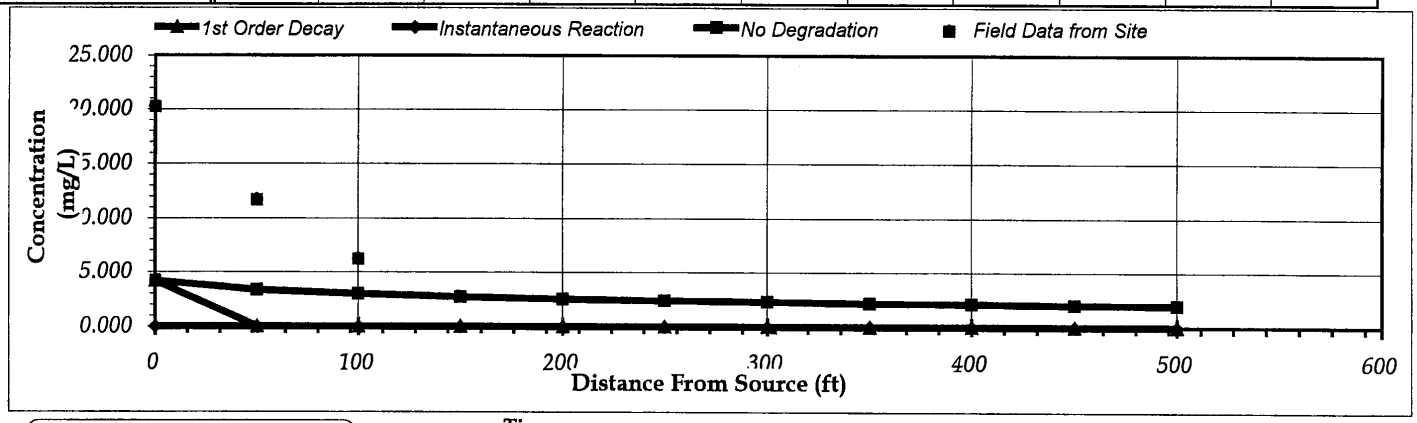
Help — Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	4.146	3.350	2.962	2.713	2.528	2.384	2.267	2.169	2.087	2.016	1.955
1st Order Decay	4.146	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	20.300	11.700	6.240								



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet

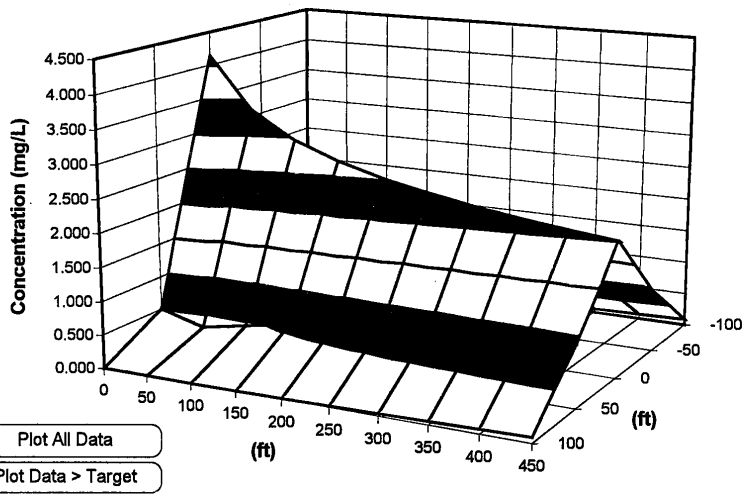
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.001	0.004	0.010	0.020	0.033	0.049	0.067	0.086	0.107
50	0.511	0.323	0.447	0.559	0.653	0.730	0.792	0.843	0.884	0.918	0.946
0	4.146	3.350	2.962	2.713	2.528	2.384	2.267	2.169	2.087	2.016	1.955
-50	0.511	0.323	0.447	0.559	0.653	0.730	0.792	0.843	0.884	0.918	0.946
-100	0.000	0.000	0.001	0.004	0.010	0.020	0.033	0.049	0.067	0.086	0.107
MASS FLUX (mg/day)	3.6E+3	7.9E+2	7.6E+2	7.6E+2	7.6E+2	7.7E+2	7.8E+2	7.8E+2	7.9E+2	8.0E+2	8.0E+2

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: **1000 Years** Target Level: **0.005** mg/L Displayed Model: **No Degradation**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. *(Kg)*

- Actual Plume Mass: Can't Calc. *(Kg)*

= Plume Mass Removed by Biodeg: - *(Kg)*

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	*(Kg)*

Contam. Mass in Source (t=0 Years): 825.0 *(Kg)*

Contam. Mass in Source Now (t=1000Years): 168.5 *(Kg)*

Current Volume of Groundwater in Plume: Can't Calc. *(ac-ft)*

Flowrate of Water Through Source Zone: Can't Calc. *(ac-ft/yr)*

Mass HELP **Recalculate**

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Toluene
Run Name

Data Input Instructions:

115 or 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*

20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	8.5	*(ft/yr)*
or		or	
Hydraulic Conductivity	*K*	3.8E-04	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

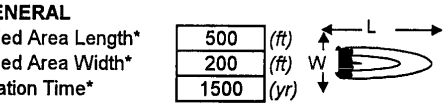
Retardation Factor*	*R*	1.0	*(-)*
or		or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	9.0E+0	*(per yr)*
or		or	
Solute Half-Life	*t-half*	0.08	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	500	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	1500	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 20 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*
20	2.5
20	10
20	20.3
20	10
20	2.5

Source Halflife (see Help):

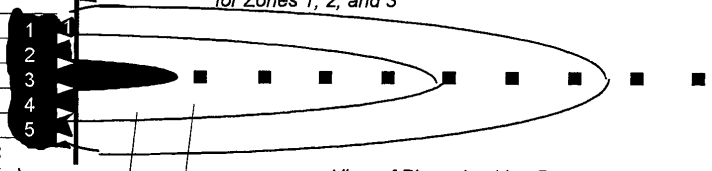
200 | 400 *(yr)*

Inst. React. | 1st Order

Soluble Mass 825 *(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	20.3	11.7	6.24								
Dist. from Source (ft)	0	50	100	150	200	250	300	350	400	450	500

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This Sheet

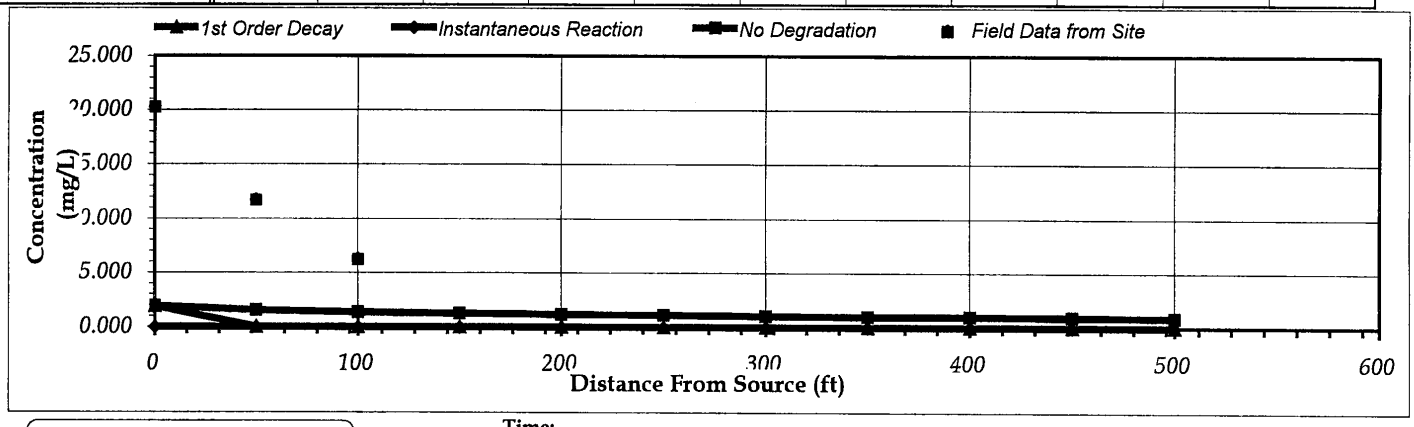
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	50	100	150	200	250	300	350	400	450	500
No Degradation	1.874	1.514	1.339	1.226	1.143	1.077	1.024	0.980	0.943	0.911	0.884
1st Order Decay	1.874	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	20.300	11.700	6.240								



Calculate Animation

Time: 1,500 Years

Return to Input

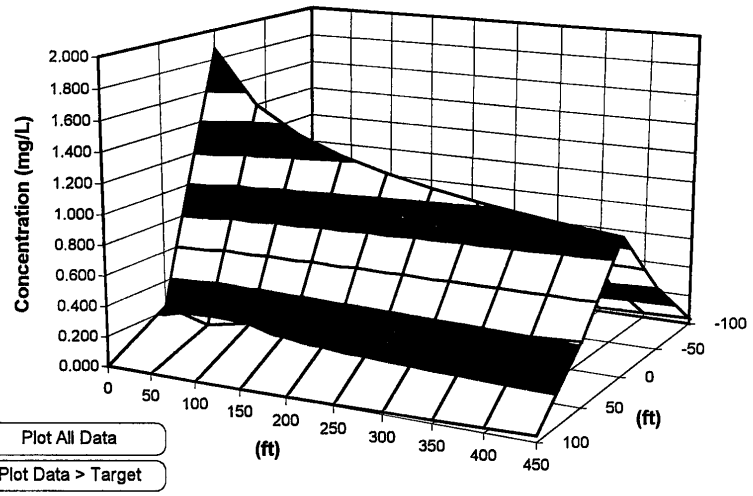
Recalculate This Sheet

DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
100	0.000	0.000	0.000	0.002	0.005	0.009	0.015	0.022	0.030	0.039	0.048
50	0.231	0.146	0.202	0.253	0.295	0.330	0.358	0.381	0.400	0.415	0.428
0	1.874	1.514	1.339	1.226	1.143	1.077	1.024	0.980	0.943	0.911	0.884
-50	0.231	0.146	0.202	0.253	0.295	0.330	0.358	0.381	0.400	0.415	0.428
-100	0.000	0.000	0.000	0.002	0.005	0.009	0.015	0.022	0.030	0.039	0.048
MASS FLUX (mg/day)	3.6E+3	3.6E+2	3.5E+2	3.4E+2	3.5E+2	3.5E+2	3.5E+2	3.5E+2	3.6E+2	3.6E+2	3.6E+2

Model to Display:
- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 1500 Years Target Level: 0.005 mg/L Displayed Model: No Degradation



Plot All Data
Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	(Kg)
- Actual Plume Mass	Can't Calc.	(Kg)
= Plume Mass Removed by Biodeg	-	(Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	825.0	(Kg)
Contam. Mass in Source Now (t=1500Years)	76.1	(Kg)
Current Volume of Groundwater in Plume	Can't Calc.	(ac-ft)
Flowrate of Water Through Source Zone	Can't Calc.	(ac-ft/yr)

Mass HELP Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier / *Ethylbenzene* — *Run Name*

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or
0.02 — 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — *Data used directly in model.*
20. — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

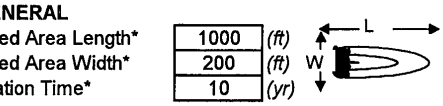
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	1.1E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.63	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	1000	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	10	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 10 *(ft)*

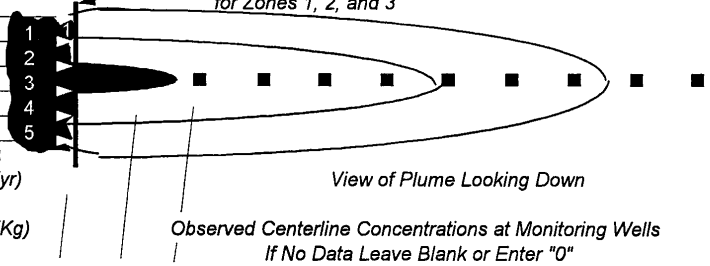
Source Zones:

Width* (ft)	Conc. (mg/L)*
19	0.045
22	0.45
29	0.95
22	0.45
19	0.045

Source Halflife (see Help):

20	500	*(yr)*
Inst. React.	↑ 1st Order	
Soluble Mass In Source NAPL, Soil	365	*(Kg)*

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.95		.67								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This Sheet

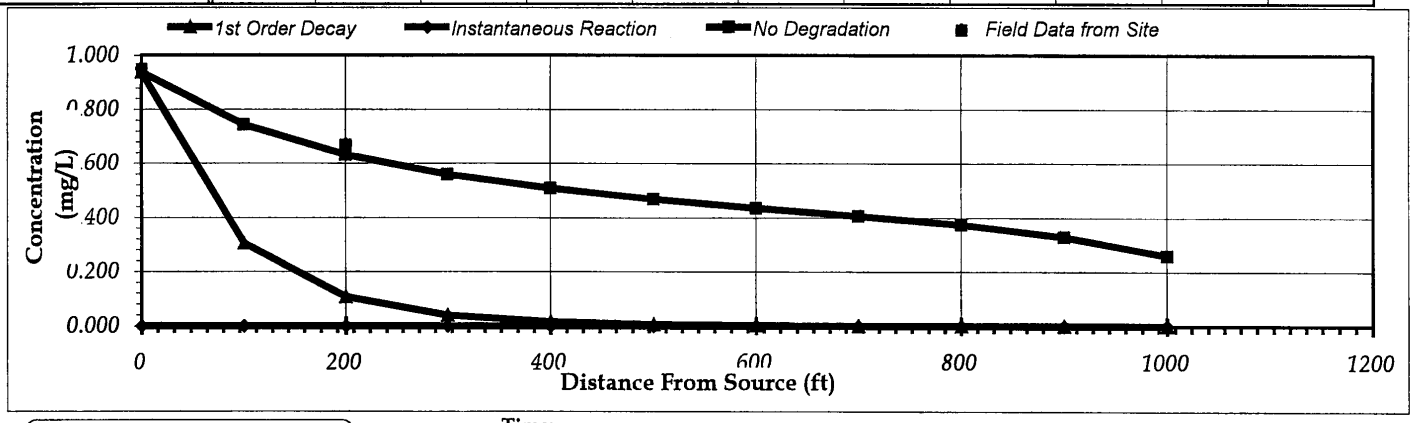
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.938	0.744	0.631	0.559	0.506	0.467	0.434	0.406	0.373	0.327	0.259
1st Order Decay	0.938	0.304	0.105	0.038	0.014	0.005	0.002	0.001	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.950		0.670								



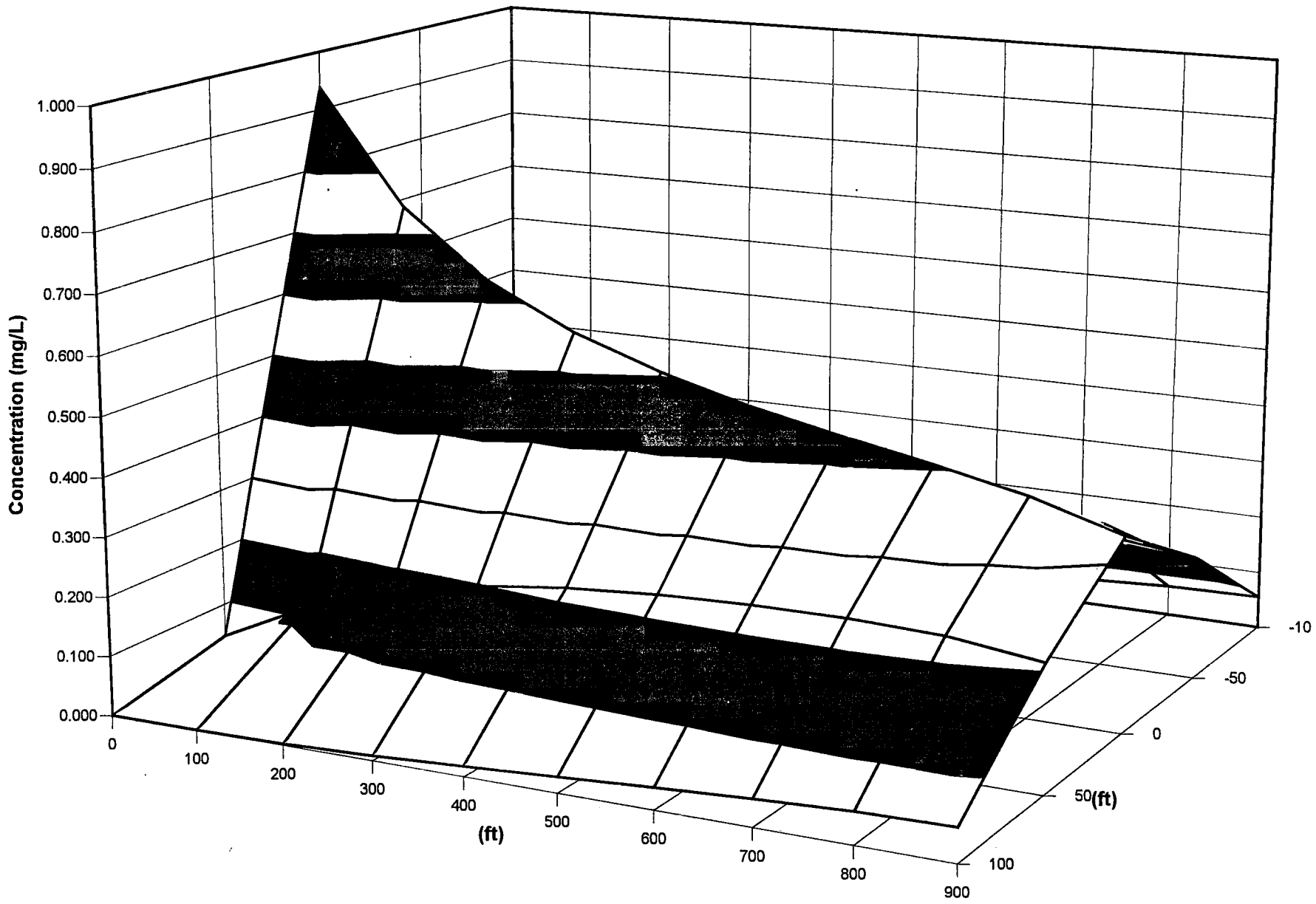
Calculate Animation

Time: 10 Years

Return to Input

Recalculate This Sheet

Plume Output Chart 5



BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Ethylbenzene
Run Name

Data Input Instructions:

115 — 1. Enter value directly....or
↑ or — 2. Calculate by filling in grey
0.02 — cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.
20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	112.1	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

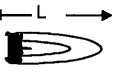
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	1.1E+0	(per yr)
or		↑ or	
Solute Half-Life	t-half	0.63	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.65	(mg/L)
Delta Nitrate*	NO3	0.7	(mg/L)
Observed Ferrous Iron*	Fe2+	16.6	(mg/L)
Delta Sulfate*	SO4	22.4	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	50	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

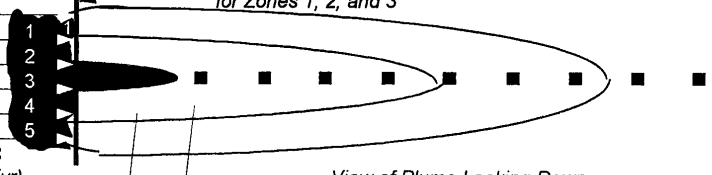
Source Zones:

Width* (ft)	Conc. (mg/L)*
19	0.045
22	0.45
29	0.95
22	0.45
19	0.045

Source Halflife (see Help):

20	500	(yr)
Inst. React.	1st Order	
Soluble Mass	365	(Kg)
In Source NAPL, Soil		

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.95		.67								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help | Recalculate This Sheet

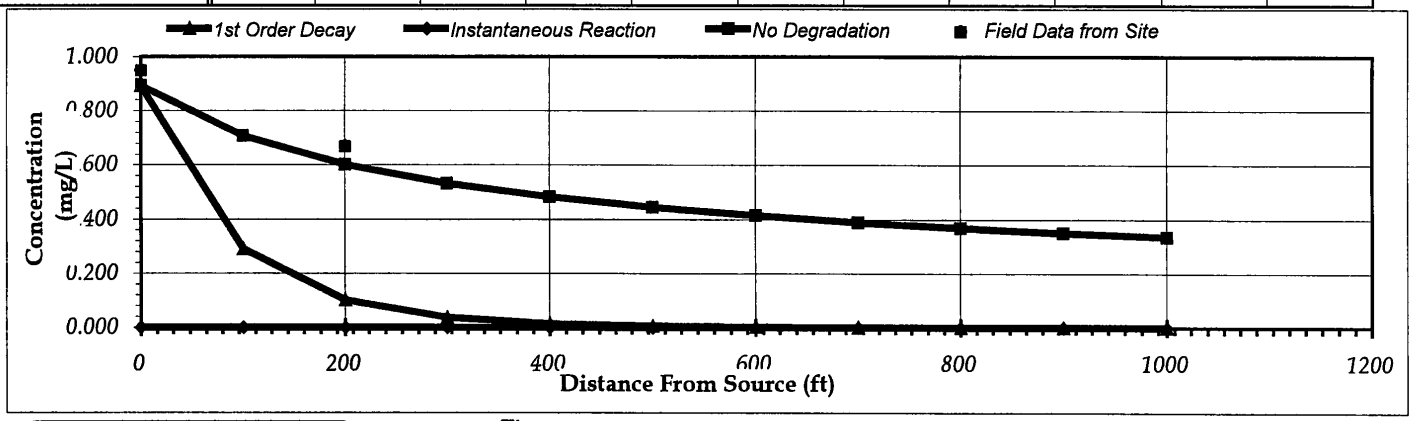
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.891	0.707	0.600	0.531	0.481	0.443	0.413	0.389	0.368	0.351	0.336
1st Order Decay	0.891	0.289	0.100	0.036	0.013	0.005	0.002	0.001	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.950		0.670								



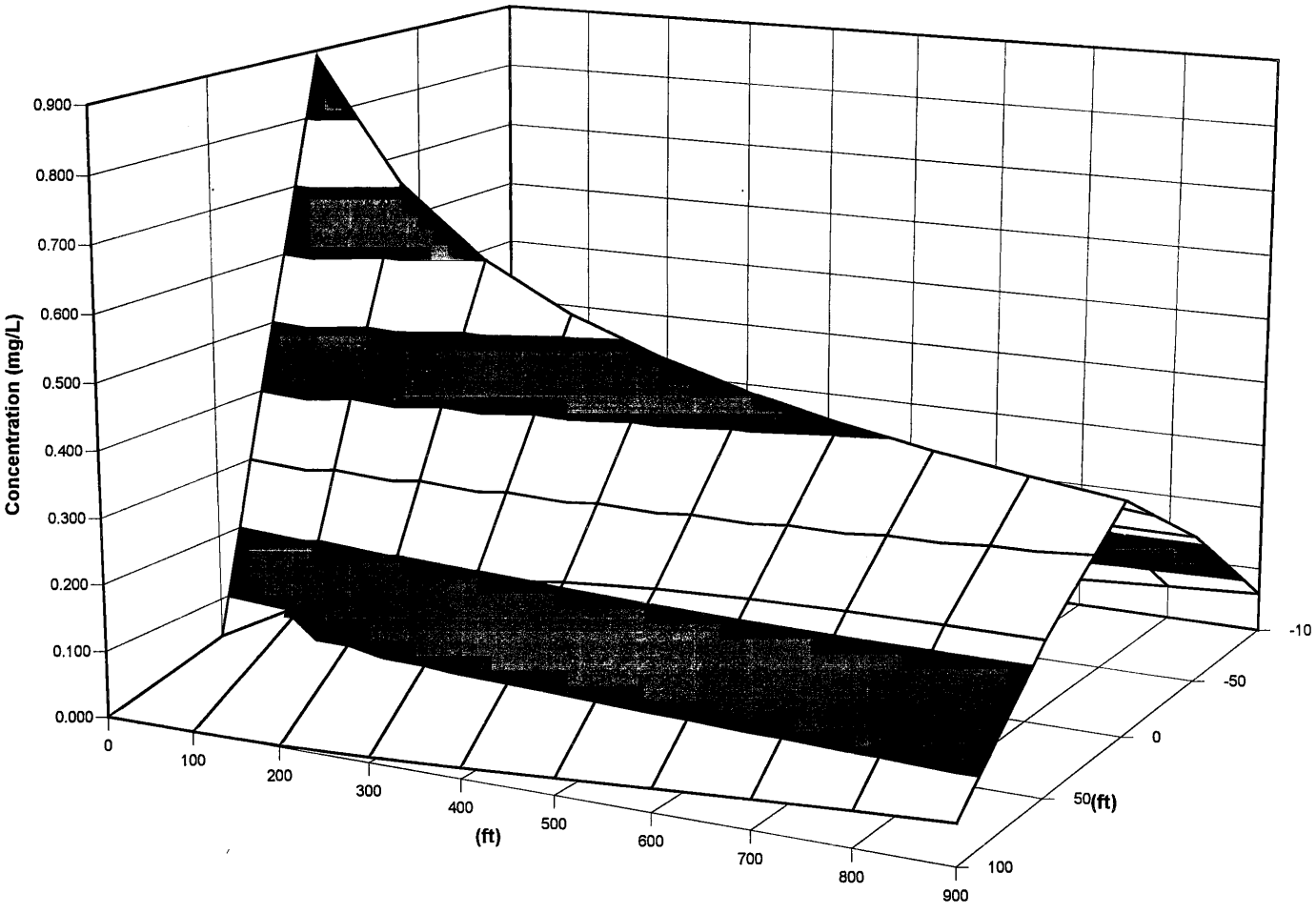
Calculate Animation

Time: 50 Years

Return to Input

Recalculate This Sheet

Plume Output Chart 5



BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier Ethylbenzene — *Run Name*

Data Input Instructions:

115 (or ↑) 0.02 — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		↑ or	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ or	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

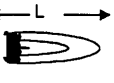
Retardation Factor*	*R*	1.0	*(-)*
or		↑ or	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	1.1E+0	*(per yr)*
or		↑ or	
Solute Half-Life	*t-half*	0.63	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	1000	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	100	*(yr)*



6. SOURCE DATA

Source Thickness in Sat.Zone* 10 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*
19	0.045
22	0.45
29	0.95
22	0.45
19	0.045

Source Halflife (see Help):

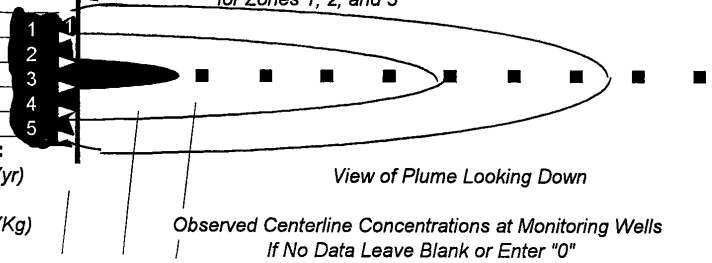
20 | 500 *(yr)*

Inst. React. ↑↑ 1st Order

Soluble Mass 365 *(Kg)*

In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.95		.67								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help — Recalculate This Sheet

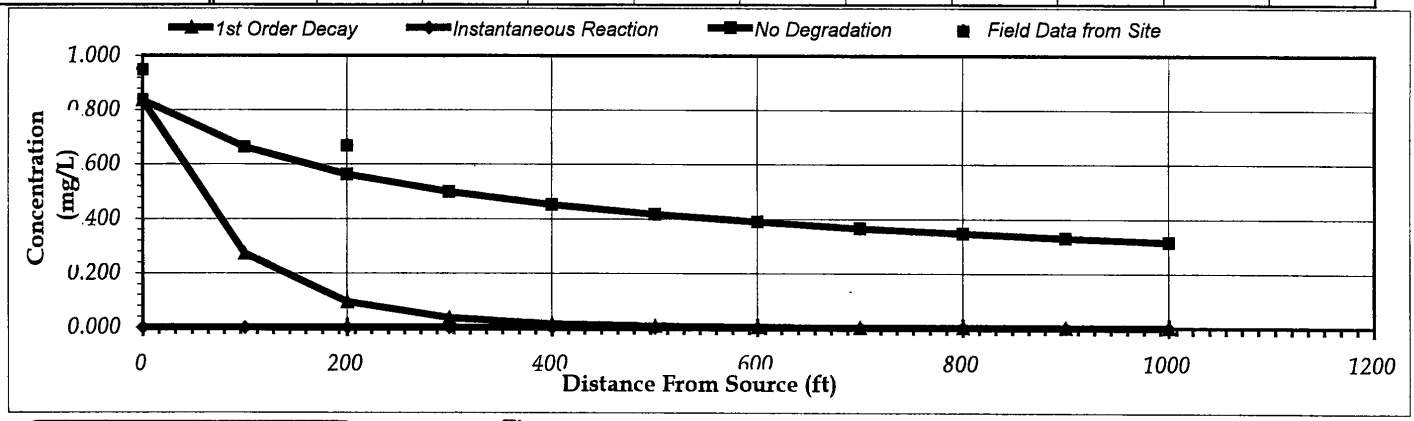
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.836	0.663	0.563	0.498	0.451	0.416	0.388	0.365	0.345	0.329	0.315
1st Order Decay	0.836	0.271	0.094	0.034	0.013	0.005	0.002	0.001	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.950		0.670								



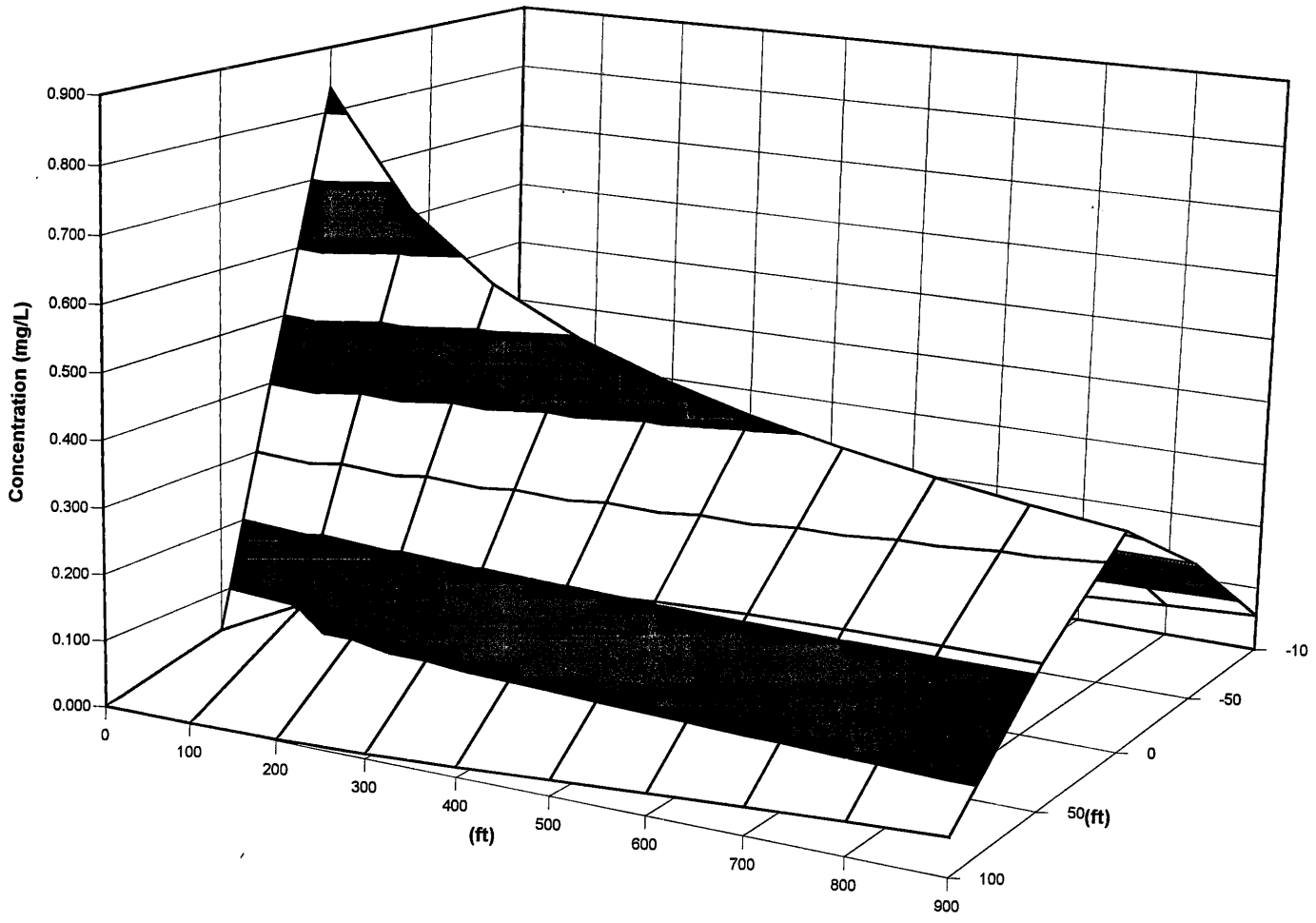
Calculate Animation

Time: 100 Years

Return to Input

Recalculate This Sheet

Plume Output Chart 5



BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Ethylbenzene
Run Name

Data Input Instructions:

115 (or 0.02) — 1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).

Variable* — Data used directly in model.

20 — Value calculated by model. (Don't enter any data).

1. HYDROGEOLOGY

Seepage Velocity*	Vs	112.1	(ft/yr)
or		↑ or	
Hydraulic Conductivity	K	5.0E-03	(cm/sec)
Hydraulic Gradient	i	0.0065	(ft/ft)
Porosity	n	0.3	(-)

2. DISPERSION

Longitudinal Dispersivity*	alpha x	13.3	(ft)
Transverse Dispersivity*	alpha y	1.3	(ft)
Vertical Dispersivity*	alpha z	0.0	(ft)
or		↑ or	
Estimated Plume Length	Lp	280	(ft)

3. ADSORPTION

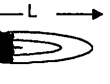
Retardation Factor*	R	1.0	(-)
or		↑ or	
Soil Bulk Density	rho	1.7	(kg/l)
Partition Coefficient	Koc	38	(L/kg)
FractionOrganicCarbon	foc	5.7E-5	(-)

4. BIODEGRADATION

1st Order Decay Coeff*	lambda	1.1E+0	(per yr)
or		↑ or	
Solute Half-Life	t-half	0.63	(year)
or Instantaneous Reaction Model			
Delta Oxygen*	DO	1.65	(mg/L)
Delta Nitrate*	NO3	0.7	(mg/L)
Observed Ferrous Iron*	Fe2+	16.6	(mg/L)
Delta Sulfate*	SO4	22.4	(mg/L)
Observed Methane*	CH4	6.6	(mg/L)

5. GENERAL

Modeled Area Length*	1000	(ft)
Modeled Area Width*	200	(ft)
Simulation Time*	1000	(yr)



6. SOURCE DATA

Source Thickness in Sat.Zone* 10 (ft)

Source Zones:

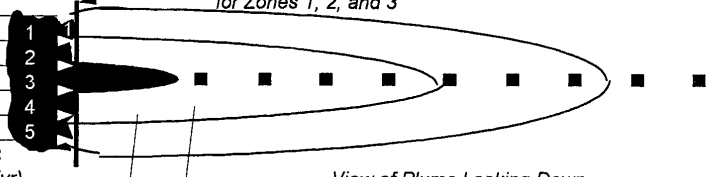
Width* (ft)	Conc. (mg/L)*
19	0.045
22	0.45
29	0.95
22	0.45
19	0.045

Source Halflife (see Help):

20 (Inst. React.) | 500 (1st Order) (yr)

Soluble Mass 365 (Kg)
In Source NAPL, Soil

Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3



View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Dist. from Source (ft)	Concentration (mg/L)
0	.95
100	
200	.67
300	
400	
500	
600	
700	
800	
900	
1000	

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

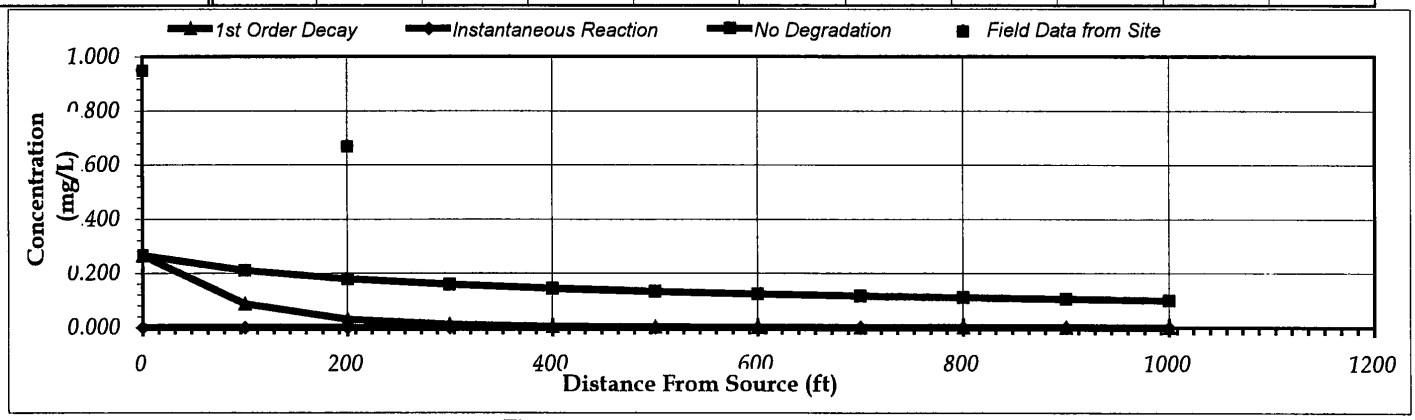
Help — Recalculate This Sheet

Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

	Distance from Source (ft)										
TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.264	0.210	0.178	0.157	0.143	0.132	0.123	0.115	0.109	0.104	0.100
1st Order Decay	0.264	0.086	0.030	0.011	0.004	0.002	0.001	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.950		0.670								



Calculate Animation

Time: 1,000 Years

Return to Input

Recalculate This Sheet

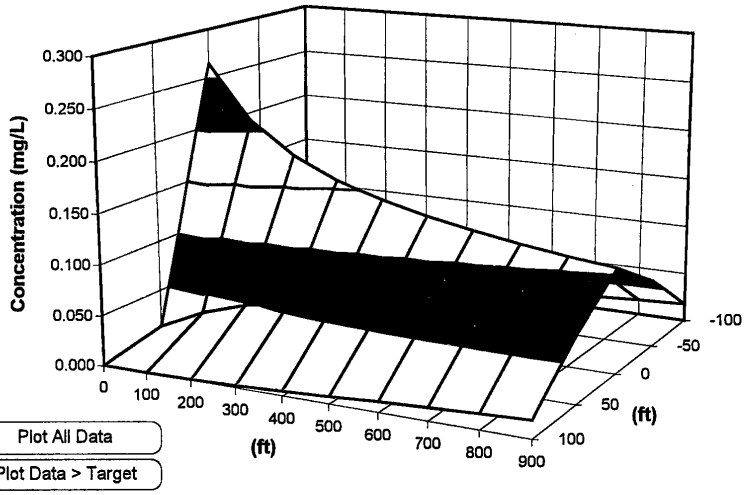
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000
100	0.000	0.000	0.001	0.002	0.005	0.007	0.010	0.013	0.015	0.017	0.019
50	0.013	0.033	0.047	0.056	0.061	0.064	0.066	0.067	0.067	0.067	0.066
0	0.264	0.210	0.178	0.157	0.143	0.132	0.123	0.115	0.109	0.104	0.100
-50	0.013	0.033	0.047	0.056	0.061	0.064	0.066	0.067	0.067	0.067	0.066
-100	0.000	0.000	0.001	0.002	0.005	0.007	0.010	0.013	0.015	0.017	0.019
MASS FLUX (mg/day)	1.3E+3	3.6E+2	3.6E+2	3.6E+2	3.6E+2	3.6E+2	3.6E+2	3.6E+2	3.6E+2	3.5E+2	3.5E+2

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: 1000 Years Target Level: 0.005 mg/L Displayed Model: No Degradation



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation: Can't Calc. (Kg)

- Actual Plume Mass: Can't Calc. (Kg)

= Plume Mass Removed by Biodeg: - (Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	Nitrate	Iron II	Sulfate	Methane	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years): 365.0 (Kg)

Contam. Mass in Source Now (t=1000Years): 101.6 (Kg)

Current Volume of Groundwater in Plume: Can't Calc. (ac-ft)

Flowrate of Water Through Source Zone: Can't Calc. (ac-ft/yr)

Mass HELP

Recalculate

BIOSCREEN Natural Attenuation Decision Support System

Air Force Center for Environmental Excellence — *Version 1.4*

Purolator Courier
Ethylbenzene
Run Name

Data Input Instructions:

115 or 0.02 — *1. Enter value directly....or 2. Calculate by filling in grey cells below. (To restore formulas, hit button below).*

Variable* — *Data used directly in model.*

20 — *Value calculated by model. (Don't enter any data).*

1. HYDROGEOLOGY

Seepage Velocity*	*Vs*	112.1	*(ft/yr)*
or		↑ *or*	
Hydraulic Conductivity	*K*	5.0E-03	*(cm/sec)*
Hydraulic Gradient	*i*	0.0065	*(ft/ft)*
Porosity	*n*	0.3	*(-)*

2. DISPERSION

Longitudinal Dispersivity*	*alpha x*	13.3	*(ft)*
Transverse Dispersivity*	*alpha y*	1.3	*(ft)*
Vertical Dispersivity*	*alpha z*	0.0	*(ft)*
or		↑ *or*	
Estimated Plume Length	*Lp*	280	*(ft)*

3. ADSORPTION

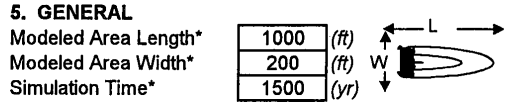
Retardation Factor*	*R*	1.0	*(-)*
or		↑ *or*	
Soil Bulk Density	*rho*	1.7	*(kg/l)*
Partition Coefficient	*Koc*	38	*(L/kg)*
FractionOrganicCarbon	*foc*	5.7E-5	*(-)*

4. BIODEGRADATION

1st Order Decay Coeff*	*lambda*	1.1E+0	*(per yr)*
or		↑ *or*	
Solute Half-Life	*t-half*	0.63	*(year)*
or Instantaneous Reaction Model			
Delta Oxygen*	*DO*	1.65	*(mg/L)*
Delta Nitrate*	*NO3*	0.7	*(mg/L)*
Observed Ferrous Iron*	*Fe2+*	16.6	*(mg/L)*
Delta Sulfate*	*SO4*	22.4	*(mg/L)*
Observed Methane*	*CH4*	6.6	*(mg/L)*

5. GENERAL

Modeled Area Length*	1000	*(ft)*
Modeled Area Width*	200	*(ft)*
Simulation Time*	1500	*(yr)*



6. SOURCE DATA

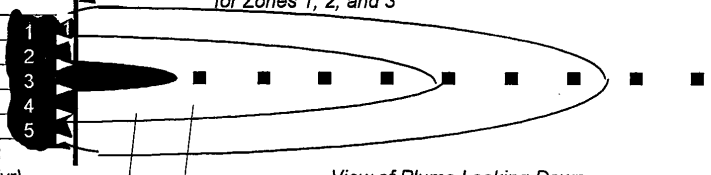
Source Thickness in Sat.Zone* 10 *(ft)*

Source Zones:

Width* (ft)	Conc. (mg/L)*
19	0.045
22	0.45
29	0.95
22	0.45
19	0.045

Source Halflife (see Help):

20	500 *(yr)*
Inst. React. ↑	↑ 1st Order
Soluble Mass In Source NAPL, Soil	365 *(Kg)*



Vertical Plane Source: Look at Plume Cross-Section and Input Concentrations & Widths for Zones 1, 2, and 3

View of Plume Looking Down

Observed Centerline Concentrations at Monitoring Wells
If No Data Leave Blank or Enter "0"

7. FIELD DATA FOR COMPARISON

Concentration (mg/L)	.95		.67								
Dist. from Source (ft)	0	100	200	300	400	500	600	700	800	900	1000

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE — **View Output**

RUN ARRAY — **View Output**

Help

Recalculate This Sheet

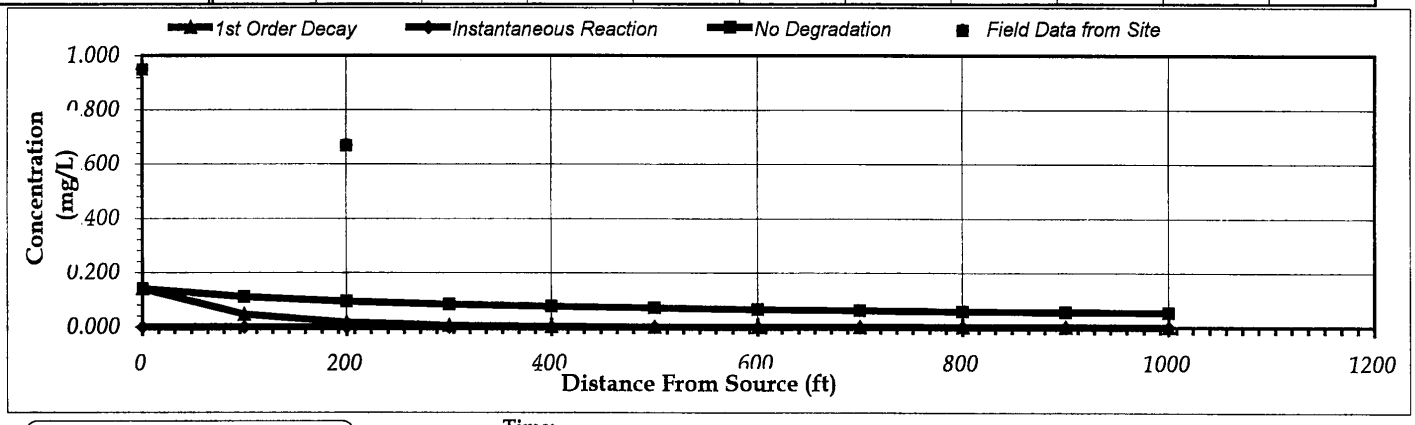
Paste Example Dataset

Restore Formulas for Vs, Dispersivities, R, lambda, other

DISSOLVED HYDROCARBON CONCENTRATION ALONG PLUME CENTERLINE (mg/L at Z=0)

Distance from Source (ft)

TYPE OF MODEL	0	100	200	300	400	500	600	700	800	900	1000
No Degradation	0.139	0.111	0.094	0.083	0.075	0.069	0.065	0.061	0.058	0.055	0.053
1st Order Decay	0.139	0.045	0.016	0.006	0.002	0.001	0.000	0.000	0.000	0.000	0.000
Inst. Reaction	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Field Data from Site	0.950		0.670								



Calculate Animation

Time: 1,500 Years

Return to Input

Recalculate This Sheet

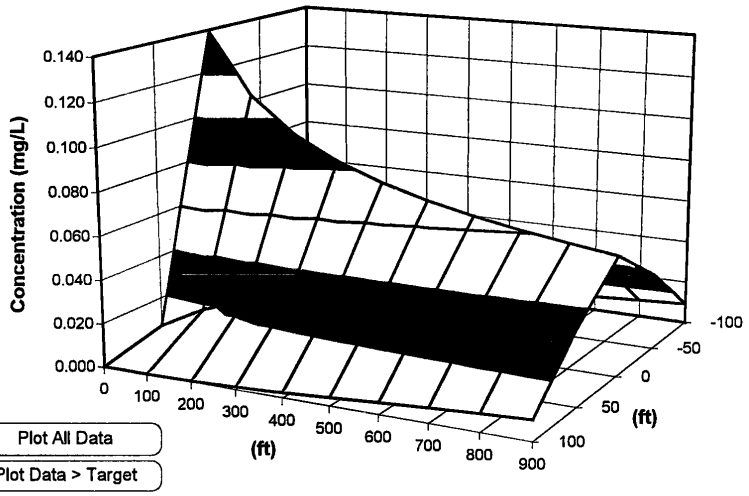
DISSOLVED HYDROCARBON CONCENTRATIONS IN PLUME (mg/L at Z=0)

Transverse Distance (ft) ⇓	Distance from Source (ft) 0	100	200	300	400	500	600	700	800	900	1000
100	0.000	0.000	0.000	0.001	0.002	0.004	0.005	0.007	0.008	0.009	0.010
50	0.007	0.017	0.025	0.030	0.032	0.034	0.035	0.035	0.035	0.035	0.035
0	0.139	0.111	0.094	0.083	0.075	0.069	0.065	0.061	0.058	0.055	0.053
-50	0.007	0.017	0.025	0.030	0.032	0.034	0.035	0.035	0.035	0.035	0.035
-100	0.000	0.000	0.000	0.001	0.002	0.004	0.005	0.007	0.008	0.009	0.010
MASS FLUX (mg/day)	1.3E+3	1.9E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2	1.9E+2

Model to Display:

- No Degradation Model
- 1st Order Decay Model
- Instantaneous Reaction Model

Time: **1500 Years** Target Level: **0.005** mg/L Displayed Model: **No Degradation**



Plot All Data

Plot Data > Target

Plume and Source Masses (Order-of-Magnitude Accuracy)

Plume Mass if No Biodegradation	Can't Calc.	(Kg)
- Actual Plume Mass	Can't Calc.	(Kg)
= Plume Mass Removed by Biodeg	-	(Kg)

Change in Electron Acceptor/Byproduct Masses:

Oxygen	*Nitrate*	*Iron II*	*Sulfate*	*Methane*	
na	na	na	na	na	(Kg)

Contam. Mass in Source (t=0 Years)	365.0	(Kg)
Contam. Mass in Source Now (t=1500Years)	53.6	(Kg)
Current Volume of Groundwater in Plume	Can't Calc.	(ac-ft)
Flowrate of Water Through Source Zone	Can't Calc.	(ac-ft/yr)

Mass HELP

Recalculate

DHEC

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

Report On Records Destroyed
Records and Forms Management Unit
[UST Program ONLY]

1. Return this form to:
Records and Forms Management Unit
2600 Bull Street
Columbia, SC 29201

The records listed below have been disposed of in accordance with provisions of the Public Records Act, Code of Laws of South Carolina, 1976, Sections 30-1-10 through 30-1-140, as amended, and approved Records Retention Schedules.

2. Signature: Catherine Kuchinsky

3. Title: Program Coordinator Date: 11/24/98

Agency Records Officer signature:

4. Record Series Titles	5. Record Series #	6. Inclusive Dates	7. Volume (cubic footage)	8. Date of Destruction*
Ass. Plan	09344	5/92	.04	11/23/98
~~#~~	~~#~~	~~1/98~~		
*Documents put in recycle box on date of destruction			9) .04	Total Cubic Feet destroyed

SITE ID #: 05878 FACILITY NAME: Former Purolator Courier Site

REVIEWED BY NAME: Kristen Hein

DHEC 0521A (04/1998) Page 1 of 2 [Records Retention Schedule #'s 12-300 and 12-331]

UST PROGRAM DOCKETING # 37 Tech

DAVIS & FLOYD
Engineering
Architecture
Environmental & Laboratory Services

240 Stoneridge Drive, Suite 200 Columbia, SC 29210 • (803) 254-4337 (office) (803) 254-4549 (fax)

HAND DELIVERED

RECEIVED
APR 16 1998
Bureau of Underground
Storage Tank Management

April 16, 1998
Serial No. DHC-115-98
Job No. 50098.01

Mr. Michael Bishop
Division of Underground Storage Tank Management
SCDHEC
2600 Bull Street
Columbia, SC 29201

Reference: Rapid Assessment Plan
Former Purolator Courier Site
West Columbia, South Carolina
Site ID# 05878

Dear Mr. Bishop:

The Rapid Assessment Plan for the referenced site, submitted April 14, 1998, did not include the required site maps which are included with this submittal. We apologize for any inconvenience the omission may have caused. If you have any questions about the plan, please call.

Sincerely,

DAVIS & FLOYD, INC.

D.H. Campbell

David H. Campbell, Jr., P.G.

DHC/pjo

Attachments: As stated

cc: Mr. William S. Durham, Jr.

UST PROGRAM
DOCKETING # 38Tech

RAPID ASSESSMENT PLAN

SOUTH CAROLINA

Department of Health and Environmental Control

Bureau of Underground Storage Tank Management

Site ID # 05878 County Lexington Facility Name Former Purolator Courier

Facility Address 153 Corporate Blvd., West Columbia, SC

Responsible party William S. Durham, Jr. Address See Owner Address (below)

No. USTs 3 removed? January 1991 (date) replaced? No (date)

Current use of facility/property Light industrial

Current property owner name Carolina Commerce Associates

Current property owner address 3135 Millwood Ave., Columbia, SC 29201

Field Screening Methodology

Specify the field screening methodology to be used. The use of field screening methods to optimize the number and location of permanent wells is required.

Continus soil samples will be collected to the total depth of each soil boring by Geoprobe. Soil samples will be screened in the field for petroleum hydrocarbon compounds with a portable gas chromatograph. Soil borings will be advanced near well MW-5 where free product is known to occur to delineate the extent of free product, and soil borings will be advanced on off-site properties to the north and northeast of the site to delineate the extent of dissolved COCs.

Permanent Monitoring wells (Estimate number and total completed depth)

of shallow wells 5 total depth 13 ft.

# of deep wells 1 total depth 25 ft. (If necessary)

Comments, if warranted An additional well will be installed adjacent to the worst-case off-site shallow monitoring well.

Analyses

List the analytical parameters (e.g., BTEX, MTBE) and estimated number.

	Soil	Groundwater	
BTEX	15	30	
MTBE			
PAHs	15	30	(Groundwater samples will be collected from the
Lead	15	30	existing wells prior to drilling new soil borings
EDB		30	to establish current conditions.)
TPH	1		
Nitrate		30	
Sulfate		30	
Ferrous Iron		30	

Implementation Schedule

Start up date 05/01/98 Completion date 06/01/98

Report submittal date 07/31/98 or ninety days from date of RAP approval

RAPID ASSESSMENT PLAN

SOUTH CAROLINA

Department of Health and Environmental Control

Bureau of Underground Storage Tank Management

Site ID # 05878 Facility Name Former Purolator Courier

Site Maps

1. Attach a copy of the relevant portion of the USGS topographic map showing the site location

2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following:

North Arrow	Legend with facility name and address, Site ID number, date, and a bar scale
Location of property lines	Streets or highways (indicate names and numbers)
Location of buildings	Identification of located buildings
Paved areas on or adjacent to site	Location of all present and former ASTs and USTs
Previous soil sampling locations	Underground and above ground utilities on or adjacent to site
Previous monitoring well locations	Location of any other potential receptor

Aquifer Characterization (Check one and provide explanation for choice)

Pump Test _____ Slug Tests XXX

Up to two additional slug tests will be conducted at wells downgradient of of the sourcearea. The need for groundwater corrective action at this site has not been demonstrated to justify the cost of disposal of wastewater which would be generated by an aquifer pumping test.

Small Volume Disposal Type and Method

Soil Soil generated by drilling and well installation will be segeregated based on the results of field screening,drummed, and disposed of by SCDHEC approved methods based on resluts of lab analysis.

Purge Water Purge water will be drummed and disposed of by SCDHEC approved methods based on results of lab analysis of groundwater samples.

Additional Comments Several existing water wells are known to exist within the site vicinity. Following the receptor survey, any potentially impacted wells or other receptors within 1,000 ft. of the site will be field screened. If field screening indicates the presence of COCs, samples will be sent to a certified laboratory for analysis and DHEC will be notified.

ASSESSMENT COMPONENT COST PROPOSAL

SOUTH CAROLINA
Department of Health and Environmental Control
Bureau of Underground Storage Tank Management
State Underground Petroleum Environmental Response Bank Account

Site Name: Former Purolator Courier
Site ID #: 05878 CP#:

	ITEM	QUANTITY	UNIT		UNIT PRICE	TOTAL
1	Plan Preparation*	1		x	$100.00	$ 100.00
2	Receptor Survey*	1		x	$500.00	$ 500.00
3.	Comprehensive Survey			x	$1,000.00	$
4	Mob/Demob (List component #)					
	A. Equipment 6,9,17	3		x	$500.00	$1,500.00
	B. Personnel 1,2,6,9,10,12,16,18	8		x	$250.00	$2,000.00
5	Soil Borings (hand auger)*		feet	x	$11.00	$
6	Soil Borings (drilled)	(includes collection and quantification)				
	and Field Screening* 15x8 feet	120	feet	x	$17.00	$2,040.00
7	Soil Leachability Model			x	$200.00	$
8.	Abandonment* 15 x 8 feet	120	feet	x	$4.00	$ 480.00
9.	Well Installation*	(includes drilling costs)				
	A. Water Table (hand auger)		feet	x	$17.00	$
	B. Water Table (drilled) 5x13 feet	65	feet	x	$35.00	$2,275.00
	C. Telescoping 1x25 feet	25	feet	x	$55.00	$1,375.00
	D. Rock Drilling		feet	x	$55.00	$
10	Ground-water sample collection*	30	samples	x	$55.00	$1,650.00
11	Analyses-Groundwater	(See RA Guidance for site specific analyses)				
	A. BTEX+Napth.+MTBE	30	samples	x	$100.00	$3,000.00
	B. BTEX+Napth.+MTBE+ Trimethylbenzene		samples	x	$131.00	$
	C. PAH's	30	samples	x	$120.00	$3,600.00
	D. Lead	30	samples	x	$20.00	$ 600.00
	E. EDB	30	samples	x	$55.00	$1,650.00
	F. 8 RCRA Metals		samples	x	$140.00	$
	G. TPH (9070)		samples	x	$55.00	$
	H. pH	30	samples	x	$10.00	$ 300.00
	I. BOD		samples	x	$40.00	$
	J. Nitrate	30	samples	x	$20.00	$ 600.00
	K. Sulfate	30	samples	x	$20.00	$ 600.00
	L. Ferrous Iron	30	samples	x	$20.00	$ 600.00

Continue on back of page

ASSESSMENT COMPONENT COST PROPOSAL

11	Analyses-Soil					
	M. BTEX + Napth.	15	samples	x	$100.00	$ 1,500.00
	N. PAH's	15	samples	x	$120.00	$ 1,800.00
	O. 8 RCRA Metals		samples	x	$150.00	$
	P. TPH (9071)		samples	x	$60.00	$
	Q. TPH (3550)	1	samples	x	$65.00	$ 65.00
	R. Grain size / hydrometer	1	samples	x	$63.00	$ 63.00
	S. Total Organic Carbon	1	samples	x	$35.00	$ 35.00
12.	Aquifer Characterization*:					
	A. Pumping Test		hours	x	$120.00	$
	B. Slug test	2	tests	x	$150.00	$ 300.00
13.	Free Product Recovery Rate Test*		tests	x	$120.00	$
14.	Fate/Transport Modeling					
	A. Mathematical Model	1	models	x	$300.00	$ 300.00
	B. Computer Model		models	x	$500.00	$
15.	Risk Evaluation					
	A. Tier I	1		x	$300.00	$ 300.00
	B. Tier II	1		x	$500.00	$ 500.00
16.	Subsequent Survey*	1		x	$260.00	$ 260.00
17	Disposal*					
	A. Wastewater					
	1. Purging/Sampling	2	drums	x	$90.00	$ 180.00
	2. Pumping test		gallons	x	$0.60	$
	B. Free Product		drums	x	$110.00	$
	C. Soil (Treatment/Disposal)	6	tons	x	$50.00	$ 300.00
			drums	x	$50.00	$
18	Miscellaneous*					
				x		$
				x		$
				x		$
				x		$
19	Report/Project Management				(SUBTOTAL)	$ 28,473.00
	and Coordination	0.15		x	$0.00	$ 4,270.95
20	Total					$ 32,743.95

*The appropriate mobilization cost can be added to complete these tasks, as necessary

DISPOSAL REQUEST

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)
Bureau of Underground Storage Tank Management

****Please check appropriate box****

SITE ID # 05878 COUNTY Lexignton
FACILITY NAME Former Purolator Courier
STREET ADDRESS 153 Corporate Blvd. CITY W. Columbia, SC

CONTAMINANT (QUANTITY & TYPE OF UNITS)

XX VIRGIN PETROLEUM ____ WASTE OIL ____ OTHER(describe)

TYPE OF WASTE (CHECK ONLY ONE)

XX SOIL ____ WATER ____ OTHER(describe)

Please fill out all the applicable sections

POINT OF CONTACT

Dave Campbell
Name (Type or Print)

Davis & Floyd, Inc. (803) 254-4337
Company Phone Number

240 Stoneridge Drive Ste 200 Columbia, SC 29210
Address City State Zip Code

GENERATOR

Jim Peurifoy
Name (Type or Print)

Cypress Bay Geological Services, Inc. (803) 538-4017
Company Phone Number

262 Geology Lane Walterboro SC 29488
Address City State Zip Code

TRANSPORTER

Crandall Corporation (803) 791-4800
Name of Individual or Company (please print) Phone Number

100 Richlex Drive Lexington SC 29072
Address (please print) City State Zip Code

DESIGNATED FACILITY

Crandall Corporation (803) 791-4800
Name of Individual or Company (please print) Phone Number

100 Richlex Drive Lexington SC 29072
Address (please print) City State Zip Code

Please include copy of acceptance letter

Total Quantity 6 drums **UNITS (drums, tons, gallons, etc.)**

DISPOSAL REQUEST

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)
Bureau of Underground Storage Tank Management

****Please check appropriate box****

SITE ID # 05878 COUNTY Lexignton
FACILITY NAME Former Purolator Courier
STREET ADDRESS 153 Corporate Blvd. CITY W. Columbia, SC

CONTAMINANT (QUANTITY & TYPE OF UNITS)

XX VIRGIN PETROLEUM ____ WASTE OIL ____ OTHER(describe)

TYPE OF WASTE (CHECK ONLY ONE)

____ SOIL XX WATER ____ OTHER(describe)

Please fill out all the applicable sections

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100 Richlex Drive Lexington SC 29072
Address (please print) City State Zip Code

DESIGNATED FACILITY

Crandall Corporation (803) 791-4800
Name of Individual or Company (please print) Phone Number

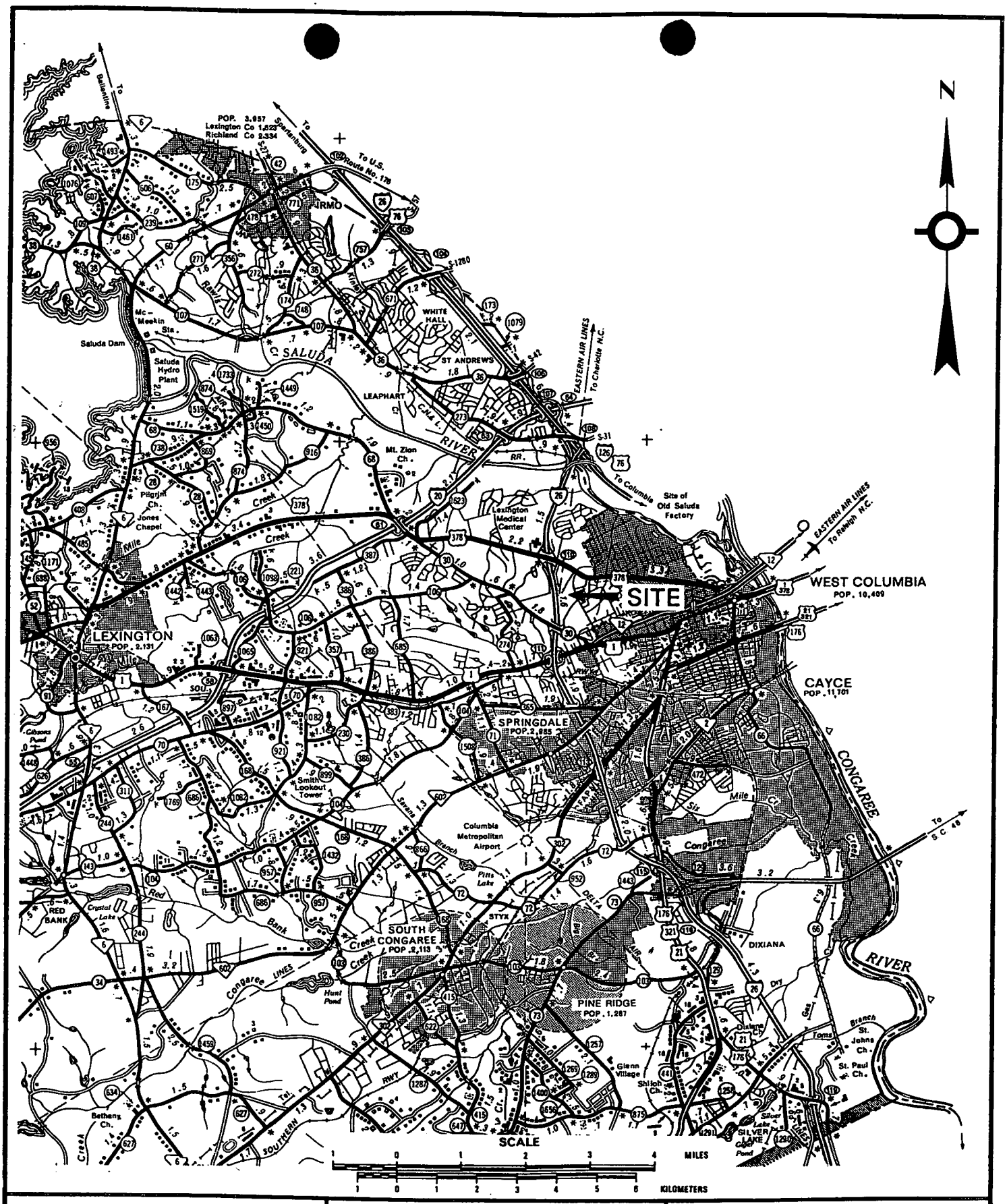
100 Richlex Drive Lexington SC 29072
Address (please print) City State Zip Code

Please include copy of acceptance letter

Total Quantity 2 drums **UNITS (drums, tons, gallons, etc.)**

DISPOSAL REQUEST DISPOSAL REQUEST DISPOSAL REQUEST

disp jb



FORMER
PUROLATOR COURIER SITE
LEXINGTON COUNTY,
SOUTH CAROLINA
FEB/94 JOB NO. 5755.05

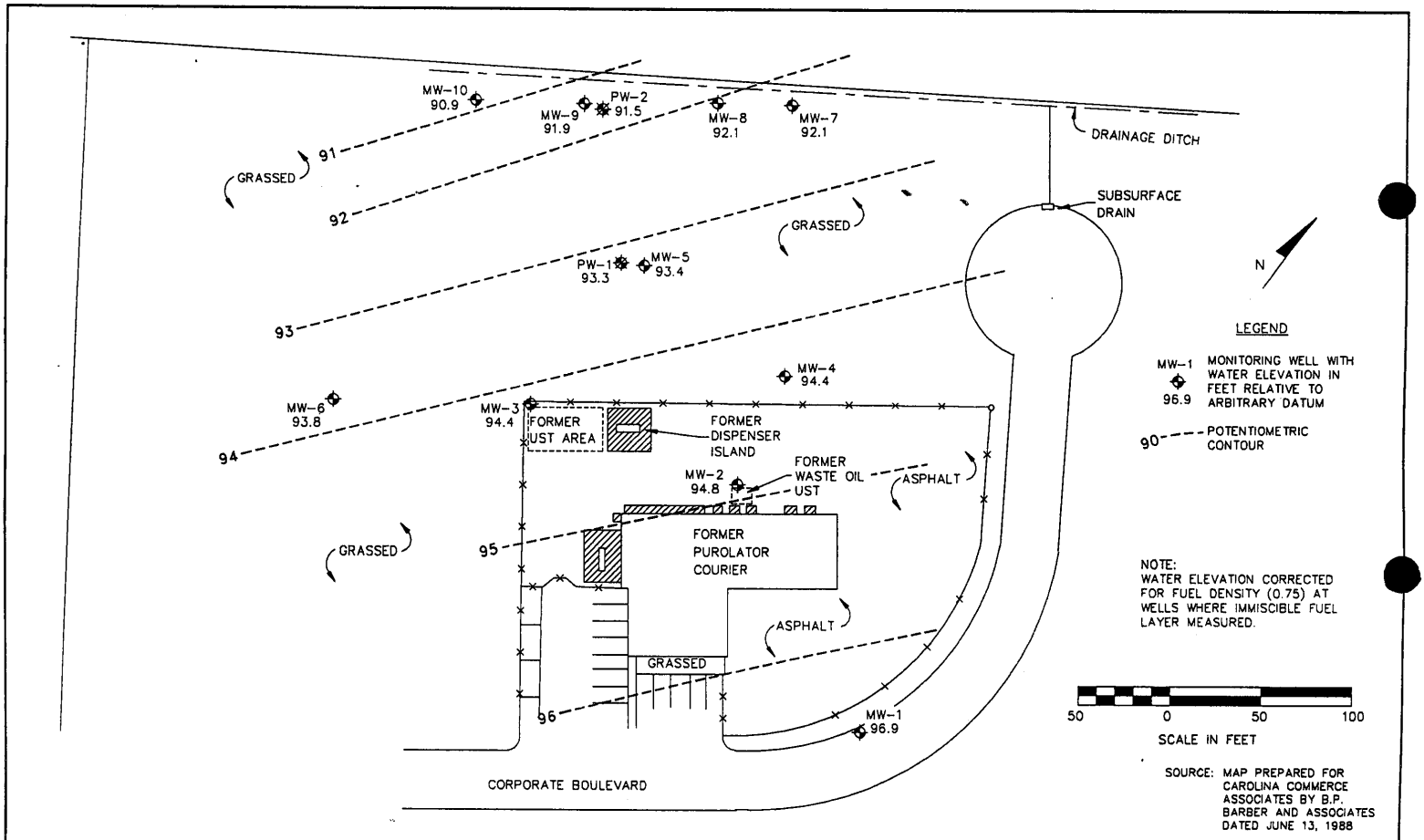
DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIGURE 1
SITE LOCATION MAP
GENERAL HIGHWAY MAP
LEXINGTON COUNTY, S.C.

FORMER
PUROLATOR COURIER SITE
LEXINGTON COUNTY,
SOUTH CAROLINA
FEB/94 JOB NO. 5755.05

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIGURE 2
TOPOGRAPHIC
SITE LOCATION MAP
COLUMBIA NORTH, S.C.
SOUTHWEST COLUMBIA, S.C.
7 1/2-MIN. QUADRANGLES



FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

FEB/94

Job No. 5755.05

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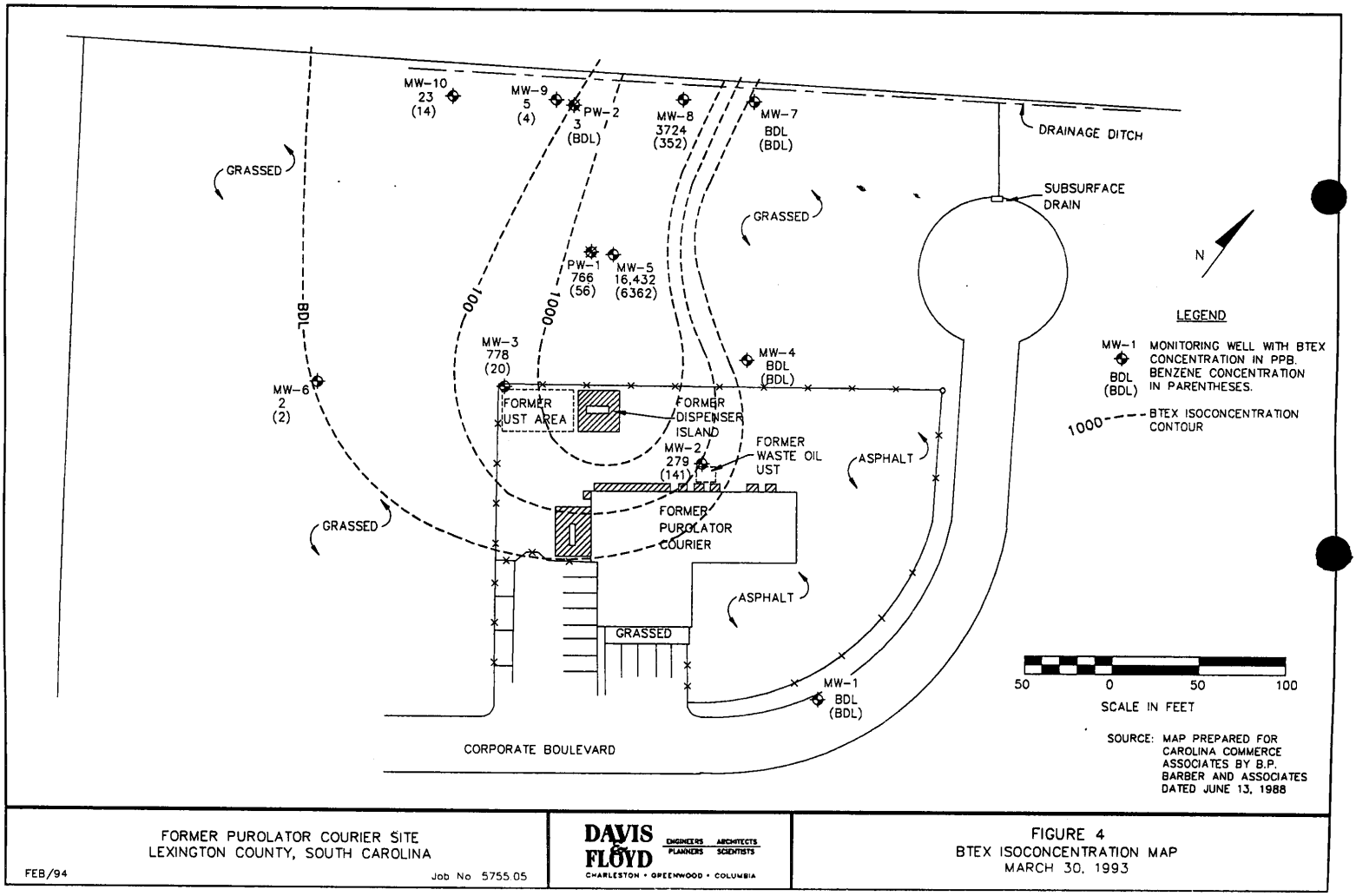
ENGINEERS PLANNERS ARCHITECTS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIGURE 3
WATER TABLE MAP
MARCH 30, 1993



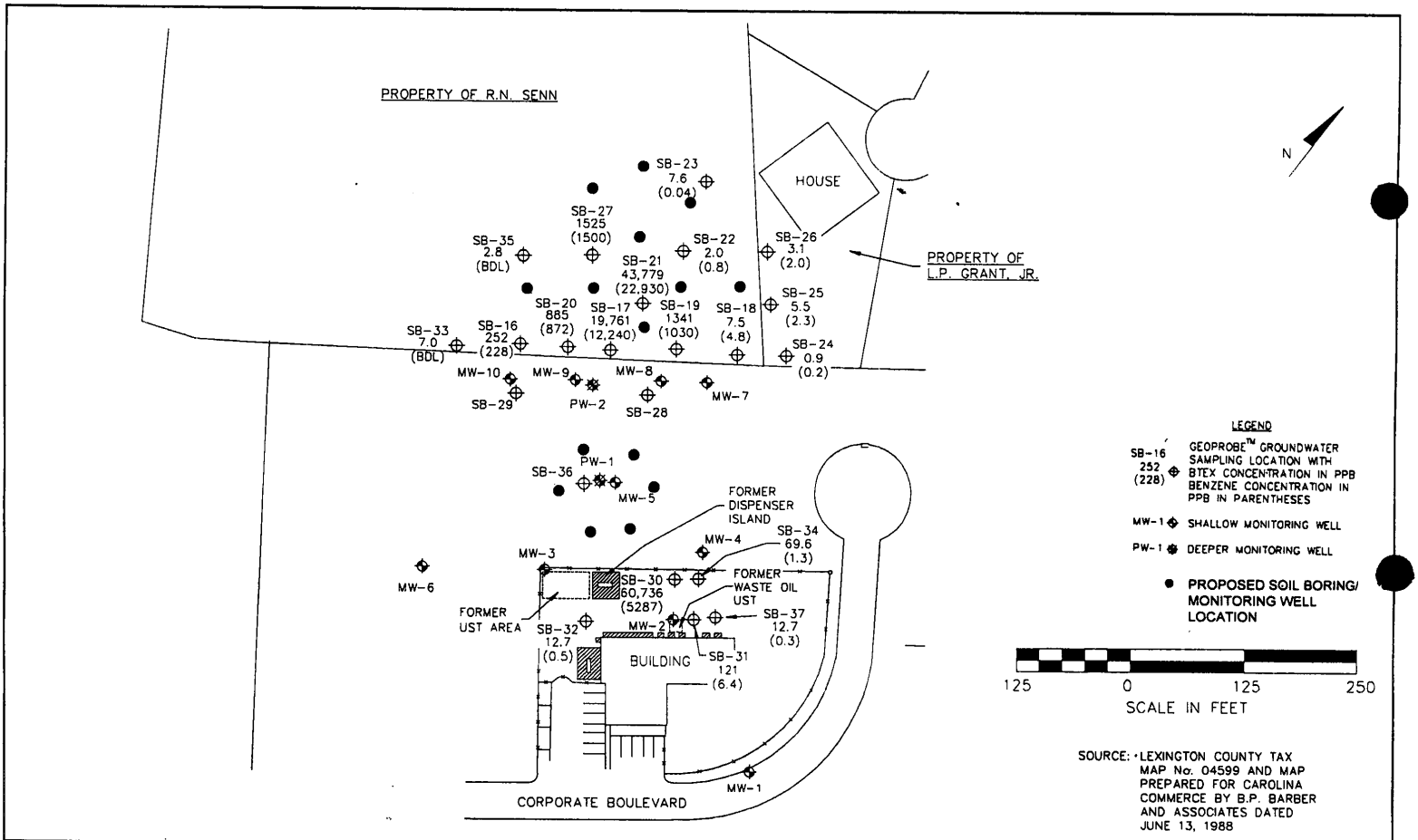
FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

FEB/94

Job No 5755.05

DAVIS & FLOYD
ENGINEERS PLANNERS ARCHITECTS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIGURE 4
BTEX ISOCONCENTRATION MAP
MARCH 30, 1993



SOURCE: • LEXINGTON COUNTY TAX MAP No. 04599 AND MAP PREPARED FOR CAROLINA COMMERCE BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

FEB/94

Job No 5755.05

DAVIS & FLOYD ENGINEERS PLANNERS ARCHITECTS SCIENTISTS
CHARLESTON • GREENWOOD • COLUMBIA

FIGURE 5
MAP OF OFF-SITE AREA WITH BTEX CONCENTRATIONS IN THE SHALLOW AQUIFER
DECEMBER 20-21, 1993

DAVIS & FLOYD
Engineering
Architecture
Environmental & Laboratory Services

240 Stoneridge Drive, Suite 200 Columbia, SC 29210 • (803) 254-4337 (office) (803) 254-4549 (fax)

April 14, 1998
Serial No. DHC-114-98
Job No. 50098.01

RECEIVED
APR 1 4 1998
Bureau of Underground
Storage Tank Management

Mr. Michael Bishop
Division of Underground Storage Tank Management
SCDHEC
2600 Bull Street
Columbia, SC 29201

Reference: Rapid Assessment Plan
Former Purolator Courier Site
West Columbia, South Carolina
Site ID# 05878

Dear Mr. Bishop:

Davis & Floyd, Inc. has prepared the attached Rapid Assessment Plan for the former Purolator Courier site in West Columbia, South Carolina, as requested by your letter dated March 10, 1998. An Assessment Component Cost Proposal is included with the plan.

If you have any questions about the plan, please call.

Sincerely,

DAVIS & FLOYD, INC.

0/1/80

D.H. Campbell

David H. Campbell, Jr., P.G.

DHC/pjo

Attachments: As stated

cc: Mr. William S. Durham, Jr.

DOCKETING # 39 Tech

RAPID ASSESSMENT PLAN

RECEIVED
APR 14 1998
Bureau of Underground Storage Tank Management

SOUTH CAROLINA
Department of Health and Environmental Control
Bureau of Underground Storage Tank Management

Site ID # 05878 County Lexington Facility Name Former Purolator Courier
Facility Address 153 Corporate Blvd., West Columbia, SC
Responsible party William S. Durham, Jr. Address See Owner Address (below)
No. USTs 3 removed? January 1991 (date) replaced? No (date)
Current use of facility/property Light industrial
Current property owner name Carolina Commerce Associates
Current property owner address 3135 Millwood Ave., Columbia, SC 29201

Field Screening Methodology

Specify the field screening methodology to be used. The use of field screening methods to optimize the number and location of permanent wells is required.

Continus soil samples will be collected to the total depth of each soil boring by Geoprobe. Soil samples will be screened in the field for petroleum hydrocarbon compounds with a portable gas chromatograph. Soil borings will be advanced near well MW-5 where free product is known to occur to delineate the extent of free product, and soil borings will be advanced on off-site properties to the north and northeast of the site to delineate the extent of dissolved COCs.

Permanent Monitoring wells

(Estimate number and total completed depth)

# of shallow wells 5 total depth 13 ft.
# of deep wells 1 total depth 25 ft. (If necessary)
Comments, if warranted An additional well will be installed ajacent to the worst-case off-site shallow monitoring well.

Analyses

List the analytical parameters (e.g., BTEX, MTBE) and estimated number.

	Soil	Groundwater	
BTEX	15	30	
MTBE			
PAHs	15	30	(Groundwater samples will be collected from the
Lead	15	30	existing wells prior to drilling new soil borings
EDB		30	to establish current conditions.)
TPH	1		
Nitrate		30	
Sulfate		30	
Ferrous Iron		30	

Implementation Schedule

Start up date 05/01/98 Completion date 06/01/98
Report submittal date 07/31/98 or ninety days from date of RAP approval

RAPID ASSESSMENT PLAN

SOUTH CAROLINA

Department of Health and Environmental Control

Bureau of Underground Storage Tank Management

Site ID # 05878 Facility Name Former Purolator Courier

Site Maps

1 Attach a copy of the relevant portion of the USGS topographic map showing the site location

2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following.

North Arrow	Legend with facility name and address, Site ID number, date, and a bar scale
Location of property lines	Streets or highways (indicate names and numbers)
Location of buildings	Identification of located buildings
Paved areas on or adjacent to site	Location of all present and former ASTs and USTs
Previous soil sampling locations	Underground and above ground utilities on or adjacent to site
Previous monitoring well locations	Location of any other potential receptor

Aquifer Characterization (Check one and provide explanation for choice)

Pump Test _____ Slug Tests XXX

Up to two additional slug tests will be conducted at wells downgradient of of the sourcearea. The need for groundwater corrective action at this site has not been demonstrated to justify the cost of disposal of wastewater which would be generated by an aquifer pumping test.

Small Volume Disposal Type and Method

Soil Soil generated by drilling and well installation will be segeregated based on the results of field screening, drummed, and disposed of by SCDHEC approved methods based on resluts of lab analysis.

Purge Water Purge water will be drummed and disposed of by SCDHEC approved methods based on results of lab analysis of groundwater samples.

Additional Comments Several existing water wells are known to exist within the site vicinity. Following the receptor survey, any potentially impacted wells or other receptors within 1,000 ft. of the site will be field screened. If field screening indicates the presence of COCs, samples will be sent to a certified laboratory for analysis and DHEC will be notified.

ASSESSMENT COMPONENT COST PROPOSAL

SOUTH CAROLINA
Department of Health and Environmental Control
Bureau of Underground Storage Tank Management
State Underground Petroleum Environmental Response Bank Account

Site Name: Former Purolator Courier
Site ID #: 05878 CP#: 04804

ITEM	QUANTITY	UNIT		UNIT PRICE	TOTAL
1 Plan Preparation*	1		x	$100.00	$ 100.00
2 Receptor Survey*	1		x	$500.00	$ 500.00
3. Comprehensive Survey			x	$1,000.00	$
4 Mob/Demob (List component #)					
A. Equipment 6,9,17	3		x	$500.00	$1,500.00
B. Personnel 1,2,6,9,10,12,16,18	8		x	$250.00	$2,000.00
5 Soil Borings (hand auger)*		feet	x	$11.00	$
6 Soil Borings (drilled)	(includes collection and quantification)				
and Field Screening* 15x8 feet	120	feet	x	$17.00	$2,040.00
7 Soil Leachability Model			x	$200.00	$
8 Abandonment* 15 x 8 feet	120	feet	x	$4.00	$ 480.00
9. Well Installation*	(includes drilling costs)				
A. Water Table (hand auger)		feet	x	$17.00	$
B. Water Table (drilled) 5x13 feet	65	feet	x	$35.00	$ 2,275.00
C. Telescoping 1x25 feet	25	feet	x	$55.00	$ 1,375.00
D. Rock Drilling		feet	x	$55.00	$
10 Ground-water sample collection*	30	samples	x	$55.00	$ 1,650.00
11 Analyses-Groundwater	(See RA Guidance for site specific analyses)				
A. BTEX+Napth.+MTBE	30	samples	x	$100.00	$ 3,000.00
B. BTEX+Napth.+MTBE+ Trimethylbenzene		samples	x	$131.00	$
C. PAH's	30	samples	x	$120.00	$ 3,600.00
D. Lead	30	samples	x	$20.00	$ 600.00
E. EDB	30	samples	x	$55.00	$ 1,650.00
F. 8 RCRA Metals		samples	x	$140.00	$
G. TPH (9070)		samples	x	$55.00	$
H. pH	30	samples	x	$10.00	$ 300.00
I. BOD		samples	x	$40.00	$
J. Nitrate	30	samples	x	$20.00	$ 600.00
K. Sulfate	30	samples	x	$20.00	$ 600.00
L. Ferrous Iron	30	samples	x	$20.00	$ 600.00

Continue on back of page

ASSESSMENT COMPONENT COST PROPOSAL

11 Analyses-Soil					
M BTEX + Napth.	15	samples	x	$100.00	$ 1,500.00
N. PAH's	15	samples	x	$120.00	$ 1,800.00
O 8 RCRA Metals		samples	x	$150.00	$
P. TPH (9071)		samples	x	$60.00	$
Q. TPH (3550)	1	samples	x	$65.00	$ 65.00
R. Grain size / hydrometer	1	samples	x	$63.00	$ 63.00
S. Total Organic Carbon	1	samples	x	$35.00	$ 35.00
12. Aquifer Characterization*					
A. Pumping Test		hours	x	$120.00	$
B. Slug test	2	tests	x	$150.00	$ 300.00
13. Free Product Recovery Rate Test*		tests	x	$120.00	$
14 Fate/Transport Modeling					
A. Mathematical Model	1	models	x	$300.00	$ 300.00
B. Computer Model		models	x	$500.00	$
15 Risk Evaluation					
A. Tier I	1		x	$300.00	$ 300.00
B. Tier II	1		x	$500.00	$ 500.00
16. Subsequent Survey*	1		x	$260.00	$ 260.00
17 Disposal*					
A. Wastewater					
1 Purging/Sampling	2	drums	x	$90.00	$ 180.00
2 Pumping test		gallons	x	$0.60	$
B. Free Product		drums	x	$110.00	$
C. Soil (Treatment/Disposal)	6	tons	x	$50.00	$ 300.00
		drums	x	$50.00	$
18 Miscellaneous*					
			x		$
			x		$
			x		$
			x		$
19 Report/Project Management				(SUBTOTAL)	$ 28,473.00
and Coordination	0.15		x	$0.00	$ 4,270.95
20 Total					$ 32,743.95

*The appropriate mobilization cost can be added to complete these tasks, as necessary

DISPOSAL REQUEST

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)
Bureau of Underground Storage Tank Management

****Please check appropriate box****

SITE ID # 05878 COUNTY Lexignton
FACILITY NAME Former Purolator Courier
STREET ADDRESS 153 Corporate Blvd. CITY W. Columbia, SC

CONTAMINANT (QUANTITY & TYPE OF UNITS)

XX VIRGIN PETROLEUM ____ WASTE OIL ____ OTHER(describe)

TYPE OF WASTE (CHECK ONLY ONE)

XX SOIL ____ WATER ____ OTHER(describe)

Please fill out all the applicable sections

POINT OF CONTACT

Dave Campbell
Name (Type or Print)

Davis & Floyd, Inc. (803) 254-4337
Company Phone Number

240 Stoneridge Drive Ste 200 Columbia, SC 29210
Address City State Zip Code

GENERATOR

Jim Peurifoy
Name (Type or Print)

Cypress Bay Geological Services, Inc. (803) 538-4017
Company Phone Number

262 Geology Lane Walterboro SC 29488
Address City State Zip Code

TRANSPORTER

Crandall Corporation (803) 791-4800
Name of Individual or Company (please print) Phone Number

100 Richlex Drive Lexington SC 29072
Address (please print) City State Zip Code

DESIGNATED FACILITY

Crandall Corporation (803) 791-4800
Name of Individual or Company (please print) Phone Number

100 Richlex Drive Lexington SC 29072
Address (please print) City State Zip Code

Please include copy of acceptance letter

Total Quantity 6 drums UNITS (drums, tons, gallons, etc.)

DISPOSAL REQUEST

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)
Bureau of Underground Storage Tank Management

****Please check appropriate box****

SITE ID # 05878 COUNTY Lexignton
FACILITY NAME Former Purolator Courier
STREET ADDRESS 153 Corporate Blvd. CITY W. Columbia, SC

CONTAMINANT (QUANTITY & TYPE OF UNITS)

XX VIRGIN PETROLEUM ____ WASTE OIL ____ OTHER(describe)

TYPE OF WASTE (CHECK ONLY ONE)

____ SOIL XX WATER ____ OTHER(describe)

Please fill out all the applicable sections

POINT OF CONTACT

Dave Campbell
Name (Type or Print)

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Company Phone Number

240 Stoneridge Drive Ste 200 Columbia, SC 29210
Address City State Zip Code

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Name of Individual or Company (please print) Phone Number

100 Richlex Drive Lexington SC 29072
Address (please print) City State Zip Code

DESIGNATED FACILITY

Crandall Corporation (803) 791-4800
Name of Individual or Company (please print) Phone Number

100 Richlex Drive Lexington SC 29072
Address (please print) City State Zip Code

Please include copy of acceptance letter

Total Quantity 2 drums **UNITS (drums, tons, gallons, etc.)**

DISPOSAL REQUEST DISPOSAL REQUEST DISPOSAL REQUEST

disp jb

Midlands Environmental Consultants, Inc.

April 26, 2012

Ms. Stephanie Briney, Hydrogeologist
Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: QAPP Contractor Addendum – Revision 0
Purolator Courier Corp.
West Columbia, South Carolina
SCDHEC Site ID Number 05878
MECI Project Number 12-3929
Certified Site Rehabilitation Contractor UCC-0009

Dear Ms. Briney

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached QAPP Contractor Addendum for the referenced site.

On April 4, 2012, MECI personnel performed a site visit to the subject site to evaluate site conditions, locate monitoring wells, obtain drilling access and identify potential problems for future assessment activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.

Courtney M. Sanders
Staff Biologist

Jeff L. Coleman
Senior Scientist

Post Office Box 854, Lexington SC 29071 • 235-B Dooley Road, Lexington, SC 29073
Telephone: (803) 808-2043 • fax: (803) 808-2048

Section A: Project Management

A1 Title and Approval Page

Quality Assurance Project Plan
Addendum to the SC DHEC UST Programmatic QAPP
For
Purolator Courier Corp., SCDHEC Site ID# 05878

105 Corporate Boulevard, West Columbia, South Carolina

Prepared by:
Jeff L. Coleman
Senior Scientist
Midlands Environmental Consultants, Inc.
(Certified Site Rehabilitation Contractor UCC-0009)
235-B Dooley Road
Lexington, SC 29073
(803)808-2043

Date: April 26, 2012

Approvals

Stephanie Briney SC DHEC Project Manager	_____ Signature	Date_____
Jeff L. Coleman Contractor QA Manager	_____ Signature	Date 4/27/12
Bryan T. Shane, P.G. Site Rehabilitation Contractor	_____ Signature	Date 4-27-12
Michael Woodrum Laboratory Director	_____ Signature	Date 4/26/2012

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A3 Distribution List

Name	Title	Organization/Address	Telephone Number	Fax Number	Email Address
Stephanie Briney	SC DHEC Technical Project Manager	SCDHEC, UST Management Division, 2600 Bull St., Columbia, SC, 29201	803-896-6323	803-896-6245	brineysm@dhec.sc.gov
Bryan T. Shane, P.G.	Site Rehabilitation Contractor	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	bts@meci.net
Jeff L. Coleman	Quality Assurance Officer	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	jlc@meci.net
John C. Bryant	Field Manager	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	jcb@meci.net
Michael Woodrum	Laboratory Director	Shealy Environmental Services,Inc. 106 Vantage Point Dr. West Columbia, SC 29172	803-791-9700	803-791-9111	mwoodrum@shealylab.com
Tommy Bolyard	Well Services/Driller	Environmental Probing and Drilling Services 17538 Greenhill Road Charlotte, NC 28278	704-607-7529	803-548-2233	EDPS@comporium.net

Table 1A Addendum Distribution List

A4 Project Organization

Role from the UST Master QAPP	Person in this Role for Project	Organization/Address	Telephone Number	Fax Number	Email Address
Project Manager	Stephanie Briney	SCDHEC, UST Management Division, 2600 Bull St., Columbia, SC, 29201	803-896-6323	803-896-6245	brineysm@dhec.sc.gov
Site Rehabilitation Contractor	Bryan T. Shane, P.G.	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	bts@meci.net
Quality Assurance Officer	Jeff L. Coleman	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	jlc@meci.net
Field Manager	John C. Bryant	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	jcb@meci.net
Analytical Laboratory Director	Michael Woodrum	Shealy Environmental Services,Inc. 106 Vantage Point Dr. West Columbia, SC 29172	803-791-9700	803-791-9111	mwoodrum@shealylab.com
Soil Boring and Monitoring Well Driller	Tommy Bolyard	Environmental Probing and Drilling Services 17538 Greenhill Road Charlotte, NC 28278	704-607-7529	803-548-2233	EDPS@comporium.net

Role from the UST Master QAPP	Person in this Role for Project	Organization/Address	Telephone Number	Fax Number	Email Address
Registered Land Surveyor	Jay S. Joshi	Construction Support Services, Inc. 1318 RL Coward Road Hopkins, SC 29061	803-776-9909	803-776-2688	jsjoshi@constructionsupportsc.com
Disposal Facility	Carol Weldon	Waste Management, Inc. Richland Landfill 1047 Highway Church Road Elgin, SC 29045	803-744-3346	866-904-7194	Not Available
Project Verifier	Courtney M. Sanders or Brendon P. Kelly	Midlands Environmental Consultants, Inc. 235-B Dooley Road Lexington, SC 29073	803-808-2043	803-808-2048	cms@meci.net

Table 2A Addendum Role Identification and Contact Information

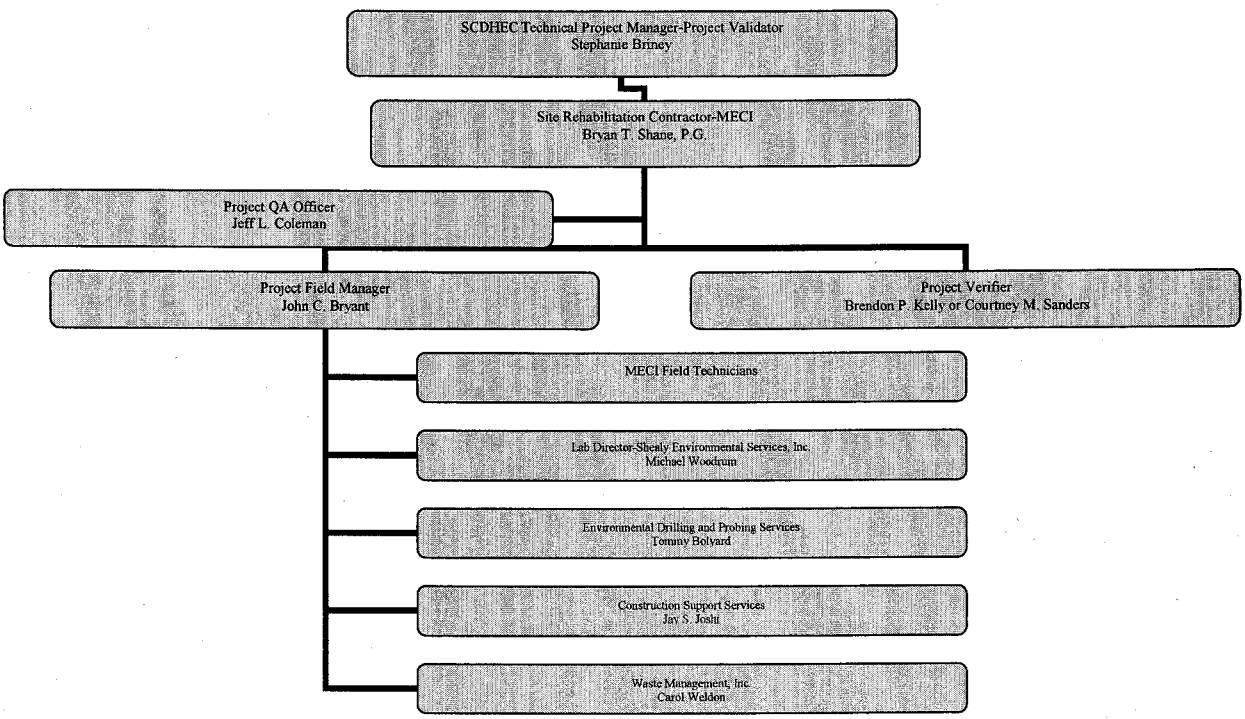


Figure 1A Organizational Chart

Project Manager (Stephanie Briney) – The project manager is responsible for direct oversight of contractors conducting assessment and site rehabilitation of releases at UST sites.

Site Rehabilitation Contractor (Bryan T. Shane, P.G.) – The Site Rehabilitation Contractor is an independent contractor responsible for managing and coordinating field and office activities needed for assessments or cleanup.

-Final Review of all work produced for a scope of work.

-Final say on technical interpretation of data.

Quality Assurance Officer (Jeff L. Coleman) – The Quality Assurance Officer is responsible for the oversight of all quality assurance activities associated with projects performed by the Site Rehabilitation Contractor.

-In charge of producing and maintaining the QAPPA for MECI.
-Reviews (and Audits, if necessary) all work produced in conjunction with a scope of work.
-Quality control of data entry and report preparation.

Field Manager (John C. Bryant) –The field manager will oversee all work done on any given project.

-Assign, direct and oversee all field personnel working on each project.
-Responsible for coordinating with the SCDHEC project manager, should any problems or clarifications arise.
-Responsible for all reporting done in conjunction with field work.

Project Verifier (Courtney M. Sanders or Brendon P. Kelly) – The project verifier is responsible for verifying the quality of data produced during a scope of work. This includes review of field work and laboratory reports for potential quality issues.

Well Driller (Tommy Bolyard) – The well driller is responsible for installing monitoring wells according to South Carolina Well Standards, R.61-71. The well driller is a subcontractor for MECI.

Field Technicians (various employees) – Responsible for all field activities for a given scope of work.

-Conduct all initial site visit, and record findings
-Conduct all field activities associated with a scope of work. All work will be conducted according to the MECI SOP. Will be responsible for reporting any potential problems are inconsistencies found during assessment activities.
-Completes the chain of custody upon completion of sampling event and delivers samples to lab or office for later lab pick-up

A5 Problem Definition/Background

Discuss the background (as much as is known) of the site and appropriate historical information, and why this site is being assessed.

The subject site (Purolator Courier Corp.) is located at 105 Corporate Boulevard, West Columbia, Lexington County, South Carolina (see Figure 1). The subject site formerly maintained three underground storage tanks (UST's), including 1-500 gallon waste oil UST and 2-10,000 gallon gasoline UST's. These former UST's were abandoned by removal from ground in September of 1991. A release of petroleum product was reported in October of 1991 and confirmed in June of 1992.

The site is being assessed in conjunction with the SCDHEC Small Scope Assessment Contract (Solicitation # IFB-5400003229, PO# 4600117789).

Please answer the following: Does this project fall under UST or Brownfields area?

Underground Storage Tank Division

A6 Project/Task Description

1. ***Summarize what is known about the work to be done. This can be a short sentence indicating what the Scope of this project is (see Master QAPP Section A6).***

- Three (3) 4-inch diameter recovery wells will be installed at the subject site in locations provided by the SCDHEC project manager.
- Eight (8) monitoring wells will be converted from above grade finished vaults to flush mount vaults and pads.
- Removal of 6 drums and contents within the drums.
- Removal of former free phase product recovery system.
- Collection of groundwater samples from the entire monitoring well network installed in conjunction with the subject release.
- Following the well installation, a comprehensive survey will be conducted by Construction Support Services, Inc.

2. ***The work will begin within*** fourteen (14) days of receipt of approved QAPP contractors addendum ***after cost approval and the scope of work should be complete by*** sixty (60) days of receipt of approved QAPP contractors addendum.

3. ***Are there are time or resource constraints? Include those factors that may interfere with the tentative schedule.***

Factors that may prevent schedule work will be, but not limited to, inclement weather, equipment malfunction, and machine failure.

A7 Data Quality Objectives (DQOs) and Data Quality Indicators (DQIs)

The subject site is located at 105 Corporate Boulevard, West Columbia, Lexington County, South Carolina. The site is currently a vacant lot that has recently been clear cut and graded. All work will be conducted on an adjacent property.

A8 Training and Certificates

Required training and licenses:

Title/Job	Name	Training Required	Date training received	Type of License	License Number
Principal Geologist	Bryan T. Shane, P.G.	Professional Geologist	10/30/1993	State of South Carolina	1102
Senior Scientist	Jeff Coleman	OSHA 40 hr HAZWOPER	7/27/2007	N/A	N/A

Title/Job	Name	Training Required	Date training received	Type of License	License Number
		OSHA 8 hr HAZWOPER refresher	7/27/2011	N/A	N/A
Project Scientist	Brendon Kelly	OSHA 40 hr HAZWOPER	8/21/2009	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/15/2011	N/A	N/A
Staff Geologist	John Bryant	OSHA 40 hr HAZWOPER	4/17/2009	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	3/15/2012	N/A	N/A
Field Technician	Brian Owen	OSHA 40 hr HAZWOPER	8/21/2009	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/15/2011	N/A	N/A
Staff Biologist	Courtney Sanders	OSHA 40 hr HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/15/2011	N/A	N/A
Staff Biologist	Kyle Pudney	OSHA 40 hr HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/15/2011	N/A	N/A
Staff Biologist	Chris Lashley	OSHA 40 hr HAZWOPER	12/10/2010	N/A	N/A
		OSHA 8 hr HAZWOPER refresher	12/15/2011	N/A	N/A
Staff Biologist	Gavin Globensky	OSHA 40 hr HAZWOPER	7/29/2011	N/A	N/A
Staff Biologist	Ryan Ariail	OSHA 40 hr HAZWOPER	9/23/2011	N/A	N/A
Lab Manager	Michael Woodrum	***	***	Lab Certification	SC 32010
Drilling Services	Tommy Bolyard - EDPS	SC Drillers Certification	8/24/2004	B	01846

Table 3A Required Training and Licenses

Jeff L. Coleman of Midlands Environmental Consultants, Inc. is responsible to ensuring that personnel participating in this project receive the proper training. All training records will be stored in the following location:235-B Dooley Road, Lexington, SC 29073.

It is understood that training records will be produced if requested by SC DHEC.

The Following Laboratory(ies) will be used for this Project:

Commercial Lab(s)

Full Name of the Laboratory___Shealy Environmental Services, Inc.____
Name of Lab Director_____Michael Woodrum_____
SC DHEC Certification Number_____32010_____
Parameters this Lab will analyze for this project:

-All monitoring wells installed in conjunction with the subject release and nearby water supply wells will be sampled and analyzed for BTEXNM, DCA, OXYGENATES (EPA Method 8260B), EDB (EPA Method 8011), and Total Lead (EPA method 6010).

Please note: SC DHEC may require that the contractor submit some or all of the Laboratory's SOPs as part of this QAPP.

A9 Documents and Records

Personnel will receive the most current version of the QAPP Addendum via: (Check all that apply)

____US Mail ____Courier __X__ Hand delivered

Other (please specify):_____E-mailed electronic copies___

Record	Produced By	Hardcopy/ Electronic	Storage Location For how long?	Archival
Instrument Raw Data	Target, Thermospec, or Iteva software	Hardcopy and Electronic	Hardcopy: Offsite storage for 7 yrs Electronic: Two external storage device backups – one offsite, one onsite storage for 10 yrs	Yes
Final Reports	LIMS	Electronic	Electronic: Two external storage device backups – one offsite, one onsite storage for 10 years	Yes
Field Work	Field Staff	Hardcopy	MECI office: 235B Dooley Road / Min. 5 years	Yes
Chain of Custody	Field Staff	Hardcopy	MECI office: 235B Dooley Road / Min. 5 years	Yes
QAPP Addendum	Brendon Kelly	Hardcopy & Electronic	MECI office: 235B Dooley Road / Min. 5 years	Yes
Internal QC record	Brendon Kelly	Hardcopy	MECI office: 235B Dooley Road / Min. 5 years	Yes
Sampling Report	Brendon Kelly	Hardcopy & Electronic	MECI office: 235B Dooley Road / Min. 5 years	Yes
1903 Water Well Record Form	EDPS	Hardcopy	MECI office: 235B Dooley Road / Min. 5 years	Yes

Table 4A Record Identification, Storage, and Disposal

Section B Measurement/Data Acquisition

B1 Sampling Process/Experimental Design

Item	Start Date	End Date	Comments
Site Reconnaissance	4/4/2012	4/4/2012	Already Completed
QAPP preparation	4/24/2012	4/26/2012	In progress
QAPP approval	4/26/2012	5/17/2012	Assuming three week turnaround
PUPs Request (Utilities Locating Service)	5/17/2012	5/21/2012	Give 72 hours until PUPs ticket active
Monitoring Well Installation	5/21/2012	6/4/2012	Two weeks to mobilize a drilling rig to the subject site. Drilling will take 3 days.
Monitoring well Sampling	6/4/2012	6/18/2012	1 Week to mobilize sampling crew. Standard 5 Day Turn Around Time on analytical (2 Weeks)
Report Preparation	6/18/2012	7/9/2012	Three weeks to prepare/submit report

Table 5A Sampling Activities

B2 Sampling Methods

Please note: The contractor must follow sampling protocols as given in the UST QAPP.

***Estimate* the number of samples of each matrix that are expected to be collected:**

Soil _____

Ground Water from monitoring wells ____24____

From Drinking/Irrigation water wells ____1____

Field Duplicate Collection ____2____

Field Blank Collection ____1____

Trip Blank ____1____

From surface water features ____1____

Total number of samples ____30____

Notes:

-Twenty-four (24) monitoring wells potentially will be sampled, following monitoring well installation.

-It is anticipated that two (2) field duplicates will be sampled. One duplicate per 20 samples collected.

-It is anticipated that one (1) field blank will be collected. One field blank will be collected during the collection of groundwater samples.

- It is anticipated that one (1) trip blank will be analyzed (1 per cooler utilized during Assessment activities). One cooler will be utilized during the collection of groundwater samples.

Environmental Drilling and Probing Services (EDPS) will mobilize a Central Mining Equipment (CME) LC-60 drilling rig to the subject site. All drilling activities will be performed under the supervision of a South Carolina Certified Well Driller and MECI field personnel (Tommy Bolyard, #B 01846).

Wells and temporary borings will be installed according to MECI Standard Operating Procedures (4.1.1, 4.1.5, 4.2.1, 4.2.2, & 4.2.4) and in accordance with South Carolina Well Standards, R.61-71.

Monitoring wells will be purged/sampled in accordance with MECI SOP # 4.3.1 through 4.3.5.

For the sample matrices indicated above, please describe how samples will be collected and the equipment needed.

Please see MECI SOP 4.1.1 (Soil Screening and Sampling), 4.2 (Monitoring Well Installation), 4.3 (Monitoring Well Sampling) for field procedures that we be utilized during the subject assessment.

Will Sampling Equipment have to be cleaned and decontaminated or is everything disposable?

All equipment, excluding electronic water level indicators and field probes, is disposable.

If sampling equipment must be cleaned please give a detailed description of how this is done and the disposal of by-products from the cleaning and decontamination.

Prior to usage of non-disposable equipment, it is decontaminated with isopropanol applied by a Teflon squeeze bottle and rinsed with analyte free water. This rinse water is collected and run through a portable GAC (granulated activated carbon) unit.

Identify any equipment and support facilities needed. This may include such things as Fed-ex to ship the samples, a Geoprobe, field analysis done by another contractor (who must be certified), and electricity to run sampling equipment.

Environmental Drilling and Probing Services (EDPS) will mobilize a Central Mining Equipment (CME) LC-60 drilling rig to the subject site. All drilling activities will be performed under the supervision of a South Carolina Certified Well Driller and MECI field personnel (Tommy Bolyard, #B 01846).

Wells will be installed according to MECI Standard Operating Procedures (4.2., 4.2.2, 4.2.3 & 4.2.4) and in accordance with South Carolina Well Standards, R.61-71.

Drill cuttings will be disposed of by MECI personnel at Waste Management Richland County Landfill in Elgin, SC.

All samples (if needed) will be shipped to the lab via lab courier or delivered directly to the lab by MECI personnel.

Following monitoring well installation a comprehensive survey will be conducted by Construction Support Services, Inc..

Address the actions to be taken when problems occur in the field, and the person responsible for taking corrective action and how the corrective action will be documented.

Failure	Response	Documentation	Individual Responsible
Unable to gain access to drilling location	Attempt to create path to well location through vegetation, Utilize plywood boards to cross soft ground, contact SCDHEC project manager to discuss a potential change to the well location.	Record on field sheets, notify SCDHEC and Office.	Field Staff, Field Manager
Hitting a Utility Line while Drilling	Contact PUPS (Palmetto Utilities Protection Service), contact appropriate utility (if gas line is hit, notify fire department)	Record in field sheets, on PUPS ticket in office. Contact SCDHEC project manager to inform them of problem.	Field Staff, Field Manager
Drilling rig breaks down	Attempt to correct problem. If the problem cannot be determined, or cannot be fixed, discontinue drilling for the day. Drilling can continue once drill rig has been fixed, or new drill rig is mobilized to the site	Record on field sheet, notify office staff.	Field Staff, Drill rig operator
Property Owner will not allow access onto property for drilling activities	Stop drilling. Attempt to discuss with property owner the need for the work. Inform SCDHEC project manager of the access issue. If no resolution can be made, discontinue drilling on the disputed property until access can be obtained or new well location is determined.	Document on field sheets (or QAPP, if access denied during QAPP site visit). Inform SCDHEC project manager immediately if any disputes arise.	Field Staff, Field Manager

Table 6A Field Corrective Action

B3 Sample Handling and Custody

1. ***How will the samples get from the Site to the Lab to ensure holding requirements are met?***

Following sample collection, the samples are immediately place in a laboratory provided cooler, pre-filled with wet ice obtained from the MECI office. Samples are transported to the MECI office once a sampling event is complete. A Chain of Custody (CoC) is filled out following the sampling event by the field staff. See attached CoC. If a lab provided courier is scheduled to visit the MECI offices the day following a sampling event, sampling coolers are repacked with wet ice, and left at the office for pick-up the following morning. If no courier is schedule to visit the MECI office the day following a sampling event, all sampling coolers are repacked with ice and are dropped off at a lab approved shipping company for overnight delivery to the lab.

2. ***How will the contactors cool the samples and keep the samples cool?***

All samples are kept on wet ice, obtained from MECI office.

3. ***How will the lab determine the temperature of the samples upon receipt? Will they be using a temperature blank?***

A calibrated thermometer and temperature blank will be used to document sample temperature. The temperature blank is immediately checked by the sample receiving technician upon arrival at the laboratory.

4. ***Where will the samples be stored in the Lab once they are received?***

All samples are stored in clean refrigeration units monitored and maintained at 4 degrees C + or – 2 degrees. Volatile organic samples are stored separately form all other samples.

5. ***Describe the chain of custody procedure and attach a copy of each chain of custody that will be used. If a Chain of Custody SOP exists from the Lab and the Contractor is willing to adhere to it, then this may be attached.***

A chain of custody (COC) will be filled out for each sampling event at each project site. COC to be signed by MECI and Shealy Environmental technician at time physical transfer of samples occurs to courier. Shealy uses the following COC procedures to protect sample integrity following pickup by their courier: A full time Sample Receiving Technician receives all samples and completes a Sample Receipt Checklist (SRC), which will identify any anomalies, if any exist the Sample Receiving Technician or Project Manager must resolve the deviation internally and/or notify the client to resolve the anomaly.

B4 Analytical Methods

1. ***Identify the SOPs which will be used to analyze the samples, the method which the SOP references and the equipment or instrumentation that is needed:***

Parameter	SOP ID*	Method Referenced	Equipment	Comments
BTEX+Naph+MTBE+Oxygentaes	S-VO-002	8260B	GC/MS	
PAH's	S-SV-021	8270D	GC/MS	
EDB	S-SV-012	8011	GC	

Lead,T.	S-IM-022	6010C	ICP	
Ferrous Iron	S-IN-009	SM 3500-FED	Spectrophotometer	
Nitrate	S-IN-042	353.2	Auto-analyzer/Lachate	
Sulfate	S-IN-010	300.0	Ion Chromatograph	
Methane	S-VO-004	RSK-175	GC	
TOC	S-IN-030	Walkley-Black	N/A	
DRO - TPH	S-SV-001	8015C	GC	
pH	Standard	MECI SOP 4.3.6	YSI 63	Place probe in sample and allow to equilibrate before recording reading
Conductivity	Standard	MECI SOP 4.3.6	YSI 63	
Dissolved Oxygen	Standard	MECI SOP 4.3.6	YSI 550A	
Temperature	Standard	MECI SOP 4.3.6	YSI 550A	
PID reading	MECI SOP 4.2.2			Use MiniRae PID to obtain reading. Place probe into soil sample bag and record the highest reading.

Table 7A Analytical SOPs and Referenced Methods

- **This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP. See also Table 8A SOP Abbreviation Key.**

Abbreviation	Lab Identification of this SOP	Full Name of the SOP
S-VO-002	S-VO-002	GC/MS VOLATILES ANALYSIS BASED ON EPA METHODS 8260B AND 624 PREPARED BY EPA METHODS 5030B, 5035 AND 3585
S-SV-021	S-SV-021	GC/MS ANALYSIS BASED ON EPA METHOD 8270D PREPARED BY EPA METHODS 3520C, 3550C AND 3580A
S-SV-012	S-SV-012	GC/ECD ANALYSIS OF EDB AND DBCP BASED ON METHOD 8011 & 504.1
S-IM-022	S-IM-022	INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPECTROSCOPY-PECTROMETRIC METHOD for TRACE ELEMENT ANALYSES METHOD 6010C
S-IN-009	S-IN-009	FERROUS IRON (PHENANTHROLINE METHOD) STANDARD METHOD 3500-Fe D
S-IN-042	S-IN-042	NITRATE+NITRITE NITROGEN BY EPA METHOD 353.2, NITRATE NITROGEN BY 353.2 SUBTRACTION, AND NITRITE NITROGEN BY EPA METHOD 353.2
S-IN-010	S-IN-010	INORGANIC ANIONS BY ION CHROMATOGRAPHY EPA METHOD 300.0 and SW-846 9056 and 9056A
S-VO-004	S-VO-004	STANDARD OPERATING PROCEDURE GC ANALYSIS BASED ON METHOD RSKSOP-175
S-IN-030	S-IN-030	TOTAL ORGANIC CARBON (TOC) WALKLEY-BLACK PROCEDURE
S-SV-001	S-SV-001	GC/FID DIESEL RANGE ORGANICS ANALYSIS BASED ON METHOD 8015B and/or 8015C PREPARED BY EPA METHODS 3520C, 3550C

		and 3580A
MECI SOP 4.2.2	MECI SOP 4.2.2	Drilling Standard operating procedures
MECI SOP 4.3.6	MECI SOP 4.3.6	Sampling Standard operating procedures

Table 8A SOP Abbreviation Key

2. Identify procedures to follow when failures occur, identify the individual responsible for corrective action and appropriate documentation:

Failure	Response	Documented Where?	Individual Responsible
Field meters not working	Attempt to clean probes, recalibrate in the field.	Record on field sheets, notify office staff. Take meters out of rotation until problem identified and corrected.	Field Staff, Field Manager
COC or Sample Receiving issues	Call Client	Sample Receiving Checklist (SRC)	PM – Kelly Maberry kmaberry@shealylab.com
Analytical errors	Corrective Action Form (CAF)	CAF filled out by PM	Lab Director –Michael Woodrum mwoodrum@shealylab.com
QA/QC Failure	Corrective Action Form (CAF)	CAF filled out by PM	Lab Director –Michael Woodrum mwoodrum@shealylab.com QA/QC Officer – Jami Savje Jsavje@shealylab.com
On time delivery	Corrective Action Form (CAF)	CAF filled out by PM	Lab Director –Michael Woodrum mwoodrum@shealylab.com QA/QC Officer – Jami Savje Jsavje@shealylab.com
PID not functioning propertly	Attempt to clean PID, recalibrate.	Record on field sheets, notify office staff. PID taken rotation until problem identified and corrected.	Field Staff, Field Manager

Table 9A Corrective Action Procedures

3. Identify sample disposal procedures.

Analysis	Matrix	Schedule for disposal	Method for disposal	Comments
BTEX+Naph+MTBE+Oxygenates	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	

PAH's	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
EDB	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
Lead	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
Ferrous Iron	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
Nitrate,Sulfate	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
Methane	Waters/Soils	Six Weeks	Tested for Hazardous Constituents and disposed as Hazardous or non-Hazardous waste.	
All	Water	On-Site	Portable Granulated Activated Carbon (GAC) Unit	All waste water produced from sampling and decontamination activities will be run through a GAC unit

Table 10A Disposal Procedures

4. Provide SOPs for the Kerr Method or the Ferrous Iron Method if these are parameters for this study. This can be attached or written here. If attached please note that it is an attachment and where it is located (if applicable).

B5 Quality Control Requirements:

All QC will follow the requirements laid out in Section B5 of the UST Programmatic QAPP.

B6 Field Instrument and Equipment Testing, Inspection and Maintenance

1. Identify all field and laboratory equipment needing periodic maintenance, the schedule for this, and the person responsible. Note the availability and location of spare parts.

Instrument	Serial Number	Type of Maintenance	Frequency	Parts needed/Location	Person responsible
Volatiles Mass Spec	Shealy SOP S-SV-021 Page 7	Change traps, clean ion source, replace filaments	Periodic	Laboratory	MSV Analyst
Semivolatile Mass Specc	Shealy SOP S-SV-021 Page 7	Injection port maintenance, ion source maintenance, column replacement	Periodic	Laboratory	MSSV Analyst
ECD GC	Shealy SOP S-SV-012 Page 5	Injection port maintenance, column replacement	Periodic	Laboratory	GC Analyst
Dionex IC	Shealy SOP S-IN-010 Page 6	Replace auto sampler filter, tubing, line filter, sample Line and Waste Line, as needed. Check Reagent levels, flow rate, waste line.	Periodic	Laboratory	IC Analyst
ICP	Shealy SOP S-IM-005 Page 6 & 7	Clean Sample introduction system , auto sampler, torch, Change spray chamber, torch tubing, tubing	Periodic	Laboratory	ICP Analyst
Leeman Mercury Analyzer	Shealy SOP S-IM-006 Page 5	Clean GLS, Change Pump tubing, Nafion Dryer, Lamp	Periodic	Laboratory	Mercury Analyst
Flow Injection Analysis – Lachat 8000	Shealy SOP S-IN-042 Page 5	Replace sample and reagent lines, replace light source, re-wrap	Periodic/As Needed	Laboratory	Nitrate Analyst

		heating coil, replace column			
YSI 63	09C 101302, 10K 101895, 07M 100905	Replace probe tip	Yearly	Order from YSI	B. Kelly
YSI 63	09C 101302, 10K 101895, 07M 100905	Replace batteries	As Needed	In stock at office	Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	General inspection for wear and tear on equipment	Daily	Major fixes will be done out of office	Field Staff
YSI 63	09C 101302, 10K 101895, 07M 100905	Check buffer solutions for expiration	Weekly	In stock at office	B. Kelly
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	Replace membrane	4 to 8 weeks	In stock at office	Field Staff
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	Replace batteries	As Needed	In stock at office	Field Staff
YSI 550A	04L 2026AK, 08B 101407, 04A 0912AI	General inspection for wear and tear on equipment	Daily	Major fixes will be done out of office	Field Staff
Electronic Water Level Indicator	WLI-1, WLI-2, WLI-3	Inspection	Weekly	N/A	Field Staff
Oil/Water Interface probe	PLI-1, PLI-2, PLI-3, PLI-4	Inspection	Weely	N/A	Field Staff
MiniRae 3000	592-902491	Cleaning	Weekly	N/A	B. Kelly
MiniRae 3000	592-902491	Parts Inspection	As Needed	In stock at office	Field Staff

Table 11A Instrument and Equipment Maintenance

2. Identify the testing criteria for each lab or field instrument that is used to ensure the equipment is performing properly. Indicate how deficiencies, if found, will be resolved, re-inspections performed, and effectiveness of corrective action determined and documented. Give the person responsible for this

Instrument/Equipment & Serial Number	Type of Inspection	Requirement	Individual Responsible	Resolution of Deficiencies
Volatiles Mass Spec Shealy SOP S-SV-021 Page 7	Daily calibration check	Method Requirements	MSV Analyst	Recalibration or instrument maintenance
Semi-volatiles Mass Spec Shealy SOP S-SV-021 Page 7	Daily calibration check	Method Requirements	MSSV Analyst	Recalibration or instrument maintenance
ECD GC Shealy SOP S-SV-012 Page 5	Daily calibration check	Method Requirements	GC Analyst	Recalibration or instrument maintenance
Dionex IC Shealy SOP S-IN-010 Page 6	Daily calibration check	Method Requirements	IC Analyst	Recalibration or instrument maintenance
ICP Shealy SOP S-IM-005 Page	Daily calibration check	Method Requirements	ICP Analyst	Recalibration or instrument

6 & 7				maintenance
Leeman Mercury Analyzer Shealy SOP S-IM-006 Page 5	Daily calibration check	Method Requirements	Mercury Analyst	Recalibration or instrument maintenance
Flow Injection Analysis – Lachat 8000 Shealy SOP S-IN-042 Page 5	Daily and continuing calibration check	See calibration criteria	Nitrate Analyst	Recalibration or instrument maintenance
YSI 63 - 09C 101302, 10K 101895, 07M 100905	Daily calibration check	See calibration criteria	Field Staff	Recalibrate, general maintenance then recalibrate. Ship off for service by manufacturer
YSI 550A - 04L 2026AK, 08B 101407, 04A 0912AI	Daily calibration check	See calibration criteria	Field Staff	Recalibrate, general maintenance then recalibrate. Ship off for service by manufacturer
MiniRae 3000 – 592-902491	Weekly calibration check	Within 5 ppm of 100 ppm standard. MiniRae 3000 does not need daily calibration according to Manufacturers guidelines	Field Staff	Recalibrate, general maintenance then recalibrate. Ship off for service by manufacturer
Electronic Water Level Indicator	Monthly	Checked vs. Standard - +/- 0.01 foot per 10 foot length	Field Staff	Ship off for service by manufacturer
Oil/Water Interface probe	Monthly	Checked vs. Standard - +/- 0.01 foot per 10 foot length	Field Staff	Ship off for service by manufacturer

Table 12A Instrument and Equipment Inspection

B7 Instrument Calibration and Frequency

1. Identify equipment, tools, and instruments for field or lab work that should be calibrated and the frequency.
2. Describe how the calibrations should be performed and documented, indicating test criteria and standards or certified equipment.
3. Identify how deficiencies should be resolved and documented. Identify the person responsible for corrective action.

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference*
Volatiles Mass Spec	Minimum of 5 calibration standards for all compounds	When indicated by continuous calibration verification standard	Method Criteria	Detailed in SOP	MSV Analyst	S-VO-002
Semi-volatile	Minimum of 5	When indicated by	Method Criteria	Detailed in SOP	MSSV	S-SV-021

Instrument	Calibration Procedure	Frequency of Calibration	Acceptance Criteria	Corrective Action (CA)	Person Responsible for CA	SOP Reference*
Mass Spec	calibration standards for all compounds	calibration verification standard			Analyst	
GC ECD	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	GC Analyst	S-SV-012
Dionex IC	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	IC Analyst	S-IN-010
ICP	Minimum of 3 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	ICP Analyst	S-IM-022
Cetac Mercury Analyzer	Minimum of 5 calibration standards for all compounds	When indicated by calibration verification standard	Method Criteria	Detailed in SOP	Mercury Analyst	S-IM-006
Lacaht QuickChem 8000	Minimum of 5 calibration standards	Daily or when indicated by calibration verification standard	Method Criteria	Detailed in SOP	Nitrate Analyst	S-IN-042
YSI 63	pH Calibration	Daily	+/- 0.2 pH units	clean/replace probe tip, recalibrate	Field Staff	4.3.6
YSI 63	Conductivity Calibration	As directed by manufacturer	+/- 10 uS	clean/replace probe tip, recalibrate	Field Staff	4.3.6
YSI 550A	DO calibration	Daily	+/- 0.25 mg/l	clean/replace probe tip, recalibrate	Field Staff	4.3.6
YSI 550A	Temperature Calibration	Daily	+/- 1 °C	clean/replace probe tip, recalibrate	Field Staff	4.3.6
MiniRae 3000	PID Calibration	Weekly	+/- 5 ppm	clean, recalibrate	Field Staff	***
Electronic Water Level Indicator	Checked vs. Standard	Monthly	+/- 0.01 foot per 10 foot length	Replace probe tape	Field Staff	***
Oil/Water Interface probe	Checked vs. Standard	Monthly	+/- 0.01 foot per 10 foot length	Replace probe tape	Field Staff	***

Table 13A Instrument Calibration Criteria and Corrective Action

*** This can be a full name of a SOP, an abbreviation, or a number. In the latter two cases, the abbreviation or number must be associated with the full name of the SOP. See also Table 8A SOP Abbreviation Key.**

B8 Inspection/Acceptance Requirements for Supplies and Consumables

1. Identify critical supplies and consumables for field and laboratory, noting supply source, acceptance criteria, and procedures for tracking, storing and retrieving these materials.
2. Identify the individual(s) responsible for this.

Item	Vendor	Acceptance criteria	Handling/Storage Conditions	Person responsible for inspection and tracking.
Laboratory Chemicals	Fisher,VWR	Certificates of analysis and laboratory testing	Laboratory storage	Receiving and laboratory personnel
Laboratory standards	O2Si, Restek, High Purity, VHG, Supelco	Certificates of analysis and laboratory verifications	Vendor specific storage conditions	Laboratory Analysts
Sample Containers	Daniels Scientific, QEC	Certificates of analysis and laboratory testing	Bottle storage area	Sample receiving personnel
Clear, Disposable polyethylene Bailers	Preferred Pump	Individual sleeves intact, ball valve operational	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
Nylon Rope	Preferred Pump	Covered with plastic	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
Nitrile Gloves	Preferred Pump	Unopened box, no holes	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
40 mL HCL preserved amber vials	Shealy Environmental Services	Custody seal intact	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
250 mL HNO3 preserved metals vials	Shealy Environmental Services	Custody seal intact	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
Coolers	Shealy Environmental Services	Intact	Stored in Vehicle Bay, Off of the ground	B. Kelly, Field Staff
pH Buffer	TRS Environmental, Enviroequipment	Within expiration date	Stored in calibration room	B. Kelly, Field Staff
Conductivity Standard	TRS Environmental, Enviroequipment	Within expiration date	Stored in calibration room	B. Kelly, Field Staff
DO Membranes	YSI, Enviroequipment	Clean, in box	Stored in calibration room	B. Kelly, Field Staff
Batteries	Any Store	Not previously used	Stored in calibration room	B. Kelly, Field Staff
PID Calibration Gas – Isobutylene	Enviroequipment	Not Depleted, within expiration date	Stored in calibration room	B. Kelly, Field Staff

Table 14A List of Consumables and Acceptance Criteria

B9 Data Acquisition Requirements (Non-Direct Measurements)

1. Identify data sources, for example, computer databases or literature files, or models that should be accessed or used.
2. Describe the intended use of this information and the rationale for their selection, i.e., its relevance to project.
3. Indicate the acceptance criteria for these data sources and/or models.

Data Source	Used for	Justification for use in this project	Comments
SCDHEC historical files.	Historic groundwater and CoC concentration data. Lithology and well construction data from previous MWI's	Establish the type of drilling rig required, time for sampling and any other potential problems that may be encountered.	1903 forms from previous monitoring well installations will be used to estimate depth of the newly installed monitoring wells.

Table 15A Non-Direct Measurements

4. Identify key resources/support facilities needed.

B10 Data Management

1. Describe the data management scheme from field to final use and storage.

Following sample collection and chain of custody production, samples are shipped to the lab. Field work from the field staff is reviewed by the MECI project manager, and converted into digital form. All data entry is subsequently checked to validate the data entry. The original copies of the field work are stored in MECI files for a minimum of 5 years. Digital copies of the work are stored on the MECI server, which is backed up weekly, and stored for a minimum of 5 years. The digital copy of the field work is presented to SCDHEC with the final report.

2. How does the lab and field staff ensure that no unauthorized changes are made to the chain of custody, sampling notebooks, laboratory notebooks and computer records?

The laboratory maintains comprehensive Quality Control and Training Programs. All sample receipt data, sample log-in, and analytical data is peer reviewed, including review for inappropriate changes. Data management, review procedures and the Quality Systems Program are documented in the laboratory's Quality Manual and Standard Operating Procedures. The Quality Assurance Department oversees adherence to and review of these programs.

All MECI field work is produced using ink-pens. Any attempt to alter field data, after sampling is complete, can be readily identified. MECI keeps a carbon copy of the chain of custody after it is shipped to the lab. This copy is kept with the field work. If any change to the CoC are suspected, this original carbon copy can be use to identify potential changes.

3. How does the lab ensure that there are no errors in samples records including times when sample information is compiled, data calculated and/or transmitted?

Sample data acquisition software is reviewed periodically. The LIMS database is backed up daily and is able to be restored in the event of a system failure. These procedures are documented in laboratory SOP S-AD-003, LIMS. The IT Manager is responsible for these systems and procedures."

4. How will the data be archived once the report is produced? How can it be retrieved? (This applies to both electronic and hard copies).

Laboratory Hardcopy data stored off site is logged, maintained and archived by the Quality Assurance Department. Laboratory Electronic Data Reports are maintained through IT back up under the responsibility of the IT Systems Manager.

MECI keeps all field work and paper copies of reports in its in-house filing system. All paper copies are stored for a minimum of 5 years. Any file can be retrieved easily by going to the correct filing cabinet/box.

All electronic copies of reports generated are kept on the MECI server. This server is backed-up on a weekly basis. Any file stored on the MECI server can be retrieved instantly, by accessing the server. All electronic files are stored for a minimum of 5 years on the server.

Section C Assessment and Oversight

C1 Assessment and Response Actions

1. *The Contractor is supposed to observe field personnel daily during sampling activities to ensure samples are collected and handled properly and report problems to DHEC within 24 hours. . Please state who is responsible for doing this and what observations will be made. Will this person have the authority to stop work if severe problems are seen?*

Field audits can be conducted on any field personnel at any time. MECI field audits can be conducted by the Field Manger, who will be responsible for ensuring that field personnel adhere to the QAPP. If during a random field audit, severe problems are found, work will be stopped by the field manager and the QA officer contacted to determine corrective action. All problems must be corrected prior to any additional work being performed. Should it be requested, an On-site Field Audit can be scheduled with the SCDHEC project manager.

2. *The SCDHEC UST QAPP states that the Lab will receive an Offsite Technical System Audit. For this project, what assessments will be done on the Commercial Lab(s) that are being used—other than their certification audit? When or how often are these done? Who will the results be given to and who has the ability to stop work if problems are severe?*

The laboratory participates in annual Proficiency Testing through an approved vendor, Wibby Environmental. Proficiency Testing results are provided to the Office of Environmental Laboratory Certification.

C2 Reports to Management

See the SC DHEC UST Programmatic QAPP (UST Master QAPP).

Section D Data Validation and Usability

All field and laboratory data will be checked and verified by the project verifier (Brendon Kelly) prior to submission to SCDHEC.

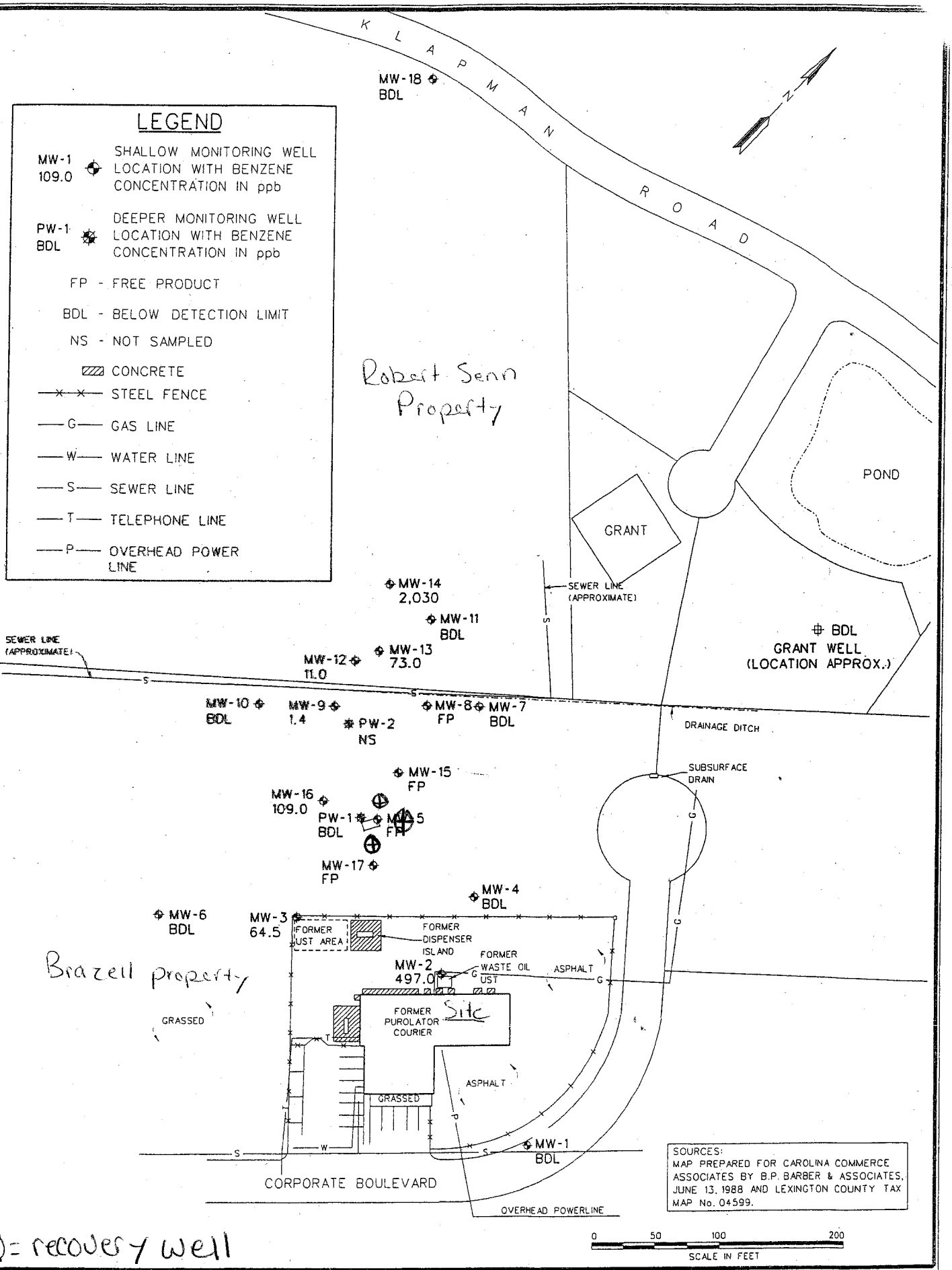
GRAPHIC SCALE

0 1000 2000 4000

1IN = 2000FT

Reference: Southwest Columbia & Irmo, South Carolina
Columbia North & Lexington, South Carolina
USGS 7.5 Min. Quad
Contour Interval — 10 Feet

Midlands Environmental Consultants, Inc.	Site Location
Purolator Courier Corporation 105 Corporate Boulevard, West Columbia, SC SCDHEC Site ID# 05878	
Figure 1	MECI 12-3929



THESE DRAWINGS AND THE DESIGN THEREON ARE THE PROPERTY OF DAVIS & FLOYD, INC. AND MAY NOT BE USED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF THE ENGINEER / GEOLOGIST AND ANY INFRINGEMENT WILL BE SUBJECT TO LEGAL ACTION

NO.	REVISED	CHKD.	DATE

DESIGNED	CHECKED	JOB NO.
FERGUSON	FERGUSON	050098.02
DRAWN	APPROVED	DATE
STEVENS	FERGUSON	JAN, 2001

DRAWING TITLE

FIGURE 3
SITE MAP SHOWING BENZENE
OCTOBER 19, 2000

DAVIS & FLOYD
ENGINEERS ARCHITECTS
PLANNERS SCIENTISTS
GREENWOOD • CHARLESTON • COLUMBIA
SOUTH CAROLINA

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SC

OWNER/CLIENT

\50098.01\ss\benzene.dgn Jan 18, 2001 08:55:09

SHEALY

Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number 12602

Client	Report to Contact	Sampler (Printed Name)	Quote No.
Address	Telephone No. / Fax No. / Email	Waybill No.	Page ___ of ___
City / State / Zip Code	Preservative: 1. Unpres. 4. HNO3 7. NaOH; 2. NaOH/ZnA 5. HCL; 3. H2SO4 6. Na Thio.		Number of Containers
Project Name			Bottle (See Instructions on back)
Project Number	P.O Number		Preservative
			Lot No.

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: GW	DW	WW	S	Other	Analysis	Remarks / Cooler ID

Turn Around Time Required (Prior lab approval required for expedited TAT)
☐ Standard ☐ Rush (Please Specify)

Sample Disposal
☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification
☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison ☐Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler			1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory Received by		

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack
Receipt Temp. _____ °C
Temp. Blank ☐ Y / ☐ N

Jeff Coleman

From: "Jeff Coleman" <jlc@meci.net>
To: "Stephanie M. Briney" <brineysm@dhec.sc.gov>
Sent: Wednesday, April 04, 2012 2:35 PM
Attach: PurolatorCP.xls; Quote05878.xls
Subject: Purolator Courier (05878)

Stephanie,

Attached is a quote to remove the "SkimRite" system and the fence that surrounds it. This rate includes personnel and equipment to remove the system/fence and whatever cost that we may incur for disposal.

The drums and liquid inside the drums can be removed under SUPERB allowable rates. It appears that there probably is around an estimated 220 gallons of wastewater inside of them, plus whatever wastewater we create during purging. The drums themselves can just be tacked on to the tonage rate for soil disposal and we will dispose with the drill cuttings.

Also, I attached a cost proposal which includes everything we discussed as far as what you are wanting to do out here. I think its all there, wasn't quite sure what you wanted analysis for?
I put a few extra purge wells on there, in case we locate any others during field activities. Also, I added and additional wsw/sw sample in case you want to sample the wetland area downgradient of MW-14 and the Grant WSW?

Wells located on 4/4/2012 by MECI:
MW-1, MW-2, MW-4, MW-5 (Product), MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13, MW-14, PW-1, and PW-2 (Total = 14 + 3 New Recovery Wells = 17)

Wells Not Located:
MW-3 (Possibly Paved Over)
MW-6 (Maybe Destroyed or under Trackhoe?)
MW-17(Under Wood Chip Pile?)
MW-18 (Looks to be along Right of Way)
MW-21, MW-23, and MW-25 (In Wetland Area Somewhere)
Total=7

Let me know if there is anything else that you thinks needs to be changed or added.

Thanks,

Jeff L. Coleman
Senior Scientist
Midlands Environmental Consultants, Inc
803-808-2043 (Office)
803-808-2048 (Fax)
803-360-7765 (Cell)

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

ASSESSMENT COMPONENT INVOICE CONTRACT PO NUMBER 4600117789

SOUTH CAROLINA

Department of Health and Environmental Control

Underground Storage Tank Management Division

State Underground Petroleum Environmental Response Bank Account

Facility Name: **Purolator Courier**

UST Permit #: 05878 **Cost Agreement #:** N/A

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. **Plan***				
B. Tax Map		x	$10.00	$0.00
C. MW Installation or Comp. Plan/QAPP Appendix B	1	x	$100.00	$100.00
3. **Survey (500 x 500 feet)**				
A. Comprehensive Survey	1	x	$1,000.00	$1,000.00
4. **Mob/Demob (Each)**				
A. Equipment	1	x	$100.00	$100.00
B. Personnel	3	x	$100.00	$300.00
C. Adverse Terrain Vehicle to install wells		x	$1.00	$0.00
5. **Soil Borings (hand auger)* (Feet)**		feet x	$2.00	$0.00
6. **Soil Borings (drilled)--Not to be used for Field Screening**				
A. Standard		feet x	$6.00	$0.00
9. **Well Installation* (per foot)**				
A. Water Table (hand augered)		feet x	$6.00	$0.00
B. Water Table (drill rig)		feet x	$14.00	$0.00
C. Telescoping/ Pit Cased		feet x	$28.00	$0.00
D. Rock Drilling		feet x	$23.00	$0.00
G. Rock Multi-sampling ports/screens		feet x	$7.00	$0.00
H. Recovery Well (4 inch diameter)	30	each x	$25.00	$750.00
10. **Groundwater Sample Collection / Gauge Depth to Water or Product (Each)**				
A. Groundwater Purge, Duplicate Sample	24	each x	$5.00	$120.00
C. Water Supply/Surface Water	2	samples x	$5.00	$10.00
D. Groundwater No Purge, Field Blank or Duplicate	3	samples x	$5.00	$15.00
E. Gauge Well only	1	per well x	$5.00	$5.00
F. Sample Below Product		wells x	$5.00	$0.00
G. Pasive Diffusion Bag		each x	$25.00	$0.00
11. **Laboratory Analyses-Groundwater (Each Sample)**				
A1. BTEXNM + Oxygenates + 1,2-DCA + Ethanol	30	samples x	$48.00	$1,440.00
AA. Lead, Filtered		samples x	$12.00	$0.00
D. PAH's		samples x	$48.00	$0.00
E. Lead, Unfiltered	29	samples x	$12.00	$348.00
F. EDB by EPA 8011	29	samples x	$25.00	$725.00
G. 8 RCRA Metals		samples x	$50.00	$0.00
H. TPH (9070)		samples x	$35.00	$0.00
P. 8 Oxyenates		samples x	$1.00	$0.00
P1. Ethanol		samples x	$1.00	$0.00
11. **Analyses-Soil (Each Sample)**				
Q. BTEX + Naphth.+ MTBE		samples x	$32.00	$0.00
R. PAH's		samples x	$50.00	$0.00
S. 8 RCRA Metals		samples x	$50.00	$0.00
U. TPH-DRO (3550B/8015B)		samples x	$40.00	$0.00
V. TPH- GRO (5030B/8015B)		samples x	$40.00	$0.00
W. Grain size/hydrometer		samples x	$99.00	$0.00
X. Total Organic Carbon		samples x	$25.00	$0.00
11. **Analyses-Free Phase Product (Each Sample)**				
Z. Hydrocarbon Fuel Identification (age and Type).		samples x	$300.00	$0.00

12. **Aquifer Characterization***					
B. Slug Test*		tests x	$35.00		$0.00
13. **Free Product Recovery Rate Test* (Each)**		tests x	$35.00		$0.00
16. **Subsequent Survey***		x	$150.00		$0.00
17. **Disposal* (gallons or tons)**					
A. Wastewater	400	gallons x	$0.30		$120.00
B1. Free Product		gallons x	$0.30		$0.00
C. Soil Treatment/Disposal	3	tons x	$50.00		$150.00
D. Drilling fluids		gallons x	$0.10		$0.00
18. **Miscellaneous (attach receipts)**					
A. Abandonment 4 inch well or smaller		feet x	$2.75		$0.00
B. Analyses-Soil Lead		each x	$12.00		$0.00
C. High-Strength Well Pad Replacement		each x	$72.00		$0.00
		each x	$0.00		$0.00
		each x	$0.00		$0.00
25. **Well Repair**					
A. Additional Copies of the Report Delivered		each x	$0.00		$0.00
B. Repair 2x2 MW pad		each x	$50.00		$0.00
C. Repair 4x4 MW pad		each x	$72.00		$0.00
D. Repair well vault		each x	$50.00		$0.00
F. Replace well cover bolts		each x	$10.00		$0.00
G. Replace locking well cap & lock		each x	$4.00		$0.00
H. Replace/Repair stick-up		each x	$80.00		$0.00
I. Convert Flush-mount to Stick-up		each x	$90.00		$0.00
J. Convert Stick-up to Flush-mount	8	each x	$75.00		$600.00
K. Replace missing/illegible well ID plate		each x	$6.00		$0.00
Report Prep & Project Management		x			
TOTAL					$5,783.00

*The appropriate mobilization cost can be added to complete these tasks, as necessary

Midlands
Environmental
Consultants, Inc.
235-B Dooley Road, Lexington, SC 29073
(803) 808-2043 fax: 808-2048

Price Estimate

CUSTOMER:
Name SCDHEC
Address 2600 Bull Street
City Columbia State SC Zip 29201
Phone (803) 896-6323
Contact Name Ms. Stephanie Briney

DATE: 4/4/2012
PROJECT:
Name: Former Purolator Courier
Location: West Columbia, SC

Date	Quantity	Description	Unit Price	Total
	1	**Product Recovery System Removal**	$500.00	$500.00

COST ESTIMATE $500.00

RECEIVED
MAR 16 1998
Bureau of Underground Storage Tank Management

UNDERGROUND STORAGE TANK (UST) OWNER/OPERATOR LEAD INFORMATION SHEET

1. CONTRACTOR OF CHOICE

As the UST Owner/Operator of **Site #05878**, I would like to use the contractor or person(s)* listed below and request that they represent me for: (check one)

☑ Rapid Assessment

☐ all future assessments scopes. **

Name of Contractor/Person(s) Davis and Floyd, Inc.

Address Attn: James M. Ferguson

240 Stoneridge Drive

Columbia, S. C. 29210

Telephone Number 254-4337

Note: Site rehabilitation activities must be performed by a SCDHEC Certified Site Rehabilitation Contractor in accordance with R.61-98.

*indicate if the person listed is your own employee

** if you would like the contractor to perform all future assessment activities at this and/or other UST sites that have confirmed releases, please provide a list of all sites on your letterhead and provide the information requested in items 2 and 3 below within the context of the letter.

2. FINANCIAL OR FAMILIAL RELATIONSHIP

Does a financial or familial relationship, as defined below, exist between you and the contractor/person that you listed above? _____ Yes __X__ No (please initial)

Financial Relationship: A connection or association through a material interest of sources of income which exceed five percent of annual gross income from a business entity.

Familial Relationship: A connection or association by family or relatives, in which a family member or relative has a material interest. Family or relatives include: father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, son-in-law, daughter-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, grandchild, great grandchild, step grandparent, step great grandparent, step grandchild, step great grandchild, or fiancee.

3. PAYMENT

You can pay the contractor and, upon the submittal of the canceled check (or a notarized statement from the contractor), be compensated from the SUPERB Account, or have payment issued directly from us to the contractor.

I request that payment be made to me after I have paid the contractor. _____ Yes __X__ No (please initial)
I request that payment be made directly to the contractor. __X__ Yes _____ No (please initial)

Note: All costs must receive prior financial approval from the Department regardless of payment option.

Underground Storage Tank Owner/Operator Signature Carolina Commerce Associates

Date 3/12/98

UST PROGRAM DOCKETING # 40 Tech

D H E C
PROMOTE PROTECT PROSPER
2600 Bull Street
Columbia, SC 29201-1708

DIVISION OF
UNDERGROUND STORAGE TANK MANAGEMENT

Phone (803) 734-5331 Fax (803) 734-3604

Mr. William S. Durham
Carolina Commerce & Associates
3135 Milwood Ave.
Columbia, SC 29201

MAR 10 1998

Re: Former Puolator Courier Site
Site ID #05878
Availability of SUPERB Funding
Lexington County

Dear Mr. Durham:

Currently, the release reported on **October 17, 1991** at the referenced site has a priority classification of **3B**. Therefore, SUPERB funds are available, or will soon be available, to implement the next necessary scope of work. The scope of work to be implemented is a **Rapid Assessment**.

Our records do not indicate that you have selected a contractor to perform assessment activities at the site for the necessary scope of work. All assessment activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor. If you wish to choose your own contractor and need assistance in finding a certified contractor, please let us know and we will provide you a list of companies for your consideration. If you do not require assistance, please submit the enclosed Information Sheet within 10 days and, in addition, have your contractor complete and submit the enclosed Assessment Component Cost Proposal form and Rapid Assessment Plan form within thirty days of the date of this letter. Every component may not be necessary to complete the above scope of work. The SUPERB allowable cost for each component is included on the Assessment Component Cost Proposal form.

If you wish, the SCDHEC can directly procure the services of a site rehabilitation contractor on your behalf. If you would like more information on this method of implementing the necessary scope of work, please contact Michael A. Bishop within 10 days of this letter. Submittal of the enclosed Information Sheet and Rapid Assessment Plan/Component Cost Proposal is not required if you select this method. If you choose this option, additional forms will be forwarded to you for SCDHEC and its contractor to access the property.

On all correspondence or inquiries regarding this project, please reference Site ID #05878. If you have any questions, please feel free to contact Michael A. Bishop at (803) 734-0890 or 1-800-826-5435 (within South Carolina only).

Sincerely

Owner/Operator Assistance Section
Assessment and Corrective Action Division
Bureau of Underground Storage Tank Management

Michael A. Bishop, Hydrogeologist

Lee A. Monts, Manager

Enc: Information Sheet
Rapid Assessment Plan
Assessment Component Cost Proposal

cc: Technical File

UST PROGRAM
DOCKETING # 4/Tech

DHEC/UST/030598

Read 5/1/96 Re

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201-1708

Commissioner: Douglas E. Bryant

Board: John H. Burriss, Chairman
William M. Hull, Jr., MD, Vice Chairman
Roger Leaks, Jr., Secretary
Richard E. Jabbour, DDS
Cyndi C. Mosteller
Brian K. Smith
Rodney L. Grandy

Promoting Health, Protecting the Environment

APR 30 1996

William S. Durham
Carolina Commerce and Associates
3135 Millwood Avenue
Columbia, SC 29201

Re: Former Purolator Courier Site
Site ID: #05878; CA: #01035
SCDHEC Letter dated April 7, 1994
Free Product Recovery Report received March 11, 1996
Lexington County

Dear Mr. Durham:

The referenced letter by the Bureau of Underground Storage Tank Management approved installation of the SkimRite™ free product skimmer and associated free product recovery activities. To date this system has recovered 10 gallons of free product. The referenced free product recovery report by Davis and Floyd indicates that future free product recovery will be minimal because the level of ground water remains above the top of the recovery well screen. Additionally, Davis and Floyd recomends that the recovery system be permanently closed. The Bureau agrees with Davis and Floyd's recomendation and requests that disposal of any ground water be completed and a final invoice against cost agreement number 01035 be submitted within 45 days from the date of this letter. **After 45 days this cost agreement will be closed.**

As outlinned in the initial letter, the SkimRite™ system is considered a capital expense item. If this equipment is no longer needed at this site and is sold, the proceeds from the sale must be returned to the SUPERB Account. The purchase price of the system must receive prior approval from the Bureau. If the equipment is moved to another SUPERB site, payment of up to 30% of the original purchase price may be allowed. **Please indicate your plans for the system with the final invoice.**

All releases from regulated underground storage tanks that have been reported to this Department have been prioritized using a ranking system that evaluates the risk to human health and the environment. The priority classification system identifies those sites that represent an immediate or short term risk to human health where the Department should be allocating available SUPERB monies. Based on the available data, your site's priority classification is 3B and does not pose an immediate or short term risk to human health. Therefore, SUPERB funds cannot be made available for additional site investigative activities at this time. You will be informed when SUPERB funds become available for this site.

UST PROGRAM
DOCKETING # 43 Tech

recycled paper

Future necessary actions include completion of a Rapid Assessment (RA) to complete the Expanded Assessment Report from June 1994. Should you wish to proceed with site rehabilitation activities, you can seek reimbursement for approved activities when, and if, funds become available. The enclosed contract outlines the conditions upon which reimbursement can occur. A signed contract must be submitted in order to seek potential reimbursement.

The Bureau is in the process of updating costs for site rehabilitation activities. These costs are to be public noticed in the April 26, 1996 State Register. Until these costs are finalized, we are instituting interim allowable costs to allow Owner/ Operators (O/O) immediate access to the fund. If the allowable costs should be decreased as a result of the public notice, we will honor the costs quoted in this correspondence. However, should the costs be increased as a result of this notice, we will only honor the costs quoted in this correspondence. If you desire to proceed with the RA, please complete the enclosed Rapid Assessment Plan and Asssessment Component Cost Proposal and return both with the signed contract to me within 30 days.

Please indicate below if you desire to proceed based on these unit costs or if you decline to proceed at this time. Also, indicate if you need assistance in hiring a contractor. Your priority classification will not be affected by a decision to not proceed at this time; however, should all available SUPERB funds be committed during this interim process, funding for work on your site, after the proposed rates become finalized, may be delayed until such time as funds become available. **This letter should be completed and returned to this Bureau within 5 days of receipt.**

I wish to proceed with site rehabilitation activities at this time at the proposed allowable costs. YES___ NO___

I need assistance in obtaining a contractor to perform the rapid assessment. YES___ NO___

On all correspondence regarding this site, please reference site ID #05878. On the final invoice please reference site ID number and cost agreement number 01035. Please feel free to call Arthur Shrader at (803) 734-0890 if you have questions or need additional information.

Sincerely,

Technical Section
Bureau of Underground Storage Tank Management

Arthur Shrader, Hydrogeologist

David G. Baize, Manager

enc: Contract
Interim SUPERB Allowable Costs dated April 1, 1996
Assessment Component Cost Proposal
Rapid Assessment Document

cc: Melvin T. Blackwell, Davis and Floyd (with enclosures)
Administrative Section

DAVIS & FLOYD

June 10, 1994
Serial No. DHC-045-94
Job No. 5755.05

Mr. Art Schrader
Hydrogeologist
Ground-Water Protection Division
SCDHEC
2600 Bull Street
Columbia, SC 29201

RECEIVED
JUN 13 1994
Groundwater Protection Division

Reference: Assessment Report
Former Purolator Courier Site
Lexington County, South Carolina
GWPD Site ID# 05878

Dear Mr. Schrader:

Davis & Floyd (D&F) has completed the report of the assessment of contamination by petroleum hydrocarbons at the above-referenced site. One copy of the report is attached. The report contains the results of field and laboratory testing, our conclusions regarding the extent of contamination by petroleum hydrocarbons at the site, recommendations for additional assessment and continued site monitoring, and evaluation of alternatives for site remediation.

Our costs for services completed through March 13, 1994 are included on the attached invoice (No. 20131) which is the final invoice for all costs associated with program tasks proposed in the Expanded Assessment Plan (EAP) prepared for the site by D&F dated May 6, 1992, as approved by the SCDHEC on June 22, 1992. The invoice was prepared in accordance with SUPERB Cost Proposal (CP# 195) and subsequent addendums submitted by D&F and approved, with adjustments, by the SCDHEC.

We appreciate the opportunity to provide our services to the State of South Carolina. Please contact us if you have any questions or need additional information.

Sincerely,

DAVIS & FLOYD, INC.

David H. Campbell Jr.

David H. Campbell, Jr., P.G.

Melvin T. Blackwell

Barbara Darnell for M.T.B.

Attachments: As stated

called Jay Campbell – 6/20/94
Need 2d copy of report for District -
H Shah

cc: Mr. William S. Durham, Jr.
Mr. R. L. (Rudy) Powell, P.E.

UST PROGRAM
DOCKETING # 44Tech

Davis & Floyd, Inc. | 1122 Lady St. | Suite 1000 | Columbia, S.C. 29201 | (803) 254-4337 | Fax (803) 254-4549

Midland Construction Company. GWPD ID: #11418 The site is an abandoned construction company. All buildings have been removed except for two large sheds used to park construction equipment. The topographic gradient for the site is from the rear of the site toward Sunset Blvd. Sunset Blvd. has been raised in this general area and a house across Sunset Blvd. from Midlands Construction is 6 feet below the level of the pavement. The USTs for the site were removed with the buildings in 1992 and 1993. Two full metal 55 gallon drums and two empty plastic 55 gallon drums were on the site.

Price's Service Station. GWPD ID: #15750 The station is located across the street from Hess Station 4-0234 and a Pantry. The topographic gradient is from behind the station to Sunset Boulevard. Only one monitoring well is present on site that was installed by Burns and Rowe as part of the Hess Station assessment plan preparation. All gasoline tanks have been removed and the station is currently operating as a garage. No assessment activities have been started at this site because the site did not rank high enough to allow development of an Expanded Assessment Plan by a cost proposal.

Hess 4-0234. GWPD ID: #05808 The apparent topographic gradient is from the front of the station along Sunset Boulevard to a residential area located behind the site. H_2O Environmental plans to install two additional wells down gradient of the station to define the vertical extent of ground-water contamination. All 55 gallon drums of soil and water have been removed from the site. The station is currently operating as a gasoline "quick stop" type operation.

Former Purolator Courier. GWPD ID: #05878 The site is at the end of an industrial park. No other trucking or other businesses with USTs were observed in the area. The UST was previously removed and the property is currently vacant. The approved cost proposal for a free product recovery has apparently not been started. No construction or new equipment was on the site.

Carolina and Southern. GWPD ID: #05951 The site has been NFAed as of January 1994. The temporary well installed by NuWay had been closed and grouted. No other sources of contamination are in the immediate area. This site is surrounded by woods that are in the process of being logged. Ground-water flow is from the area of the former UST at the rear of this site to the front (Meat packer Road).

Rich Brothers. GWPD ID: #06119 The site is a former gasoline station and market on Sunset Boulevard. Four pumps are still in front of the former station. These are very old pumps since the price per gallon cannot be set above 99 cents per gallon. The topographic gradient is from the front of the former station to the rear of the station (away from Sunset Boulevard).

Racetrack #635. GWPD ID: #06035 The pump and treat system construction is completed. The system is not on line. NuWay has submitted as built construction plans to the Central Midland District Engineer for the permit to operate.

Exxon #4-5232. GWPD ID: #05822 The site is an active station at the intersection of I-20 and Us Highway 1. The former tanks were removed and a new set of tanks was installed adjacent to the former UST basin in August 1991. An Initial Site Investigation by EA Engineering and Technology indicated ground-water from the UST basin did not flow to the well located on the station property. The topographic gradient agrees with this direction of ground-water flow. City water stops approximately one-half mile from the station location and does not extend to other businesses in the vicinity of I-20. All previously installed temporary monitoring wells have been abandoned at this site.

Hess 4-0237. GWPD ID: #05806 The site is no longer operated as a station, but as a used car dealership. The apparent topographic gradient is from the front of the station (old Charleston Highway) to the rear of the former station toward two houses. The area of the former tanks has not been repaved and is currently filled with gravel.

Texaco. GWPD ID: #05807 This site is an abandoned site not currently in operation. The area where the USTs and lines were removed were filled in with gravel and all the windows were covered with plywood. the apparent topographic gradient was toward the store with all other surrounding areas higher than this station location. No 55 gallon drums were on site from the installation of MW-6 by Handex of the Carolinas for Star Enterprises.

Hess 4-0374. GWPD ID: #12138 This station is currently active. The apparent topographic gradient is to the east and there is a drop in elevation on all sides of the station except the entrance from Saint Andrews Road. I talked with the manager, Nita Korab, about the seven former USTs. She thought they were removed when Hess bought the property, but was not employed by Hess when the tanks were removed.

Arthur Shrader, Hydrogeologist

cc: Files

Memorandum For File
Site Visits **June 2, 1994**

<u>All site were surveyed with GPS in the following order:</u>

Exxon #4-3689. GWPD ID: #05823 Surveyed the facility and the wells previously installed by EA Engineering. There are not enough wells to define contamination and IT has requested approval to install additional wells. Nine barrels of soil and water from the installation of previous wells are on site. No sources of contamination are on the same side of Sunset Blvd. Across the street is a currently operating BP station (GWPD ID #13165). The concrete and asphalt showed areas where the former tanks and associated lines had been removed. Topographic drainage appeared to be to the west toward an office building complex, but because this site is adjacent to an I-26 off ramp, there is a 16 foot bank adjacent to the east side of the station. Utilities would present preferential pathway if the water were to intercept the utility backfill areas. The station is no longer in operation.

Sunset 66. GWPD ID: #06118 The site is the topographic high at the front (along Sunset Blvd.) of the station with the rear (south side) dropping off approximately 15 feet. There are numerous utilities to include a major storm drainage system that runs down this hill adjacent to an I-26 off ramp. There is a small creek approximately two hundred and fifty yards behind the station. There was no ongoing work at this station. The RP, Keenan Oil Company, is waiting for SUPERB cost proposal method to resume site assessment. The station is currently in operation.

Stop and Shop Texaco. GWPD ID: #05804 The station is located adjacent to an I-26 on ramp and directly north from Sunset 66 across Sunset Blvd. A motel is the topographic high point behind the Star Enterprise station. Monitoring wells installed by Burns and Rowe were surveyed and one well installed by Handex of the Carolinas were surveyed. Ground water flow is toward the west (I-26 on ramp). The 55 gallon drums of soil and water used to install MW-6 and sample all wells had been removed from the site. The station is currently in operation.

USA Station #172. GWPD ID: #10933 The topographic gradient appears to be to the east of the station in the direction of a farm pond located approximately 150 feet from the property boundary of the station. The actual ground water flow reported by Southeastern environmental was to the north east under Sunset Blvd. and into the parking lot of the shopping center. No other possible sources of ground water contamination are located in the general area of this service station. The area is a mixture of houses and trailers with businesses intermixed. The station is currently in operation.

JUN 13 1994
Groundwater Protection
Division

ASSESSMENT REPORT

FORMER PUROLATOR COURIER SITE

LEXINGTON COUNTY, SOUTH CAROLINA

GWPD SITE ID# 05878

UST PROGRAM
DOCKETING # 45 Tech

ASSESSMENT REPORT
FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA
GWPD SITE ID# 05878

Prepared For:

Carolina Commerce Associates
c/o William Durham Company
3135 Millwood Avenue
Columbia, South Carolina 29205

and

Ground-Water Protection Division
SC Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Job No. 5755.05

June 10, 1994

DAVIS & FLOYD, INC.
1122 Lady Street
Suite 1000
Columbia, South Carolina 29201

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1.0 INTRODUCTION

1.1 Background

This report has been prepared by Davis & Floyd, Inc. (D&F) to document the assessment of contamination by petroleum released from former underground storage tanks (USTs) at the former Purolator Courier site (GWPD Site ID# 05878). The site, which is now vacant, was formerly utilized by Purolator Courier as a shipping distribution center and a vehicle maintenance shop. The former fuel distribution system consisted of two 10,000-gallon gasoline USTs which stored leaded and unleaded gasoline, associated piping, and dispensers. An additional 1000-gal UST contained waste oil. The USTs were removed and were reported in January 1991 to be disposed of by R&M Installation and Repair, Inc. Soil excavated during tank removal was subsequently backfilled into the excavations. Documentation of UST removal and destruction and results of analyses of soil and groundwater samples from a boring adjacent to the fuel tank excavation, which indicated petroleum hydrocarbon compounds in soil and groundwater, were submitted by Mr. William S. Durham, Jr., Carolina Commerce Associates in letters to the SCDHEC dated September 24, 1991 and October 16, 1991 requesting procedural guidance.

The early phases of this assessment were completed as required under Subpart F of the South Carolina Underground Storage Tank Regulations (R.61-92), and under the reimbursement provisions of the South Carolina Underground Petroleum Environmental Response Bank (SUPERB), in accordance with the Underground Storage Tank Program Expanded Assessment Guidance Document developed by the Ground-Water Protection Division (GWPD) of the South Carolina Department of Health and Environmental Control (SCDHEC) dated February 6, 1992, and the Expanded Assessment Plan (EAP) for the site dated May 6,

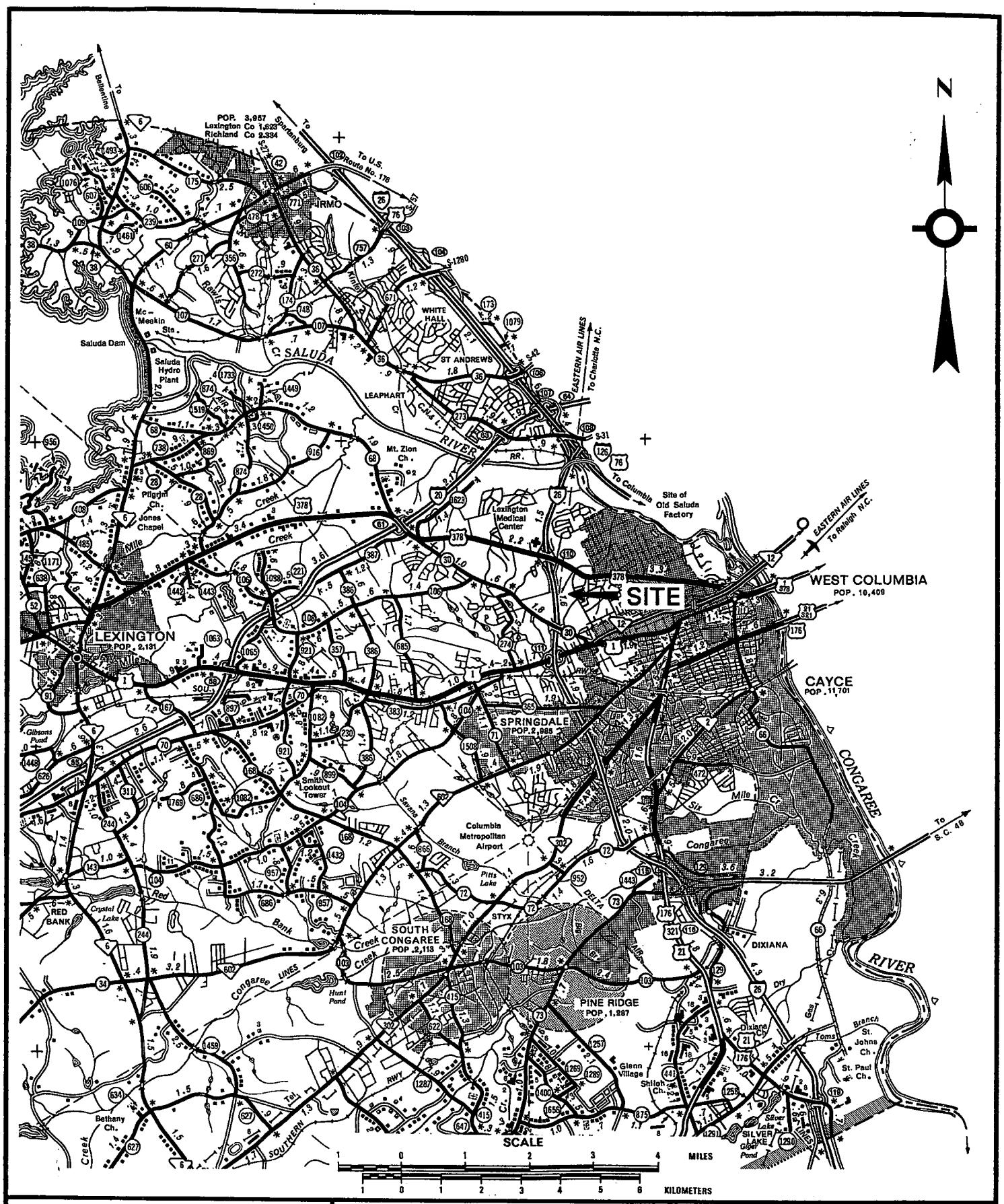
1992 developed by D&F and approved with amendments by the SCDHEC on June 22, 1992, and subsequent revisions.

However, due to the shortage of funds in the SUPERB account, Mr. Christopher S. Doll, SCDHEC, indicated in a letter to Mr. Durham dated January 20, 1994 that ongoing site rehabilitation should be terminated. Additional assessment, site remediation, and continued groundwater monitoring are recommended should the SUPERB fund become solvent in the future.

1.2 Site Location/Geography

The site is located in Carolina Center Business Park on Corporate Boulevard approximately one-quarter mile east of the intersection of Corporate Boulevard and Chris Drive (frontage road to Interstate 26). The site is approximately one-half mile west of the City of West Columbia in Lexington County, South Carolina (Figure 1). The latitude and longitude of the site are approximately N 33° 59′ 41" and W 81° 6′ 13".

Land surface at the site is relatively flat at an elevation of about 270 feet above mean sea level. Double Branch, a tributary to the Saluda River, is located northwest of the site and flows to the northeast, draining a pond located west of the site and Interstate 26 (Figure 2). Small ponds are located approximately 500 feet north and northwest of the site. Stormwater drainage from the site flows to a shallow drainage ditch located about 200 feet northwest of the site. The site, as referred to in this report, includes the former Purolator Courier site and adjoining properties immediately to the northwest and southwest (also owned by Carolina Commerce Associates) as shown on Figure 3.



FORMER
PUROLATOR COURIER SITE
LEXINGTON COUNTY,
SOUTH CAROLINA
FEB/94 JOB NO. 5755.05

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PLANNERS SCIENTISTS
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FIGURE 1
SITE LOCATION MAP
GENERAL HIGHWAY MAP
LEXINGTON COUNTY, S.C.

Memorandum

TO: Melvin T. Blackwell or David H. Campbell
Davis & Floyd

FROM: Art Shrader
UST Corrective Action Section

RE: Former Purolator Courier
Site ID #05878
Cost Proposal #0131
Expanded Assessment Report received June 13, 1994

DATE: August 17, 1994

Based on the requirements of the monitoring well approvals for the above referenced site, please provide the longitude and latitude of all wells.

If you have any questions please call me at (803) 734-0890.

05878EAR.C1

Fax Message

Date: 8/17/94

Number of Pages Including Cover Sheet: 2

Please Deliver This Fax Message

TO: Mel Blackwell or Don Campbell
Name

Davis & Floyd
Organization/Department

(____) 254-4549 Fax Number (____) _____ Office Phone

FROM: Art Shroder
Name

GWPD
Bureau/Division/Section

(____) 734-~~3604~~3604 Fax Number (____) 734-0890 Office Phone

SUBJECT/COMMENTS: Ref GWPD 05878, Former Purolator Courier. I need longitude & latitude for all wells. See attached

Thanks

Art

South Carolina
Department of Health
and
Environmental Control

2600 Bull Street
Columbia, SC 29201

DHEC 24-052 (1/91)

TRANSMISSION RESULT REPORT (AUG 17 '94 03:32PM)

GROUND WATER PROTECT

(AUTO)

THE FOLLOWING FILE(S) ERASED

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ERRORS

1) HANG UP OR LINE FAIL 2) BUSY 3) NO ANSWER 4) NO FACSIMILE CONNECTION

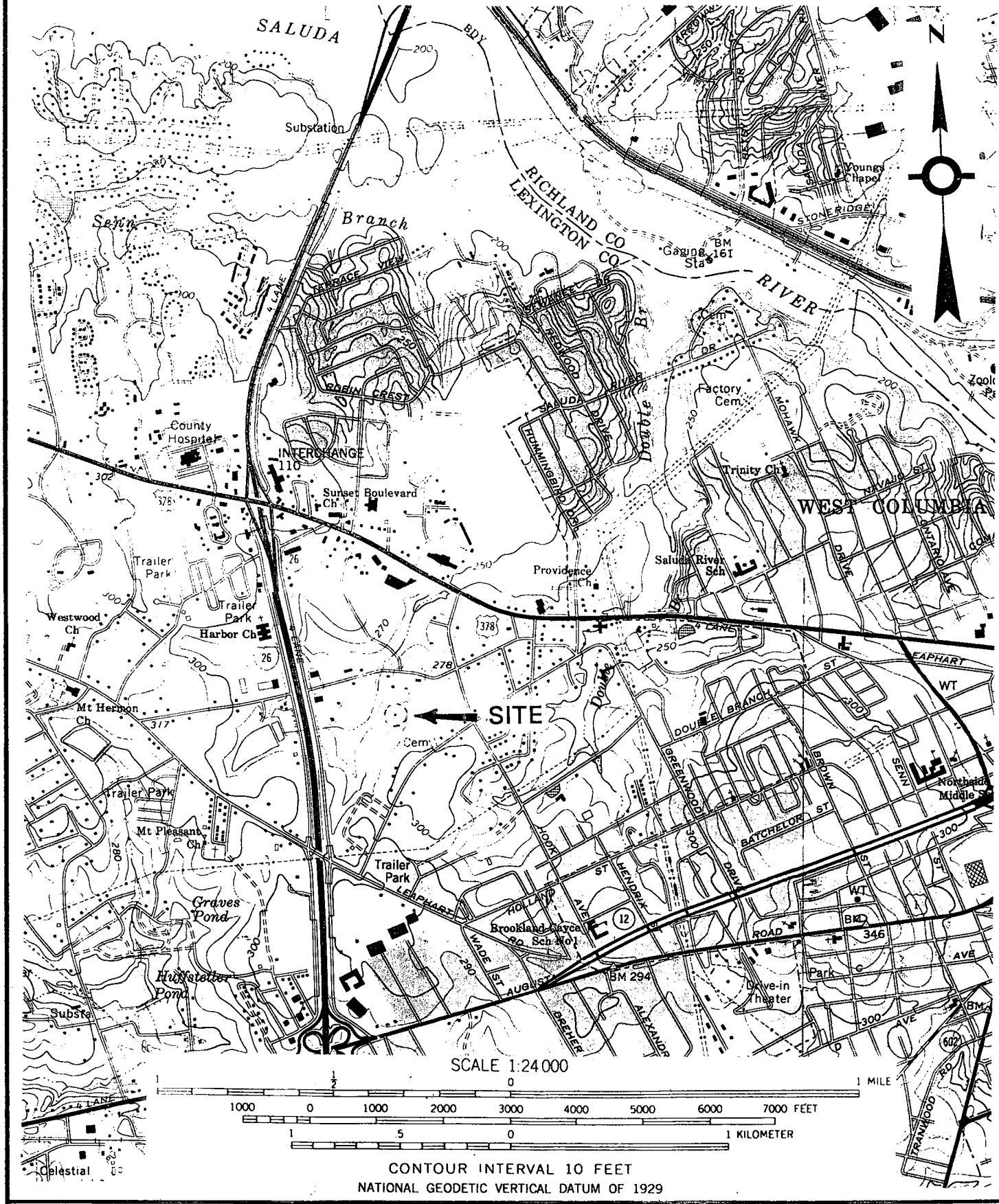

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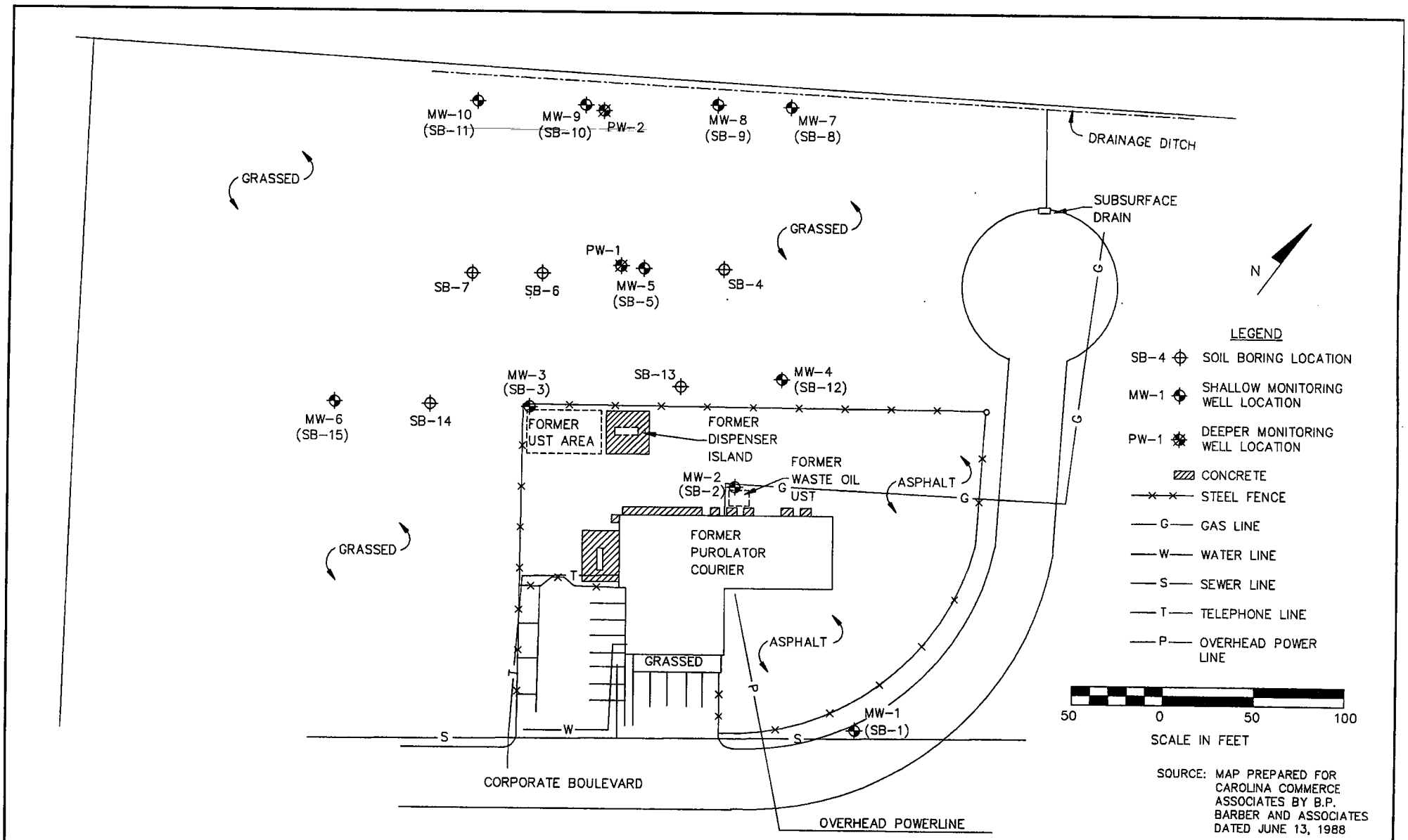
FIGURE 2
TOPOGRAPHIC
SITE LOCATION MAP
COLUMBIA NORTH, S.C.
SOUTHWEST COLUMBIA, S.C.
7 1/2-MIN. QUADRANGLES



SOURCE: MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

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LEXINGTON COUNTY, SOUTH CAROLINA

FEB/94

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FIGURE 3
SITE MAP WITH SOIL BORING
AND MONITORING WELL LOCATIONS

1.3 Regional Geology

The site is located in the Upper Coastal Plain physiographic province near the Fall Line which separates the Coastal Plain to the southeast and Piedmont to the northwest. The Coastal Plain consists of a seaward thickening wedge of unconsolidated sediments overlying crystalline bedrock. Crystalline (igneous and metamorphic) rocks along the Fall Line in the vicinity of the site are overlain by a thin cover (less than 50 feet to about 100 feet) of unconsolidated Cretaceous and Tertiary age Coastal Plain sediments and Quaternary age alluvium. The lithology and age relationships of Coastal Plain sediments in Lexington County were described in a report by Smith (1980), and the geology of the site vicinity was mapped by Kite (1985).

The floodplains of the Congaree River, Congaree Creek, and smaller tributaries are underlain by Quaternary age alluvium, which varies from less than 20 feet thick to as much as 40 to 50 feet thick. Higher elevations in the vicinity of the site are underlain by Tertiary age sands and clays of fluvial-deltaic origin. The site is underlain by Cretaceous-age sediments according to Kite (1985). The Cretaceous sediments consist primarily of micaceous, typically clayey coarse- to very coarse-grained sand and sandy clay, with lenses of kaolin occurring locally. The Cretaceous sediments are underlain by the Columbia Granite of late Paleozoic age, the upper part of which is typically weathered to granite saprolite, varying from about 15 to 20 feet thick to more than 50 feet thick.

2.0 METHODOLOGY

2.1 Project Objectives

The objectives of this assessment were to delineate the horizontal and vertical extent and severity of soil and groundwater contamination at the site, to the maximum extent practicable, and to generate sufficient information for development of a Corrective Action Plan (CAP) and Engineering Report (ER) for the site.

The following tasks were conducted to accomplish these objectives:

1. Soil borings were drilled to obtain soil samples for chemical analysis and information on site stratigraphy.
2. Groundwater monitoring wells were installed to enable collection of groundwater samples and determination of groundwater elevations and flow direction.
3. Borehole permeability tests were conducted to estimate aquifer hydraulic properties.
4. Groundwater samples were collected from the monitoring wells and chemically analyzed to assess water quality.
5. Groundwater samples were collected using the Geoprobe™ and chemically analyzed in the field to assess the extent of contamination on adjacent, off-site property.

2.2 Drilling and Well Installation

Fifteen shallow exploratory soil test borings were drilled at the site to a depth of approximately 15 feet using 4 1/2-in ID hollow stem augers. Split-spoon soil samples were collected at 5-ft intervals from each soil boring. The samples were visually inspected by a

hydrogeologist who prepared a geologic log (Appendix 1) of each boring. The samples were screened in the field for organic vapors with a Foxboro 128 Century organic vapor analyzer (OVA). One soil sample from each borehole was analyzed for benzene, ethylbenzene, toluene, and xylenes (BTEX) by EPA Method 8020 and total petroleum hydrocarbons (TPH) by EPA Method 5030 to assess the extent and severity of soil contamination at the site.

Soil cuttings generated during drilling was segregated for disposal based on results of the organic vapor testing. Stockpiled soils were disposed of in accordance with SCDHEC guidelines by Crandall Corporation, Inc. of Lexington, South Carolina. Uncontaminated soil cuttings were disposed of on-site.

Monitoring wells were installed in accordance with the South Carolina Well Standards and Regulations (R.61-71) based on results of exploratory drilling and organic vapor testing, according to the criteria discussed in the EAP. The wells were installed by a South Carolina-certified well driller under the technical oversight of a D&F hydrogeologist. Soil borings SB-4, SB-6, SB-7, SB-13, and SB-14, not converted to monitoring wells, were abandoned by pumping bentonite/cement grout through a tremie pipe from total depth to land surface.

Ten shallow monitoring wells, designated MW-1 through MW-10, were installed at the site. Two-inch ID well screen, 10 feet in length, and casing were installed through the augers, and clean, appropriately graded gravel pack sand was poured through the augers into each well annulus opposite the screen to a height of approximately one to two feet above the screen. The augers were gradually pulled back and removed from the borehole, allowing the sand to fill uniformly around the well screen. A 1- to 2-ft thick bentonite seal was installed above the gravel pack, and the remaining annulus was grouted to land surface with bentonite/cement.

Two telescoping (double-cased) monitoring wells designated PW-1 and PW-2 were installed adjacent to well MW-5, the worst-case shallow monitoring well, and between wells MW-8 and MW-9, located at the downgradient property boundary. The wells were constructed of 2-in ID diameter flush-threaded PVC screen and inner casing with 6-in ID PVC surface (outer) casing. Test holes were drilled to 15 feet and reamed to 12-in diameter using mud rotary drilling, and 6-in ID casing was installed and grouted in place by pumping bentonite/cement slurry through tremie pipe into the casing annulus. After allowing the grout to cure, a 6-in hole was drilled by mud rotary to a depth of 22 feet at PW-1 and 30 feet at PW-2. Two-in ID well screen, five feet in length, and casing were installed, and clean appropriately graded gravel pack sand was flushed through tremie pipe into the well annulus opposite the well screens. A bentonite seal was installed above the gravel pack, and the remaining annulus was grouted to land surface by pumping bentonite/cement slurry through tremie pipe. A locking cap and manhole cover or steel protective casing was installed within a 2-ft x 2-ft x 6-in concrete pad at each well. Well construction details are recorded on the Test Boring/Well Logs (Appendix 1), and summarized on Table 1. The locations of the wells are depicted on Figure 3.

After construction, each well was developed by pumping to remove fine sediment from the gravel pack and formation opposite the screen. All water discharged from monitoring wells was containerized. The containerized water was transported and disposed of in a SCDHEC approved manner by Crandall Corporation.

TABLE 1. SUMMARY OF MONITORING WELL CONSTRUCTION
FORMER PUROLATOR COURIER
LEXINGTON COUNTY, SOUTH CAROLINA

WELL NO.	GROUND SURFACE ELEVATION	TOP OF CASING ELEVATION	SCREENED INTERVAL DEPTH
MW-1	98.98	98.68	4-14
MW-2	97.64	97.07	3-13
MW-3	95.56	95.41	4-14
MW-4	95.76	98.69	4-14
MW-5	95.13	96.70	4-14
MW-6	97.10	99.56	4-14
MW-7	94.60	96.71	4-14
MW-8	93.74	95.88	4-14
MW-9	92.76	94.85	4-14
MW-10	92.11	94.04	4-14
PW-1	94.29	96.50	16-21
PW-2	93.54	95.91	21-26

NOTES:
1. Well elevations surveyed by D&F relative to arbitrary datum.
2. Screen interval depths below ground surface.
3. All measurements in feet.

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TABLE 1
SUMMARY OF
MONITORING WELL
CONSTRUCTION

2.3 Aquifer Testing

Borehole permeability (slug) tests were conducted at shallow wells MW-3, MW-5, and MW-8, all located within the hydrocarbon plume. The tests were performed by using a pneumatic device to instantaneously alter the water level, and measuring the subsequent rise or fall of water level in the well to the static level at one second intervals with a transducer. Semi-log plots of the change in head versus time at each well were be made and hydraulic conductivity (K) values were calculated based on the "straight-line" segment of the data plot according to Bouwer and Rice (1976) as updated by Bouwer (1989) as follows:

$$K = \frac{r_c^2 \ln (R_e/r_w)}{2L} \frac{1}{t} \ln \frac{Y_o}{Y_t}$$

where:

K = hydraulic conductivity

r_c = well radius

r_w = borehole radius

R_e = effective radial distance over which head difference y is dissipated

L = saturated screen length

D = distance between water table and lower confining unit

H = distance from water table to bottom of well

y_o = water level at time zero

y_t = water level at time t

t = time since y_o

The results of borehole permeability testing are discussed in Section 3.2 and the calculations and data plots are included in Appendix 2.

2.4 Groundwater Sampling and Analysis

2.4.1 Laboratory Analysis of Groundwater Samples Collected from On-Site Monitoring Wells

Groundwater samples were collected on July 29, 1992 from all monitoring wells for analysis of benzene, ethylbenzene, toluene, and xylenes (BTEX) and methyl-tert-butyl-ether (MTBE) by EPA Method 602, with the exception that samples collected from well MW-2, located adjacent to the former waste oil UST, were analyzed for BTEX by EPA Method 602, naphthalene by EPA Method 610, and the eight Drinking Water Metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver). After the analytical results of the initial sampling were reported, a second round of groundwater samples were collected on March 30, 1993 for confirmation of the initial results. Samples were subsequently collected on July 13, 1993 from well MW-5, the worst-case monitoring well at which a layer of non-aqueous phase liquid petroleum occurs, and analyzed for purgeables and base neutral/acid extractables by EPA Method 624/625, total lead, pH, and BOD_5. Chemical analysis of groundwater samples were performed by D&F in the environmental laboratory in Greenwood, South Carolina. Chemical analytical results are discussed in Section 4.0 and the Laboratory Analysis Reports are included as Appendix 3.

2.4.2 Field Gas Chromatograph Analysis of Groundwater Samples Collected with the Geoprobe™

Additional groundwater samples were collected using the Geoprobe™ hydraulically powered, percussion driven sampling tool. A mill-slotted well point sampler was hydraulically pushed/percussion driven into the subsurface. Disposable sample tubing was inserted through the drive rods and samples were collected through

the tubing with a peristaltic or vacuum pump. Between samples, the tool was disassembled and nondisposable parts were decontaminated by steam cleaning. Each test hole was abandoned after sample collection by filling with cement grout. The locations of the test holes are shown on Figure 4.

Groundwater samples collected with the Geoprobe were chemically analyzed in the field for BTEX and MTBE with a portable gas chromatograph. The results of the off-site assessment are discussed in Section 4.0 and the field data reports are included as Appendix 4.

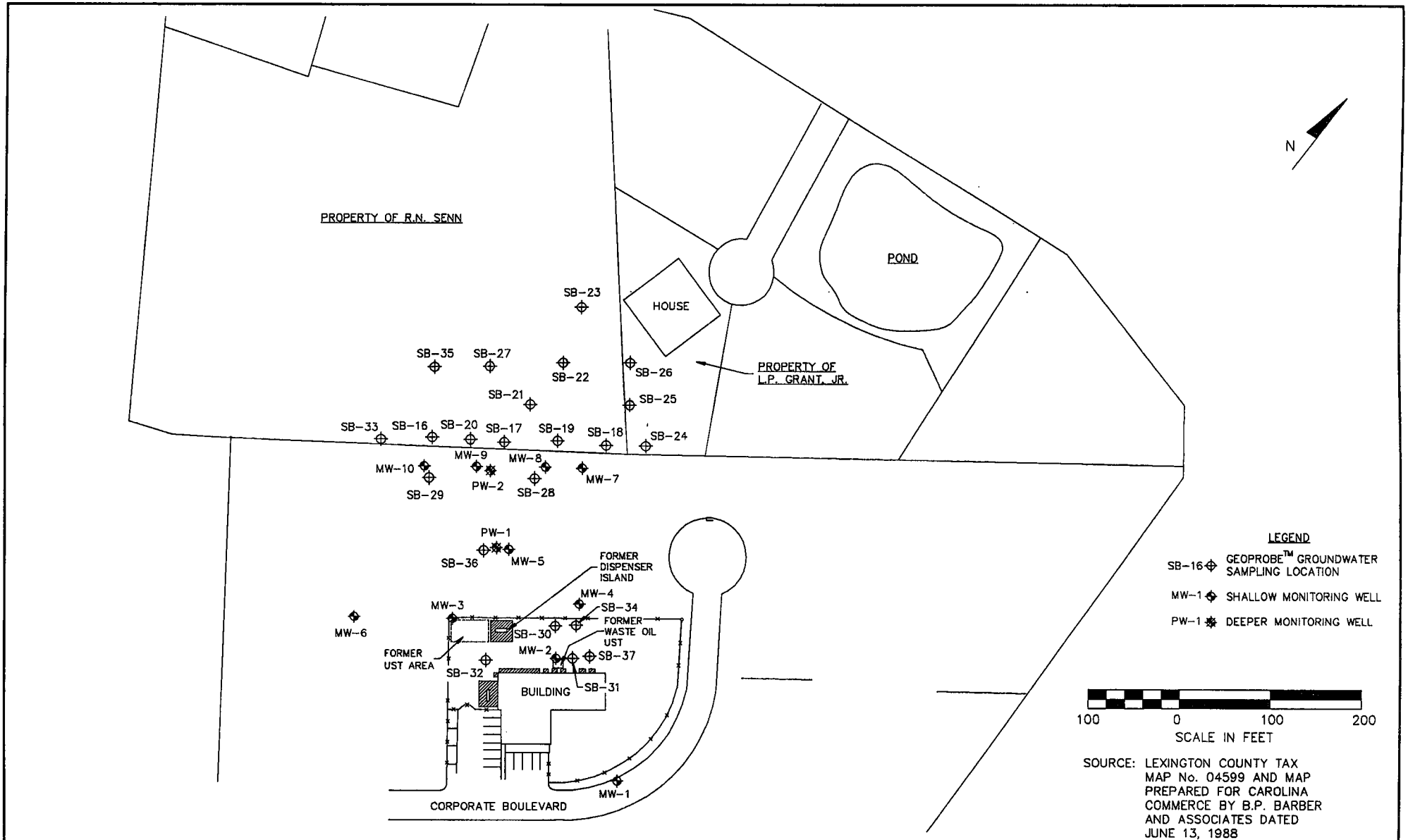

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FIGURE 4
MAP OF OFF-SITE AREA WITH
GROUNDWATER SAMPLING LOCATIONS

3.0 SITE HYDROGEOLOGY

3.1 Site Geology

The site is underlain by low permeability fill material, consisting of reddish to yellowish orange and white or yellowish brown clayey fine to coarse sand to a depth of about six to nine feet. The fill material is underlain by yellowish orange and white, micaceous fine to coarse sand or grayish orange clayey sand. The sand typically becomes more clayey with depth. White to yellowish orange sandy clay was encountered at most borings at depths between 12 and 16 feet. The sandy clay is underlain at the locations of wells PW-1 and PW-2 by yellow to white, clayey fine to coarse sand with some gravel to a depth of at least 32 feet. The sand is less clayey with depth and the amount of gravel increases.

3.2 Groundwater Occurrence and Flow

Groundwater occurs under water-table (unconfined) conditions at depths between about one to five feet. Maps of the water table based on water level measurements on July 29, 1992 (Figure 5) and March 30, 1993 (Figure 6) indicate groundwater flows from the former UST areas to the west-northwest. The average horizontal hydraulic gradient was calculated to be about 0.013 on July 29, 1992 and 0.016 to 0.03 on March 30, 1993.

A slight downward vertical gradient exists downgradient of the former UST area, as indicated by groundwater elevations at well clusters MW-5/PW-1 and MW-9/PW-2. The vertical gradient was calculated to be about 0.003 at well cluster MW-5/PW-1, and about 0.014 at well cluster MW-9/PW-2, on March 30, 1993.

The rate of lateral groundwater flow through the water table aquifer, expressed as the average linear groundwater velocity, is related to radial permeability of the aquifer, hydraulic

TABLE 2. SUMMARY OF WATER LEVELS
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LEXINGTON COUNTY, SOUTH CAROLINA

WELL NO.	DATE MEASURED	TOP OF CASING ELEVATION	DEPTH TO WATER	DEPTH TO FUEL	GROUNDWATER ELEVATION	FUEL ELEVATION
MW-1	7/29/92	98.68	6.51		92.17	
	3/30/93		1.83		96.85	
MW-2	7/29/92	97.07	5.72		91.35	
	3/30/93		2.26		94.81	
MW-3	7/29/92	95.41	3.90		91.51	
	3/30/93		1.00		94.41	
MW-4	7/29/92	98.69	7.60		91.09	
	3/30/93		4.30		94.39	
MW-5	7/29/92	96.70	6.70	6.40	90.00	90.30
	3/30/93		3.34		93.36	
MW-6	7/29/92	99.56	8.35		91.21	
	3/30/93		5.77		93.79	
MW-7	7/29/92	96.71	7.00		89.71	
	3/30/93		4.59		92.12	
MW-8	7/29/92	95.88	6.00		89.88	
	3/30/93		3.78		92.10	
MW-9	7/29/92	94.85	5.40		89.45	
	3/30/93		3.00		91.85	
MW-10	7/29/92	94.04	4.90		89.14	
	3/30/93		3.13		90.91	
PW-1	3/30/93	96.50	3.22		93.28	
PW-2	3/30/93	95.91	4.42		91.49	

NOTES: 1. Well elevations surveyed by D&F relative to arbitrary datum.
2. All measurements in feet.

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TABLE 2
SUMMARY OF
WATER LEVELS

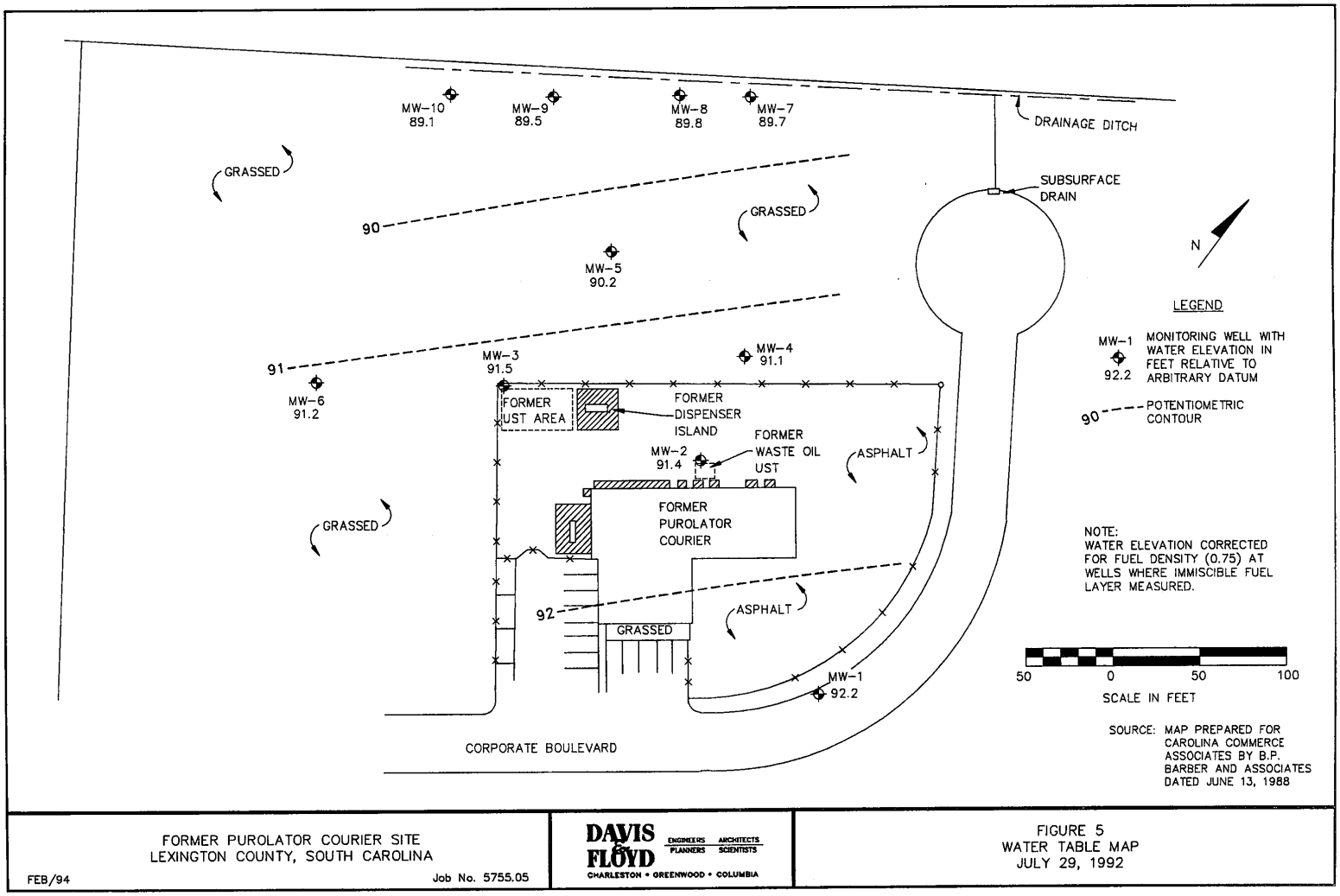

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FIGURE 5
WATER TABLE MAP
JULY 29, 1992

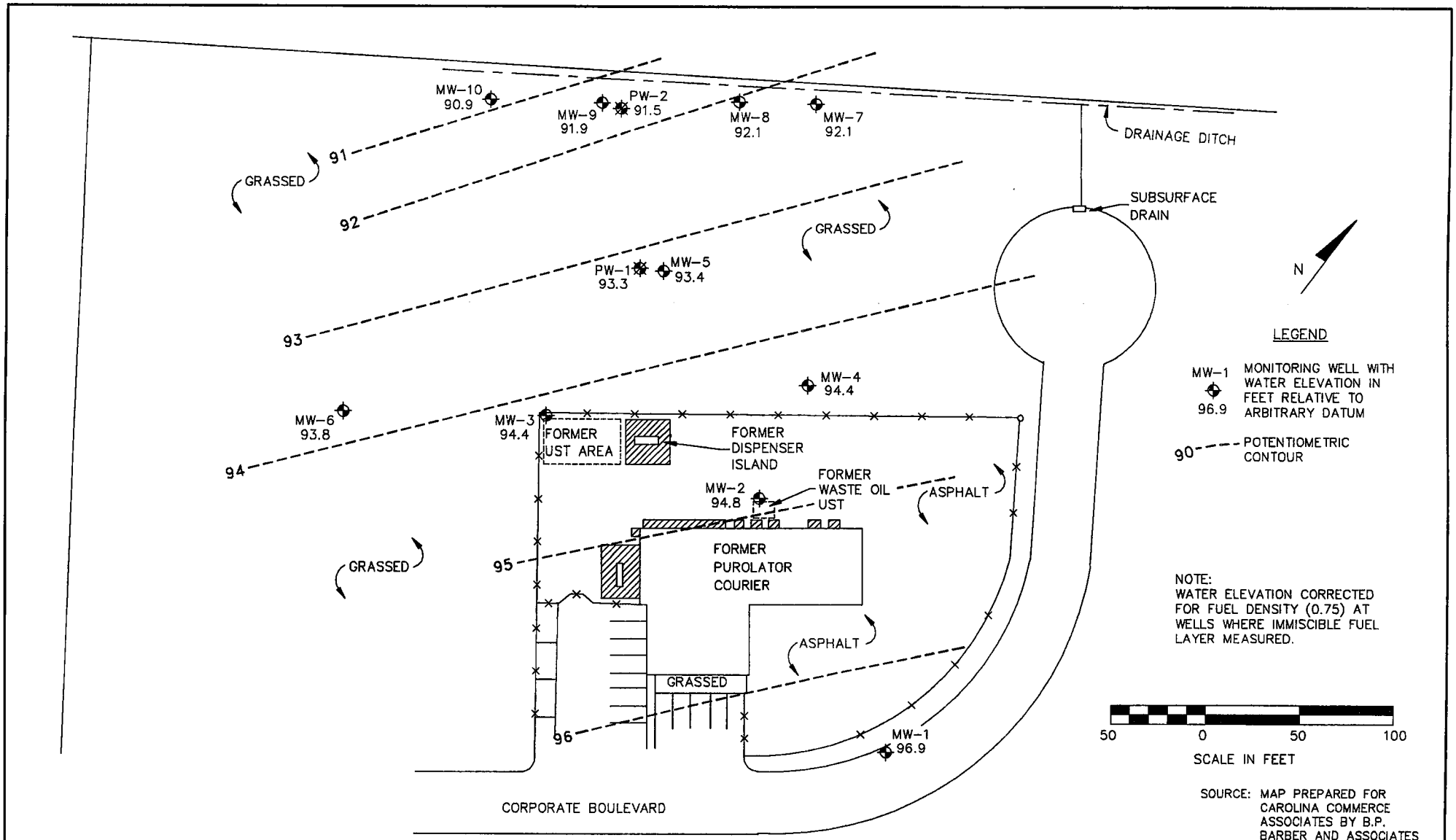

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FIGURE 6
WATER TABLE MAP
MARCH 30, 1993

gradient, and effective porosity of the aquifer material, and was calculated using the modified Darcy equation:

$$v = (Ki)/n_e$$

where:

v = the average linear groundwater velocity (ft/day)

K = the radial permeability or hydraulic conductivity (ft/day)

i = hydraulic gradient (dimensionless)

n_e = effective porosity

Utilizing hydraulic conductivity values of 1.2 to 9.8 ft/day calculated from slug tests at wells MW-3 and MW-5 (Table 3), a range of hydraulic gradients from 0.01 to 0.03, and an estimated effective porosity of 0.2, the average linear velocity of groundwater was calculated to range from approximately 0.06 ft/day to 1.47 ft/day, or about 20 to 500 ft/year.

TABLE 3. SUMMARY OF BOREHOLE PERMEABILITY TEST DATA
FORMER PUROLATOR COURIER
LEXINGTON COUNTY, SOUTH CAROLINA

WELL NO.	HYDRAULIC CONDUCTIVITY (ft/day)	(gpd/ft^2)	TRANSMISSIVITY (ft^2/day)	(gpd/ft)	INTERVAL TESTED (screen depth, ft)
MW-3	9.26	69.28	148.19	1108.48	4-14
MW-5	21.47	160.59	343.99	2573.02	4-14
MW-8	1.16	8.71	18.59	139.08	4-14

NOTES:
1. Rising head and falling head tests conducted. Average values shown.
2. Data analyzed acording to Bouwer and Rice (1976) and Bouwer (1989).

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TABLE 3
SUMMARY OF
BOREHOLE PERMEABILITY
TEST DATA

4.0 SITE GEOCHEMISTRY

4.1 Soil Chemistry

Soil samples were screened in the field for organic vapors with an OVA and chemically analyzed for hydrocarbon compounds, the results of which are summarized on Table 4. The highest OVA readings (greater than 1000 parts per million (ppm)) were recorded for soil samples from at boring SB-3 located in the former fuel UST area at depths between 3 to 10 feet, and from downgradient borings SB-5 at depths of 3 to 15 feet, SB-13 at 8 to 15 feet, and SB-14 at 3 to 5 feet. Moderately high OVA readings were recorded for a sample from boring SB-3, SB-9, and SB-13 at a depth of 3 to 5 feet, and boring SB-14 at 8 to 10 feet. The OVA readings were generally highest at the water table and decreased with depth at borings where above-background values were recorded.

Soil samples were chemically analyzed to determine the extent of soil contamination at the site and the relative abundance of hydrocarbon compounds. Total petroleum hydrocarbons in the distillation range of gasoline, and the hydrocarbon compounds benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in samples from a depth of 3 to 5 feet at borings SB-5 and SB-6, and from 8 to ten feet at SB-13. Since groundwater occurs beneath the site at relatively shallow depths, however, petroleum hydrocarbon compounds occur primarily as groundwater contamination and the chemical analysis of groundwater samples is the primary source of data regarding the extent and severity of the contamination.

TABLE 4. SUMMARY OF SOIL CHEMISTRY DATA
FORMER PUROLATOR COURIER
LEXINGTON COUNTY, SOUTH CAROLINA

SAMPLE LOCATION	SAMPLE DEPTH (ft)	OVA READING (ppm)	TPH GASOLINE (mg/kg)	TPH WASTE OIL (mg/kg)	BENZENE (ug/kg)	TOLUENE (ug/kg)	ETHYLBENZENE (ug/kg)	XYLENES (ug/kg)
SB-1 (MW-1)	3-5	0.8						
	8-10	0.2	<0.58		ND	ND	ND	ND
	13-15	0						
SB-2 (MW-2)	3-5	34		<267	ND	ND	ND	ND
	8-10	11						
	13-15	0.8						
SB-3 (MW-3)	3-5	>1000	<0.58		ND	ND	ND	ND
	8-10	>1000						
	13-15	110						
SB-4	3-5	0.8	<0.60		ND	ND	ND	ND
	8-10	0.4						
	13-15	0.2						
SB-5 (MW-5)	3-5	>1000	119		396	11411	9658	59020
	8-10	>1000						
	13-15	>1000						
SB-6	3-5	0.4						
	8-10	22	<0.65		15	ND	ND	ND
	13-15	0.2						
SB-7	3-5	0.2						
	8-10	1.4	<0.60		ND	ND	ND	ND
	13-15	0.2						
SB-8 (MW-7)	3-5	2	<0.58		ND	ND	ND	ND
	8-10	0						
	13-15	0						

NOTES:
1. Soil samples screened in the field with a Foxboro 128 Century Organic Vapor Analyzer (OVA).
2. ND indicates parameter not detected.
3. D indicates secondary dilution required.

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TABLE 4
SUMMARY OF
SOIL CHEMISTRY DATA

TABLE 4. SUMMARY OF SOIL CHEMISTRY DATA
FORMER PUROLATOR COURIER
LEXINGTON COUNTY, SOUTH CAROLINA

SAMPLE LOCATION	SAMPLE DEPTH (ft)	OVA READING (ppm)	TPH GASOLINE (mg/kg)	TPH WASTE OIL (mg/kg)	BENZENE (ug/kg)	TOLUENE (ug/kg)	ETHYLBENZENE (ug/kg)	XYLENES (ug/kg)
SB-9 (MW-8)	3-5	110	<0.57		ND	ND	ND	ND
	8-10	20						
	13-15	9						
SB-10 (MW-9)	3-5	27						
	8-10	1.4	<0.64		ND	ND	ND	ND
	13-15	0.2						
SB-11 (MW-10)	3-5	0.2	<0.58		ND	ND	ND	ND
	8-10	48						
	13-15	3.8						
SB-12 (MW-4)	3-5	1	<0.56		ND	ND	ND	ND
	8-10	0.4						
	13-15	0						
SB-13	3-5	810						
	8-10	>1000	1.1		ND	ND	ND	2416 D
	13-15	>1000						
SB-14	3-5	>1000						
	8-10	380	<0.63		ND	ND	ND	ND
	13-15	3						
SB-15 (MW-6)	3-5		<0.55		ND	ND	ND	ND
	8-10							
	13-15							

NOTES:
1. Soil samples screened in the field with a Foxboro 128 Century Organic Vapor Analyzer (OVA).
2. ND indicates parameter not detected.
3. D indicates secondary dilution required.

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TABLE 4 (CONT.)
SUMMARY OF
SOIL CHEMISTRY DATA

4.2 Water Quality

4.2.1 Lateral Extent of Hydrocarbons

Non-aqueous phase liquid petroleum occurs on the water table in the vicinity of well MW-5, and hydrocarbon compounds are dissolved in groundwater beneath the site, indicated by chemical analysis of groundwater samples as summarized on Tables 5 and 6.

Total BTEX was detected by laboratory analysis of groundwater samples from the on-site monitoring wells at concentrations ranging from below detection limits (BDL) to 36,370 parts per billion (ppb). The highest concentrations of hydrocarbons were reported from within the liquid petroleum area at well MW-5 (36,370 ug/l) in samples collected July 13, 1993. Total BTEX was detected at well MW-5 at a concentration of 16,432 ppb on March 30, 1993. Non-aqueous phase liquid petroleum did not occur at well MW-5 at that time, as water levels were above the well screens of most of the monitoring wells.

In addition to the aforementioned compounds, naphthalene was detected at a concentration of 4736 ppb and phenanthrene was detected at a concentration of 116 ppb at well MW-5 sampled July 13, 1993 for a comprehensive set of parameters. Total lead was reported at well MW-5 at a concentration of 0.137 ppm. Biological oxygen demand (BOD_6) was quantified at MW-4 at 352 parts per million (ppm) and pH was quantified in the laboratory at 5.5.

TABLE 5. SUMMARY OF LABORATORY WATER QUALITY DATA
FORMER PUROLATOR COURIER
LEXINGTON COUNTY, SOUTH CAROLINA

WELL NO.	DATE SAMPLED	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	MTBE	NAPHTHALENE	PHENANTHRENE
MW-1	7/29/92	BDL	BDL	BDL	BDL	BDL		
	3/30/93	BDL	BDL	BDL	BDL	BDL		
MW-2	7/29/92	232 D	91	19	72		BDL	
	3/30/93	141	64	18	56	BDL	6	
MW-3	7/29/92	153	591 D	304 D	1256 D	75		
	3/30/93	20	211	71	476	BDL		
MW-4	7/29/92	BDL	BDL	BDL	BDL	BDL		
	3/30/93	BDL	BDL	BDL	BDL	BDL		
MW-5	3/30/93	6362	4450	378	5242	BDL		
	7/13/93	10696	22102	3572			4736	116
MW-6	7/29/92	BDL	BDL	BDL	BDL	BDL		
	3/30/93	2	BDL	BDL	BDL	BDL		
MW-7	7/29/92	BDL	BDL	BDL	BDL	BDL		
	3/30/93	BDL	BDL	BDL	BDL	BDL		
MW-8	7/29/92	364 D	1184 D	39	2438 D	BDL		
	3/30/93	352	1107	327	1938	BDL		
MW-9	7/29/92	2406 D	477 D	228 D	336 D	3705 D		
	3/30/93	4	BDL	BDL	1	BDL		
MW-10	7/29/92	23	BDL	BDL	BDL	BDL		
	3/30/93	14	3	BDL	6	BDL		
PW-1	3/30/93	56	247	61	402	BDL		
PW-2	3/30/93	BDL	BDL	BDL	BDL	3		

NOTES:
1. All concentrations reported in micrograms per liter (ug/l) unless noted.
2. BDL indicates concentration below detection limit.
3. D indicates secondary dilution required.
4. Blank indicates parameter not analyzed.

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TABLE 5
SUMMARY OF LABORATORY
WATER QUALITY DATA

TABLE 6. SUMMARY OF FIELD GAS CHROMATOGRAPH WATER QUALITY DATA
FORMER PUROLATOR COURIER
LEXINGTON COUNTY, SOUTH CAROLINA

SAMPLE NO.	SAMPLE DEPTH (feet)	BENZENE	TOLUENE	ETHYLBENZENE	XYLENES	MTBE
SB-16	6-8	227.5	1.761	1.201	21.42	535.3
SB-17	6-8	12240	5006	367.2	2148	10530
SB-17D	24-26	2.222	1.917	0.46	BDL	462.2
SB-18	6-8	1.779	0.893	0.598	4.244	1.144
SB-19	6-8	1030	1.689	0.527	308.8	504.4
SB-20	6-8	871.7	1.657	2.646	9.19	1168
SB-21	6-8	22930	16460	2784	1605	15910
SB-22	6-8	0.827	0.373	0.816	BDL	3.395
SB-22D	24-26	0.817	1.655	0.907	0.531	0.114
SB-23	6-8	0.036	0.62	1.34	5.634	0.971
SB-24	9-9.5	0.208	0.507	0.18	BDL	0.043
SB-25	9.5-11.5	2.316	1.596	1.079	0.526	BDL
SB-26	9.5-11.5	1.991	1.136	BDL	BDL	0.222
SB-27	6-8	1500	2.344	3.517	18.62	1596
SB-28	24-26	1.038	0.769	0.349	BDL	BDL
SB-29	24-26	0.202	0.87	0.898	0.384	0.053
SB-30	9-11	5287	40900	2079	12470	8542
SB-31	9-11	6.408	92.54	3.423	18.78	64.43
SB-32	9-11	0.534	2.353	BDL	9.824	0.416
SB-33	3	BDL	0.522	0.429	6.059	1.003
SB-34	9-11	1.301	44.4	3.479	20.4	0.641
SB-35	3	EDL	0.458	BDL	2.337	1.359
SB-36	28-30	0.618	3.264	BDL	6.894	0.244
SB-37	9.5-11.5	0.275	2.947	BDL	9.47	0.602

NOTES: 1. All concentrations reported in micrograms per liter (ug/l).
2. BDL indicates concentration below detection limit.

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TABLE 6
SUMMARY OF
FIELD GAS CHROMATOGRAPH
WATER QUALITY DATA

Significant contamination by petroleum hydrocarbon compounds occur from the former UST area to the Carolina Commerce Associates property boundary and beyond, as depicted on Figures 7 and 8.

The extent of off-site migration of hydrocarbon compounds was assessed by field GC analysis of groundwater samples collected with the Geoprobe™. Total BTEX was detected by laboratory analysis of groundwater samples from the on-site monitoring wells at concentrations ranging from less than 1 ppb to a maximum of 19,761 ppb at test hole SB-17, located downgradient of monitoring wells MW-8 and MW-9. Significant groundwater contamination was detected on the property of Mr. Robert N. Senn, directly downgradient of the Carolina Commerce Associates property, as shown on Figure 9.

It is important to note that results of field GC analysis of groundwater samples collected with the Geoprobe™ can not be directly correlated with results of laboratory analysis of groundwater samples collected from the on-site monitoring wells, due to differences in sample collection methodology and analytical quality assurance/quality control.

4.2.1 Vertical Extent of Hydrocarbons

Hydrocarbon compounds were detected at deep well PW-1, located adjacent to worst-case shallow well MW-5, and trace hydrocarbon concentrations were detected at deep well PW-2, near the Carolina Commerce Associates property boundary.

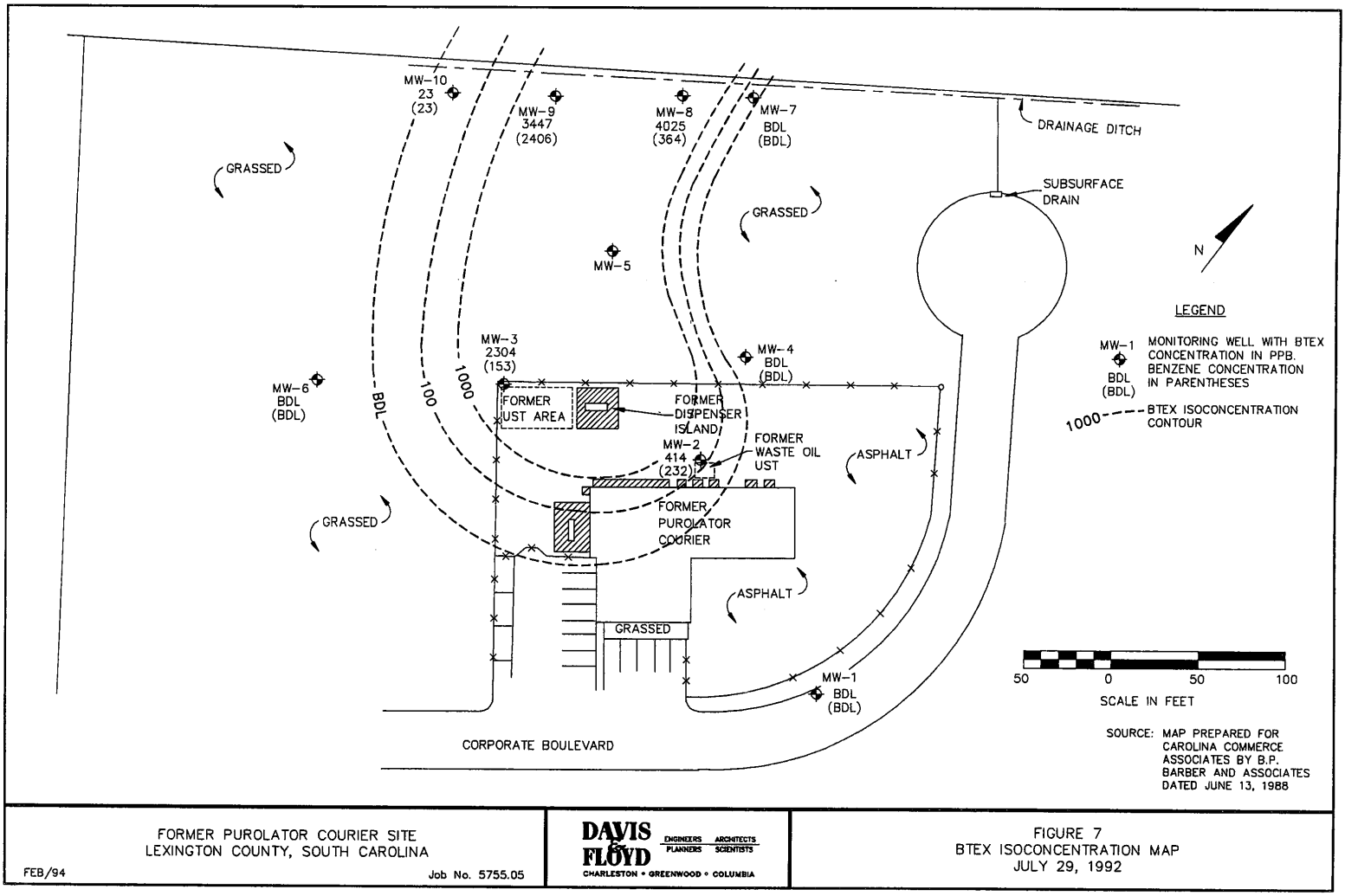

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FIGURE 7
BTEX ISOCONCENTRATION MAP
JULY 29, 1992

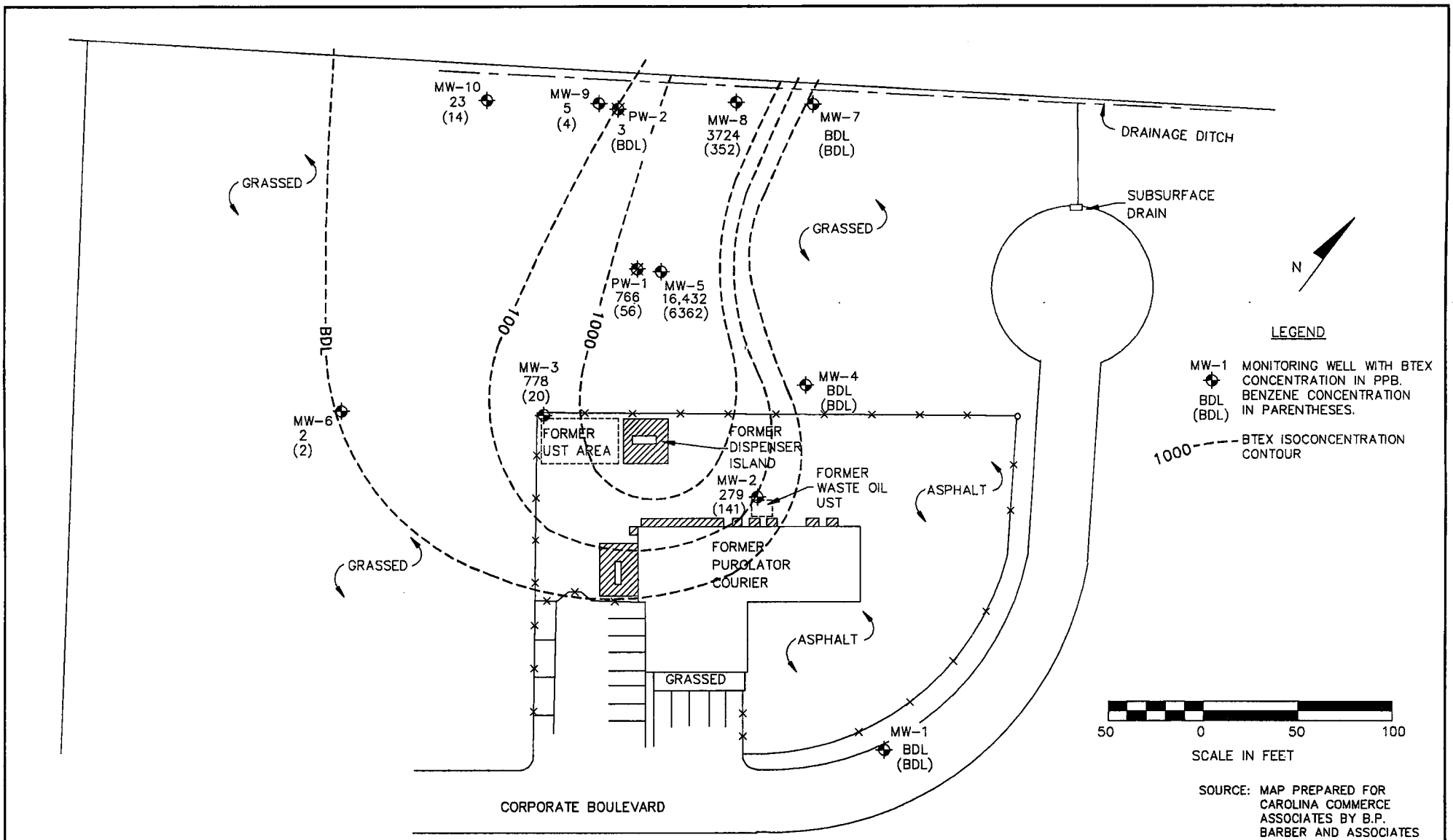

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FIGURE 8
BTEX ISOCONCENTRATION MAP
MARCH 30, 1993

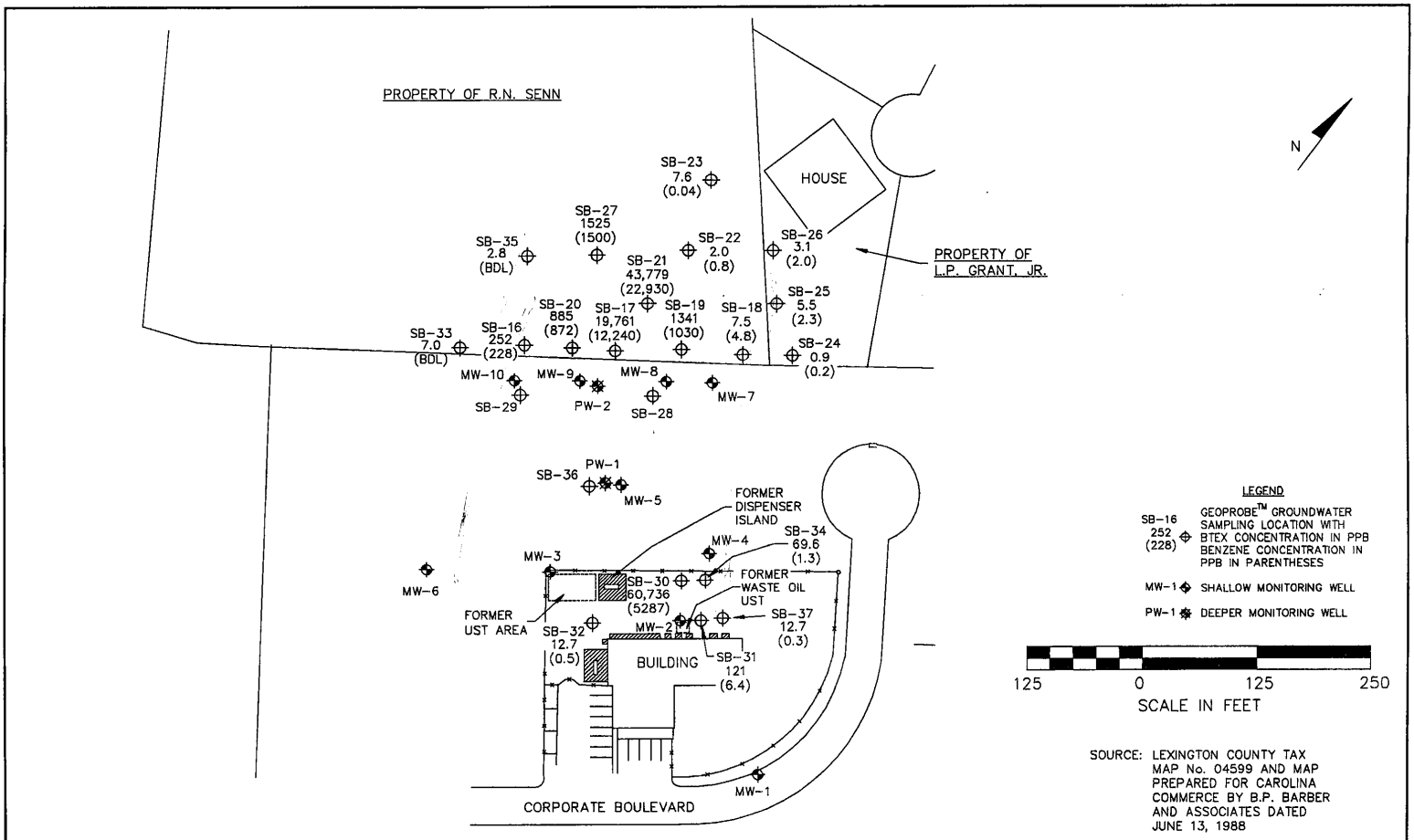

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FIGURE 9
MAP OF OFF-SITE AREA WITH BTEX CONCENTRATIONS IN THE SHALLOW AQUIFER
DECEMBER 20-21, 1993

Trace concentrations of hydrocarbon compounds were detected in groundwater samples collected from a depth of 24 to 26 feet at off-site test holes SB-17D and SB-22D and test holes SB-28 and SB-29, adjacent to shallow on-site monitoring wells MW-8 and MW-10, respectively, near the Carolina Commerce Associates property boundary. Trace concentrations of hydrocarbons were also detected in groundwater sampled from a depth of 28 to 30 feet at test hole SB-36, adjacent to worst-case shallow monitoring well MW-5 and deeper well PW-1 screened from 16 to 21 feet, indicating that significant groundwater contamination apparently occurs to a depth of about 25 to 30 feet in this area.

4.3 Corrective Action Measures

Free product recovery by bailing from well MW-5 was initiated during the week of July 27, 1992 and continued until February 20, 1994. Approximately 12 gallons of liquid petroleum have been recovered since free product recovery began.

5.0 CONCLUSIONS

The former Purolator Courier site is underlain by low permeability fill material, underlain by fine to coarse sand or grayish orange clayey sand, which typically becomes more clayey with depth. White to yellowish orange sandy clay was encountered at most borings at depths between 12 and 16 feet.

Groundwater occurs under water-table (unconfined) conditions at depths between about one to five feet. The direction of groundwater flow is to the west-northwest from the former UST areas. The average linear velocity of groundwater within the water-table aquifer at the site was calculated to range from approximately 0.06 ft/day to 1.47 ft/day, or about 20 to 500 ft/year.

A slight downward vertical gradient exists downgradient of the former UST area, as indicated by groundwater elevations at well clusters MW-5/PW-1 and MW-9/PW-2. The vertical gradient was calculated to be about 0.003 at well cluster MW-5/PW-1, and about 0.014 at well cluster MW-9/PW-2, on March 30, 1993.

Although drinking water is supplied to Carolina Center Business Park and the former Purolator Courier site by the City of West Columbia Water system, drinking water is supplied by wells in the vicinity of the site, most notably to the Grant and Brewer residences and the Chinese Christian Church, located north of the site.

Non-aqueous phase liquid petroleum occurs on the water table in the vicinity of well MW-5, and dissolved hydrocarbon compounds have contaminated groundwater beneath the site and contaminated groundwater has migrated downgradient of the site to the Senn property. Minimal downward migration of contaminants has occurred based on water quality in wells PW-1 and PW-2

beneath the central part of the plume. Significant concentrations of hydrocarbons have apparently not migrated downward below the upper 25 to 30 feet of the shallow aquifer system.

6.0 RECOMMENDATIONS

6.1 Additional Assessment

The extent and severity of contamination at the former Purolator Courier site have been adequately assessed to implement groundwater remediation at the site. Additional monitoring wells should be installed on the Senn property, however, to confirm the downgradient limit of groundwater contamination and facilitate future monitoring of plume migration. At a minimum, additional shallow monitoring wells should be installed in the vicinity of off-site test hole SB-26, north of test hole SB-27, and near test hole SB-35. Additional deeper monitoring wells may be necessary to monitor the downward migration of contamination.

6.2 Remedial Alternatives

Remediation of groundwater contamination at the former Purolator site and the adjoining property will be necessary, given the occurrence of liquid petroleum as a continuing source of groundwater contamination, the extent and severity of on-site groundwater contamination, and the off-site migration of contaminants in groundwater and potential adverse impact to surface water and drinking water supplied by wells in the vicinity of the site. Remedial alternatives have therefore been preliminarily evaluated. The readily available technologies considered include soil excavation and treatment, groundwater extraction and treatment, air sparging, vacuum extraction, and in-situ passive or enhanced bioremediation.

6.2.1 Soil Excavation and Treatment

Soil excavation and treatment has been evaluated as a means of remediating liquid petroleum from the water table and significant mass of contaminated groundwater, given what appears to be the fairly limited areal extent and relatively shallow depths of liquid petroleum at the site. The primary objective of soil excavation

would be to prevent continued release to groundwater of hydrocarbons from liquid petroleum. More precise delineation of the extent of the liquid petroleum layer would be necessary prior to excavating to determine the quantity of soil requiring treatment. Contaminated groundwater recovered by dewatering the excavation would also require treatment prior to disposal. Excavation would be an effective first step in remediation of a significant mass of contamination on the former Purolator Courier site. Given the areal extent of groundwater contamination, however, excavation and treatment of soils is not considered a viable alternative for remediation of groundwater contamination by dissolved hydrocarbons.

6.2.2 Passive or Enhanced Bioremediation

Passive bioremediation, degradation of organic compounds by indigenous microbes without artificial enhancement, or enhanced bioremediation whereby nutrients and/or oxygen are added to the subsurface, were also considered as alternatives for site remediation. The occurrence of non-aqueous phase liquid hydrocarbons is not conducive to the viability of petroleum-ingesting biota, however, and would therefore limit the current effectiveness of bioremediation as a method of in-situ groundwater remediation. Biodegradation should be re-evaluated as an in-situ groundwater remediation alternative after the removal of the liquid petroleum layer.

6.2.3 Groundwater Extraction and Treatment

The extraction and aboveground treatment of liquid petroleum and hydrocarbon-contaminated groundwater may be a viable option for remediation of groundwater contamination at the site. The first element of corrective action involving pump-and-treat technology would be installation of a test extraction well to determine

aquifer hydraulic properties. Pumping test data would be used to develop an analytical groundwater flow model to aid in design of an extraction system.

6.2.4 Soil-Vapor Extraction

Soil-vapor extraction has been demonstrated to be effective in removing hydrocarbons from the unsaturated zone as well as liquid petroleum on the water table and hydrocarbons dissolved in groundwater. Vapor extraction can be enhanced by depression of the water table which thickens the unsaturated zone, thus increasing the area which can be affected. Groundwater extraction can in turn be enhanced when utilized in conjunction with vacuum extraction by reducing the atmospheric pressure above the water table, permitting higher groundwater withdrawal rates at the same drawdown levels.

6.2.5 Free Product Recovery

Recovery of free product is recommended to eliminate the liquid petroleum layer as a source of groundwater contamination. At a minimum for the present, a pumping system should be installed at well MW-5 to facilitate continuous recovery of liquid petroleum. A more aggressive approach is recommended for ultimate clean-up of the site, whereby the liquid petroleum and much of the hydrocarbon-contaminated groundwater would be initially removed by subsurface excavation and aboveground treatment, followed by groundwater extraction and treatment in combination with vacuum extraction, air sparging, or both.

6.3 Monitoring Program

Long-term monitoring will be necessary to evaluate seasonal water level trends and migration of the hydrocarbon plume, as well as the effectiveness of remedial action. At a minimum, the monitoring program should include the following:

- Water/petroleum-level measurement is recommended at sufficiently frequent intervals to monitor natural seasonal water level fluctuations and movement of the liquid hydrocarbon layer.

- Groundwater samples from the on-site monitoring wells, additional off-site monitoring wells recommended previously, and selected water-supply wells in the immediate vicinity of the site including the Grant and Brewer wells, should be chemically analyzed on a routine basis for BTEX and MTBE. Quarterly sampling of monitoring wells is recommended.

- Monitoring data should be evaluated and discussed in quarterly monitoring reports to the SCDHEC describing the extent and severity of contamination and effectiveness of remedial action, when implemented.

7.0 SELECTED REFERENCES

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APPENDIX 1

Test Boring/Well Logs

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TEST BORING/WELL LOG

Boring or Well No.: mw-1 (SB-1)

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: 98.98'

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: 7/16/92 Casing Hgt: -0.20' Static Water Level: 6.5'

Grout: Cement 0-2' Seal: Bentonite 2-3' Gravel Pack: 3-15'

Casing Type: Flush-Threaded PVC Diameter: 2" Depth: 0-4'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 4-14'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
7	0.8	CLAYEY SAND	10	20	40	20	10	Mod. red orange, Dk. yell. orange, White	M	L	Clayey fine to coarse poorly sorted subangular quartz sand with some gravel.	
	0.2	SAND		20	40	35	5	Dk. yell. orange, White	S	M	Fine to coarse slightly clayey sand with some mica.	
15	0.0											

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: MW-2 (SB-2)

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: 97.64'

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: 7/17/92 Casing Hgt: -0.57 Static Water Level: 5.7'

Grout: Cement 0-2' Seal: Bentonite 2-3' Gravel Pack: 3-15'

Casing Type: Flush-Threaded PVC Diameter: 2" Depth: 0-3'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 3-13'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
	34	CLAYEY SAND		20	50	30	10	mod. yell. brown	M	L	clayey fine to medium poorly sorted subangular quartz sand	
9	11	SAND		25	50	30	5	Dk. yell. orange, White	S	M	Fine to coarse angular to subangular slightly clayey micaceous sand	
13	0.8	CLAYEY SAND		20	50	30	10	Grayish orange, White	S	M	As above except more clayey	
15											Total Depth - 15 Ft.	

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TEST BORING/WELL LOG

Boring or Well No.: MW-3 (SB-3)

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: 95.56'

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: 7/21/92 Casing Hgt: -0.15 Static Water Level: 3.9'

Grout: Cement 0-2' Seal: Bentonite 2-3' Gravel Pack: 3-15'

Casing Type: Flush-Threaded PVC Diameter: 2" Depth: 0-4'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 4-14'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
	>1000	CLAYEY SAND	10	20	40	20	10	Mod. red orange, Dk. yell. orange, White	M	L	Clayey fine to coarse poorly sorted angular quartz sand with some gravel.	
8.5	>1000	SAND	10	20	30	35	5	Dk. yell. orange, White	S	M	Fine to coarse slightly clayey sand with gravel.	
13	110	SAND		20	40	35	5	Grayish orange, White	S	M	As above except no gravel	
15											Total Depth = 15 Ft.	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: SB-4

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: _____

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: _____ Casing Hgt: NA Static Water Level: NA

Grout: NA Seal: NA Gravel Pack: NA

Casing Type: NA Diameter: _____ Depth: _____

Screen Type: NA Slot: _____ Diameter: _____ Depth: _____

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
7	0.8	CLAYEY SAND	10	20	30	20	20	Med. red orange, Dk. yell. orange, White	M	L	Clayey fine to coarse poorly sorted angular quartz sand with occasional gravel.	
12	0.4	CLAYEY SAND		20	40	30	10	Greyish orange, White	S	M	clayey fine to coarse micaceous sand	
15	0.2	SANDY CLAY	5	10	15	20	50	White, Dk. yell. orange	M	L	Low plasticity kaolinitic clay with fine to coarse sand and occasional gravel	
											Total Depth = 15 Ft.	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: MW-4 (SB-12)

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: 95.76'

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: 7/21/92 Casing Hgt: 2.93 Static Water Level: 7.6'

Grout: Cement 0-2' Seal: Bentonite 2-3' Gravel Pack: 3-15'

Casing Type: Flush-Threaded PVC Diameter: 2" Depth: 0-4'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 4-14'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
6	1.0	CLAYEY SAND	10	20	40	20	10	Mod. red orange, Dk. yell. orange, White	M	L	Clayey fine to coarse poorly sorted subangular quartz sand with occasional gravel.	
12	0.4	SAND		25	50	30	5	Grayish orange, White	S	M	Fine to coarse slightly clayey sand.	
15	0.0	SAND		25	50	30	5	Grayish orange, White	S	H	As above except less clayey.	
											Total Depth = 15 Ft.	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: MW-5 (SB-5)

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: 95.13'

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: 7/20/92 Casing Hgt: 1.57 Static Water Level: 6.7'

Grout: Cement 0-2' Seal: Bentonite 2-3' Gravel Pack: 3-15'

Casing Type: Flush-Threaded PVC Diameter: 2" Depth: 0-4'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 4-14'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
7	>1000	CLAYEY SAND	10	20	40	20	10	Dk. yell. orange, mod. red orange, White	M	M	clayey fine to coarse poorly sorted angular quartz sand with occasional gravel,	
14	>1000	SAND	10	20	45	20	5	Dk. yell. orange, White	S	H	Fine to coarse slightly clayey sand with gravel, gravel more frequent with depth	
15	>1000	SANDY CLAY	5	10	15	20	50	White	M	L	Low plasticity kaolinitic clay with fine to coarse sand and gravel	
											Total Depth = 15 Ft.	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: SB-C

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: _____

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: _____ Casing Hgt: NA Static Water Level: NA

Grout: NA Seal: NA Gravel Pack: NA

Casing Type: NA Diameter: _____ Depth: _____

Screen Type: NA Slot: _____ Diameter: _____ Depth: _____

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
7	0.4	CLAYEY SAND	10	20	40	20	10	mod. red orange, DK. yell. orange	m	L	Clayey fine to coarse poorly sorted subangular quartz sand with occasional gravel.	
12	2.2	SAND	10	20	45	20	5	White	S	M	Fine to coarse slightly clayey sand with occasional gravel.	
15	0.2	SAND	10	20	35	25	5	White	S	M	As above except finer grained.	
											Total Depth = 15 Ft.	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: SB-7

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.:

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: Casing Hgt: Static Water Level:

Grout: Seal: Gravel Pack:

Casing Type: Diameter: Depth:

Screen Type: Slot: Diameter: Depth:

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
7	0.2	CLAYEY SAND		10	40	30	20	Mod.yell. brown	M	L	Clayey fine to medium poorly sorted subangular quartz sand	
12	1.7	SAND	10	20	45	20	5	Pl.yell. orange, White	S	M	Fine to coarse slightly clayey sand with occasional gravel.	
15	0.2	CLAYEY SAND	5	15	40	30	10	Grayish orange, White	S	L	Clayey fine to coarse micaceous sand with occasional gravel	
											Total Depth: 15 Ft.	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: MW-6 (SB-15)

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: 97.10'

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 20'

Date Compl.: 7/20/92 Casing Hgt: 2.46' Static Water Level: 8.4'

Grout: Cement 0-2' Seal: Bentonite Gravel Pack: 3-15'

Casing Type: Flush-Threaded PVC Diameter: 2" Depth: 0-4'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 4-14'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
		CLAYEY SAND		10	40	30	20	mod. red orange, Dk. yell. orange white	M	L	clayey fine to medium poorly sorted subangular quartz sand	
7		CLAYEY SAND	10	20	45	20	5	Dk. yell. orange white	S	L	Fine to coarse slightly clayey sand with occasional gravel.	
12		SAND	10	20	30	35	5	Dk. yell. orange, White	S	M	Fine to coarse slightly clayey sand with gravel	
16		SANDY CLAY	5	10	15	20	50	white	M	L	Low plasticity kaolinitic clay with fine to coarse sand and occasional gravel	
20											Total Depth = 20 Ft.	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: MW-7 (SB-8)

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: 94.60'

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

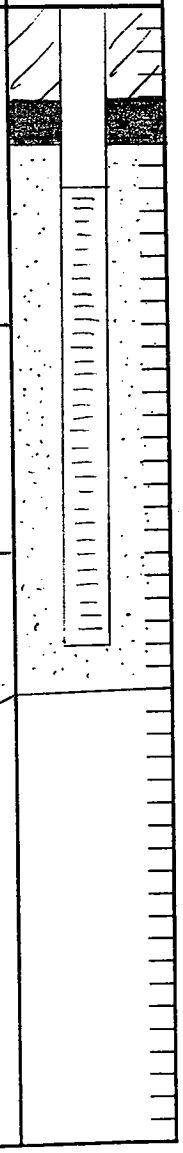
Date Compl.: 7/20/92 Casing Hgt: 2.11 Static Water Level: 7.0'

Grout: Cement 0-2' Seal: Bentonite 2-3' Gravel Pack: 3-15'

Casing Type: Flush-Threaded PVC Diameter: 2" Depth: 0-4'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 4-14'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations
2.0		CLAYEY SAND	10	20	30	20	20	Mod. red orange, Dk. yell. orange, White	M	L	Clayey fine to coarse poorly sorted angular quartz sand with occasional gravel.
7											
0.0		CLAYEY SAND		20	40	30	10	Grayish orange, White	S	M	Clayey fine to coarse micaceous sand.
12											
0.0		CLAYEY SAND	5	10	15	20	50	White, Dk. yell. orange	W	L	Low plasticity kaolinitic clay with fine to coarse sand and occasional gravel.
15											Total Depth = 15 Ft.



DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: MW-8 (SB-9)

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: 93.74'

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: 7/20/92 Casing Hgt: 2.14 Static Water Level: 6.0'

Grout: Cement 0-2' Seal: Bentonite 2-3' Gravel Pack: 3 - 15'

Casing Type: Flush-Threaded PVC Diameter: 2" Depth: 0-4'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 4-14'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
7	110	CLAYEY SAND	10	20	40	20	10	Dk. yell orange, Mod. red orange, White	M	L	clayey fine to coarse poorly sorted angular to subangular quartz sand with occasional gravel	
12	120	SAND		25	45	25	5	Dk. yell. orange	S	M	Fine to coarse slightly clayey micaceous sand	
15	9.0	SANDY CLAY		10	15	25	50	White	W	L	Low plasticity kaolinitic clay with fine to coarse sand	
											Total Depth = 15 Ft.	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: MW-9 (SB-10)

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: 92.76

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: 7/20/92 Casing Hgt: 2.09 Static Water Level: 5.4'

Grout: Cement 0-2' Seal: Bentonite 2-3' Gravel Pack: 3-15'

Casing Type: Flush-Threaded PVC Diameter: 2" Depth: 0-4'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 4-14'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations
6	2.7	CLAYEY SAND	10	20	40	20	10	Dk. yell. orange, white	m	L	clayey fine to coarse poorly sorted subangular quartz sand with occasional gravel.
11	1.4	SAND		25	45	25	5	Dk. yell. orange	S	M	Fine to coarse slightly clayey sand
14		CLAYEY SAND	10	20	40	20	10	White	S	L	clayey fine to coarse sand with occasional gravel.
15	0.2	SANDY CLAY		10	15	25	50	White	W	L	Low plasticity kaolinitic clay with fine to coarse sand
											Total Depth = 15 Ft.

Well Const.

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: MW-10 (SB-11)

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: 92.11

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: 7/20/92 Casing Hgt: 1.93 Static Water Level: 4.9'

Grout: Cement 0-2' Seal: Bentonite 2-3' Gravel Pack: 3-15'

Casing Type: Flush-Threaded PVC Diameter: 2" Depth: 0-4'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 4-14'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations
0	0.2	CLAYEY SAND			30	50	20	V. lt. gray	m	L	Clayey fine to medium poorly sorted subangular quartz sand, organic odor
6	4.8	CLAYEY SAND	10	20	40	20	10	White	s	m	Clayey fine to coarse sand with mica and occasional gravel.
11		SAND	10	20	30	35	5	White	s	m	Fine to coarse slightly clayey sand with frequent gravel.
14	3.8	SANDY CLAY	5	10	15	20	50	White	w	L	Low plasticity kaolinitic clay with fine to coarse sand.
15											Total Depth = 15 Ft.

Well Const.

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: SB-13

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.:

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: Casing Hgt: NA Static Water Level: NA

Grout: NA Seal: NA Gravel Pack: NA

Casing Type: NA Diameter: Depth:

Screen Type: NA Slot: Diameter: Depth:

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
6	810	CLAYEY SAND	10	20	40	20	10	mod. red orange, Dk. yell orange, White	M	L	Clayey fine to coarse poorly sorted subangular quartz sand with occasional gravel	
9	>1000	CLAYEY SAND			40	50	10	mod. yell. brown	S	L	clayey fine to medium sand.	
14	>1000	SAND		25	45	25	5	White, Purple	S	M	Fine to coarse slightly clayey micaceous sand	
15		SANDY CLAY	5	10	15	20	50	White	M	L	Low plasticity kaolinitic clay with fine to coarse sand and occasional gravel.	
											Total Depth = 15 Ft	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: SB-14

Client: Carolina Commerce Job No.: 5755.04 Page: 1 of 1

Location: Former Purolator County: Lexington State: SC

Drilled by: D. Dillon (Summit) Logged by: D. Campbell Elev.: _____

Drilling Mthd: Auger Sampling Mthd: Split Spoon Depth Drilled: 15'

Date Compl.: _____ Casing Hgt: NA Static Water Level: NA

Grout: NA Seal: NA Gravel Pack: NA

Casing Type: NA Diameter: _____ Depth: _____

Screen Type: NA Slot: _____ Diameter: _____ Depth: _____

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
5		SAND			45	50	5	V. lt. gray	M	M	Fine to medium poorly sorted subangular slightly clayey sand.	
12		SAND			45	50	5	Greyish Orange	S	M	Fine to medium slightly clayey sand.	
14.5		SAND	10	20	30	35	5	Dk. yell. orange, white	S	M	Fine to coarse slightly clayey sand with gravel.	
15		CLAYEY SAND	5	15	40	30	10	White	W/L		Clayey fine to coarse micaceous sand with occasional gravel	
											Total Depth = 15Ft.	

DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: PW-1

Client: CAROLINA COMMERCE Job No.: 5755-04 Page: 1 of 1

Location: FORMER PUROLATOR COURIER SITE County: LEXINGTON State: SC

Drilled by: DERMOT DILLON SUMMIT DRLG. Logged by: M.T. BLACKWELL Elev.:

Drilling Mthd: AIR ROTARY Sampling Mthd: Split Spoon Depth Drilled: 22

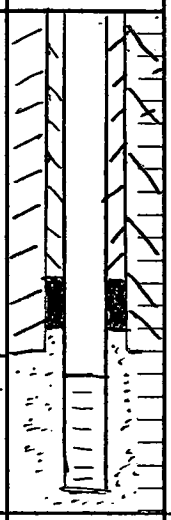
Date Compl.: 3/22/93 Casing Hgt: Static Water Level: N/A

Grout: NEAT CEMENT 0-12' Seal: BENTONITE PELLETS 12-14' Gravel Pack: 14'-22'

Casing Type: FLUSH THREADED PVC Diameter: 2" 6" Depth: 0-15' 0-16'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 16-21'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
5											SEE LOG FOR MW-5	
10	>1000											
15		SANDY CLAY	5	10	10	20	55	YEL, WHT.	S	L	Low Plast. Kaolinite clay w/fine to coarse SD.	
20		CLAYEY SAND					40	YEL, WHT	S	M	VERY FINE TO COARSE VERY CLAYEY SAND, SOME GRAVEL	
	750 OVA RDG.										TOTAL DEPTH DRLD - 22' PW-1 Off-set well to MONITORING WELL MW-5	



DAVIS & FLOYD

TEST BORING/WELL LOG

Boring or Well No.: PW-2

Client: CAROLINA COMMERCE Job No.: 5755.04 Page: 1 of 1

Location: FORMER Purolator Courier Site County: LEXINGTON State: SC

Drilled by: SUMMIT DRLG. (DERMOT DILLON) Logged by: M.T. Blackwell Elev.:

Drilling Mthd: AIR ROTARY Sampling Mthd: Split Spoon Depth Drilled: 30

Date Compl.: 3/22/93 Casing Hgt: Static Water Level: N/A

Grout: NEAT CEMENT 0-17 Seal: BENTONITE PELLETS 17-19 Gravel Pack: 19-30'

Casing Type: FLUSH THREADED PVC Diameter: 2" (6" 0-15') Depth: 0-21'

Screen Type: PVC Slot: 0.010" Diameter: 2" Depth: 21-26'

Depth	Sample	Predom. Lithology	Grain Size (%) G	CS	MS	FS	CL	Color	Moisture	Perm.	Additional Observations	Well Const.
5											SEE LOG FOR MW-9	
10												
15		SANDY CLAY										
20	0 ppm	CLAYEY SAND	10	15	20	35	20	WHT, TR. YEL	S	M	FINE TO COARSE CLAYEY SAND WITH GRAVEL	
25	0	CLAYEY SAND	10	15	25	30	20	YEL, WHT	S	M	FINE TO COARSE, CLAYEY SAND W/ GRAVEL	
30	0	SAND	10	20	35	25	10	YEL, WHT	S	M	FINE TO COARSE, CLAYEY SAND W/ GRAVEL MORE FREQUENT W/ DEPTH	
	OVA RDG.										TOTAL DEPTH DRLD. - 30' " " SPLT. SPN. - 32 PW-2 off-set well to Monitoring Well MW-9	

APPENDIX 2

Borehole Permeability Test Data

SLUG TEST CALCULATIONS

SITE:	Former Purolator Courier Site
Davis and Floyd Job Number:	5755.04
WELL:	Mw-3
DATE OF TEST:	28 Sept. 1992

WELL PARAMETERS

Depth to bedrock	4.88	D	meters
Depth of well	4.36	H	meters
Screened interval	3.05	L	meters
Radius of casing	0.0254	Rc	meters
Radius of annular space	0.0953	Rw	meters

MEASURED VALUES

Falling Head ln(Yo/Yt)/t	2.26E-02	1/sec
Rising Head ln(Yo/Yt)/t	2.66E-02	1/sec

FORMULA PARAMETERS

Effective Rc	0.056333	meters
L/Rw	32	ratio
A coeffficient	2.6	dimensionless
B coeffficient	0.42	dimensionless
ln(d-h)/Rw (calculated)	1.69	1/meters
ln(d-h)/Rw (used)	1.693779	1/meters
ln(Re/Rw)	2.56	dimensionless

RESULTS (M.K.S)

FALLING HEAD

Hydraulic conductivity	3.00E-05	K	meters/sec
Transmissivity	1.46E-04	T	meters^2/sec

RISING HEAD

Hydraulic conductivity	3.54E-05	K	meters/sec
Transmissivity	1.73E-04	T	meters^2/sec

AVERAGE

Hydraulic conductivity	3.27E-05	K	meters/sec
Transmissivity	1.59E-04	T	meters^2/sec

SLUG TEST CALCULATIONS

SITE:	Former Purolator Courier Site
Davis and Floyd Job Number:	5755.04
WELL:	Mw-5
DATE OF TEST:	28 Sept. 1992

WELL PARAMETERS

Depth to bedrock	4.88	D	meters
Depth of well	4.27	H	meters
Screened interval	3.05	L	meters
Radius of casing	0.0254	Rc	meters
Radius of annular space	0.0953	Rw	meters

MEASURED VALUES

Falling Head ln(Yo/Yt)/t	5.33E-02	1/sec
Rising Head ln(Yo/Yt)/t	6.17E-02	1/sec

FORMULA PARAMETERS

Effective Rc	0.056333	meters
L/Rw	32	ratio
A coeffficient	2.6	dimensionless
B coeffficient	0.42	dimensionless
ln(d-h)/Rw (calculated)	1.86	1/meters
ln(d-h)/Rw (used)	1.856298	1/meters
ln(Re/Rw)	2.53	dimensionless

RESULTS (M.K.S)

FALLING HEAD

Hydraulic conductivity	7.02E-05	K	meters/sec
Transmissivity	3.42E-04	T	meters^2/sec

RISING HEAD

Hydraulic conductivity	8.13E-05	K	meters/sec
Transmissivity	3.97E-04	T	meters^2/sec

AVERAGE

Hydraulic conductivity	7.58E-05	K	meters/sec
Transmissivity	3.70E-04	T	meters^2/sec

SLUG TEST CALCULATIONS

SITE:	Former Purolator Courier Site
Davis and Floyd Job Number:	5755.04
WELL:	Mw-8
DATE OF TEST:	28 Sept. 1992

WELL PARAMETERS

Depth to bedrock	4.88	D	meters
Depth of well	4.27	H	meters
Screened interval	3.05	L	meters
Radius of casing	0.0254	Rc	meters
Radius of annular space	0.0953	Rw	meters

MEASURED VALUES

Falling Head ln(Yo/Yt)/t	3.64E-03	1/sec
Rising Head ln(Yo/Yt)/t	2.60E-03	1/sec

FORMULA PARAMETERS

Effective Rc	0.056333	meters
L/Rw	32	ratio
A coeffficient	2.6	dimensionless
B coeffficient	0.42	dimensionless
ln(d-h)/Rw (calculated)	1.86	1/meters
ln(d-h)/Rw (used)	1.856298	1/meters
ln(Re/Rw)	2.53	dimensionless

RESULTS (M.K.S)

FALLING HEAD

Hydraulic conductivity	4.79E-06	K	meters/sec
Transmissivity	2.34E-05	T	meters^2/sec

RISING HEAD

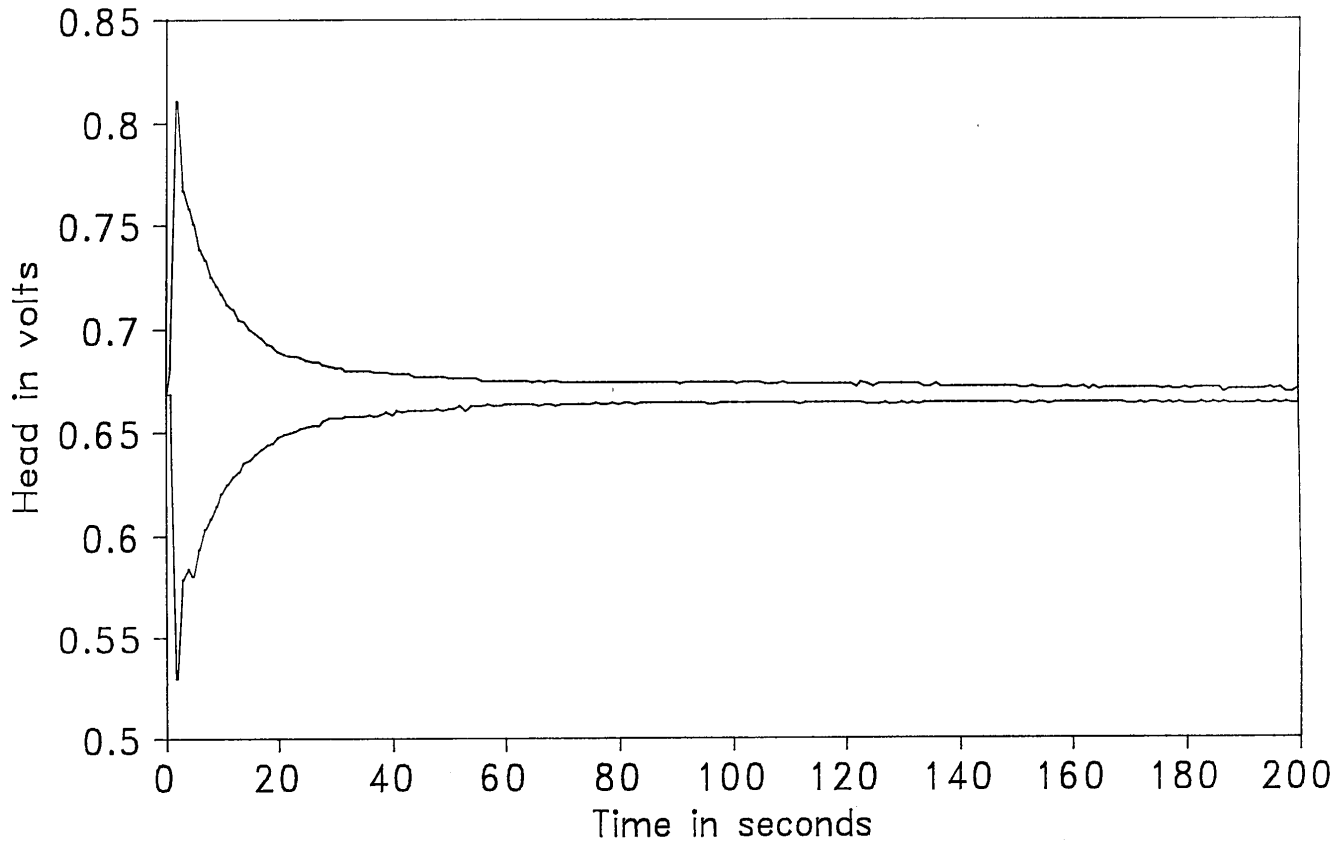
Hydraulic conductivity	3.43E-06	K	meters/sec
Transmissivity	1.67E-05	T	meters^2/sec

AVERAGE

Hydraulic conductivity	4.11E-06	K	meters/sec
Transmissivity	2.00E-05	T	meters^2/sec

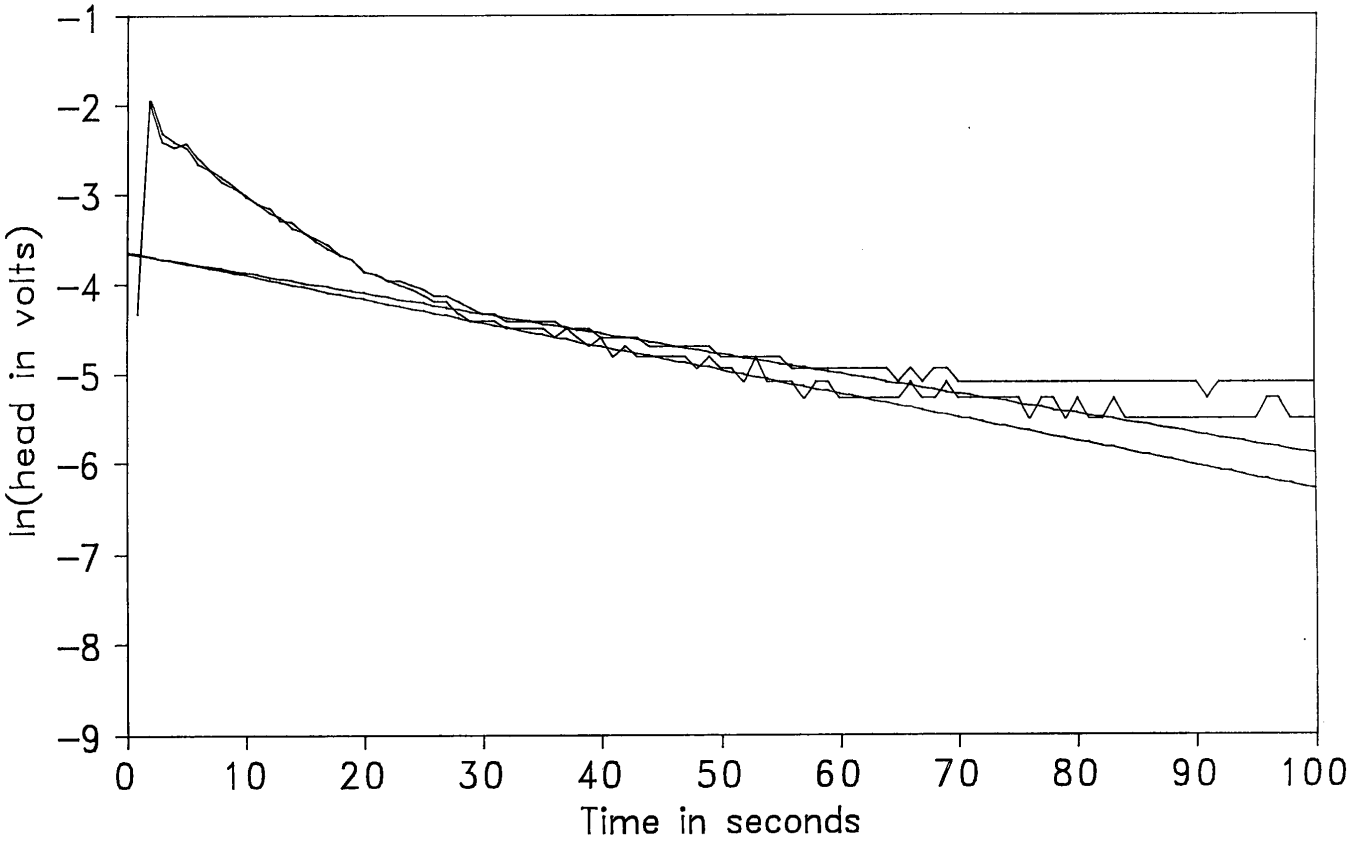
Purolator Courier, MW-3, Slug test

Davis and Floyd Job No. 5755.04



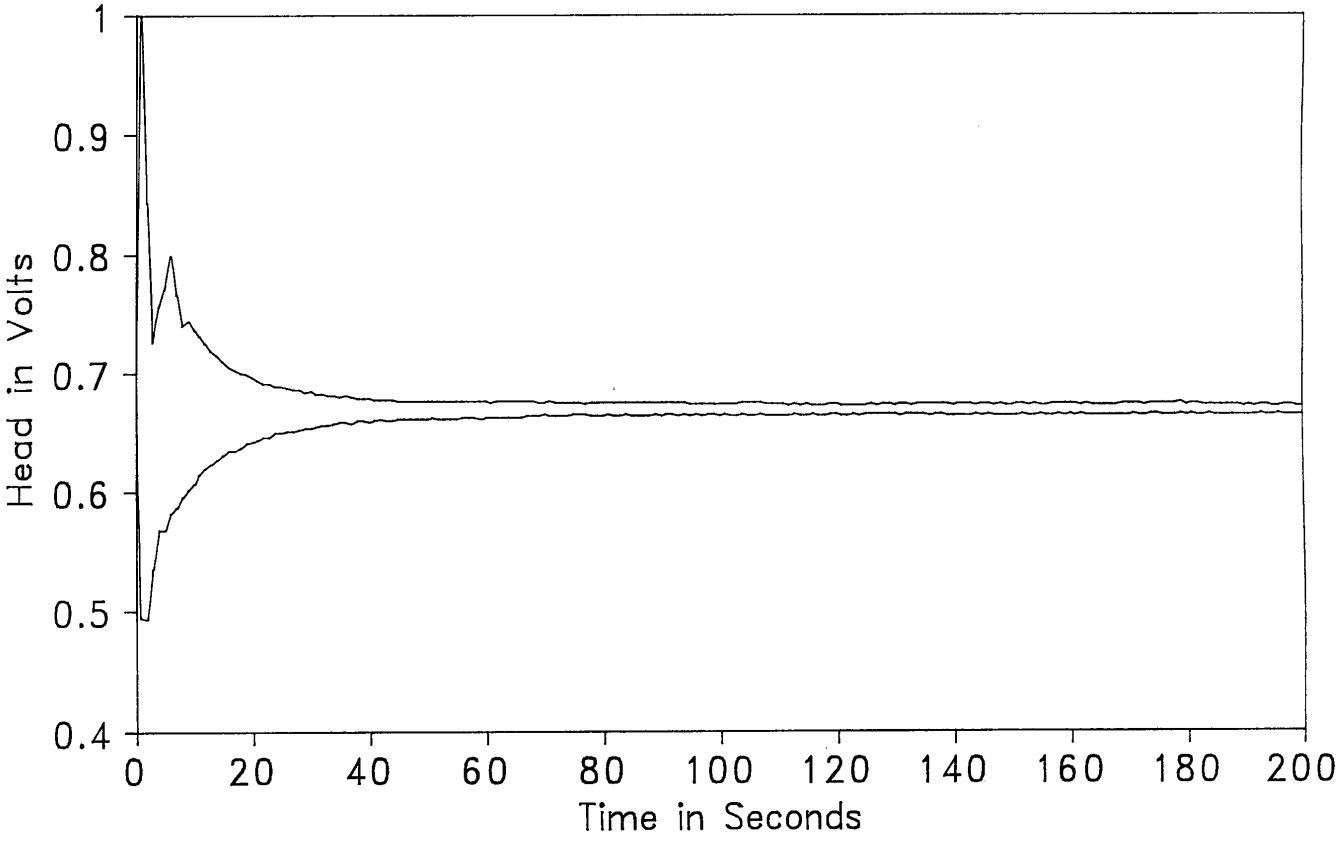
Purolator Courier, MW-3, Slug test

Davis and Floyd Job No. 5755.04



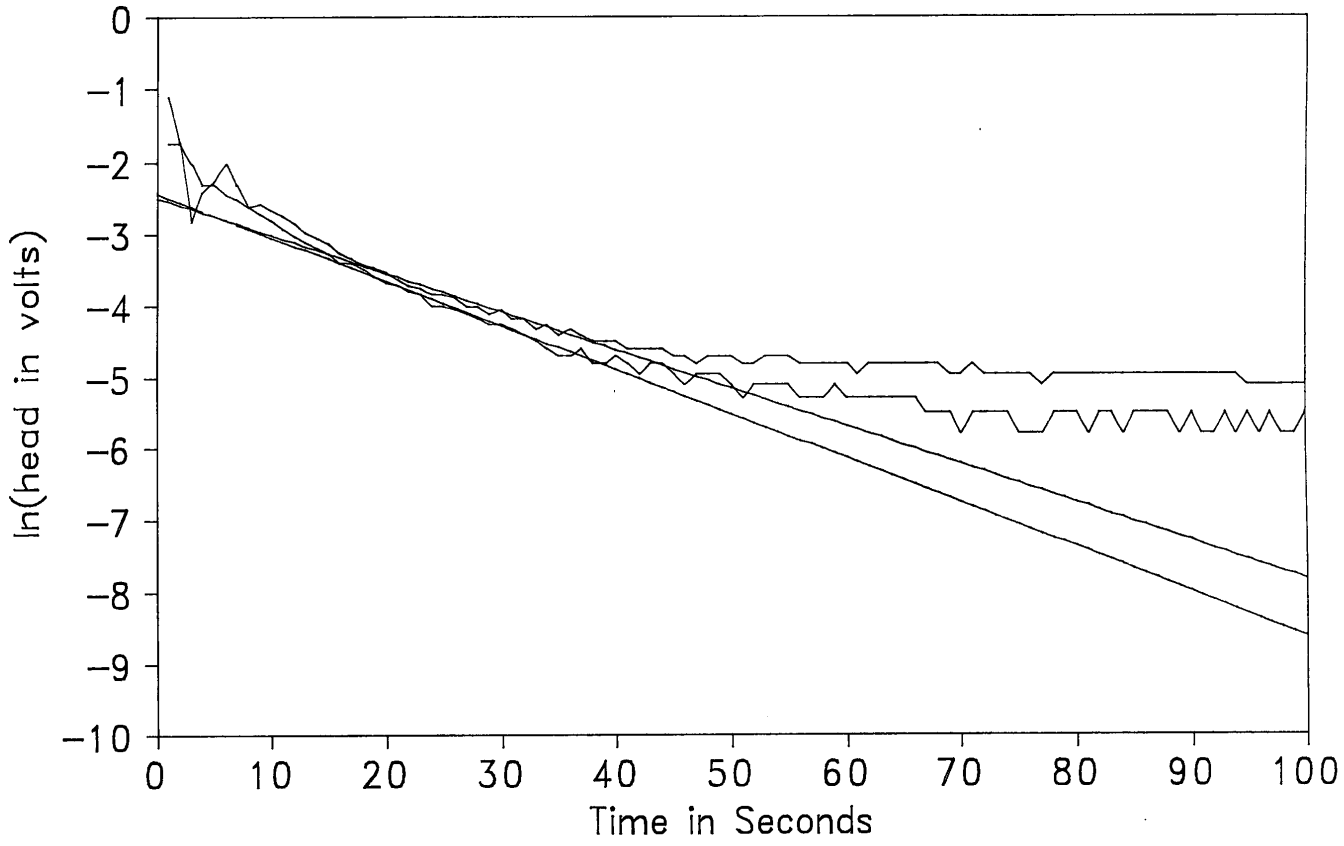
Purolator Courier, MW-5, Slug test

Davis and Floyd Job No. 5755.04



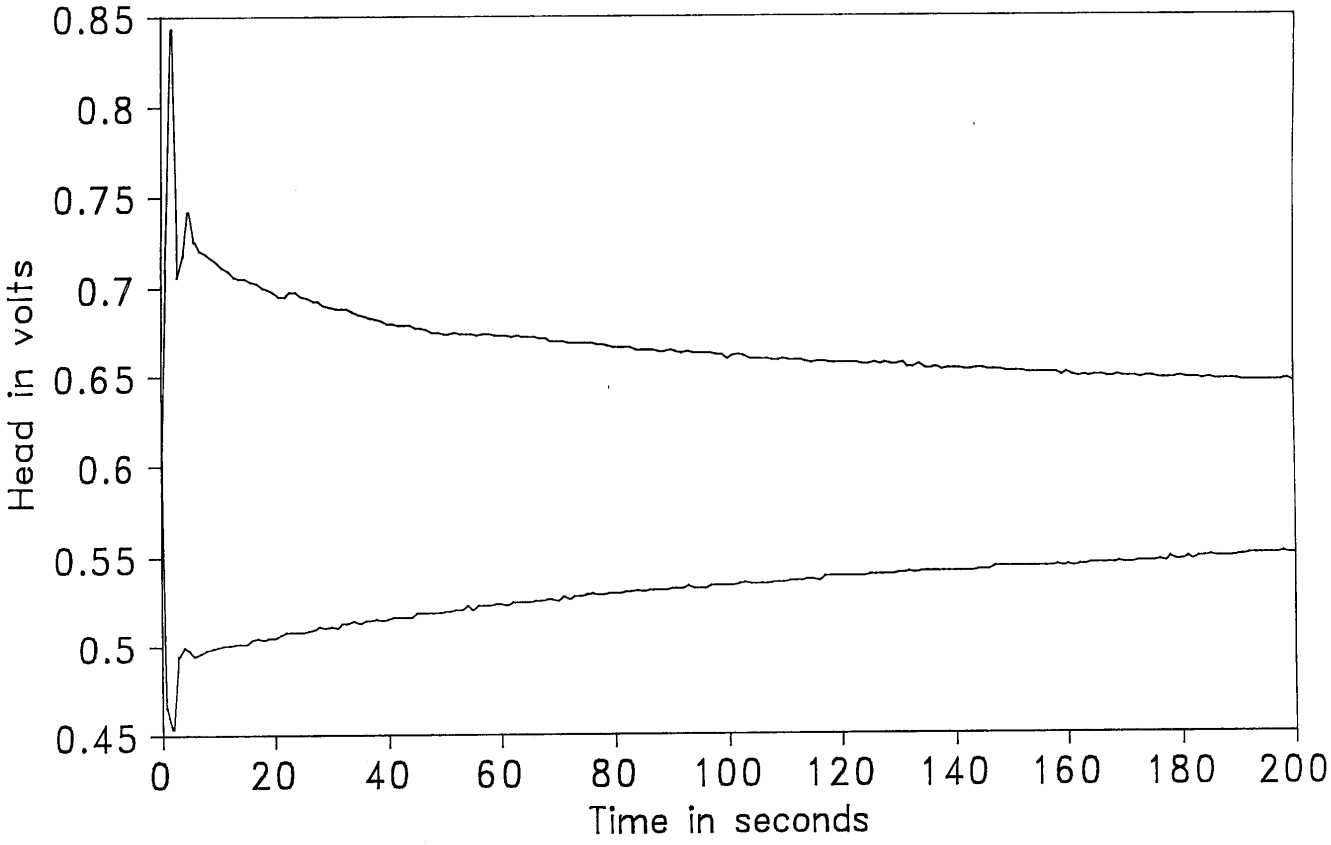
Purolator Courier, MW-5, Slug test

Davis and Floyd Job No. 5755.04



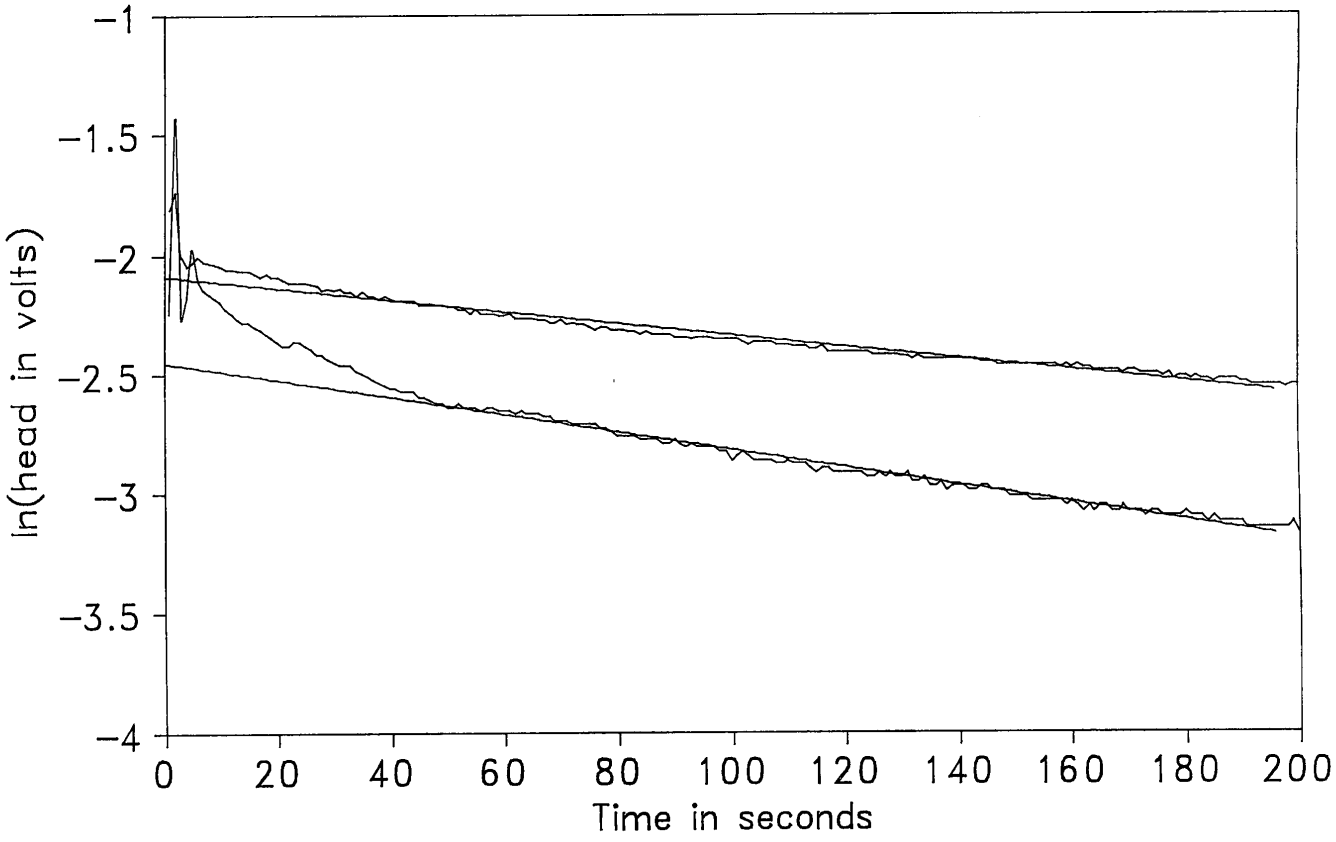
Purolator Courier, MW-8, Slug test

Davis and Floyd Job No. 5755.04



Purolator Courier, MW-8, Slug test

Davis and Floyd Job No. 5755.04



APPENDIX 4

Field Gas Chromatograph Analysis Reports

ESI
ECOLOGICAL SERVICES, INC.

P.O. Box 12146, Charlotte, North Carolina 28220

Phone (704) 522-1111
Fax (704) 521-8004

December 22, 1993

Mr. Dave Campbell
Davis & Floyd
1122 Lady Road, Suite 1000
Columbia, South Carolina 29201

Subject: Laboratory Reports
Former Purolator Courier
Columbia, South Carolina
ESI Project No. ES-0671

Dear Mr. Campbell:

Enclosed are laboratory reports for our field screening performed on December 20 and 21, 1993 at the former Purolator Courier site in Columbia, South Carolina.

We appreciate the opportunity to provide our environmental services on this project. Please contact me if there are any future projects on which we may be of services.

Sincerely,

ECOLOGICAL SERVICES, INC.

Carl H. Hewett
Director of Field Services

enc(s)

RECEIVED
DEC 27 1993
Davis & Floyd, Inc.
Columbia, SC

ESI

Ecological Services, Inc.
P. O. Box 12146
Charlotte, NC 28220
Phone: (704) 522-1111
Fax: (704) 521-8004

Lab Report

Portable Gas Chromatograph Services

Date Sampled:	12-20-93	Date Reported:	12-22-93
GC Operator:	Lisa Beckstrom	ESI Job No.:	ES-0671
Client:	Davis & Floyd 1122 Lady Street, Suite 1000 Columbia, SC 29201		
Project:	Former Purolator Courier Columbia, SC		
Sample I.D.:	SB-16 (6 - 8 ft) Water		

COMPOUND	RESULT
MTBE	535.3 ppb
Benzene	227.5 ppb
Toluene	1.761 ppb
Ethylbenzene	1.201 ppb
Total Xylenes	21.42 ppb

The data provided in this report was obtained during field screening and is not intended to be used as certified laboratory analysis.

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Lab Report

Portable Gas Chromatograph Services

Date Sampled:	12-20-93	Date Reported:	12-22-93
GC Operator:	Lisa Beckstrom	ESI Job No.:	ES-0671
Client:	Davis & Floyd 1122 Lady Street, Suite 1000 Columbia, SC 29201		
Project:	Former Purolator Courier Columbia, SC		
Sample I.D.:	SB-17 (6 - 8 ft) Water		

COMPOUND	RESULT
MTBE	~~10.53~~ 10,530 10.53 ppm
Benzene	12.24 ppm
Toluene	5.006 ppm
Ethylbenzene	367.2 ppb
Total Xylenes	2.148 ppm

The data provided in this report was obtained during field screening and is not intended to be used as certified laboratory analysis.

12,240.

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Lab Report

Portable Gas Chromatograph Services

Date Sampled: 12-20-93 Date Reported: 12-22-93

GC Operator: Lisa Beckstrom ESI Job No.: ES-0671

Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-18 (6 - 8 ft) Water

COMPOUND	RESULT
MTBE	1.144 ppb
Benzene	1.779 ppb
Toluene	0.893 ppb
Ethylbenzene	0.598 ppb
Total Xylenes	4.244 ppb

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Lab Report

Portable Gas Chromatograph Services

Date Sampled: 12-20-93 Date Reported: 12-22-93

GC Operator: Lisa Beckstrom ESI Job No.: ES-0671

Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-19 (6 - 8 ft) Water

Compound	Result
MTBE	504.4 ppb
Benzene	1.030 ppm
Toluene	1.689 ppb
Ethylbenzene	0.527 ppb
Total Xylenes	308.8 ppb

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Portable Gas Chromatograph Services

Date Sampled: 12-20-93 Date Reported: 12-22-93

GC Operator: Lisa Beckstrom ESI Job No.: ES-0671

Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-20 (6 - 8 ft) Water

COMPOUND	RESULT
MTBE	1.168 ppm
Benzene	871.7 ppb
Toluene	1.657 ppb
Ethylbenzene	2.646 ppb
Total Xylenes	9.190 ppb

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Portable Gas Chromatograph Services

Date Sampled: 12-20-93 Date Reported: 12-22-93

GC Operator: Lisa Beckstrom ESI Job No.: ES-0671

Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-21 (6 - 8 ft) Water

COMPOUND	RESULT
MTBE	15.91 ppm
Benzene	22.93 ppm
Toluene	16.46 ppm
Ethylbenzene	2.784 ppm
Total Xylenes	1.605 ppm

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Lab Report

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GC Operator: Lisa Beckstrom ESI Job No.: ES-0671

Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-22 (6 - 8 ft) Water

COMPOUND	RESULT
MTBE	3.395 ppb
Benzene	0.827 ppb
Toluene	0.373 ppb
Ethylbenzene	0.816 ppb
Total Xylenes	ND

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GC Operator: Lisa Beckstrom ESI Job No.: ES-0671

Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-23 (6 - 8 ft) Water

COMPOUND	RESULT
MTBE	0.971 ppb
Benzene	0.036 ppb
Toluene	0.620 ppb
Ethylbenzene	1.340 ppb
Total Xylenes	5.634 ppb

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Portable Gas Chromatograph Services

Date Sampled:	12-20-93	Date Reported:	12-22-93
GC Operator:	Lisa Beckstrom	ESI Job No.:	ES-0671
Client:	Davis & Floyd 1122 Lady Street, Suite 1000 Columbia, SC 29201		
Project:	Former Purolator Courier Columbia, SC		
Sample I.D.:	SB-24 (9 - 9.5 ft) Water		

COMPOUND	RESULT
MTBE	0.043 ppb
Benzene	0.208 ppb
Toluene	0.507 ppb
Ethylbenzene	0.180 ppb
Total Xylenes	ND

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Portable Gas Chromatograph Services

Date Sampled: 12-21-93 Date Reported: 12-22-93

GC Operator: Lisa Beckstrom ESI Job No.: ES-0671

Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-17D (24 - 26 ft) Water

COMPOUND	RESULT
MTBE	462.2 ppb
Benzene	2.222 ppb
Toluene	1.917 ppb
Ethylbenzene	0.460 ppb
Total Xylenes	ND

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GC Operator: Lisa Beckstrom ESI Job No.: ES-0671

Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-22D (24 - 26 ft) Water

COMPOUND	RESULT
MTBE	0.114 ppb
Benzene	0.817 ppb
Toluene	1.655 ppb
Ethylbenzene	0.907 ppb
Total Xylenes	0.531 ppb

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Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-25 (9.5 - 11.5 ft) Water

COMPOUND	RESULT
MTBE	ND
Benzene	2.316 ppb
Toluene	1.596 ppb
Ethylbenzene	1.079 ppb
Total Xylenes	0.526 ppb

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Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-26 (9.5 - 11.5 ft) Water

COMPOUND	RESULT
MTBE	0.222 ppb
Benzene	1.991 ppb
Toluene	1.136 ppb
Ethylbenzene	ND
Total Xylenes	ND

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Columbia, SC

Sample I.D.: SB-27 (6 - 8 ft) Water

COMPOUND	RESULT
MTBE	1.596 ppm
Benzene	1.500 ppm
Toluene	2.344 ppb
Ethylbenzene	3.517 ppb
Total Xylenes	18.62 ppb

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1122 Lady Street, Suite 1000
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Columbia, SC

Sample I.D.: SB-28 (24 - 26 ft) Water

COMPOUND	RESULT
MTBE	ND
Benzene	1.038 ppb
Toluene	0.769 ppb
Ethylbenzene	0.349 ppb
Total Xylenes	ND

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Columbia, SC

Sample I.D.: SB-29 (24 - 26 ft) Water

COMPOUND	RESULT
MTBE	0.053 ppb
Benzene	0.202 ppb
Toluene	0.870 ppb
Ethylbenzene	0.898 ppb
Total Xylenes	0.384 ppb

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Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-30 (9 - 11 ft) Water

COMPOUND	RESULT
MTBE	8.542 ppm
Benzene	5.287 ppm
Toluene	40.90 ppm
Ethylbenzene	2.079 ppm
Total Xylenes	12.47 ppm

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Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-31 (9 - 11 ft) Water

COMPOUND	RESULT
MTBE	64.43 ppb
Benzene	6.408 ppb
Toluene	92.54 ppb
Ethylbenzene	3.423 ppb
Total Xylenes	18.78 ppb

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GC Operator: Lisa Beckstrom ESI Job No.: ES-0671

Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-32 (9 - 11 ft) Water

COMPOUND	RESULT
MTBE	0.416 ppb
Benzene	0.534 ppb
Toluene	2.353 ppb
Ethylbenzene	ND
Total Xylenes	9.824 ppb

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1122 Lady Street, Suite 1000
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Columbia, SC

Sample I.D.: SB-33 (3 ft) Water

COMPOUND	RESULT
MTBE	1.003 ppb
Benzene	ND
Toluene	0.522 ppb
Ethylbenzene	0.429 ppb
Total Xylenes	6.059 ppb

The data provided in this report was obtained during field screening and is not intended to be used as certified laboratory analysis.

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Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-34 (9 - 11 ft) Water

COMPOUND	RESULT
MTBE	0.641 ppb
Benzene	1.301 ppb
Toluene	44.40 ppb
Ethylbenzene	3.479 ppb
Total Xylenes	20.40 ppb

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Client: Davis & Floyd
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Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-35 (3 ft) Water

COMPOUND	RESULT
MTBE	1.359 ppb
Benzene	ND
Toluene	0.458 ppb
Ethylbenzene	ND
Total Xylenes	2.337 ppb

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Client: Davis & Floyd
1122 Lady Street, Suite 1000
Columbia, SC 29201

Project: Former Purolator Courier
Columbia, SC

Sample I.D.: SB-36 (28 - 30 ft) Water

COMPOUND	RESULT
MTBE	0.244 ppb
Benzene	0.618 ppb
Toluene	3.264 ppb
Ethylbenzene	ND
Total Xylenes	6.894 ppb

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Date Sampled:	12-21-93	Date Reported:	12-22-93
GC Operator:	Lisa Beckstrom	ESI Job No.:	ES-0671
Client:	Davis & Floyd 1122 Lady Street, Suite 1000 Columbia, SC 29201		
Project:	Former Purolator Courier Columbia, SC		
Sample I.D.:	SB-37 (9.5 - 11.5 ft) Water		

COMPOUND	RESULT
MTBE	0.602 ppb
Benzene	0.275 ppb
Toluene	2.947 ppb
Ethylbenzene	ND
Total Xylenes	9.470 ppb

The data provided in this report was obtained during field screening and is not intended to be used as certified laboratory analysis.

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Douglas E. Bryant

Board: Richard E. Jabbour, DDS, Chairman
Robert J. Stripling, Jr., Vice Chairman
Sandra J. Molander, Secretary
William E. Applegate, III,
John H. Burriss
Tony Graham, Jr., MD
John B. Pate, MD

Promoting Health, Protecting the Environment

Re

April 7, 1994

William S. Durham
Carolina Commerce and Associates
3135 Millwood Avenue
Columbia, SC 29201

Re: Former Purolator Courier Site
GWPD ID: #05878
SCDHEC correspondence dated January 20, 1994
Requested Cost Proposal received February 17, 1994
Lexington County

Dear Mr. Durham:

The referenced submittal for free product recovery at the referenced site has been placed on file by the Ground-Water Protection Division of the South Carolina Department of Health and Environmental Control (SCDHEC). Construction of a product recovery system using the SkimRite™ free product skimmer and associated free product recovery activities can be initiated immediately upon receipt of this letter.

The standard SkimRite™ system plus the outdoor enclosure are considered capital expense items. Since SUPERB only pays for an item once, (other than replacement due to normal operation and maintenance) the responsible party should carry insurance to cover the replacement of all equipment in case of vandalism, natural disaster, etc. The cost of this insurance on the free product recovery system may be reimbursed from the SUPERB Account. If this equipment is no longer needed at this site and is sold, the proceeds from the sale must be returned to the SUPERB Account. If sold the purchase price of the equipment must receive prior approval from SCDHEC. If the equipment is moved to another SUPERB site payment of up to 30% of the original purchase price may be allowed.

The associated cost proposal has been approved in the amount of $20,850.00 and will be kept on file so that direct billing can begin. Any rates and/or other criteria included therein may have been adjusted on the cost proposal to insure compliance with current SUPERB program criteria per Section 44-2-20(2). Please reference **CP#1035** on all pertinent invoices and correspondence. All invoices will be processed as expeditiously as possible as long as SUPERB funds are available. The following items in the referenced cost proposal submittal have been modified as follows:

UST PROGRAM
DOCKETING# 46 tech

recycled paper

- $150 less for cost proposal preparation. The SUPERB established maximum rate for cost proposal preparation is $50.00 per program task.

- $1,560.00 less for technician monitoring the system on page 5. The hourly rate has been adjusted to the SUPERB maximum established rate for a technician of $40.00 per hour.

- $577.50 less for purchase of heater option on page 7. This amount represents $525.00 less for the heater and $52.50 less for the associated mark up.

- $5,550.00 less for rental of all equipment listed on page 8.

- $50.00 less for telephone on page 11. This is considered part of the 10% handling fee for system purchase and cannot be charged as an overhead cost.

- $960.00 less for project manager report preparation on page 12. A report form is attached.

- $360.00 less for clerical support of reports on page 12. A report form is attached.

- $95.00 less for copier and communication costs listed on page 13. These costs are considered part of the standard office assessment. A $30.00 office assessment for preparation of four quarterly monitoring reports has been allocated.

- While no deduction was made from small volume disposal tasks, this Department understands that only free product should require disposal.

- While no deduction was made for electricity, SUPERB does not pay a handling fee on utility bills.

- The requested ten percent (10%) handling fee has been allowed in conjunction with purchase of the capital expense items. SUPERB will pay either a handling fee for profit or overhead but not both.

Serial numbers of all components of the SkimRite™ system, as well as the as built drawings, must be submitted to this Department. A report detailing the amount of free product recovered to date and the amount recovered since the last report will be required on a monthly basis. The report will be submitted on the attached form with each invoice in accordance with established program criteria. See current SCDHEC guidance documents for additional detail.

As a payee, you must retain all pertinent technical and financial documents related to this site in accordance with Section 44-2-130 of the SUPERB statute. A detailed audit of work performed will be conducted at a later date and will be subject to review under the current criteria. If it is determined that inappropriate payments were made, SCDHEC will seek cost recovery.

The SCDHEC reserves the authority to pay only for work properly performed and/or technically justified. The SCDHEC will only pay rates in accordance with established criteria. Further, the SCDHEC reserves the right to question and/or reject costs if deemed unreasonable. The SCDHEC reserves the right to audit project records at any time during the project or after completion of the work.

This notice to proceed with the work plan does not, in any way, acknowledge SCDHEC concurrence that all the elements contained therein will be necessary at this site. On all future correspondence, please reference the **GWPD Site ID number 05878.** Questions concerning the above should be addressed to Arthur Shrader at (803) 734-0890.

Sincerely,

UST Federal Corrective Action Section
Ground Water Protection Division
Bureau of Drinking Water Protection

Arthur Shrader, Hydrogeologist

Christopher S. Doll, P.G., Manager

enclosure: Free Product Recovery Report

cc: Melvin T. Blackwell, Davis & Floyd, Inc. (with enclosure)
Paul Bristol, Central Midlands District EQC
F&MD, GWPD

SOUTH CAROLINA DEPARTMENT OF HEALTH
AND ENVIRONMENTAL CONTROL
J. MARION SIMS BUILDING • COLUMBIA, SOUTH CAROLINA 29201
PHONE 803-734-5000

05878

UST PROGRAM 47 Tech
DOCKETING #

MEMO

DATE: Feb 3, '94

File

Copy Sent to Mel Blackwell 2/3/94

I was contacted by Mel Blackell of Davis & Floyd that he was putting together cost proposal(s) for the Purolator Courier site in Lexington. Mel questioned - should he develop a cost proposal for hand bailing of the petrotraps on a daily basis ($15,000 estimate) or installation of 2 additional recovery wells with associated pumps and disposal ($15,000 estimate). I told Mr Blackwell we wanted the least expensive that still recovered free product and would ask Chris Doll.

Chris Doll said no new wells but use pumps provided the skimmer pumps recovered product only (no water).

I call Mel Blackwell and told him the cost proposal should be no new wells - a skimmer pump that recovered product only - with associated disposal and personnel hours. Mel said he would put the cost proposal togeth rs

South Carolina
DHEC
Department of Health and Environmental Control

A Message 748

To: AT

From: Mel Blackwell
Davis & Floyd

Phone: 354-4337

Time: 2:43 Date: 2/2

☑ Please Call ☐ Called

☐ Will Call Later ☐ Returned Your Call

Message: 2 wells pump
#15,000
Petrotrap 1YR #15,000 1

By: AT product only!

Regulated undergrounc
can get state funds to c
caused by leaking unde
But after June 30, 1993
a $25,000 deductible.

If you know you
underground stor
by June 30 and a

Amnesty ends June 30.
Division of Groun
S.C. Department of Health
734-

South
DH
Department of Health

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Douglas E. Bryant

Board: Richard E. Jabbour, DDS, Chairman
Robert J. Stripling, Jr., Vice Chairman
Sandra J. Molander, Secretary
William E. Applegate, III,
John H. Burriss
Tony Graham, Jr., MD
John B. Pate, MD

Promoting Health, Protecting the Environment

Date: January 20, 1994

William S. Durham, Jr.
William Durham Company
3135 Millwood Avenue
Columbia, SC 29205

Re: Former Purolator Courier
GWPD Site #05878
Cost Proposal #0131
Underground Storage Tank Release
Priority Ranking

Dear Mr. Durham:

As most of you are aware, cleanup costs submitted to date have exceeded the SUPERB Account's ability to pay. In-house bills awaiting payment or under review exceed $8 million dollars.

The short term goals will be to eliminate old debt, to insure future revenues exceed expenditures, and to maintain the financial capability to address emergency situations. Actions taken to date towards this end include suspending access to direct billing on most sites. The SUPERB account has borrowed $5 million from other Departmental programs, and the program is currently processing some of the existing debt. Repayment to those programs must begin in January 1994 at $500,000 per month by the environmental impact fee. While this will quickly pay some of the existing debt, the available income to address the remaining debts or environmental problems will be significantly reduced for months to come. Therefore, the number of sites that may access direct billing must be further reduced.

The UST cleanup program will reserve most of the remaining monthly income to pay existing claims. We will attempt to maintain some cleanup activity utilizing direct billing at a few of the priority sites focusing on free product recovery and to address emergency situations.

Please note that site rehabilitation activities have been previously approved via the direct billing method (per the referenced cost proposal number) for this site. Continued obligation of financial resources under direct billing at this site can continue for free product recovery **only**. Per telephone conversation with your environmental consultant on January 20, 1994, it was agreed that work will terminate on competion of the Expanded Assessment Report. This report of findings to date and the associated invoices must be submitted to the Department within 30 days of receipt of this letter.

UST PROGRAM
DOCKETING # LPB Tech

recycled paper

Please submit a new cost proposal outlining costs **only** associated with free product recovery at this site for a period of one year. Per telephone conversation with your environmental consultant, it was agreed that the new cost proposal will be submitted by February 11, 1994.

However, you may proceed at your own expense with implementing the approved technical plan of action and seek reimbursement from the SUPERB Account. Please note that reimbursement typically takes a much longer period of time to process and that SUPERB funds are dispersed for reimbursement only as long as funds are available. Reimbursement requests are processed by SCDHEC in chronological order of receipt.

If you have any further questions, please contact Arthur Shrader at (803) 734-0890.

Sincerely,

Christopher S. Doll, P.G., Manager
UST Federal Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

aas\05878cp.fp

cc: Melvin T. Blackwell, Davis & Floyd, Inc. Columbia Office
Paul Brisol, Central Midlands District EQC
F&MD, GWPD
Arthur Shrader, GWPD

CP
Free Product
Recovery
No # 2nd for
delineation Needs

DAVIS & FLOYD

December 17, 1993
Serial No. DHC-062-93
Job No. 5755.04

HAND DELIVERED

RECEIVED
DEC 21 1993
Groundwater Protection
Division

Mr. Art Schrader
Hydrogeologist
Ground-Water Protection Division
SCDHEC
2600 Bull Street
Columbia, SC 29201

Reference: Expanded Contamination Assessment
Former Purolator Courier Site
Lexington County, South Carolina
GWPD Site ID# 05878

Dear Mr. Schrader:

Davis & Floyd (D&F) is prepared to complete the assessment of contamination by petroleum hydrocarbons at the above-referenced site, as discussed in our meeting of December 10, 1993. Since groundwater contamination has apparently migrated off-site, D&F has proposed utilizing Geoprobe™ soil probing equipment to collect soil and groundwater samples, and a field gas chromatograph to chemically analyze groundwater samples in the field, as discussed in our cost proposal addendum dated September 3, 1993 and approved October 25, 1993 (which supercedes, in part, the cost proposal addendum dated October 16, 1992).

As discussed last Friday, we plan to conduct additional field screening in the vicinity and downgradient of the former UST area at the site to better delineate the extent of the free product layer. The additional assessment will require an additional day of field work. A cost proposal addendum for the additional assessment as discussed above is attached. Also included are costs associated with site clearing on the downgradient property of Mr. Ralph Senn. The site clearing costs were not included on the cost proposal addendum previously submitted on September 3, 1993, as access to the property had not yet been granted and these costs could not be estimated prior to inspection of the property.

UST PROGRAM
DOCKETING # 49 Tech

Davis & Floyd, Inc. 1122 Lady St. Suite 1000 Columbia, S.C. 29201 (803) 254-4337 Fax (803) 254-4549

Your cooperation and attention to this matter are appreciated. If there are questions, please do not hesitate to call.

Sincerely,

DAVIS & FLOYD, INC.

David H. Campbell, Jr.

David H. Campbell, Jr., P.G.

DHC/bld

Attachments: As stated

cc: Mr. William S. Durham, Jr.
Mr. Rudy Powell

Memorandum For File
Site Visits **December 21, 1993**

Racetrack #306. GWPD ID: #06035

Work continues to tie the six recovery wells south of the site to the treatment system located on the south-west side of the station. Concrete has been removed and below ground PVC collection piping has been installed on the west side of the station. A manway was completed at the end of the piping adjacent to the treatment system. NuWay personnel were pressure testing this section of piping. The concrete had been cut but not removed from the east side (along US highway 1) of the site. The plan was to complete piping along the west side of the site and replace the concrete driveway by Christmas, then complete the piping to the junction of the recovery wells (north east corner of the site) in early January. Per conversation with Bill Dunnagan the goal is to have the system on line by the end of January 1994. Unless weather becomes a problem, completion should be on schedule. The backhoe from this site was loaned to Davis and Floyd for a couple of hours to clear the woods for the Geoprobe at Former Purolator Courier site.

Hess Station #40234. GWPD ID: #05808

Monitoring wells MW-16 and MW-14 installed Monday, December 20th. Neither well had been developed. Drill cuttings were on site in two 55-gallon drums per well (total of 4). OVA readings were negligible for MW-16 (located in the traffic island east of the Hess Station). The highest OVA reading was 14 from MW-14 (across Sunset Blvd. from the Hess Station, in the vicinity of Morrows Auto Repair GWPD ID #06098). The drill crew from Summit Drillers with a hydrogeologist from H2O Environmental were installing MW-15 (across Sunset Blvd. in the vicinity of the restaurant). Watched drilling of MW-15 with an air rotary drill. Completed depth of MW-15 was 25 feet. Drill cuttings from all three wells were tight clays. All wells will be developed on December 22, 1993.

Former Purolator Courier. GWPD ID: #05878

Ecological Services Incorporated from Charlotte had installed 13 Geoprobe sampling points on Mr. Senn's property at locations selected by Dave Campbell of Davis & Floyd. Ground-water samples were field screened using a portable gas chromatograph. Observed the procedure for two additional Geoprobe points adjacent to the former waste oil tank. The extent of the off site plume has been defined in a northerly and easterly direction with the Geoprobe. Because of soft terrain on the west side of the site, hand auger ground-water samples were collected to define the off site plume. The canister of the free product recovery system in MW-5 is completely filled with gasoline in approximately one minute. The depth of MW-5 precludes the use of a larger canister.

AS 12/22/93
Arthur Shrader, Hydrogeologist

cc: files

ROBINSON & BLAZER, LLP
ATTORNEYS AT LAW
(A PARTNERSHIP OF PROFESSIONAL CORPORATIONS)

SUITE 475 - ONE DECATUR TOWNCENTER
150 EAST PONCE DE LEON AVENUE
DECATUR, GEORGIA 30030
(404) 377-6464

TELECOPIER (404) 377-3658

UST
5 tech
DOCKETING

UST
MAY 07 2012
PROGRAM

April 5, 2012

Ms. Stephanie Briney
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management
2600 Bull Street
Columbia, South Carolina 29201

RE: 105 Corporate Boulevard West Columbia, South Carolina
UST Permit No. 05878
Release reported October 17, 1991
Tax map No. 004599-10-019
Lexington County, South Carolina

Dear Ms. Briney:

I am in receipt of your letter dated March 29, 2012 concerning the above-referenced matter. I am the attorney for the owner of this property, Bonita Sykes.

We have completed the right of entry which is subject to the rights of Ms. Sykes' tenant, William Durham Company, who may be reached by calling Tonya C. Harmon at 1-803-256-3591.

This right of entry has been completed and is being returned to you with the express understanding that SCDHEC and its contractor are solely liable for any property damage, and personal injury caused as a result of any intentional act, or negligence, and that the contractor will hold both Ms. Sykes and her tenant totally and completely harmless as to any work done on the property which causes damage or injury.

Please let me know if you have any further questions or concerns. Thank you.

Sincerely yours,

JOHN E. ROBINSON

JER\jab
Enclosure
cc: Ms. Bonita Sykes

lj\briney

PROPERTY OWNER
RIGHT OF ENTRY - UST Permit # 05878

If you are the Property Owner or are the authorized representative for that person, but did not own the former or existing underground storage tanks at the time the release was reported, please complete this form.

I, Bonita M. Sykes, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility Warehouse Phone # _____

Street Address of Facility 105 Corporate Blvd

Town, City, District, Suburb West Columbia, SC 29169

Name of nearest intersecting street, road, highway, alley I 26 & Frontage Road

Is this facility within the city limits? (yes or no) No

Is this facility serviced by a public water or sewer utility? (yes or no) yes, if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) ?, if yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation _____, Phone number _____

Is the property currently leased or rented to someone? (yes or no) yes, if yes, please provide their name Watts Brothers and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the monitoring wells, they should be moved before SCDHEC's contractor arrives at the site.

NAME of property owner (Please Print): Bonita M. Sykes

Phone Number (home) 678-714-9037 (work) 404-373-8782

Current Mailing Address 2935 E. Ponce de Leon Ave, Decatur, GA 30030

Signature of Property Owner: Bonita M. Sykes

Witness _____

Date: 5/3/2012
Day Month Year

UST Division/ SMB

South Carolina
DHEC
Department of Health and Environmental Control

A Message

UST PROGRAM DOCKETING # 40 Tech

To: Art

From: Dave Campbell
Davis & Floyd

Phone: 254-4337

Time: 2:25 Date: 10/21

☒ Please Call ☐ Called

☐ Will Call Later ☐ Returned Your Call

Message: RE: Former Purolator site. Land owner has verbally agreed to off site access - no need for legal action.

By: DW

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Douglas E. Bryant

Board: Richard E. Jabbour, DDS, Chairman
Robert J. Stripling, Jr., Vice Chairman
Sandra J. Molander, Secretary

William E. Applegate, III,
John H. Burriss
Tony Graham, Jr., MD
John B. Pate, MD

Promoting Health, Protecting the Environment

Date: OCT 0 1 1993

Carolina Commerce and Associates
Attn: William S. Durham
3135 Millwood Avenue
West Columbia, SC 29201

Re: GWPD Site # 05878 Former Purolator Courier Site
Underground Storage Tank Release
Priority Ranking

Dear Mr. Durham:

All releases from regulated underground storage tanks that have been reported to this Department have been prioritized using a ranking system that evaluates environmental and health related factors. The ranking system identifies those sites that represent the most serious threats where the Department should be allocating available SUPERB monies.

Currently, the referenced site ranks higher than many other sites (i.e., represents a significant environmental or health threat). Please note that site rehabilitation activities already initiated under the direct billing method should be completed in an expeditious manner.

If you have any further questions, please contact Mr. David Baize or Mr. Chris Doll at 734-5331.

Sincerely,

Stanley L. Clark, P.G., Director
Ground-Water Protection Division
Bureau of Drinking Water Protection

SLC/aas

cc: David Campbell, Davis and Floyd
Paul Bristol, Central Midlands District EQC

UST PROGRAM
DOCKETING # 51 tech

recycled paper

DAVIS & FLOYD

September 9, 1993
Serial No. DHC-045-93
Job No. 5755.04

RECEIVED
SEP 10 1993
Groundwater Protection Division

CERTIFIED MAIL

Mr. Robert Senn
2456 Klapman Road
West Columbia, SC 29169

Reference: Property Access for Off-Site Assessment
Former Purolator Courier Site
Lexington County, South Carolina
GWPD Site ID# 05878

Dear Mr. Senn:

As previously indicated, Davis & Floyd (D&F) is conducting an assessment of contamination by petroleum released from underground storage tanks (USTs) at the above-referenced site, as required by the South Carolina Department of Health and Environmental Control (SCDHEC).

Based on the results of our on-site assessment, groundwater contamination may have migrated from the former Purolator site to adjacent properties, potentially including your approximately five-acre tract on Klapman Road (Figure 1). Additional assessment at the adjacent properties will therefore be necessary to determine if contamination exists downgradient of the site, and if so, to what extent. We understand, as you have previously indicated, that you are concerned about the use of heavy equipment such as a drilling rig to advance the proposed boreholes because of potential damage to your property. D&F has proposed to the SCDHEC to complete the assessment of contamination utilizing Geoprobe™ portable sampling and analytical equipment to collect soil and groundwater samples and chemically analyze the groundwater samples in the field. The Geoprobe™ is a soil and groundwater sampling device mounted in a standard cargo van or pick-up truck. Sampling locations are proposed at the approximate areas indicated on Figure 1.

The extent of contamination and therefore the appropriate number, if any, of permanent wells to adequately monitor the contamination is presently unknown, and would be based on results of field screening with the Geoprobe™. Utilization of the Geoprobe™ should result in installation of fewer permanent monitoring wells, which would potentially require mobilization of a drilling rig to the site. Permanent wells, if necessary, will be installed with the concurrence of the SCDHEC and only as necessary to facilitate continued monitoring. Every effort will be made to limit impact to the site during sampling and well installation. The area in the vicinity of each sample location or well will be returned to original conditions following installation.

UST PROGRAM
DOCKETING # 52 Tech

Davis & Floyd, Inc. 1122 Lady St. Suite 1000 Columbia, S.C. 29201 (803) 254-4337 Fax (803) 254-4549

The monitoring wells will be sampled after installation and on a routine basis until remediation of the site is complete, therefore access to the site may be required periodically. D&F will notify property owners or occupants prior to such access. In addition, we recommend any existing wells on the property be sampled as part of the assessment.

Art Schrader (SCDHEC) has indicated that the full extent of contamination, both on- and off-site, if present, must be assessed prior to implementing corrective action. Given the apparent off-site migration of contamination by petroleum hydrocarbons and the proximity of domestic wells to the site, it is imperative that the contamination be assessed so that remediation can be initiated to reduce severity of the contamination and prevent continued contaminant migration.

Your permission to enter the property referenced to conduct the aforementioned assessment is hereby requested. If acceptable, please sign the attached Property Access Agreement and return to us. We would welcome the opportunity to meet with you on the property to evaluate accessibility of the site and discuss our proposed work. If you need additional information, please do not hesitate to call us at 254-4337 or Mr. Art Schrader, SCDHEC, at 734-5455. Again, we would be happy to meet at your earliest convenience to discuss the scope of our work in greater detail.

Sincerely,

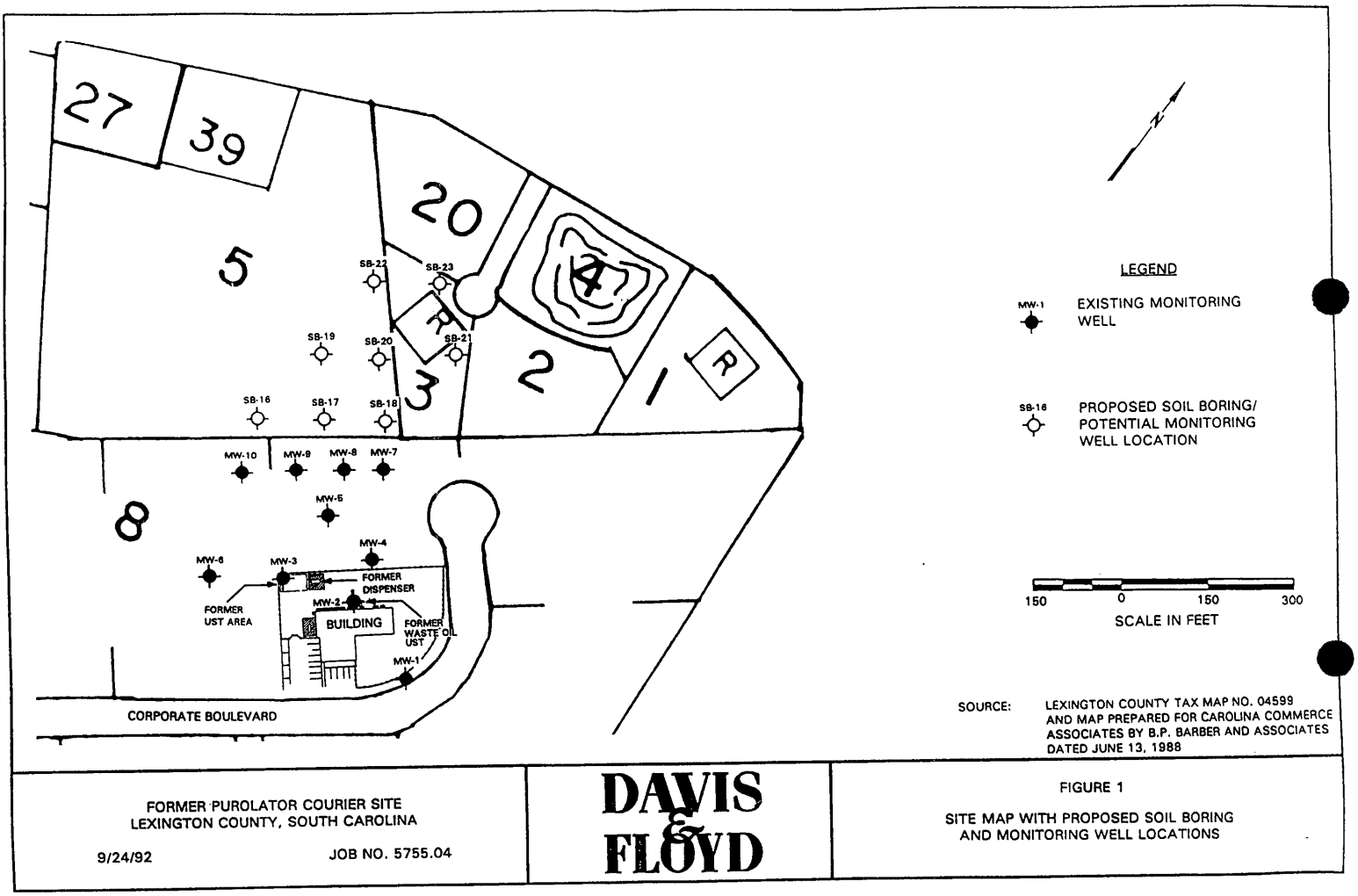
DAVIS & FLOYD, INC.

David H. Campbell, Jr., P.G.

DHC/dhc

Attachments: As stated

cc: ✓ Mr. Art Schrader
Mr. Rudy Powell



SOURCE: LEXINGTON COUNTY TAX MAP NO. 04599 AND MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

9/24/92 JOB NO. 5755.04

DAVIS & FLOYD

FIGURE 1

SITE MAP WITH PROPOSED SOIL BORING AND MONITORING WELL LOCATIONS

DAVIS & FLOYD

PROPERTY ACCESS AGREEMENT

Davis & Floyd, Inc. (D&F) respectfully requests access to property owned by _____ located _____ in _____ County, South Carolina for the purpose of drilling soil borings and installing groundwater monitoring wells as part of an ongoing environmental assessment required by the South Carolina Department of Health and Environmental Control (SCDHEC). The attached map (Figure 1) indicates the proposed locations of the soil borings/wells.

The wells will be installed in accordance with the South Carolina Well Standards and Regulations (R.61-71). The attached well schematic (Figure 2) depicts construction details of a typical monitoring well.

Every effort will be made to limit impact to normal activities at the site during well installation. The area in the vicinity of each well will be returned to original conditions following installation.

Due to the nature of the assessment, access to the site may be required periodically. D&F will notify property owners or occupants prior to such access. If you have any questions concerning the installation of the wells, contact us at (803) 254-4337.

Access is hereby granted;

Owner:_____

Site Address:_____

Date:_____

D&F Representative:_____

Date:_____

CP Charge
Mailed 10/22/93

DAVIS & FLOYD

September 3, 1993
Serial No. DHC-043-93
Job No. 5755.04

9/9/93

2 inch x 80 ft radius

Talked w/ David Campbell.
DHEC letter gets soil borings only - What do you want me to do? AS

RECEIVED
SEP 08 1993
Groundwater Protection Division

Mr. Art Schrader
Hydrogeologist
Ground-Water Protection Division
SCDHEC
2600 Bull Street
Columbia, SC 29201

Reference: Progress Report and Invoice
Expanded Contamination Assessment
Former Purolator Courier Site
Lexington County, South Carolina
GWPD Site ID# 05878

DAVE Campbell called 9/10/93
Send certified letter, but didn't give Mr Senn a suspense.
Per conversation with Lee. Wait 45 days. A Shrader
Told some to Dave Campbell - 45 days.

Sept 9
10 Receipt

Dear Mr. Schrader:

Davis & Floyd (D&F) is completing field and laboratory work associated with assessment of contamination by petroleum hydrocarbons at the above-referenced site. The assessment has proceeded in general accordance with the Expanded Assessment Plan (EAP) prepared for the site by D&F dated May 6, 1992, as approved by the SCDHEC on June 22, 1992. Assessment activities completed through July 25, 1993 are summarized on the attached Expanded Assessment Update, and our costs for these services are included on the attached interim invoice (No. 20096). The invoice was prepared in accordance with SUPERB Cost Proposal (CP# 0131) submitted by D&F with the EAP and approved, with adjustments, by the SCDHEC.

Fourteen soil borings were drilled and ten shallow wells were installed in July 1992 and first sampled July 29, 1992. The locations of borings and wells are depicted on Figure 1, which also indicates total BTEX/benzene concentrations reported for the first sampling event. A layer of liquid petroleum occurs downgradient of the former UST area in the vicinity of well MW-5, and dissolved hydrocarbons have apparently migrated downgradient from the former Purolator site to adjacent properties, as shown on Figure 1. Two deeper telescoping wells were installed in March 1993 adjacent to worst-case shallow well MW-5 and adjacent to well MW-9 near the downgradient property boundary, and all the wells were then sampled a second time. Total BTEX/benzene concentrations reported for this sampling event are indicated on Figure 2. Based on chemical analysis of samples from the two deeper wells, hydrocarbons have apparently migrated vertically downward through the water table aquifer to deeper zones, as well as horizontally.

Since groundwater contamination has apparently migrated off-site, D&F has proposed drilling eight soil borings and approximately five additional shallow wells on properties adjacent to the site, as discussed in our cost proposal addendum dated October 16, 1992, and approved

UST PROGRAM
DOCKETING # 53 Tech

Robert Senn, SR
2456 Clapman Road
W Columbia SC 29169
wife 794-4442
After 5

4 wells

with adjustments by the SCDHEC on November 13, 1992. Mr. Lloyd P. Grant, Jr. and Mr. Robert Senn, owners of two properties immediately downgradient of the site, were contacted by letters dated October 16, 1992 regarding property access for off-site assessment activities. Mr. Grant authorized access to his property on November 2, 1992. Mr. Senn, however, after several discussions regarding the scope of the proposed work, denied access to heavy equipment for the purpose of drilling and installing monitoring wells due to concerns regarding potential damage to his property. D&F subsequently requested by letter dated March 5, 1993, access to the property for collection of soil and/or groundwater samples from hand auger borings, to minimize potential property damage. D&F has on several occasions since requested a response to our requests for access to the property. Mr. Grant was most recently contacted in person on July 25, 1993 regarding property access. As we have discussed with you and previously with Mr. Todd Adams, Mr. Grant has not yet responded to our requests. We therefore request the assistance of the SCDHEC in negotiating for access to the property for completion of the assessment.

8 Soil Borings

Assessment of contamination, both on site and off site, should be completed and remediation should be implemented as soon as possible, especially given the occurrence of free product on site, the apparent off-site migration of dissolved contamination, and the proximity of domestic wells to the site. D&F proposes to complete the assessment of contamination utilizing Geoprobe™ soil probing equipment to collect soil and groundwater samples, and a field gas chromatograph to chemically analyze groundwater samples in the field. Soil samples will be collected to obtain information on site stratigraphy and groundwater samples will be collected from the uppermost saturated zone and deeper water-bearing zones, as necessary, to delineate the horizontal and vertical extent of contamination. After the extent of contamination is adequately assessed, permanent monitoring wells will be installed only as necessary to verify plume geometry as indicated by field data and to facilitate continued monitoring of the hydrocarbon plume during corrective action.

A cost proposal for activities associated with the additional assessment as discussed above is attached. Some activities previously proposed for assessment of off-site shallow groundwater contamination, including soil boring, split-spoon soil sampling, and related activities including soil sample shipping, soil chemical analyses, and disposal of soil cuttings generated during soil boring, for example, will not be conducted, and costs associated with these activities will therefore not be invoiced to the SUPERB account. These costs should be deleted from our addendum to Cost Proposal #0131 dated October 16, 1992, as indicated on the attached sheets. Utilization of the Geoprobe™ and field gas chromatograph should also result in better plume definition and installation of fewer permanent monitoring wells, resulting in lower assessment and long-term monitoring costs. Since the extent of contamination and therefore the appropriate number of permanent wells to adequately monitor the contamination is presently unknown, particularly in deeper zones, an additional cost proposal for the actual number of permanent wells ultimately necessary will be submitted after completion of the assessment utilizing the Geoprobe. Additional permanent wells will be installed with the concurrence of the SCDHEC

and only as necessary to facilitate continued monitoring. D&F is prepared to complete the assessment upon your approval of the attached cost proposal and upon authorization from the owners to enter the aforementioned properties. Your cooperation and attention to this matter are appreciated. If there are questions, please do not hesitate to call.

Sincerely,

DAVIS & FLOYD, INC.

David H. Campbell, Jr.

David H. Campbell, Jr., P.G.

DHC/dhc

254 - 4337

Attachments: As stated

cc: Mr. William S. Durham, Jr. — Carolina [illegible]
Mr. Rudy Powell
3135 Millwood Ave
Columbia, SC 29201

EXPANDED ASSESSMENT UPDATE
(Must be submitted with Invoice)

DATE 9 / 3 / 93 CP# 131 INVOICE# 20096

SITE ID#/PCAS# 05878 / 8349 SITE NAME Former Purolator Courier

Percentage of EAP completed: 85 %

Date work initiated: 6 / 29 / 92 **Established submittal date for AR:** / /

Update prepared by: Dave Campbell

Significant EAP accomplishments performed since previous update

1. Two deep wells installed as shown on Figure 2. Well elevations surveyed.

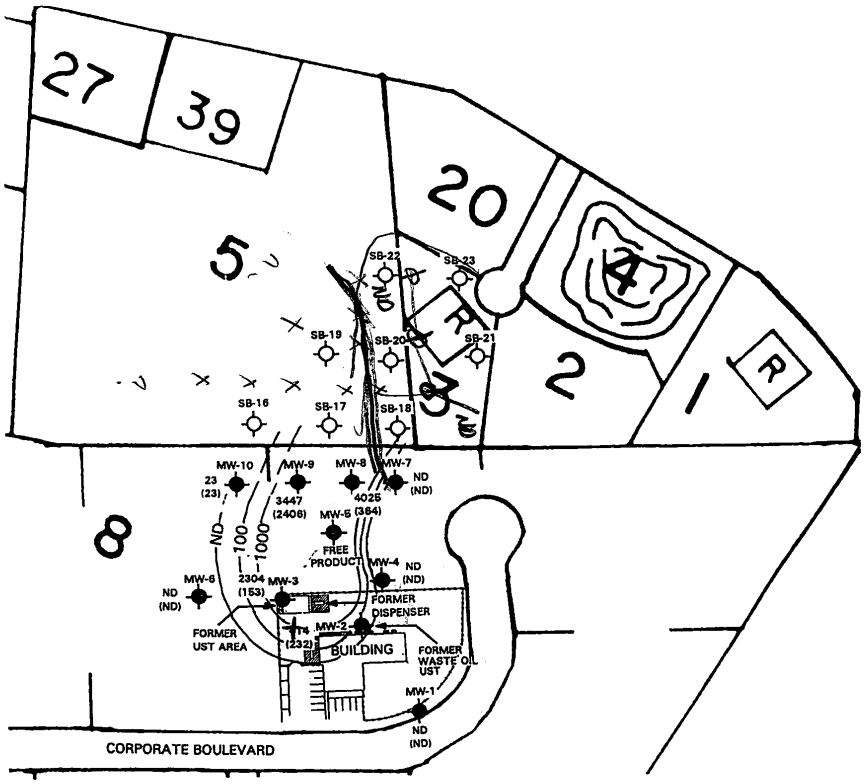
2. Monitoring wells sampled (second event) for petroleum constituents.

3. Free product recovery with Petrotrap.

4.

5.

6.



LEGEND

MW-1 / ND (ND) — EXISTING MONITORING WELL WITH BTEX CONC. IN PPB. BENZENE CONC., PPB, IN ( ). ND INDICATES PARAMETER NOT DETECTED.

SB-16 — PROPOSED SOIL BORING/ POTENTIAL MONITORING WELL LOCATION

100 — BTEX ISOCONCENTRATION CONTOUR

150 0 150 300

SCALE IN FEET

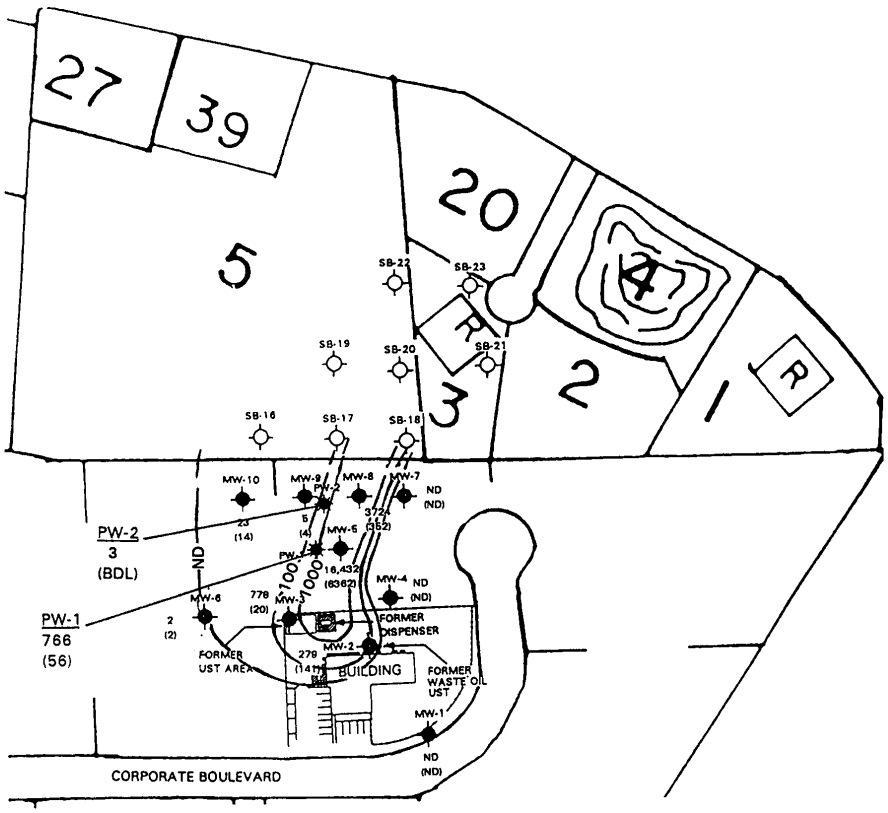
SOURCE: LEXINGTON COUNTY TAX MAP NO. 04599 AND MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

9/24/92 JOB NO. 5755.04

DAVIS & FLOYD

FIGURE 1
BTEX ISOCONCENTRATION MAP, JULY 29, 1992
WITH PROPOSED SOIL BORING AND
MONITORING WELL LOCATIONS



LEGEND

MW-1 / ND (ND) — EXISTING MONITORING WELL WITH BTEX CONC. IN PPB. BENZENE CONC., PPB, IN ( ). ND INDICATES PARAMETER NOT DETECTED.

SB-18 — PROPOSED SOIL BORING/ POTENTIAL MONITORING WELL LOCATION

100 — BTEX ISOCONCENTRATION CONTOUR

150 0 150 300

SCALE IN FEET

SOURCE: LEXINGTON COUNTY TAX MAP NO. 04589 AND MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA
AUG 93 JOB NO. 5755.04

DAVIS & FLOYD

FIGURE 2
BTEX ISOCONCENTRATION MAP, MARCH 30,1993
WITH PROPOSED SOIL BORING AND
MONITORING WELL LOCATIONS

7/20/93

- 1000 Was called by Mel Blackwell and Dave Campbell (254-4337)
  - RP is anxious to start remediation.
  - ① Would DHEC consider the start of remediation on site (2 to 3 trenches) before plume off site is defined?
  ② Would DHEC Look at cost proposal or direct contractor payment?

I told mel Blackwell this was counter to SCDHEC policy - 1ST define the plume / contamination then treat the contamination.

Would need to discuss with Chris Doll.

- Dave Campbell will still send info to get off site access to me ___

7/21 Told Mel "No go" per conversation this PM with Chris Chris recomeded I talk with Jim White on how to go though the "legal battle" on adjacent property access.

Mel Blockwell said he would ask adjacent property owner again for access then forward all to me.

UST PROGRAM DOCKETING # 54Tech

7/19/93 Purolator Courier

Per telephone conversation with Dave Campbell (phone # 254-4337)

Davis & Floyd had requested off site access at this site from 2 property owners. One property owner gave OK the other ~~one~~ said no to drill rig or hand auger.

Boundary of site is benzene 2,400 ppb and 364 ppb in adjacent wells.

I told Dave Campbell not to do the EAR. With this high a number at the property line boundary, there is no way to adequately define the plume for EAR. We would only be guessing and that would lead us to an incorrect conclusion for EAR and future CAP/ER.

DAVE Will:

1- Continue to remove free product. (using petro trap)

2- Send me data to gain site access for adjacent property owner.

3- Send copy of data 10 wells, shallow installed
2 deep wells installed

Contamination in lower zone is decreasing.

Note: Davis & Floyd job number is 5755

Davis & Floyd have approved cost proposal to complete work off site.

DAVIS & FLOYD

February 24, 1993
Serial No. MTB-018-93
Job No. 5755.04

Mr. Todd Adams
Hydrogeologist
Ground-Water Protection Division
SCDHEC
2600 Bull Street
Columbia, SC 29201

RECEIVED
FEB 25 1993
Groundwater Protection
Division

Reference: Progress Report and Invoice
Expanded Contamination Assessment
Former Purolator Courier Site
Lexington County, South Carolina
GWPD Site ID# 05878

Dear Mr. Adams:

Davis & Floyd (D&F) is continuing field and laboratory work associated with assessment of contamination by petroleum hydrocarbons at the above-referenced site. The assessment is proceeding in general accordance with the Expanded Assessment Plan (EAP) prepared for the site by D&F dated May 6, 1992, as approved by the SCDHEC on June 22, 1992. Assessment activities completed through January 31, 1993 are summarized on the attached Expanded Assessment Update.

Our costs for services provided through November 29, 1992, as summarized on the project update, are included on the attached interim invoice (No. 49522). The invoice was prepared in accordance with SUPERB Cost Proposal (CP# 131) submitted by D&F with the EAP and approved, with adjustments, by the SCDHEC.

I have

As previously stated, groundwater contamination has apparently migrated from the former Purolator site to adjacent properties, therefore additional assessment will be necessary. The owners of several properties immediately downgradient of the site have been contacted regarding access for assessment activities. Once the access agreements have been received from the property owners adjacent to the site, off-site the assessment will continue. As such, it is requested that the submittal date for the Assessment Report be extended until May 28, 1993.

UST PROGRAM
DOCKETING #

Davis & Floyd, Inc. | 1122 Lady St. | Suite 1000 | Columbia, S.C. 29201 | (803) 254-4337 | Fax (803) 254-4549

Your attention to these matters is appreciated. If there are questions, please do not hesitate to call.

Sincerely,

DAVIS & FLOYD, INC.

Melvin T. Blackwell

MTB/bld

Attachments: As stated

cc: Mr. William S. Durham, Jr.
Mr. Rudy Powell

EXPANDED ASSESSMENT UPDATE
(Must be submitted with Invoice)

DATE 2 /24 /93 CP# 131 INVOICE# 49522

SITE ID#/PCAS# 05878 / 8349 SITE NAME Former Purolator Courier

Percentage of EAP completed: 75 **%**

Date work initiated: 6 / 29 / 92 **Established submittal date for AR:** / /

Update prepared by: Mel Blackwell

Significant EAP accomplishments performed since previous update

1. Disposal of 12 drums of contaminated soil with gasoline and 5 drums of water/gasoline.

2. Aquifer test (slug tests) at 3 monitoring wells completed.

3. Free product recovery with Petrotrap.

4. Notify property owners adkacemt tp amd downgradient of the site regarding off-site access for continuing assessment.

5.

6.

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Interim Commissioner: Thomas E. Brown, Jr.

Board: John H. Burriss, Chairman
Richard E. Jabbour, DDS, Vice Chairman
Robert J. Stripling, Jr. Secretary
William E. Applegate, III,
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD

Promoting Health, Protecting the Environment

Monitoring Well Approval

Approval is hereby granted to: Davis & Floyd
1122 Lady St, Suite 1000
Columbia, SC 29201

Re: Former Purolator Site
GWPD Site ID: #05878
153 Corporate Blvd., West Columbia
Lexington County

for the construction of Monitoring Wells designated MW-11 through MW-15, DW-2 and soil borings SB-16 through SB-18 in accordance with the construction plans and specifications contained within the May 7, 1992 Expanded Assessment Plan. Monitoring wells will be installed to the approximate depth of 15 feet below the land surface and will be screened to bracket the water table in the surficial aquifer for the purpose of ground-water assessment. The deep well should be installed with the top of the five foot screen at an approximate depth of fifteen feet below the bottom of the worst case well.

Conditions: The latitude and longitude and actual construction details for each well must be submitted with the final report. Please contact Paul Bristol at the SCDHEC Central Midlands District Office (803-935-7015) at least 72 hours prior to well installation.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71.

Date of Issue: November 13, 1992

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

JRH/rta
MWA4552

cc: Paul Bristol, Central Midlands District EQC

UST PROGRAM
DOCKETING # 57 Tech

recycled paper

DAVIS & FLOYD

RECEIVED
OCT 21 1992
Groundwater Protection Division

October 16, 1992
Serial No. DHC-044-92
Job No. 5755.04

Mr. Lloyd P. Grant, Jr.
2391 Klapman Road
West Columbia, SC 29169

Reference: Property Access for Off-Site Assessment
Former Purolator Courier Site
Lexington County, South Carolina
GWPD Site ID# 05878

Dear Mr. Grant:

Davis & Floyd (D&F) is conducting an assessment of contamination by petroleum released from underground storage tanks (USTs) at the above-referenced site as required by the South Carolina Department of Health and Environmental Control (SCDHEC).

Groundwater contamination may have migrated from the former Purolator site to adjacent properties, based on the results of our initial, on-site assessment. Additional assessment of adjacent property will therefore be necessary to determine if contamination exists downgradient of the site, and if so, to what extent. Eight soil borings are proposed to be drilled at the locations indicated on Figure 1 as part of this additional assessment. Installation of approximately five shallow wells and one deeper well at these boring locations is anticipated. The wells will be sampled after installation. In addition, we recommend any existing wells on the property be sampled as part of the assessment.

Your permission to enter the property referenced on the attached Property Access Agreement, if necessary to conduct the aforementioned assessment activities, is hereby requested. If acceptable, please sign the agreement and return to us. If you need additional

UST PROGRAM
DOCKETING # 58 Tech

Davis & Floyd, Inc. | 1122 Lady St. | Suite 1000 | Columbia, S.C. 29201 | (803) 254-4337 | Fax (803) 254-4549

information, please do not hesitate to call us at 254-4337 or Mr. Todd Adams, SCDHEC, at 734-5455. We would be happy to meet at your earliest convenience to discuss the scope of our work in greater detail.

Sincerely,

DAVIS & FLOYD, INC.

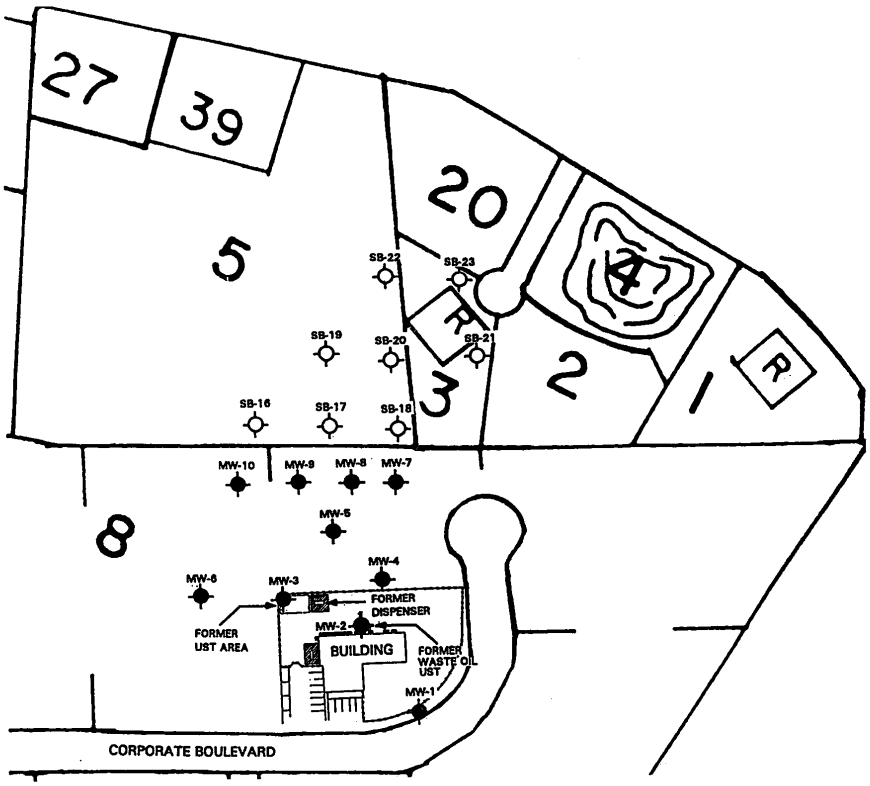
David H. Campbell Jr.

David H. Campbell, Jr., P.G.

DHC/dhc

Attachments: As stated

cc: ✓Mr. Todd Adams
Mr. Rudy Powell



N

LEGEND

MW-1 EXISTING MONITORING WELL

SB-16 PROPOSED SOIL BORING/ POTENTIAL MONITORING WELL LOCATION

150 0 150 300

SCALE IN FEET

SOURCE: LEXINGTON COUNTY TAX MAP NO. 04599 AND MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

9/24/92 JOB NO. 5755.04

DAVIS & FLOYD

FIGURE 1

SITE MAP WITH PROPOSED SOIL BORING AND MONITORING WELL LOCATIONS

DAVIS & FLOYD

PROPERTY ACCESS AGREEMENT

Davis & Floyd, Inc. (D&F) respectfully requests access to property owned by _____ located _____ in _____ County, South Carolina for the purpose of drilling soil borings and installing groundwater monitoring wells as part of an ongoing environmental assessment required by the South Carolina Department of Health and Environmental Control (SCDHEC). The attached map (Figure 1) indicates the proposed locations of the soil borings/wells.

The wells will be installed in accordance with the South Carolina Well-Standards and Regulations (R.61-71). The attached well schematic (Figure 2) depicts construction details of a typical monitoring well.

Every effort will be made to limit impact to normal activities at the site during well installation. The area in the vicinity of each well will be returned to original conditions following installation.

Due to the nature of the assessment, access to the site may be required periodically. D&F will notify property owners or occupants prior to such access. If you have any questions concerning the installation of the wells, contact us at (803) 254-4337.

Access is hereby granted;

Owner:_____

Site Address:_____

Date:_____

D&F Representative:_____

Date:_____

DAVIS & FLOYD

October 8, 1992
Serial No.: MTB-120-92
File No.: 5755.04

Mr. Todd Adams
GWPD-SCDHEC
2600 Bull Street
Columbia, SC 29201

RECEIVED
OCT 09 1992
Groundwater Protection

Reference: Cost Proposal/EAP Submitted May 6, 1992
Carolina Commerce Associates
Former Puralator Courier Site
GWPD Site ID #05878
Lexington County

Dear Mr. Adams:

Davis & Floyd, Inc. has begun to implement several expanded environmental assessments through the UST Program of the Ground-Water Protection Division. It has become apparent that we have underestimated the time required to properly coordinate site activities with responsible parties and SCDHEC, to track the progress and cost of the assessment, and to compile and/or review site documents. As such, we met and discussed this issue, among others, with Mr. Stan Clark who suggested that we request the time proposed on the referenced cost proposal for project management (coordinate site activities) be increased from 20 hours to 50 hours.

We hope this meets with your approval. If there are any questions or if clarification is needed, we will be happy to provide it in person or in writing.

Sincerely,

DAVIS & FLOYD, INC.

Melvin T. Blackwell

MTB/bld

cc: Mr. Rudy Powell

DAVIS & FLOYD

October 16, 1992
Serial No. DHC-043-92
Job No. 5755.04

RECEIVED
OCT 2 1 1992
Groundw
L...

Mr. Robert Senn
2456 Klapman Road
West Columbia, SC 29169

Reference: Property Access for Off-Site Assessment
Former Purolator Courier Site
Lexington County, South Carolina
GWPD Site ID# 05878

Dear Mr. Senn:

Davis & Floyd (D&F) is conducting an assessment of contamination by petroleum released from underground storage tanks (USTs) at the above-referenced site as required by the South Carolina Department of Health and Environmental Control (SCDHEC).

Groundwater contamination may have migrated from the former Purolator site to adjacent properties, based on the results of our initial, on-site assessment. Additional assessment of adjacent property will therefore be necessary to determine if contamination exists downgradient of the site, and if so, to what extent. Eight soil borings are proposed to be drilled at the locations indicated on Figure 1 as part of this additional assessment. Installation of approximately five shallow wells and one deeper well at these boring locations is anticipated. The wells will be sampled after installation. In addition, we recommend any existing wells on the property be sampled as part of the assessment.

Your permission to enter the property referenced on the attached Property Access Agreement to conduct the aforementioned assessment is hereby requested. If acceptable, please sign the agreement and return to us. If you need additional information, please do not hesitate

UST PROGRAM
DOCKETING # 59 Tech

Davis & Floyd, Inc. | 1122 Lady St. | Suite 1000 | Columbia, S.C. 29201 | (803) 254-4337 | Fax (803) 254-4549

to call us at 254-4337 or Mr. Todd Adams, SCDHEC, at 734-5455. We would be happy to meet at your earliest convenience to discuss the scope of our work in greater detail.

Sincerely,

DAVIS & FLOYD, INC.

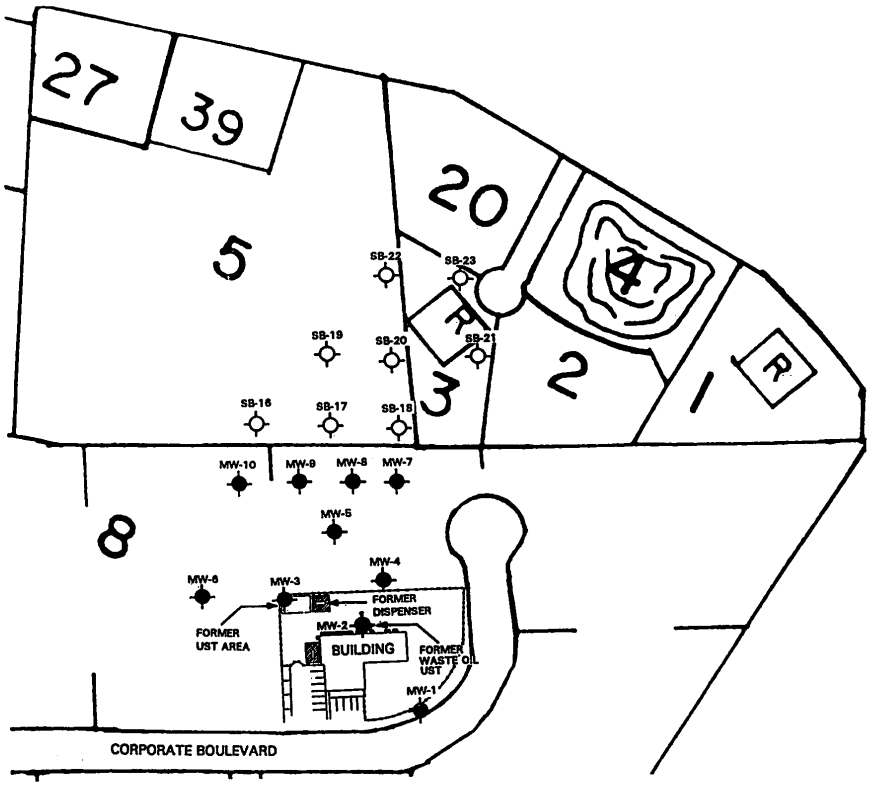
David H. Campbell, Jr.

David H. Campbell, Jr., P.G.

DHC/dhc

Attachments: As stated

cc: ✓Mr. Todd Adams
Mr. Rudy Powell



LEGEND

MW-1 EXISTING MONITORING WELL

SB-16 PROPOSED SOIL BORING/ POTENTIAL MONITORING WELL LOCATION

150 0 150 300

SCALE IN FEET

SOURCE: LEXINGTON COUNTY TAX MAP NO. 04599 AND MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

9/24/92 JOB NO. 5755.04

DAVIS & FLOYD

FIGURE 1

SITE MAP WITH PROPOSED SOIL BORING AND MONITORING WELL LOCATIONS

DAVIS & FLOYD

PROPERTY ACCESS AGREEMENT

Davis & Floyd, Inc. (D&F) respectfully requests access to property owned by _____ located _____ in _____ County, South Carolina for the purpose of drilling soil borings and installing groundwater monitoring wells as part of an ongoing environmental assessment required by the South Carolina Department of Health and Environmental Control (SCDHEC). The attached map (Figure 1) indicates the proposed locations of the soil borings/wells.

The wells will be installed in accordance with the South Carolina Well Standards and Regulations (R.61-71). The attached well schematic (Figure 2) depicts construction details of a typical monitoring well.

Every effort will be made to limit impact to normal activities at the site during well installation. The area in the vicinity of each well will be returned to original conditions following installation.

Due to the nature of the assessment, access to the site may be required periodically. D&F will notify property owners or occupants prior to such access. If you have any questions concerning the installation of the wells, contact us at (803) 254-4337.

Access is hereby granted;

Owner:_____

Site Address:_____

Date:_____

D&F Representative:_____

Date:_____

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

MR MILTON BRAZELL
220 LORAINE CT
WEST COLUMBIA SC 29169

MAY 0 9 2012

UST DOCKETING

Re: Letter of Concern
Former Purolator Courier Corp., 105 Corporate Blvd., West Columbia, SC
UST Permit # 05878
Adjacent property tax map# 004599-10-008
Request for Letter of Concern received May 7, 2012

Dear Mr. Brazell:

In response to your request for information about environmental conditions and liability associated with the referenced facility and adjacent property, the following is provided.

Our records indicate that three Underground Storage Tanks (USTs) were registered with the South Carolina Department of Health and Environmental Control (Agency) by Carolina Commerce Associates. The registered USTs were removed September 1991. An assessment report received in October 17, 1991 documented a release of petroleum products in the vicinity of the UST. Our records indicate that Carolina Commerce Associates complied with the regulatory requirements and stopped the leak from the tanks. The UST Management Division is pursuing the extent and severity of petroleum chemicals of concern on Carolina Commerce Associates behalf. An Assessment Report will be submitted in the near future.

This release of petroleum products from the USTs is qualified to receive funding under the conditions of the State Underground Petroleum Environmental Response Bank (SUPERB) Act. This means that reasonable costs up to $1,000,000 can be paid by the SUPERB account for site rehabilitation actions associated with this release.

Monitoring wells MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-15, MW-16, and MW-17 were installed on your property as part of the assessment investigation. On April 4, 2012, personnel from the UST Management Division met Midlands Environmental Consultants, Inc at your property and discovered that monitoring well MW-5 had 1ft of free product. The next scope of work will be removing the old free product skimmer and drums located on your property, convert the monitoring wells on your property from stick up to surface grade wells, install three new recovery wells around MW-5 to help remove free product, and sample all monitoring wells. A copy of the report will be sent to you once it is submitted to the UST Management Division.

Upon completion of the assessment activities, this release may proceed to corrective action. The UST owner/operator and the Agency will require access to your property during reasonable hours to perform necessary rehabilitation activities. You will be contacted by letter before corrective action is initiated.

The Agency is not aware of any laws or regulations that prohibit the use or development of adjacent properties and properties where a petroleum release has occurred. However, the Agency advises against installing a water supply well for drinking, cooking, or bathing purposes until active corrective action is completed. If you should choose to install a water supply well for these purposes at this time, it is at your discretion. As stated above, active corrective action measures will be implemented to rehabilitate affected ground water to acceptable levels.

On all correspondence concerning this site, please reference **UST Permit # 05878.** If there are any questions concerning this project, please contact me at (803) 896-6323 or by email at brineysm@dhec.sc.gov.

Sincerely,

Stephanie Briney, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

cc: Mr. Dee O'Brien, Crawford Environmental Services, 104 Corporate Blvd., Ste. 412, West Columbia, SC 29169
Technical File

DAVIS & FLOYD

October 16, 1992
Serial No. DHC-041-92
Job No. 5755.04

Mr. Todd Adams
Hydrogeologist
Ground-Water Protection Division
SCDHEC
2600 Bull Street
Columbia, SC 29201

RECEIVED
OCT 1 6 1992
Groundwater Protection
Division

Reference: Progress Report and Invoice
Expanded Contamination Assessment
Former Purolator Courier Site
Lexington County, South Carolina
GWPD Site ID# 05878

Dear Mr. Adams:

Davis & Floyd (D&F) is completing field and laboratory work associated with assessment of contamination by petroleum hydrocarbons at the above-referenced site. The assessment is proceeding in general accordance with the Expanded Assessment Plan (EAP) prepared for the site by D&F dated May 6, 1992, as approved by the SCDHEC on June 22, 1992. Assessment activities completed through September 13, 1992 are summarized on the attached Expanded Assessment Update.

Our costs for services provided through September 13, 1992, as summarized on the project update, are included on the attached interim invoice (No. 48340). The invoice was prepared in accordance with SUPERB Cost Proposal (CP# 131) submitted by D&F with the EAP and approved, with adjustments, by the SCDHEC.

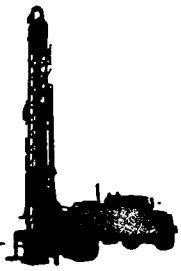
Groundwater contamination has apparently migrated from the former Purolator site to adjacent properties, therefore additional assessment will be necessary. The owners of several properties immediately downgradient of the site have been contacted regarding access for assessment activities. Eight exploratory soil test borings are proposed to be drilled at the locations indicated on Figure 1 as part of this additional assessment. Approximately five additional shallow wells are anticipated to delineate the areal extent of groundwater contamination downgradient of the site. An additional deeper well, to be installed downgradient

UST PROGRAM
DOCKETING # 60 Tech

Southeastern
Drilling
Services

102 Mulberry Ave.
Anderson, SC 29625
803-226-7879

RECEIVED
AUG 31 1992
Davis & Floyd Inc.
Columbia, SC



"Complete Source For Environmental Drilling & Services"

August 28, 1992
Job #92118

Davis & Floyd, Inc.
1122 Lady Street
Suite #1000
Columbia, South Carolina 29201

Attention: Dave Campbell

Subject: Moon's Landing - Laurens County
Davis & Floyd Job #5678.074 DHC

Dear Mr. Campbell,

Following please find a billing for recent work at the above referenced location in South Carolina.

Mob/Demob (per task)	$ 190.00
Mileage - 90 miles @ $1.00/mile	90.00
4 days - 3 man drill crew @ $290.00/day	1,160.00
4 days - Steam Cleaner Rental @ $60.00/day	240.00
78' - 2" Water table wells @ $29.50/ft.	2,301.00
32' - Telescoping Well @ $72.90/ft.	2,332.80
25 - Split-Spoon Samples @ $12.50 ea.	312.50

16 - Drums @ $31.75 ea. 508.00

14' - Soil Boring @ $14.00/ft. 196.00

Billing Total $ 7,330.30

Your prompt attention to this billing will be appreciated.

Payment Terms: Net 30 days. A service charge at the rate of 1 1/2% per month will be charged on balances that are over 30 days.

Thank you for the opportunity to be of service on this project. If you have any questions feel free to call.

Sincerely,

Frankie Burden
Southeastern Drilling Service

FB/djj

Vendor No._____

Description	Job No.	Acct. Code	Amount
Drilling, well inst.	5678.04		7330.30

Auth.	Rec'd.	Noted	Paid Date
MF			Check No.
DHC	8.31.92	BD	

Davis & Floyd, Inc.

Laboratory Analysis Report

Work Order # 92-08-221

Received: 08/26/92

09/11/92 12:43:27

REPORT MOON'S LANDING
TO C/O DAVIS & FLOYD, INC.
122 LADY STREET , SUITE 1000
COLUMBIA, SC 29201
ATTEN DAVE CAMPBELL

PREPARED Davis & Floyd, Inc.
BY P.O. Drawer 428
Greenwood, S.C. 29648

PHONE (803)-229_5211

CERTIFIED BY

JOHN_MCCORD

WORK ID JOB NO. 5678.04
P.O. #
TAKEN DAVE CAMPBELL
TYPE SOLID
NUMBER OF SAMPLES 7

Comments:
WE ARE PLEASED TO PROVIDE THIS CERTIFIED REPORT OF ANALYSES.
FEEL FREE TO TELEPHONE IF FURTHER EXPLANATION IS REQUIRED.
UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE, SAMPLES WILL BE
DISPOSED OF OR RETURNED 28 DAYS FROM THE DATE OF THIS REPORT.

SAMPLE IDENTIFICATION	DATE COLLECTED
01 SB-1	08/24/92 11:30:00
02 SB-2	08/24/92 13:00:00
03 SB-3	08/24/92 15:00:00
04 SB-4	08/24/92 16:00:00
05 SB-5	08/25/92 10:00:00
06 SB-6	08/25/92 11:30:00
07 SB-7	08/25/92 14:00:00

'DAVIS & FLOYD' INVOICE

09/24/92 09:07:34

ORD # 92-08-221

INVOICE # 6506

INVOICE TO: MOON'S LANDING
P.O. BOX 446
CROSS HILL, SC 29332

ATTEN: ACCOUNTS PAYABLE

WORK ID: JOB NO. 5678.04
P.O. #:

REPORT TO: MOON'S LANDING
C/O DAVIS & FLOYD, INC.
122 LADY STREET , SUITE 1000
COLUMBIA, SC 29201
ATTEN: DAVE CAMPBELL

RECEIVED 08/26/92 CLIENT MOONSLAND_SP
REPORTED 09/11/92 PROJECT

REMIT TO: DAVIS & FLOYD, INC.
Post Office Drawer 428
Greenwood, S.C. 29648

ATTEN: Accounts Receivable
PHONE: (803) 229-5211

TERMS: NET 30

Please return one copy with your remittance.

	ID	CODE	DESCRIPTION	REMARK	PRICE	QTY	DISCOUNT	AMOUNT
TESTS		BTEX	BTEX VOLATILES		125.00	7		875.00
		TPH_GS	TPH (GASOLINE)		122.50	7		857.50

SUBTOTAL $1,732.50

TOTAL INVOICE AMOUNT $1,732.50

EXPANDED ASSESSMENT UPDATE
(Must be submitted with Invoice)

DATE 9 / 24 / 92 CP# 131 INVOICE# 48340

SITE ID#/PCAS# 05878 /8349 SITE NAME Former Purolator Courier

Percentage of EAP completed: 40 %

Date work initiated: 6 / 29 / 92 **Established submittal date for AR:** 1 / 24 /93

Update prepared by: Dave Campbell

Significant EAP accomplishments performed since previous update

1. Well inventory initiated. Well owners identified and are being interviewed.

2. Fourteen soil borings drilled at locations on Fig. 1. Soil sample from each boring chemically analyzed for petroleum constitutents. Lateral extent of soil contamination (on-site) delineated.

3. Ten shallow monitoring wells installed as shown on Fig. 1 and sampled for petroleum constitutents. Lateral extent of shallow groundwater contamination (on-site) delineated.

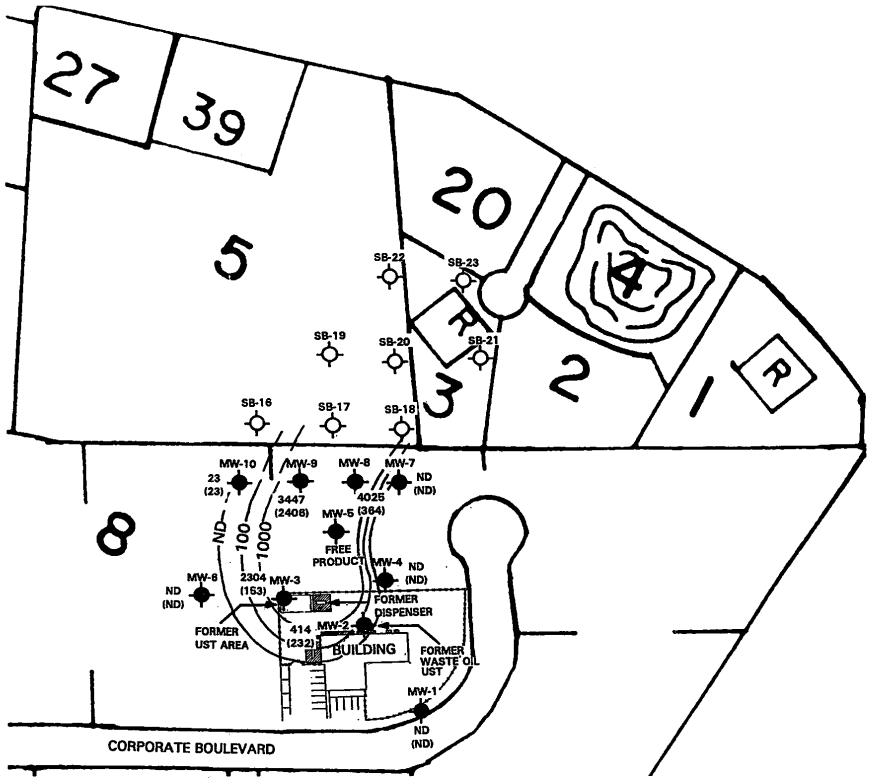
4. Initial comprehensive site survey completed.

5. Free product recovery by bailing well MW-5 on-going. Petrotrap™ passive free product recovery system to be installed to maximize efficiency of recovery operations.

6. Aquifer testing (slug tests at 3 monitoring wells) scheduled for week of September 28

NOTE: Property owners adjacent to and downgradient of the site have been contacted regarding access for off-site assessment.

UST PROGRAM DOCKETING # 61 Tech



LEGEND

MW-1 / ND (ND) — EXISTING MONITORING WELL WITH BTEX CONC. IN PPB. BENZENE CONC., PPB, IN ( ). ND INDICATES PARAMETER NOT DETECTED.

SB-16 — PROPOSED SOIL BORING/ POTENTIAL MONITORING WELL LOCATION

100 — BTEX ISOCONCENTRATION CONTOUR

150 0 150 300

SCALE IN FEET

SOURCE: LEXINGTON COUNTY TAX MAP NO. 04599 AND MAP PREPARED FOR CAROLINA COMMERCE ASSOCIATES BY B.P. BARBER AND ASSOCIATES DATED JUNE 13, 1988

FORMER PUROLATOR COURIER SITE
LEXINGTON COUNTY, SOUTH CAROLINA

9/24/92 JOB NO. 5755.04

DAVIS & FLOYD

FIGURE 1

SITE MAP WITH PROPOSED SOIL BORING AND MONITORING WELL LOCATIONS

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

4

June 16, 1992

Dave Campbell
Davis & Floyd, Inc.
1122 Lady St., Suite 1000
Columbia, SC 29201

Re: Former Purolator Courier Site
GWPD Site Id # 05878
EAP Preparation Invoice # 5575-1
Lexington County

Dear Mr. Campbell:

The South Carolina Department of Health and Environmental Control (SCDHEC) has reviewed the above referenced invoice and approved it for the amount of $6337.58. This amount reflects the following adjustments:

- Less $100 for invoice preparation $100 allowable per task,
- Less $591.50 for senior review time reduced to the maximum of two hours.
- Less $240 for Melvin Blackwell final plan preparation time,
- Less $1760 for Dave Campbell final plan preparation time,
- Less $14.32 for office(maps, photocopy, fax) $30 allowable.

Since the invoice has been approved in the amount of $6337.58, a check for this amount will be processed and sent to Davis & Floyd, Inc. in approximately three weeks.

On all correspondence, please reference the GWPD Site ID number. If you have any questions, please call me at (803) 734-5331.

Sincerely,

James R. Hess

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

RTA/05878.inv
cc: William Durham Company,3135 Millwood Ave.,Columbia, SC 29205
Robertha Dorsey, GWPD

UST PROGRAM DOCKETING # 62 Tech

recycled paper

South Carolina
DHEC
Department of Health and Environmental Control
2600 Bull Street, Columbia, SC 29201

Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman
John H. Burriss, Vice Chairman
Richard E. Jabbour, DDS, Secretary
Toney Graham, Jr., MD
Sandra J. Molander
John B. Pate, MD
Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

Monitoring Well Approval

Approval is hereby granted to: Davis & Floyd
1122 Lady St, Suite 1000
Columbia, SC 29201

Re: Former Purolator Site
GWPD Site ID: #05878
153 Corporate Blvd., West Columbia
Lexington County

for the construction of Monitoring Wells designated MW-1 through MW-9 and DW-1 in accordance with the construction plans and specifications contained within the May 7, 1992 Expanded Assessment Plan. Monitoring wells will be installed to the approximate depth of 15 feet below the land surface and will be screened to bracket the water table in the surficial aquifer for the purpose of ground-water assessment. The deep well should be installed with the top of the five foot screen at an approximate depth of fifteen feet below the bottom of the worst case well.

Conditions: The latitude and longitude and actual construction details for each well must be submitted with the final report. Please contact Paul Bristol at the SCDHEC Central Midlands District Office (803-935-7015) at least 72 hours prior to well installation.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and the Department of Health and Environmental Control Regulations R.61-71.

Date of Issue: 5/29/92

James R. Hess, P.G., Manager
UST State Corrective Action Section
Ground-Water Protection Division
Bureau of Drinking Water Protection

RTA/rta
MWA4203
0529924203/rta

cc: Paul Bristol, Central Midlands District EQC

recycled paper

William Durham Company

May 7, 1992

RECEIVED
MAY 07 1992
Groundwater Protection Division

Mr. James Hess, P.G.
Ground-Water Protection Division
SCDHEC-EQC
2600 Bull Street
Columbia, S. C. 29201

Re: Expanded Assessment Plan
GWP Site ID#: 05878
Carolina Commerce Associates
Former Purolator Courier Site
153 Corporate Blvd., West Columbia, S. C.

Dear Mr. Hess:

Enclosed is the Expanded Assessment Plan (2 copies) for the referenced site. Also an invoice for the preparation of the plan and a cost proposal from Davis & Floyd, Inc. (contractor) for direct billing by Davis & Floyd, Inc. to SCDHEC are enclosed.

We (I) do not have any insurance coverage which covers the cost of a clean-up associated with an UST.

I appreciate your attention to this matter, if you should have any questions or comments, please contact me or Davis & Floyd, Inc.

Very truly yours

CAROLINA COMMERCE ASSOCIATES

William S. Durham, Jr.

cc: Melvin T. Blackwell
Davis & Floyd, Inc.
1122 Lady St., Suite 1000
Columbia, S. C. 29201
803-254-4337

UST PROGRAM
DOCKETING # 6 Breech

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Realtor

William Durham Company

October 16, 1991

Mr. Chris Doll
UST Regulatory Section
South Carolina Department
of Health and Environmental Control
2600 Bull Street
Columbia, S. C. 29201

Dear Mr. Doll:

Enclosed are copies of documents that we discussed by telephone. I would appreciate your calling and telling me that you have received these.

Please let me know what procedures to follow from this point.

Very truly yours,

CAROLINA COMMERCE ASSOCIATES

William S. Durham, Jr., Agent
William Durham Company

WSDjr/mt

Enclosure

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OCT 17 1991

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Realtor

G.W
46,000 ppb

William Durham Company

September 24, 1991

RECEIVED
SEP 25 1991
GROUND-WATER
PROTECTION DIVISION

South Carolina Department
of Health and Environmental Control
2600 Bull Street
Columbia, S. C. 29201
ATTN: Stanley Swartzel

Re: Number 05878, Purolator Courier
Corporate Boulevard, West Columbia, S. C.

Gentlemen:

Please be advised that we have removed two 10,000 gallon fuel tanks from the above subject premises and authorized soil and ground water testing of the site.

3d Tank pulled

Copies of the removal and testing documents are enclosed.

Please inform me what procedure to follow from this point.

Per Fonecall with Mr Durham 6/11/93 MS

Very truly yours,

CAROLINA COMMERCE ASSOCIATES

William S. Durham, Jr., Agent
William Durham Company

WSDjr/mt

Enclosure

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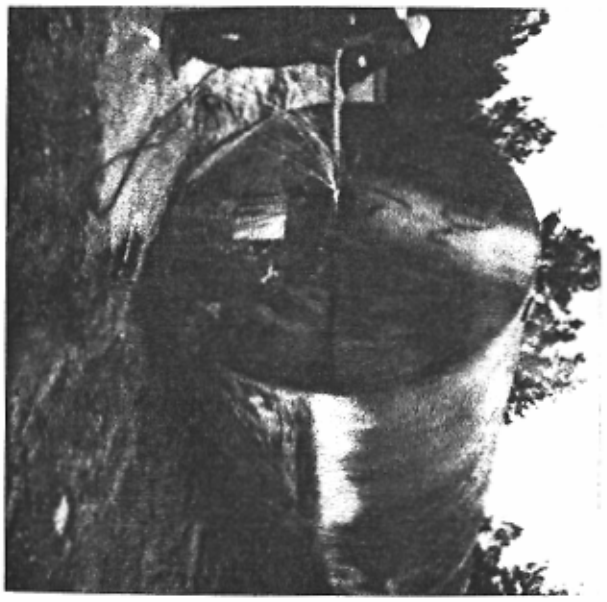


RECEIVED
SEP 25 1991
WATER
PROTECTION

GEO-SYSTEMS DESIGN & TESTING, INC.
GEOTECHNICAL SERVICES AND MATERIALS TESTING

September 13, 1991

Carolina Commerce Associates
3135 Millwood Avenue
Columbia, South Carolina 29205

Attn: William Durham

Re: Groundwater Testing

Dear Mr. Durham:

As requested, Geo-Systems Design & Testing, Inc. has completed soil and groundwater testing at the above referenced site. An underground fuel tank has been recently removed from the site, and the tank excavation is presently open with rainwater ponded within. Samples were collected from an offset location to the open excavation, and analyzed using proper EPA protocol. Test results, and a test location plan have been included for your review.

Summary test results of TPH (Total Petroleum Hydrocarbon) and BTEX (Benzene, Toluene, Ethylbenzene, Xylenes) testing include:

	SOIL ANALYSIS		GROUNDWATER ANALYSIS	
	Results	DHEC Limits	Results	DHEC Limits
TPH	1,007 ppm	**100 ppm**	1,240 ppm	**5 ppm**
Benzene	<2.5 ppm	**2.5 ppm**	46,000 ppb	**5 ppb**
Toluene	17.9 ppm	**2.5 ppm**	106,000 ppb	**2,000 ppb**
Ethylbenzene	10.3 ppm	**2.5 ppm**	17,300 ppb	**700 ppb**
Xylene	66.5 ppm	**2.5 ppm**	101,000 ppb	**10,000 ppb**

Soil and groundwater analysis reveals all contaminant levels to exceed the South Carolina Department of Health and Environmental Control (DHEC) maximum allowable levels at this time with the exception of Benzene levels in the soil sample.

UST PROGRAM
DOCKETING # 64Tech

As required in Sections 280.50 and 280.73 of the South Carolina Underground Storage Tank Control Regulations (promulgated under Title 44, Chapter 2 of the 1976 South Carolina Code of Laws enacted on March 23, 1990, we recommend that the Groundwater Protections Division of S.C. D.H.E.C. be informed of contamination at the site so that a more extensive study may be proposed to determine the actual extent. The owner of the tract has 72 hours to inform the Groundwater Protection Division from the time that the contamination is confirmed.

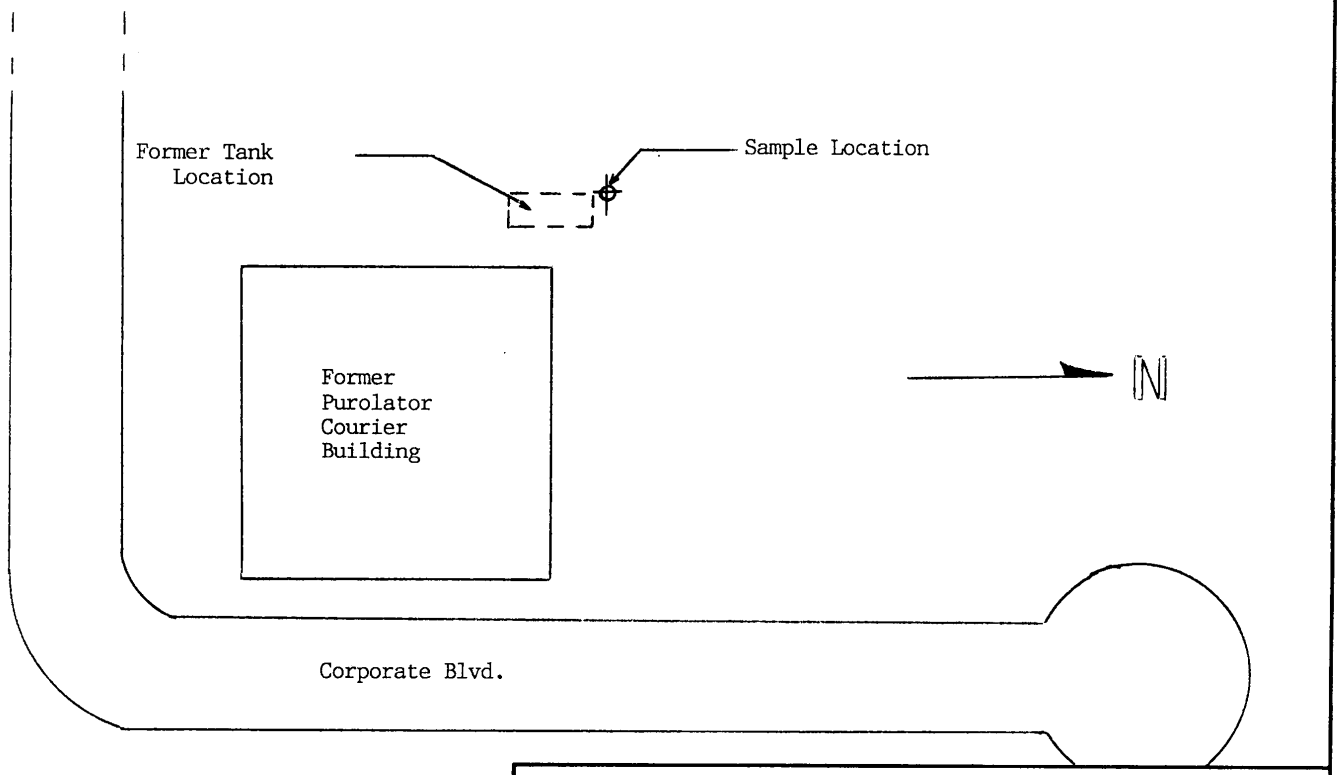
We appreciate the opportunity to serve as your consultant. We are also available to propose a more extensive groundwater assessment to map out the contaminant extent at this site upon DHEC notification. Please do not hesitate to call if you have any further questions.

Sincerely,

GEO-SYSTEMS DESIGN & TESTING, INC.

Joe A. Smith, P.E.
President

JAS/jlb



TEST LOCATION PLAN

JOB NAME: Purolator Courier Site	SCALE: NTS	DRAWN BY	REVISED

GEO-SYSTEMS DESIGN & TESTING, INC.
GEOTECHNICAL SERVICES AND MATERIALS TESTING

P.O. Box 2656
WEST COLUMBIA, S.C. 29171
PHONE (803) 791-7528

DATE	APPROVED BY	DRAWING NUMBER
9-13-91	JAS	

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WEBSITE:
www.emeraldinc-us.com

TELEPHONE (803) 469-5454
FAX (803) 469-5465

November 18, 2013

Stephanie Briney, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Underground Storage Tank Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

Aggressive Fluid Vapor Recovery Report
Purolator Courier Corp.
West Columbia, South Carolina
Lexington County
UST Permit #05878
Emerald Job 13-093

Ms. Briney,

Please find the attached Aggressive Fluid Vapor Recovery (AFVR) Report for the 96-hour AFVR event conducted at the Purolator Courier Corp. site. A site reconnaissance was conducted on October 7, 2013 to locate each monitoring well, gauge extraction wells, and assess site conditions. Prior to conducting this AFVR event information gathered during the site reconnaissance was presented to the SCDHEC project manager for review.

AGGRESSIVE FLUID VAPOR RECOVERY EVENTS

On November 11 through 15, 2013, Emerald, Inc. personnel performed a 96-hour AFVR event using MW-5 and MW-15 as extraction locations. This 96-hour AFVR event was conducted to remove free phase petroleum product previously detected at the subject site. Free phase petroleum product was detected in MW-5 at a thickness of 0.44 ft. and MW-15 at a thickness of 1.03 ft. prior to the event. At the conclusion of the event free phase product

was not detected in any monitoring wells gauged. Monitoring well locations are presented on the attached site map provided by SCDHEC.

Table 1 presents the recorded data for the off-gas concentrations (by PID), post treatment off-gas concentrations (if required), off-gas velocities, knockout tank vacuum. Table 2 presents the stinger depths, wellhead vacuum measurements for each extraction well utilized during the event. Table 2 also contains water levels measurements and magnehelic readings for selected nearby monitoring wells. Emerald, Inc. field personnel collected data at thirty minute intervals for the first eight hours of the event, then at one hour intervals from hours nine through twenty four and at two hour intervals from twenty four through ninety six hours of the event. During the hours of midnight to 8 AM event monitoring was suspended. Due to the location of the site being vacant, off-gas treatment was not utilized during this event.

According to the calculations as presented on Table 1, a total of 31.67 pounds of hydrocarbons (as vapor) and 5.06 equivalent gallons of hydrocarbons were removed during this event. Approximately 0.48 gallons of free phase petroleum product was detected in the knockout tank during this event. A total of 19,471 gallons of petroleum contaminated groundwater was transported to the City of Manning Wastewater Treatment Facility in Manning, SC for proper disposal. A copy of the disposal manifests for this event is included as an attachment.

If you have any questions or concerns please feel free to contact Emerald, Inc. at 803-469-5454.

Sincerely,
Emerald, Inc.

William C. McClary, P.G.
Project Manager

Romny L. Lowder
President

Attachments

TABLE 1
AFVR MONITORING DATA
PUROLATOR COURIER CORP.
COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #13-093

Extraction Wells	Date	Time (hh:mm)	Differential Time (hr)	Knockout Tank Vacuum (in. Hg)	Off-Gas Concentration (PPM)	Post-Treatment Concentration (PPM)	Offgas Velocity (ft/min)	Flow Rate (CFM)	CG:M (mg/dsm^3)	Cg (Lb/Dscf)	Removal Rate (Lbs/Hr)	Interval Removal (Lbs)
MW-5	11/11/13	9:30	Start	5	1,116	N/A	2,995	146.76	5,935	3.70E-04	3.26	-
MW-15		10:00 ↓	0.5	6.5	1,113	N/A	3,021	148.03	5,919	3.69E-04	3.28	1.64
		10:30 ↓	0.5	6.5	782	N/A	2,989	146.46	4,158	2.60E-04	2.28	1.39
		11:00 ↓	0.5	6.5	647	N/A	2,973	145.68	3,441	2.15E-04	1.88	1.04
		11:30 ↓	0.5	7	513	N/A	3,003	147.15	2,728	1.70E-04	1.50	0.85
		12:00 ↓	0.5	7	419	N/A	2,987	146.36	2,228	1.39E-04	1.22	0.68
		12:30 ↓	0.5	7	39	N/A	3,201	156.85	207	1.29E-05	0.12	0.34
		13:00 ↓	0.5	7	368	N/A	1,909	93.54	1,957	1.22E-04	0.69	0.20
		13:30 ↓	0.5	7	158	N/A	2,112	103.49	840	5.25E-05	0.33	0.25
		14:00 ↓	0.5	7	110	N/A	1,978	96.92	585	3.65E-05	0.21	0.13
		14:30 ↓	0.5	7.5	99	N/A	1,946	95.35	526	3.29E-05	0.19	0.10
		15:00 ↓	0.5	7.5	96	N/A	1,958	95.94	510	3.19E-05	0.18	0.09
		15:30 ↓	0.5	7.5	89	N/A	2,410	118.09	473	2.95E-05	0.21	0.10
		16:00	0.5	7	56	N/A	2,753	134.90	298	1.86E-05	0.15	0.09
		16:30	0.5	7.5	70	N/A	2,010	98.49	372	2.32E-05	0.14	0.07
		17:00	0.5	7.5	80	N/A	1,306	63.99	425	2.66E-05	0.10	0.06
		17:30	0.5	7.5	83	N/A	1,380	67.62	441	2.76E-05	0.11	0.05
		18:30	1.0	7	73	N/A	1,220	59.78	388	2.42E-05	0.09	0.10
		19:30	1.0	7	67	N/A	1,213	59.44	356	2.22E-05	0.08	0.08
		20:30	1.0	7	95	N/A	1,301	63.75	505	3.15E-05	0.12	0.10
		21:30	1.0	6.5	110	N/A	1,347	66.00	585	3.65E-05	0.14	0.13
		22:30	1.0	6	107	N/A	1,336	65.46	569	3.55E-05	0.14	0.14
		23:30	1.0	6	92	N/A	1,411	69.14	489	3.05E-05	0.13	0.13
	11/12/13	0:00	0.5	6	86	N/A	1,479	72.47	457	2.86E-05	0.12	0.06
		8:00	8.0	3	265	N/A	1,165	57.09	1,409	8.80E-05	0.30	1.70
		9:00	1.0	4	163	N/A	2,605	127.65	867	5.41E-05	0.41	0.36
		10:00	1.0	4	126	N/A	3,136	153.66	670	4.18E-05	0.39	0.40
		12:00	2.0	7	106	N/A	2,066	101.23	564	3.52E-05	0.21	0.60
		14:00	2.0	8	91	N/A	2,395	117.36	484	3.02E-05	0.21	0.43
		16:00	2.0	7.5	92	N/A	3,166	155.13	489	3.05E-05	0.28	0.50
		18:00	2.0	8	107	N/A	1,599	78.35	569	3.55E-05	0.17	0.45
		20:00	2.0	6	110	N/A	1,610	78.89	585	3.65E-05	0.17	0.34
		22:00	2.0	5	101	N/A	1,674	82.03	537	3.35E-05	0.17	0.34

TABLE 1 Cont'd.
AFVR MONITORING DATA
PUROLATOR COURIER CORP.
COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #13-093

Extraction Wells	Date	Time (hh:mm)	Differential Time (hr)	Knockout Tank Vacuum (in. Hg)	Off-Gas Concentration (PPM)	Post-Treatment Concentration (PPM)	Offgas Velocity (ft/min)	Flow Rate (CFM)	CG:M (mg/dsm^3)	Cg (Lb/Dscf)	Removal Rate (Lbs/Hr)	Interval Removal (Lbs)
MW-5	11/13/13	0:00	2.0	5	113	N/A	1,621	79.43	601	3.75E-05	0.18	0.34
MW-15		8:00	8.0	6	398	N/A	1,951	95.60	2,116	1.32E-04	0.76	3.75
		10:00	2.0	7	361	N/A	1,992	97.61	1,920	1.20E-04	0.70	1.46
		12:00	2.0	5.5	89	N/A	3,474	170.23	473	2.95E-05	0.30	1.00
		14:00 ↓	2.0	5	49	N/A	2,617	128.23	261	1.63E-05	0.13	0.43
		16:00 ↓	2.0	5	30	N/A	1,430	70.07	160	9.96E-06	0.04	0.17
		18:00	2.0	5	288	N/A	1,357	66.49	1,531	9.56E-05	0.38	0.42
		20:00	2.0	4	136	N/A	1,617	79.23	723	4.51E-05	0.21	0.60
		22:00	2.0	4	148	N/A	1,601	78.45	787	4.91E-05	0.23	0.45
	11/14/13	0:00	2.0	4	120	N/A	1,587	77.76	638	3.98E-05	0.19	0.42
		8:00	8.0	5	388	N/A	2,059	100.89	2,063	1.29E-04	0.78	3.86
		10:00	2.0	6	262	N/A	1,627	79.72	1,393	8.70E-05	0.42	1.20
		12:00	2.0	6	188	N/A	1,537	75.31	1,000	6.24E-05	0.28	0.70
		14:00	2.0	5.5	74	N/A	2,461	120.59	394	2.46E-05	0.18	0.46
		16:00	2.0	5	76	N/A	2,315	113.44	404	2.52E-05	0.17	0.35
		18:00	2.0	5	132	N/A	1,203	58.95	702	4.38E-05	0.15	0.33
		20:00	2.0	4	128	N/A	1,224	59.98	681	4.25E-05	0.15	0.31
		22:00	2.0	4	124	N/A	1,436	70.36	659	4.12E-05	0.17	0.33
	11/15/13	0:00	2.0	4	110	N/A	1,487	72.86	585	3.65E-05	0.16	0.33
		8:00	8.0	5	136	N/A	1,621	79.43	723	4.51E-05	0.22	1.50
		9:30	1.5	5	139	N/A	1,678	82.22	739	4.61E-05	0.23	0.33

Well Gauging Data:						After AFVR Event			Equations
Well No.	Diameter (in)	Screened Interval (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Cg;m = PPMg*(Mg/K3) Removal Rate = Cg * Flow Rate * 60Min/Hr Interval Removal = $(T_1 + T_2)/2$ PPM = Part per Million (by PID) Cg:m = mg/dsm3(mass concentration of gasoline emission) Mg = 128 mg/mg-mole, molecular weight of gasoline K3 = 24.07 dsm^3/1E6 mg-mole, mass to volume conversion Cg = lb/dcsf, mass concentration of gasoline by emission Removal Rate = lb/hr,pollutant mass removal rate of emission
MW-5	2	4-14	3.75	4.19	0.44	-	5.00	-	
MW-15	2	3-13	3.33	4.36	1.03	-	4.79	-	

Product Thickness		Recovery / Disposal Information		
Product observed in Sight Tube? 0.02 ft.		Hydrocarbons Removed (vapor):	31.67	Pounds
Product detected in Tanker? No		Hydrocarbons Removed (liquid):	0.48	Gallons
Weather Conditions	**Emerald, Inc. Personnel**	Total Hydrocarbons Removed:	5.06	Equivalent Gallons
11/11/13 Sunny, 43-66°F	S. Hutcheson	Molecular Weight Utilized:	128	mg/mg-mole
11/12/13 Rain, 36-72°F	C. Racer	Disposal Facility:	City of Manning Wastewater Treatment Facility	
11/13/13 Sunny, 31-49°F	M. Vandergrift	Total Liquids Removed:	19,471	Gallons
11/14/13 Sunny, 27-58°F				

Notes

↑ = Stinger raised ↓ = Stinger lowered

TABLE 2
AFVR MONITORING DATA
PUROLATOR COURIER CORP.
COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #13-093

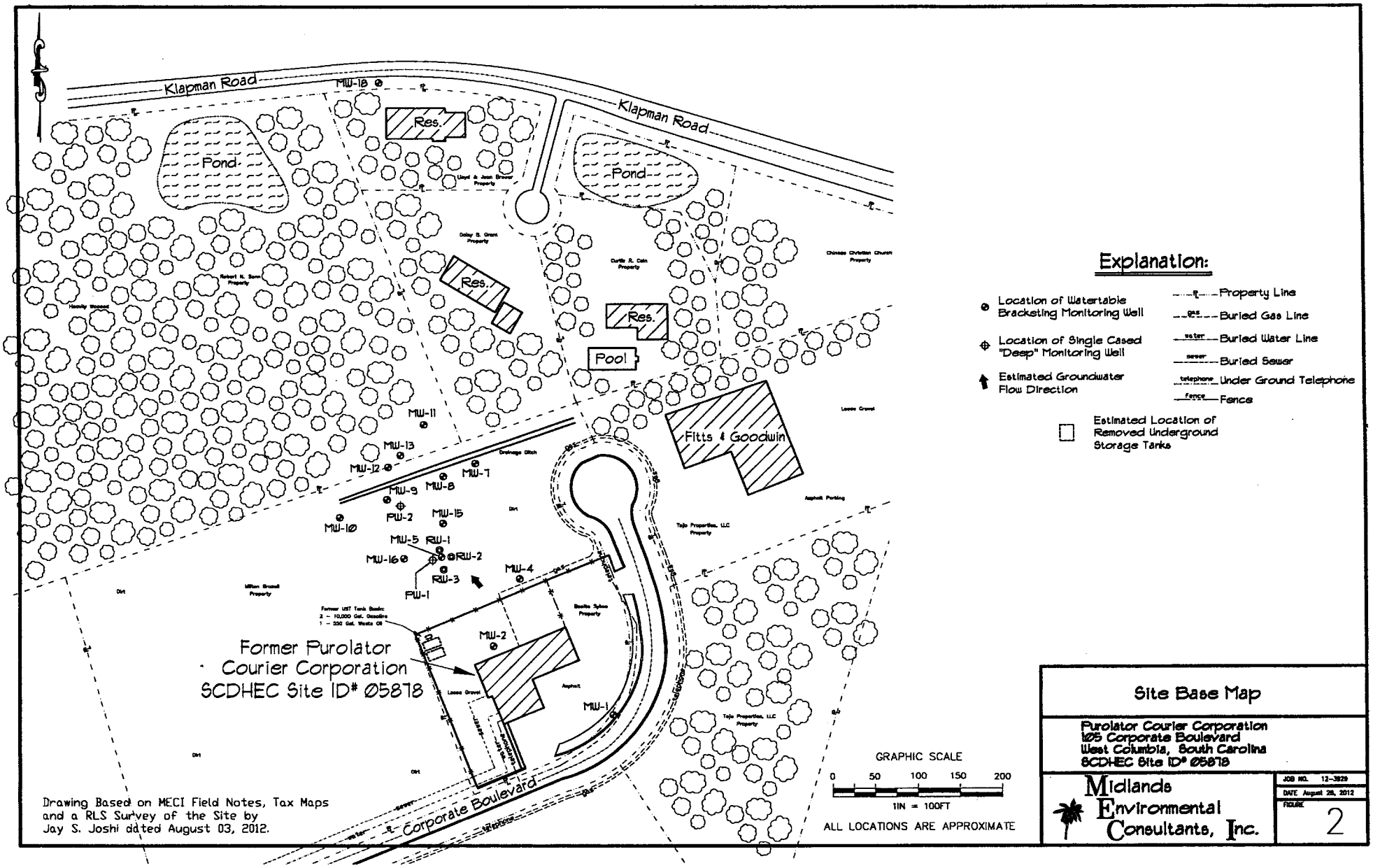
Date	Time (hh:mm)	Extraction Wells				Event Monitoring					
		MW-5		MW-15		MW-16		RW-1		RW-2	
		Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water
11/11/13	9:30	4	5	4	5	Pre	3.48	Pre	3.43	Pre	3.73
	10:00	4.5	5	4.5	5	<1	3.51	3.40	4.15	<1	4.37
	10:30	5	5	5	5	1.45	3.73	3.75	4.49	<1	4.76
	11:00	5.5	5	5.5	5	1.45	3.84	3.75	4.55	<1	4.82
	11:30	6	5	6	5	1.45	3.79	3.40	4.59	<1	4.78
	12:00	6.5	5	6.5	5	1.45	3.81	3.30	4.59	<1	4.78
	12:30	7	5	7	5	1.45	4.02	3.25	4.93	<1	5.11
	13:00	7.5	5	7.5	5	0.60	4.09	1.20	5.06	<1	5.16
	13:30	8	5	8	5	0.60	4.15	1.20	5.14	<1	5.23
	14:00	8.5	5	8.5	5	0.45	3.95	1.25	4.87	<1	4.91
	14:30	9	5	9	4.5	0.25	3.89	1.50	4.50	<1	4.62
	15:00	9.5	4.5	9.5	4.5	<1	3.75	<1	4.26	<1	4.35
	15:30	10	4.5	10	4.5	<1	3.71	<1	4.23	<1	4.31
	16:00	10.5	4.5	10.5	4.5	<1	3.64	<1	4.17	<1	4.19
	16:30	11	5	11	4.5	<1	3.62	<1	4.08	<1	4.25
	17:00	11.5	5.5	11.5	4	0.50	3.71	2.90	4.25	<1	4.49
	17:30	12	5	12	4	0.40	3.67	1.00	4.17	<1	4.32
	18:30	12	5.5	12	4	0.55	3.72	2.25	4.21	<1	4.27
	19:30	12	6	12	4	0.65	3.63	2.55	4.19	<1	4.35
	20:30	12	6	12	4.5	0.50	3.63	2.50	4.20	<1	4.42
	21:30	12	6	12	4.5	0.40	3.64	2.40	4.22	<1	4.49
	22:30	12	6	12	4.5	0.30	3.66	2.40	4.23	<1	4.53
	23:30	12	5.5	12	4.5	0.10	3.67	2.30	4.25	<1	4.56
11/12/13	0:00	5	5	5	4.5	<1	3.68	2.30	4.27	<1	4.58
	8:00	4	4.5	4	3.5	<1	3.96	<1	4.59	<1	4.69
	9:00	5	4.5	5	3.5	<1	3.81	<1	4.35	<1	4.53
	10:00	5.5	2.5	5.5	3	<1	3.76	<1	4.21	<1	4.45
	12:00	6.5	4.5	6.5	5	1.00	4.05	<1	4.92	<1	5.60
	14:00	8	5	8	5	<1	3.98	<	4.85	<1	5.12
	16:00	8	4.5	8	3	<1	4.63	<1	4.12	<1	4.22
	18:00	8	6	8	5	1.00	4.22	4.50	5.00	<1	5.15
	20:00	8	5	8	5	<1	4.11	2.10	4.73	<1	4.91
	22:00	8	4	8	4	<1	4.00	1.60	4.46	<1	4.65

Notes:

TABLE 2 Cont'd.
AFVR MONITORING DATA
PUROLATOR COURIER CORP.
COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #13-093

Date	Time (hh:mm)	Extraction Wells				Event Monitoring					
		MW-5		MW-15		MW-16		RW-1		RW-2	
		Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water
11/13/13	0:00	8	4	8	4	<1	3.97	1.00	4.39	<1	4.51
	8:00	8	6	8	5	<1	4.72	5.00	5.77	<1	6.09
	10:00	8	6	8	5	1.00	4.52	2.00	5.21	<1	5.67
	12:00	8	6	8	3	1.00	4.44	2.00	5.08	<1	5.25
	14:00	8	4.5	8	3	<1	4.12	<1	4.85	<1	5.04
	16:00	8	5	8	4	<1	3.91	1.00	4.45	<1	4.68
	18:00	8	5.5	8	3	1.20	4.27	3.40	4.58	<1	5.07
	20:00	8	4	8	3.5	1.00	4.30	2.90	4.57	<1	5.08
	22:00	8	4	8	3.5	0.70	4.29	2.40	4.54	<1	5.06
11/14/13	0:00	8	4	8	3	0.65	4.27	1.90	4.50	<1	5.05
	8:00	8	5	8	4.5	0.80	4.58	3.60	5.17	<1	5.45
	10:00	8	6	8	6	<1	4.47	3.10	5.12	<1	5.49
	12:00	7.5	4.5	7.5	5	0.40	4.36	4.40	5.09	<1	5.54
	14:00	7.5	4.5	7.5	4.5	0.30	4.07	4.10	5.14	<1	5.19
	16:00	7.5	4	7.5	3.5	<1	3.86	1.50	4.91	<1	4.87
	18:00	7.5	4.5	7.5	2.5	<1	4.07	1.00	4.84	<1	5.07
	20:00	7.5	3	7.5	2	<1	4.37	0.50	5.13	<1	5.21
	22:00	7.5	3	7.5	2.5	<1	4.35	0.50	5.10	<1	5.20
11/15/13	0:00	7.5	3	7.5	3	<1	4.34	0.40	5.06	<1	5.18
	8:00	7.5	4.5	7.5	4	<1	4.14	<1	4.94	<1	5.01
	9:30	7.5	4.5	7.5	4	<1	4.17	<1	4.95	<1	5.04

Notes:



Site Base Map

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 12-3829
DATE August 28, 2012
FIGURE 2

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 227

Page 1 of

3. Generator's Name and Mailing Address
Purolator Courier Corp.
105 Corporate Blvd.
W. Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number | A. State Transporter's ID | B. Transporter 1 Phone

7. Transporter 2 Company Name | 8. US EPA ID Number | C. State Transporter's ID | D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number | E. State Facility's ID | F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			5429	gal
b.				
c.				
d.				

GENERATOR

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Mark A Vandegrift | Signature: M Vandegrift | Date: Month 11 Day 12 Year 13

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Hacke Trucking | Signature: Braden C Hodge | Date: Month 11 Day 12 Year 13

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name: PATRICK KELLY | Signature: Patrick Kelly | Date: Month 11 Day 12 Year 13

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 228

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator Courier Corp.
105 Corporate Blvd.
W. Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number | A. State Transporter's ID | B. Transporter 1 Phone

7. Transporter 2 Company Name | 8. US EPA ID Number | C. State Transporter's ID | D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number | E. State Facility's ID | F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			4492	gal
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Mark Vandegrift | Signature: | Date: Month 11 Day 13 Year 13

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Harbor Trucking | Signature: | Date: Month 11 Day 13 Year 13

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: PATRICK KELLY | Signature: | Date: Month 11 Day 13 Year 13

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 229

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator Courier Corp.
105 Corporate Blvd.
W. Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number | A. State Transporter's ID | B. Transporter 1 Phone

7. Transporter 2 Company Name | 8. US EPA ID Number | C. State Transporter's ID | D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number | E. State Facility's ID | F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			4758	gal
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
Mark Vandegrift	Mw Vandegrift	11	14	13

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Jon Earle (Hodge)	Jon Earle	11	14	13

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space
Jay Matthews 11-14-13

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name	Signature	Date Month	Day	Year

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 230

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator Courier Corp.
105 Corporate Blvd.
W. Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number | A. State Transporter's ID | B. Transporter 1 Phone

7. Transporter 2 Company Name | 8. US EPA ID Number | C. State Transporter's ID | D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number | E. State Facility's ID | F. Facility's Phone

GENERATOR

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			4,792	gal.
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Corey Racer | Signature | Date: Month 11 Day 15 Year 13

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: ROBERT D. RODGERS | Signature: Robert D. Rodgers | Date: Month 11 Day 15 Year 13

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name: Melissa Ridgeway | Signature: Melissa Ridgeway | Date: Month 11 Day 15 Year 13

D H E C

Underground Storage Tank Management Division
Field Data Information Sheet – Monitoring Well Gauging

Site Information

Date: 4-4-14	Site ID #: 05878	Site Name: Purolator Courier Corp
County: Lexington	Project Manager: SUtz	Field Personnel: J. Bryant & S. Utz

Well Gauging Information

Well ID:	Total Well Depth (ft.)	Screened Interval (ft.)	Depth to Free Product (ft.)	Depth to Ground water (ft.)	Free Product Thickness (ft.)	Confirmed with Bailer?	Photos Taken ?	Well Pad OK?	Bolts in Well Cover?	Water in Well Vault?
MW-5		4-14'	NOT SAMPLED / GAUGED							
MW-15	–	3-13'	1.93	3.38	1.45	No	No	Yes	Yes	Yes
RW-1	SHEEN	5-15'	–	2.05'	–	No	No	Yes	Yes	Yes
RW-2	SHEEN	5-15'	–	2.25'	–	No	No	Yes	Yes	Yes
RW-3	–	5-15'	–	1.89'	–	No	No	Yes	Yes	Yes

UST Petroleum Trust Fund DOCKETING

Notes: Recovery well should be installed next to MW-15
UNABLE TO OPEN MW-5 need larger socket than 9/16.

Signature: S Utz

D H E C
PROMOTE PROTECT PROSPER
Catherine B. Templeton, Director
Promoting and protecting the health of the public and the environment

BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS INC
PO BOX 854
LEXINGTON SC 29071

APR 2 5 2014

UST 67 Tech DOCKETING

Re: Site-Specific Work Plan Directive for Small Scope Contract
Solicitation # 5400006561; PO# 4600301871

Dear Mr. Shane:

Based on the award of the referenced bid package, enclosed are the information packets to conduct assessments at several facilities. Please submit the Site-specific Quality Assurance Project Plan for an IGWA, Tier I or Assessment Plan, and Assessment Component Cost Agreement as necessary, to my attention **within fifteen (15) days from the date of this correspondence**. Plan implementation shall not commence prior to receipt of written technical and financial approval from the Department. The facilities will be assigned a Cost Agreement (CA) numbers once the QAPP Contractor Addendum has been approved by the project manager. Please reference the CA numbers and Purchase Order # 4600301871 on the appropriate invoices submitted for payment. As specified in the referenced bid, **the completed invoice forms and associated reports (include contract certification number) are expected on or before the designated due date (see below) after the technical and cost approval from the project manager.**

UST Permit #	Facility	County	Project Manager	Work Scope	Due Date*
05878	Purolator	Lexington	Utz	MWI	60 Days

*From receipt of Notice to Proceed letter

Midland's Environmental Consultants, Inc. will perform services at the sites on behalf of the site's UST owners; however, payments will be made from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. The site's UST owners have no obligation for payment for this scope of work.

Please note if there are any changes in the established cost agreement amounts (e.g., additional water supply wells sampled, additional well footage, etc.) contact the site's project manager for technical and/or financial approval. Failure to do so prior to submittal of invoice may result in delay of payment.

IGWA, Tier I or Assessment Quality Assurance Project Plan, Implementation and Report submittal shall be performed in accordance with the referenced contract. Per Section 3.4.2., a late fee of $50.00/day (not to exceed 20% of the cost agreement total) may be levied for each day the report is submitted after the deadline established in the Notice to Proceed letter.

Please provide this office with a schedule of drilling dates and coordinate all work with me before commencing work at the facility. In accordance with the bid specification, a bi-monthly status report of the project should be provided by the 5th and 20th of each month via e-mail to my attention. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. If you have any questions or need further assistance, please contact me at (803) 896-6395.

Sincerely,

Minda Hornosky, Hydrogeologist
Assessment Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

enc: Information Packets

cc: Sonya Utz, UST Management Division (w/ enc)
Technical Files (w/ enc)

D H E C
PROMOTE PROTECT PROSPER
South Carolina Department of Health
and Environmental Control

UNDERGROUND STORAGE TANK PROGRAM
BUREAU OF LAND AND WASTE MANAGEMENT
2600 Bull Street, Columbia, South Carolina 29201
Telephone: 803-896-6240

MEMORANDUM

TO: Bryan Shane, Midlands Environmental Consultants, Inc.

FROM: Sonya Utz

RE: **Site-Specific Work Plan Notice to Proceed**

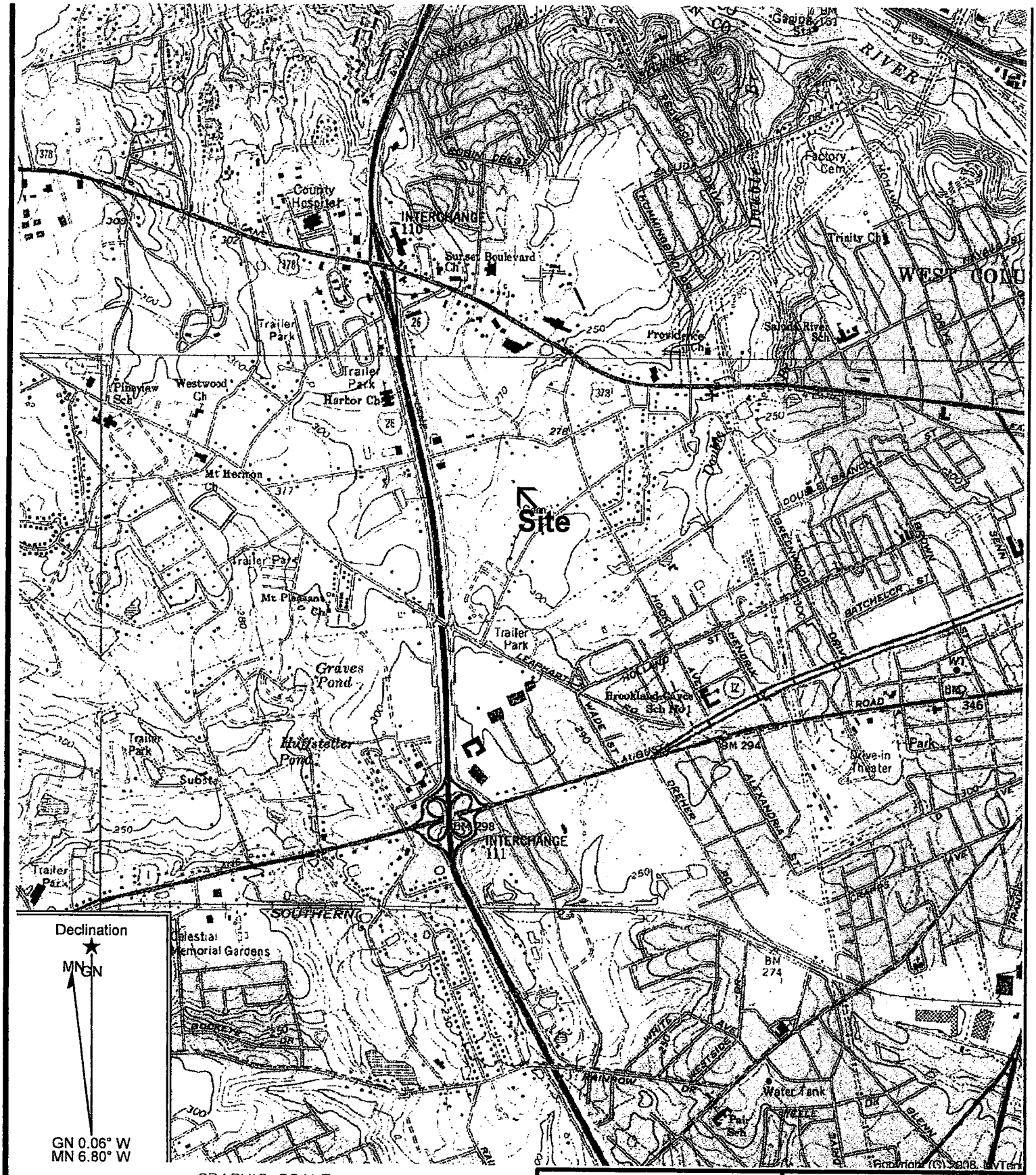
Facility Name: Purolator

Permit Number: 05878

County: Lexington

Work To Be Completed: Install 4-inch Recovery Wells close to MW-15 (Screened from 1-11ft) at the locations indicated on the enclosed map. Conduct a Comprehensive Sampling Event on ALL Monitoring wells; including the newly installed recovery wells. Conduct a subsequent survey. Sample all wells for BTEXNM, 8-oxys, 1,2DCA and EDB. ~~All wells will have~~

CA# 48007



Reference: Southwest Columbia & Irmo, South Carolina
Columbia North & Lexington, South Carolina
USGS 7.5 Min. Quad
Contour Interval – 10 Feet

Midlands Environmental Consultants, Inc.	Site Location
Purolator Courier Corporation 105 Corporate Boulevard, West Columbia, SC SCDHEC Site ID# 05878	
Figure 1	MECI 12-3929

ROBINSON & BLAZER, LLP
ATTORNEYS AT LAW
(A PARTNERSHIP OF PROFESSIONAL CORPORATIONS)

SUITE 475 - ONE DECATUR TOWNCENTER
150 EAST PONCE DE LEON AVENUE
DECATUR, GEORGIA 30030
(404) 377-6464

TELECOPIER (404) 377-3658

UST
5 Tech
DOCKET
UST
MAY 07 2012
PROGRAM

April 5, 2012

Ms. Stephanie Briney
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management
2600 Bull Street
Columbia, South Carolina 29201

RE: 105 Corporate Boulevard West Columbia, South Carolina
UST Permit No. 05878
Release reported October 17, 1991
Tax map No. 004599-10-019
Lexington County, South Carolina

Dear Ms. Briney:

I am in receipt of your letter dated March 29, 2012 concerning the above-referenced matter. I am the attorney for the owner of this property, Bonita Sykes.

We have completed the right of entry which is subject to the rights of Ms. Sykes' tenant, William Durham Company, who may be reached by calling Tonya C. Harmon at 1-803-256-3591.

This right of entry has been completed and is being returned to you with the express understanding that SCDHEC and its contractor are solely liable for any property damage, and personal injury caused as a result of any intentional act, or negligence, and that the contractor will hold both Ms. Sykes and her tenant totally and completely harmless as to any work done on the property which causes damage or injury.

Please let me know if you have any further questions or concerns. Thank you.

Sincerely yours,

JOHN E. ROBINSON

JER\jab
Enclosure
cc: Ms. Bonita Sykes

I\briney

PROPERTY OWNER
RIGHT OF ENTRY - UST Permit # 05878

If you are the Property Owner or are the authorized representative for that person, but did not own the former or existing underground storage tanks at the time the release was reported, please complete this form.

I, Bonita M. Sykes, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility Warehouse Phone # _____

Street Address of Facility 105 Corporate Blvd

Town, City, District, Suburb West Columbia, SC 29169

Name of nearest intersecting street, road, highway, alley I-26 + Frontage Road

Is this facility within the city limits? (yes or no) No

Is this facility serviced by a public water or sewer utility? (yes or no) yes, if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) ?, if yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation _____, Phone number _____

Is the property currently leased or rented to someone? (yes or no) yes, if yes, please provide their name Watts Brothers and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the monitoring wells, they should be moved before SCDHEC's contractor arrives at the site.

NAME of property owner (Please Print): Bonita M. Sykes

Phone Number (home) 678-714-9037 (work) 404-373-8782

Current Mailing Address 2935 E. Ponce de Leon Ave, Decatur, GA 30030

Signature of Property Owner: Bonita M. Sykes

Witness _____

Date: 5/3/2012
Month _____ Day _____ Year

UST Division/ SMB

SCDHEC UST Management Tracking

BOTH billable and unbillable tanks

Site Information for N-05878 Facility: PUROLATOR COURIER CORP

Bus. Address	105 CORPORATE BLVD WEST COLUMBIA SC 29169-4609	**Phone** **County** Lexington	**District** Columbia EQC Office
Category	Non-Retail Operation	**Last Inspection**	**Trans. of Ownership**
Tank Owner	CAROLINA COMMERCE ASSOCIATES		
Bus. Address		**Phone**	**Financial Responsibility** **Financial Mechanism** **Expiration Date**
Operator			**Training Date**
Bus. Address		**Phone**	
Land Owner	SYKES, BONITA		
Bus. Address	2935 E PONCE DE LEON AVE DECATUR GA 30030-2217	**Phone** 706-684-0165	

Tanks 3 **Billable** 0 **Aband.** 3 **Other** 0

Compliance Operator(s) **ID**

Significant? N **Memo Date:** 02/24/01

Site Memo: **********SITE INFORMATION CHANGE********** i

PUROLATOR COURIER CORP 153 i
CORPORATE BLVD W COLUMBIA i
SC29169 PUROLATOR COURIER CORP i

**********END INFORMATION CHANGE********** i

BILL/ABD/TANKS/FEES CHG FRM 003/ //003/300 @MHWHITAK/06/07/93
BILL/ABD/TANKS/FEES CHG FRM 003/000/003/300 @PMBERGST/06/21/93
BILL/ABD/TANKS/FEES CHG FRM 002/001/002/200 @PMBERGST/06/21/93

Significant? N **Memo Date:** 12/12/05

Site Memo: propty bought by Brazell Const. to be redeveloped 2004

Significant? Y **Memo Date:** 11/19/13

Site Memo: The owner is defunct. If there is to a release under Carolina Commerce Associates, it needs to be designated orphan site.

Rel. No. 1 **Reported** 10/17/91 **Status** Confirmed - Active **Product** Petroleum **Compl Required** N
Active Tnks

SCDHEC UST Management Tracking

BOTH billable and unbillable tanks

Site Information for N-05878 Facility: PUROLATOR COURIER CORP

NFA		**Fin. Type**	DHEC SUPERB	**RBCA / Score**	2BA 300300	**Compliance Met**	N
Confirmed	06/22/92	**Emer. Resp.**		**Superb Qualified**	Y	**Compliance Met Dt**	
CU Init.	03/08/93	**Abate. Met**	09/10/91	**Superb Determ. Dt**	01/12/94	**Fin Res Mechanism**	
CU Compl.		**Transferred**		**Project Manager**	UTZ, SONYA		
CU > MCL		**Source**	UST	**Responsible Party**	CAROLINA COMMERCE ASSOCIATES		

Ranking **SCRBCA:** 2BA - Free product > 1 foot **FP Thick:** > 1 Foot

Rel. No. 1

Analyticals

Contaminant	ug/L	RBSL	Score	SSTL's
Benzene	1400	5	280	
Toluene	2500	1000	3	
Ethylbenzene	430	700	1	
Xylene	5100	10000	1	
Naphthalene	160	25	6	
MTBE	63	40	2	
Total Score:			292	

Other Contaminants	ug/L	SSTL's
EDB RW-3	1.8	
1,2 DCA MW-8	7.9	
FP: MW-5 1.50FT'; MW-15 0.42' GW COLLECTED 5/29/13		
LEAD MW-2	130	
TAA MW-8	530	

Receptor Ttype: POND **Ground Water Flow:** W

Distancd to Receptor: 500 **Seepage Velocity:** 20

GW Depth: 4

SuperB Check List

Rel. No. 1

Original Qualified Date:

Release Reported: 10/17/91

Deductible Group from Release Report Date: No deductible

Y **All tanks Registered? Tanks must be registered Before eligible.**

Y **Fees Paid to date?**

N **Contamination requiring Remediation confirmed?**

Enviro Company **Deductible** **Limit Amount**

N **Enviro Insurance?**

A written statement of No Insurance dated: 05/07/92

Abatement Met: 09/10/91 **Abatement Method:** Permanently closed

Approved by: EFIS **Approved date:** 01/12/94 **Qualified?** Y

Tank No. 1

Const.		**Class**	R	**Tank Const. Mat.**			**Pipe Const. Mat.**		
Operate		**T Status**	ABD	**Tank Protect.**	CP	**CP**	**Pipe Protect.**	CP	**CP**
Notify	06/30/87	**Capacity**	10,000	**Tank Cont. Meth.**	SW		**Pipe Cont. Meth.**	SW	
Variance		**Product**	GN	**Overfill Type**		**Ver**	**Piping Type**		
Compl.		**C Status**		**Age @ Notif.**	10		**Dist. to Well**		
Spill Det.		**Left Gal.**		**Owner @ ABD**	PUROLATOR COURIER CORP				**Last Use**
Aband.	09/10/91	**Method**	RG	**CAS No.**		**Chem.**			
Under Dispenser Cont.	N	**Drop Tube**	N	**Tank Leak Det.**			**Pipe Leak Det.**		

Tank No. 2

Const.		**Class**	R	**Tank Const. Mat.**	SL		**Pipe Const. Mat.**	SL	
Operate		**T Status**	ABD	**Tank Protect.**	CP	**CP**	**Pipe Protect.**	CP	**CP**
Notify	06/30/87	**Capacity**	10,000	**Tank Cont. Meth.**	SW		**Pipe Cont. Meth.**	SW	
Variance		**Product**	GN	**Overfill Type**		**Ver**	**Piping Type**		
Compl.		**C Status**		**Age @ Notif.**	10		**Dist. to Well**		
Spill Det.		**Left Gal.**		**Owner @ ABD**	PUROLATOR COURIER CORP				**Last Use**
Aband.	09/10/91	**Method**	RG	**CAS No.**		**Chem.**			
Under Dispenser Cont.	N	**Drop Tube**	N	**Tank Leak Det.**			**Pipe Leak Det.**		

SCDHEC UST Management Tracking

BOTH billable and unbillable tanks

Site Information for N-05878 Facility: PUROLATOR COURIER CORP

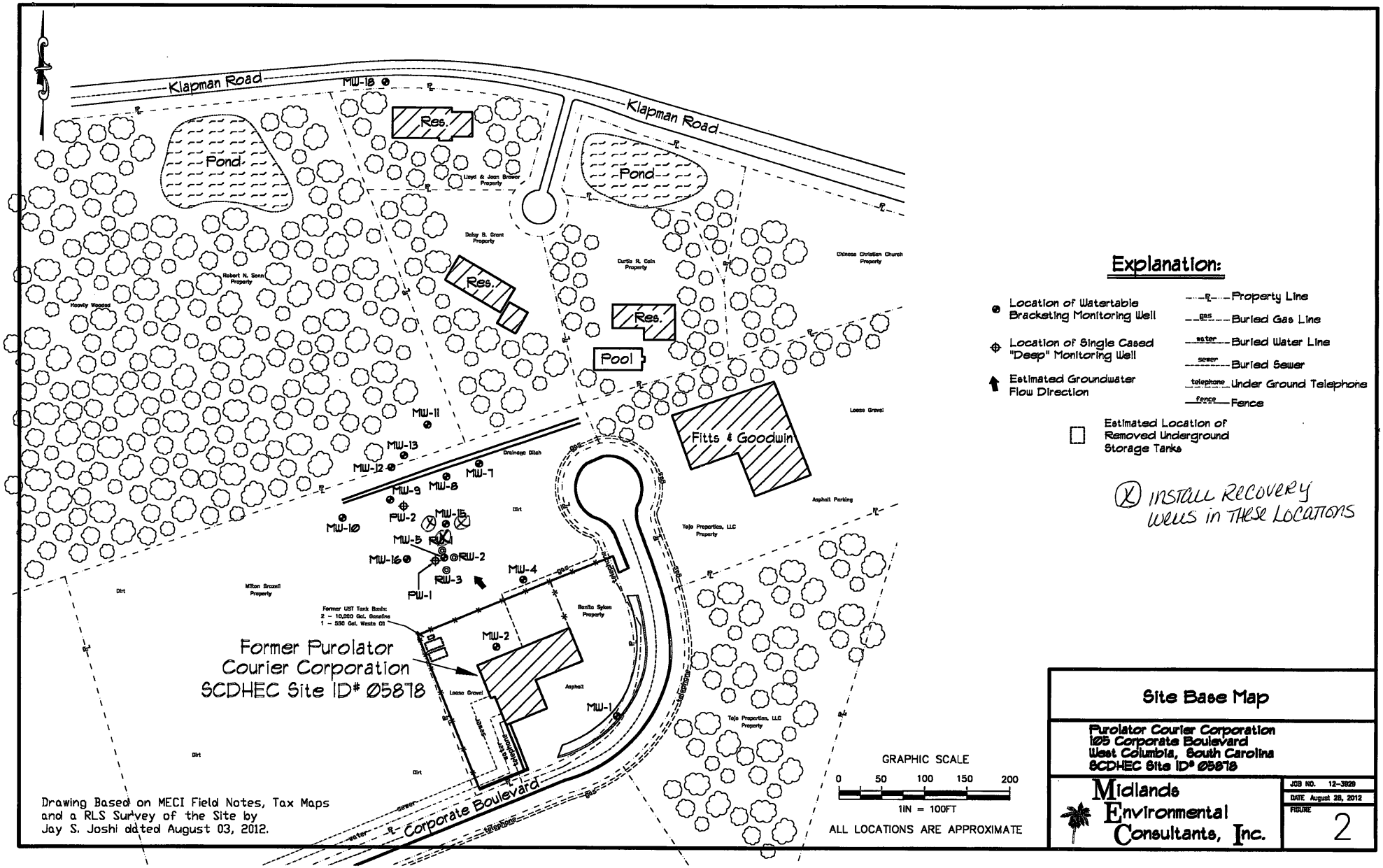
Tank No.	3	Const.		Class	R	Tank Const. Mat.	SL		Pipe Const. Mat.	SL	
		Operate		T Status	ABD	Tank Protect.	CP	CP	Pipe Protect.	CP	CP
		Notify	06/30/87	Capacity	500	Tank Cont. Meth.	SW		Pipe Cont. Meth.	SW	
		Variance		Product	WO	Overfill Type		Ver	Piping Type		
		Compl.		C Status		Age @ Notif.	10		Dist. to Well		
		Spill Det.		Left Gal.		Owner @ ABD	PUROLATOR COURIER CORP			Last Use	
		Aband.	09/10/91	Method	RG	CAS No.		Chem.			
		Under Dispenser Cont.	N	Drop Tube	N	Tank Leak Det.			Pipe Leak Det.		

UST Facility: Purolator Courier Corp
UST Permit # 05878

MW ID	Screened interval	TOC Elevation	GW Depth	GW elev	FP	B	T	E	X	MtBE	Naph	EDB	lead	Nit mg/l	Sul mg/l	F Iron mg/l	Meth	1,2 DCA	TAME 128ug/L	TBA 1400ug/L	ETBE 47ug/L	Ethanol 10000ug/L	TAA 240ug/L	TBF	ETBA	DIPE 150ug/L
MW-1																										
7/29/1992	4'-14'	98.68'	6.51'	92.17'	NONE	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/30/1993			1.83'	96.85'	NONE	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/25/1998			5.14'	93.54'	NONE	NOT SAMPLED			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12/29/1998		98.54'	6.67'	91.87'	NONE	<1	<1	<1	<1	<1	<2	<5	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/19/2000			7.67'	90.87'	NONE	<1	<1	<1	<1	<5	<2	NA	69	8.3	0.41	<.2	<.07	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/28/2003			4.83'	93.71'	NONE	<1	<1	<1	<1	<5	<5	NA	13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/3/2012		102.60'	8.13'	94.47'	NONE	<5	<5	<5	<5	<5	<5	<.020	43	NA	NA	NA	NA	<5	<10	<100	<100	<1000	<100	<100	<100	<10
5/29/2013			5.14'	97.46'	NONE	<5	<5	<5	<5	<5	<5	<.020	NA	NA	NA	NA	NA	<5	<10	<100	<100	<1000	<100	<100	<100	<10
MW-2																										
7/29/1992	3'-13'	97.07'	5.72'	91.35'	NONE	232	91	19	72	NA	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/30/1993			2.26'	94.81'	NONE	141	64	18	56	BDL	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/25/1998			4.95'	92.12'	NONE	101	2.1	5.4	18.4	8.4	3	<5	9.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/29/1998			5.64'	91.43'	NONE	NOT SAMPLED			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10/19/2000			6.83'	90.24'	NONE	497	137	47.1	210	33.8	5.1	NA	<5	6.6	0.96	<.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/28/2003			4.66'	92.41'	NONE	543	28.9	37.3	44.1	47.3	11.5	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/3/2012		101.18'	6.86'	94.32'	NONE	360	21	130	200	26	11	<.019	130	NA	NA	NA	NA	<25	<50	<500	<500	<5000	68	<500	<500	<50
5/29/2013	NOT SAMPLED THE WELL WAS BEHIND A LOCKED GATE.								NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-3																										
7/29/1992	4'-14'	95.41'	3.90'	91.51'	NONE	153	591	304	1256	75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/30/1993			1.00'	94.41'	NONE	20	211	71	476	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/25/1998			3.35'	92.06'	NONE	69.9	9.9	186	636	53	93.1	<5	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/29/1998			3.90'	91.51'	NONE	NOT SAMPLED			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10/19/2000			4.88'	90.53'	NONE	64.5	3.8	89.4	236	<5	53.7	NA	14	1.6	1.1	5.4	2.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/28/2003	MW PAVED OVER?				NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-4																										
7/29/1992	4'-14'	98.69'	7.60'	91.09'	NONE	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/30/1993			4.30'	94.39'	NONE	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/25/1998			7.07'	91.62'	NONE	<1	<1	<1	<1	25.6	<2	<5	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/29/1998			7.46'	91.23'	NONE	NOT SAMPLED			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10/19/2000			5.79'	92.90'	NONE	<1	<1	<1	<1	17.4	<2	NA	14	4.9	1.7	<.2	<.07	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/28/2003			6.68'	92.01'	NONE	<1	<1	<1	<1	<5	<5	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/3/2012		99.92'	NOT SAMPLED OBSTRUCTION IN WELL.							NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
5/29/2013			4.07'	95.85'	NONE	<5	120	<5	<5	<5	<5	<.020	NA	NA	NA	NA	NA	<5	<10	<100	<100	<1000	<100	<100	<100	<10
MW-5																										
7/29/1992	4'-14'	96.70'	6.70'	90.00'	.30'	6362	4450	378	5242	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/30/1993			3.34'	93.36'	NONE	10696	22102	3572	NA	NA	4736	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/25/1998			7.02'	89.68'	1.56'	12300	38500	3950	23800	BDL	BDL	BDL	65	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/29/1998			6.45'	90.25'	.90'	10800	20300	1780	9180	2730	927	BDL	43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/19/2000			8.21'	90.68'	2.58'	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8/28/2003			7.40'	91.57'	2.67'	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8/3/2012		98.47'	5.19'	93.65'	.44'	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
5/29/2013			4.70'	93.77'	1.50'	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6																										
7/29/1992	4'-14'	99.56'	8.35'	91.21'	NONE	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/30/1993			5.77'	93.79'	NONE	2	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/25/1998			7.89'	91.67'	NONE	<1	<1	<1	<1	<1	<2	<5	7.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/29/1998			8.29'	91.27'	NONE	NOT SAMPLED			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10/19/2000			9.28'	90.28'	NONE	<1	<1	<1	<1	<5	1.5	NA	15	0.33	190	0.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/28/2003			7.66'	91.90'	NONE	<1	<1	<1	<1	<5	<5	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/3/2012	COULD NOT LOCATE.			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-7																										
7/29/1992	4'-14'	96.71'	7.00'	89.71'	NONE	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/30/1993			4.59'	92.12'	NONE	BDL	BDL	BDL	BDL	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/25/1998			7.09'	89.62'	NONE	<1	<1	<1	<1	8	<2	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/29/1998			6.47'	90.24'	NONE	<1	<1	<1	<1	6.8	<2	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/19/2000			5.26'	91.45'	NONE	<1	2.9	<1	<1	11.7	<2	NA	<5	2.3	20.6	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/28/2003			6.44'	90.27'	NONE	<1	4.1	<1	<1	<5	<5	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/3/2012		98.77'	5.80'	92.97'	NONE	27	4.7	<5	14	2	<5	<.020	27	NA	NA	NA	NA	<5	<10	<100	<100	<1000	24	<100	<100	<10
5/29/2013			4.32'	94.45'	NONE	<5	<5	<5	<5	<5	<5	<.019	NA	NA	NA	NA	NA	<5	<10	<100	<100	<1000	<100	<100	<100	<10
MW-8																										
7/29/1992	4'-14'	95.88'	6.00'	89.88'	NONE	364	1184	39	2438	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3/30/1993			3.78'	92.10'	NONE	352	1107	327	1938	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/25/1998			6.24'	89.64'	.28'	609	6240	1390	8800	BDL	522	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/29/1998			5.56'	90.32'	NONE	NOT SAMPLED			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10/19/2000			7.01'	88.87'	.01'	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8/28/2003			5.48'	90.40'	NONE	1330	9730	2310	12300	<100	679	NA	5.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/3/2012		97.87'	4.82'	93.05'	NONE	330	1400	22	5100	3.3	64	0.13	22	NA	NA	NA	NA	7.9	<50	47	<500	<5000	530	<500	<500	<50
5/29/2013			4.00'	93.87'	NONE	220	1700	55	6000	<2000	72	<.020	NA	NA	NA	NA	NA	6.1	<200	<2000	<2000	<20000	510	<2000	<2000	<200

UST Facility: Purolator Courier Corp
UST Permit # 05878

MW ID	Screened interval	TOC Elevation	GW Depth	GW elev	FP	B	T	E	X	MtBE	Naptn	EDB	lead	Nit mg/l	Sul mg/l	F Iron mg/l	Meth	1,2 DCA	TAME 128ug/L	TBA 1400ug/L	ETBE 47ug/L	Ethanol 10000ug/L	TAA 240ug/L	TBF	ETBA	DIPE 150ug/L
MW-23																										
8/28/2003	1'-8'	90.25'	1.37'	88.88'	NONE	676	1550	251	925	<50	57.2	NA	710	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/3/2012	COULD NOT LOCATE.			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-25																										
8/28/2003	1'-8'	88.43'	.40'	88.03'	NONE	<1	<1	<1	<1	<5	<5	NA	490	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/3/2012	COULD NOT LOCATE.			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PW-1																										
3/30/1993	16'-21'	96.50'	3.22'	93.28'	NONE	56	247	61	402	BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/25/1998			5.61'	90.89'	NONE	<1	<1	<1	<1	<5	<2	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/29/1998			5.60'	90.90'	NONE	NOT SAMPLED			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10/19/2000			6.78'	89.72'	NONE	<1	1.1	<1	<1	<5	<2	NA	29	8.9	0.45	<.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/28/2003			5.18'	91.32'	NONE	<1	<1	<1	<1	<5	<5	NA	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/3/2012		98.51'	4.94'	93.57'	NONE	<5	<5	<5	<5	<5	<5	<.019	2.4	NA	NA	NA	NA	<5	<10	<100	<100	<1000	<100	<100	<100	<10	<10
5/29/2013			3.70'	94.81'	NONE	2	5.4	<5	8.7	3.8	<5	0.075	NA	NA	NA	NA	NA	<5	<10	<100	<100	<1000	34	<100	<100	0.44
PW-2																										
3/30/1993	21'-26'	95.91'	4.42'	91.49'	NONE	BDL	BDL	BDL	BDL	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/25/1998			4.40'	91.51'	NONE	<1	<1	<1	<1	<5	<2	<5	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12/29/1998			6.12'	89.79'	NONE	NOT SAMPLED			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
10/19/2000			6.75'	89.16'	NONE	DID NOT SAMPLE THE WELL WAS PURGED DRY AND DID NOT RECHARGE.												NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8/28/2003			4.74'	91.17'	NONE	<1	<1	<1	<1	<5	<5	NA	340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/3/2012		97.67'	3.91'	93.76'	NONE	<20	<20	<20	<20	<20	<20	<.021	20	NA	NA	NA	NA	<20	<40	<400	<400	<4000	<400	<400	<400	<40	<40
5/29/2013			5.20'	92.47'	NONE	1.3	<5	<5	<5	30	<5	<.021	NA	NA	NA	NA	NA	<5	<10	<100	<100	<1000	<100	<100	<100	<10	<10
RW-1																										
8/3/2012	5'-15'	97.95'	4.39'	93.56'	NONE	980	1900	150	1100	31	<200	1.4	49	NA	NA	NA	NA	<200	<400	<4000	<4000	<40000	470	<4000	<4000	<400
5/29/2013			2.89'	95.06'	NONE	1800	4800	500	2600	160	150	5.3	NA	NA	NA	NA	NA	42	<200	<2000	<2000	<20000	2000	<2000	<2000	12
RW-2																										
8/3/2012	5'-15'	98.36'	4.68'	93.68'	NONE	600	750	140	570	39	65	0.25	1.1	NA	NA	NA	NA	<100	<200	<2000	<2000	<20000	490	<2000	<2000	<200
5/29/2013			3.10'	95.26'	NONE	290	810	130	580	22	46	0.23	NA	NA	NA	NA	NA	6.2	<50	<500	<500	<5000	240	<500	<500	<50
RW-3																										
8/3/2012	5'-15	98.07'	4.30'	93.77'	NONE	1400	2500	430	2100	63	160	1.8	67	NA	NA	NA	NA	<250	<500	<5000	<5000	<50000	<5000	<5000	<5000	<500
5/29/2013			2.70'	95.37'	NONE	1900	5400	400	2200	74	120	4.4	NA	NA	NA	NA	NA	41	<500	<5000	<5000	<50000	1300	<5000	<5000	<500
WELLg = GRANT WATER SUPPLY WELL																										
6/25/1998	.....	.....	.....	.....	.....	<1	<1	<1	<1	<5	<2	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/19/2000	.....	.....	.....	.....	.....	<1	<1	<1	<1	<5	<2	<5	5	1.4	1.1	<.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8/28/2003	.....	.....	.....	.....	.....	<1	<1	<1	<1	<5	<5	NA	17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COULD NOT LOCATE.																										
WELL-L = LUCAS BREWER WELL																										
6/25/1998	.....	.....	.....	.....	.....	<1	<1	<1	<1	<5	<2	<5	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10/19/2000	NOT SAMPLED			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
8/28/2003	NOT SAMPLED			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
COULD NOT LOCATE.																										



Site Base Map

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 12-3829
DATE August 28, 2012
FIGURE 2

Midlands Environmental Consultants, Inc.

May 16, 2014

Sonya Utz

Ms. ~~Minda Hornos~~ky, Hydrogeologist
Assessment Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

UST MAY 20 2014 DIVISION

UST DOCKETING 68 teal

Subject: Site-Specific Work Plan (Small Scope Contract)
Purolator
West Columbia, South Carolina
SCDHEC Site ID Number 05878
MECI Project Number 14-816
Certified Site Rehabilitation Contractor UCC-0009

Dear Ms. Hornosky,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Site-Specific Work Plan for the referenced site.

On May 15, 2014, MECI personnel performed a site visit to the subject site to evaluate site conditions, locate monitoring wells/potential receptors, and identify potential problems for future assessment activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.

FM

Patrick G. Boylan
Staff Geologist

Jeff L. Coleman
Senior Scientist

Post Office Box 854, Lexington SC 29071 • 231 Dooley Road, Lexington, SC 29073
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D H E C
PROMOTE PROTECT PROSPER

Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division

To: Ms. Sonya Utz (SCDHEC Project Manager)
From: Mr. Jeff Coleman (Contractor Project Manager)
Contractor: Midlands Environmental Consultants, Inc. UST Contractor Certification Number: 009

Facility Name: Purolator UST Permit #: 05878
Facility Address: 105 Corporate Boulevard, West Columbia, SC 29169-4609
Responsible Party: Carolina Commerce Associates Phone: N/A
RP Address: N/A
Property Owner (if different): Bonita Sykes
Property Owner Address: 2935 E. Ponce De Leon Ave, Decatur, GA 30030
Current Use of Property: Vacant Building

Scope of Work (Please check all that apply)

☐ IGWA ☐ Tier II ☑ Groundwater Sampling ☐ GAC
☐ Tier I ☐ Monitoring Well Installation ☐ Other _____

Analyses (Please check all that apply)

Groundwater/Surface Water:

☑ BTEXNMDCA (8260B) ☐ Lead ☐ BOD ☐ Methane
☑ Oxygenates (8260B) ☐ 8 RCRA Metals ☐ Nitrate ☐ Ethanol
☑ EDB (8011) ☐ TPH ☐ Sulfate ☐ Dissolved Iron
☐ PAH (8270D) ☐ pH ☐ Other _____

Soil:

☐ BTEXN ☐ 8 RCRA Metals ☐ TPH-DRO (3550B/8015B) ☐ Grain Size
☐ PAH ☐ Oil & Grease (9071) ☐ TPH-GRO (5030B/8015B) ☐ TOC

Air:

☐ BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected.)

_____ Soil _____ Water Supply Wells _____ Air 1 Field Blank
19 Monitoring Wells 1 Surface Water 1 Duplicate 1 Trip Blank

Field Screening Methodology

Estimate number and total completed depth for each point, and include their proposed locations on the attached map.

# of shallow points proposed: _____ Estimated Footage: _____ feet per point
# of deep points proposed: _____ Estimated Footage: _____ feet per point
Field Screening Methodology: _____

Permanent Monitoring Wells

Estimate number and total completed depth for each well, and include their proposed locations on the attached map.

# of shallow wells: _____ Estimated Footage: _____ feet per point
# of deep wells: _____ Estimated Footage: _____ feet per point
# of recovery wells: 3 Estimated Footage: 11 feet per point
Monitoring Well development method (consistent with SOP): _____
Comments, if warranted:

UST Permit #: 05878 Facility Name: Purolator

Implementation Schedule (Number of calendar days from approval)
Field Work Start-Up: 5/27/2014 Field Work Completion: 6/27/2014
Report Submittal: 7/27/2014 # of Copies Provided to Property Owners: 3

Aquifer Characterization
Pump Test: ☐ Slug Test: ☐ (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal
Soil: 1.0 Tons Purge Water: 100.0 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

Additional Details For This Scope of Work
For example, list wells to be sampled, wells to be abandoned/repaired, well pads/bolts/caps to replace, details of AFVR event, etc.
-During the site visit, monitoring wells MW-2 was located behind a locked fence and MW-18 was not located. If these monitoring wells are located during sampling activities, they will we sampled accordingly.

-A subsequent survey will be performed following the proposed recovery well installation.

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)
Yes Laboratory as indicated in ACQAP? (Yes/No) If no, indicate laboratory information below.
Name of Laboratory: _____
SCDHEC Certification Number: _____
Name of Laboratory Director: _____

Yes Well Driller as indicated in ACQAO? (Yes/No) If no, indicate driller information below.
Name of Well Driller: _____
SCLLR Certification Number: _____

N/A Other variations from ACQAP. Please describe below.

Attachments
1. Attach a copy of the relevant portion of the USGS topographic map showing the site location.
2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following:
   - North Arrow
   - Location of property lines
   - Location of buildings
   - Previous soil sampling locations
   - Previous monitoring well locations
   - Proposed soil boring locations
   - Proposed monitoring well locations
   - Legend with facility name and address, UST permit number, and bar scale
   - Streets or highways (indicate names and numbers)
   - Location of all present and former ASTs and USTs
   - Location of all potential receptors
3. Assessment Component Cost Agreement, SCDHEC Form D-3664

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

ASSESSMENT COMPONENT INVOICE

SOUTH CAROLINA

Department of Health and Environmental Control

Underground Storage Tank Management Division

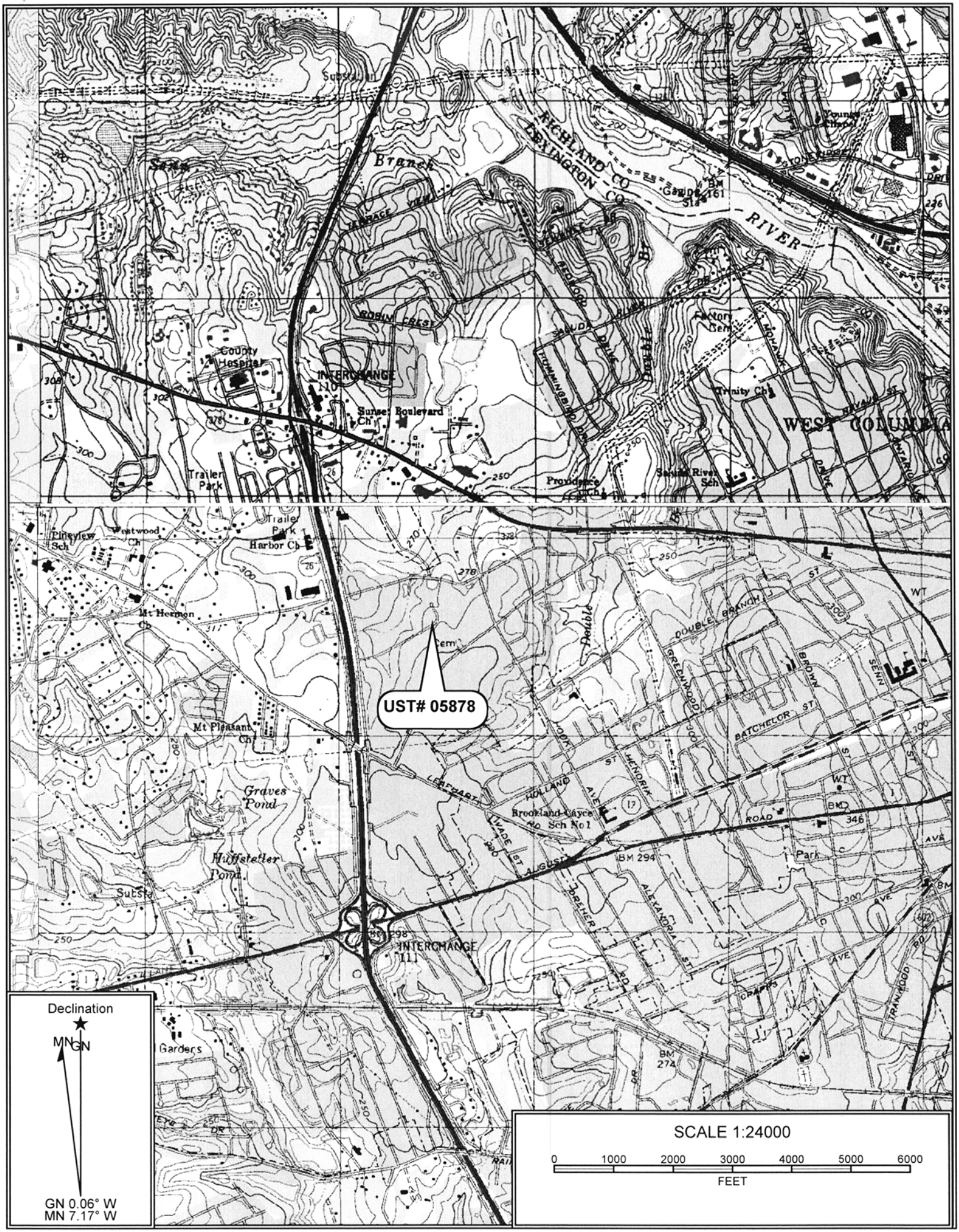
State Underground Petroleum Environmental Response Bank Account

Facility Name: Purolator

UST Permit #: 05878 **Cost Agreement #:** Proposal

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. **Plan Preparation**				
A1. Site-specific Work Plan	1	each	$400.00	$400.00
B1. Tax Map		each	$70.00	$0.00
3. **Survey (500 x 500 feet)**				
A1. Comprehensive Survey		each	$1,000.00	$0.00
4. **Mob/Demob (Each)**				
A1. Equipment	1	each	$250.00	$250.00
B1. Personnel	3	each	$200.00	$600.00
C1. Adverse Terrain Vehicle to install wells		each	$0.00	$0.00
5. A1. **Soil Borings (hand auger)***		feet	$0.00	$0.00
6. **Soil Borings (requiring equipment, push technology, etc)* or Field Screening (including water sample, soil sample, soil gas sample, etc.)***				
A1. Standard		per foot	$6.00	$0.00
8. **Abandonment (per foot)***				
A1. 4" diameter or less		per foot	$2.75	$0.00
B1. Greater than 4" diameter		per foot	$2.76	$0.00
9. **Well Installation (per foot)***				
A1. Water Table (hand augered)		per foot	$0.00	$0.00
B1. Water Table (drill rig)		per foot	$18.87	$0.00
C1. Telescoping/ Pit Cased		per foot	$31.00	$0.00
D1. Rock Drilling		per foot	$23.00	$0.00
G1. Rock Multi-sampling ports/screens		per foot	$7.00	$0.00
H1. Recovery Well (4 inch diameter)	33	per foot	$28.00	$924.00
K. Re-develop Existing Well		per foot	$4.00	$0.00
10. **Groundwater Sample Collection / Gauge Depth to Water or Product ***				
A1. Groundwater Purge	19	per well	$15.00	$285.00
C1. Water Supply		per well/recep	$5.00	$0.00
D1. Groundwater No Purge or Duplicate	2	samples	$15.00	$30.00
E1. Gauge Well only		per well	$5.00	$0.00
F1. Sample Below Product		well	$5.00	$0.00
G1. Pasive Diffusion Bag		each	$20.00	$0.00

11. Laboratory Analyses-Groundwater					
A2. BTEX+Naphth.+ Oxyg's+ 1,2 DCA + Ethanol	22	sample	$50.00		$1,100.00
AA1. Lead, Filtered		sample	$12.00		$0.00
D1. PAH's		sample	$48.00		$0.00
E1. Lead, Unfiltered		sample	$12.00		$0.00
F1. EDB by EPA 8011	21	sample	$27.00		$567.00
G1. 8 RCRA Metals		sample	$50.00		$0.00
H1. TPH (9070)		sample	$0.00		$0.00
PP. Ethanol		sample	$0.00		$0.00
11. **Analyses-Soil**					
E1. Lead		sample	$12.00		$0.00
Q1. BTEX + Naphth.		sample	$32.00		$0.00
R1. PAH's		sample	$50.00		$0.00
S1. 8 RCRA Metals		sample	$50.00		$0.00
U1. TPH-DRO (3550B/8015B)		sample	$0.00		$0.00
V1. TPH- GRO (5030B/8015B)		sample	$0.00		$0.00
W1. Grain size/hydrometer		sample	$150.00		$0.00
X1. Total Organic Carbon		sample	$0.10		$0.00
11. **Analyses-Air**					
Y1. BTEX + Naphthalene		sample	$7.00		$0.00
12. **Aquifer Characterization***					
B1. Slug Test*		per test	$100.00		$0.00
13. A1. **Free Product Recovery Test**		each	$35.00		$0.00
16. A1. **Subsequent Survey***	1	each	$300.00		$300.00
17. **Disposal (gallons or tons)***					
AA. Wastewater	100	gallon	$1.25		$125.00
BB. Free Product		gallon	$0.00		$0.00
C1. Soil Treatment/Disposal	1	ton	$50.04		$50.04
D1. Drilling fluids		gallon	$0.00		$0.00
18. **Miscellaneous (attach receipts)**					
High Strength Well Pad Replacement		each	$100.00		$0.00
Free Product Hydrocarbon (Age and Type Identification		each	$7.00		$0.00
		each	$0.00		$0.00
		each	$0.00		$0.00
20. **Tier I Asse. (Use DHEC 3665 form)**		standard	$5,100.00		$0.00
21. **IGWA (Use DHEC 3666 form)**		standard	$1,051.00		$0.00
25. **Well Repair***					
A1. Additional Copies of the Report		each	$0.00		$0.00
B1. Repair 2x2 MW pad		each	$200.00		$0.00
C1. Repair 4x4 MW pad		each	$199.97		$0.00
D1. Repair well vault		each	$200.00		$0.00
F1. Replace well cover bolts		each	$0.00		$0.00
G. Replace locking well cap & lock		each	$0.00		$0.00
H1. Replace/Repair stick-up		each	$0.00		$0.00
II. Convert Flush-mount to Stick-up		each	$0.00		$0.00
J1. Convert Stick-up to Flush-mount		each	$0.00		$0.00
K1. Replace missing/illegible well ID plate		each	$0.00		$0.00
TOTAL					$4,631.04



UST# 05878
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MN 7.17° W
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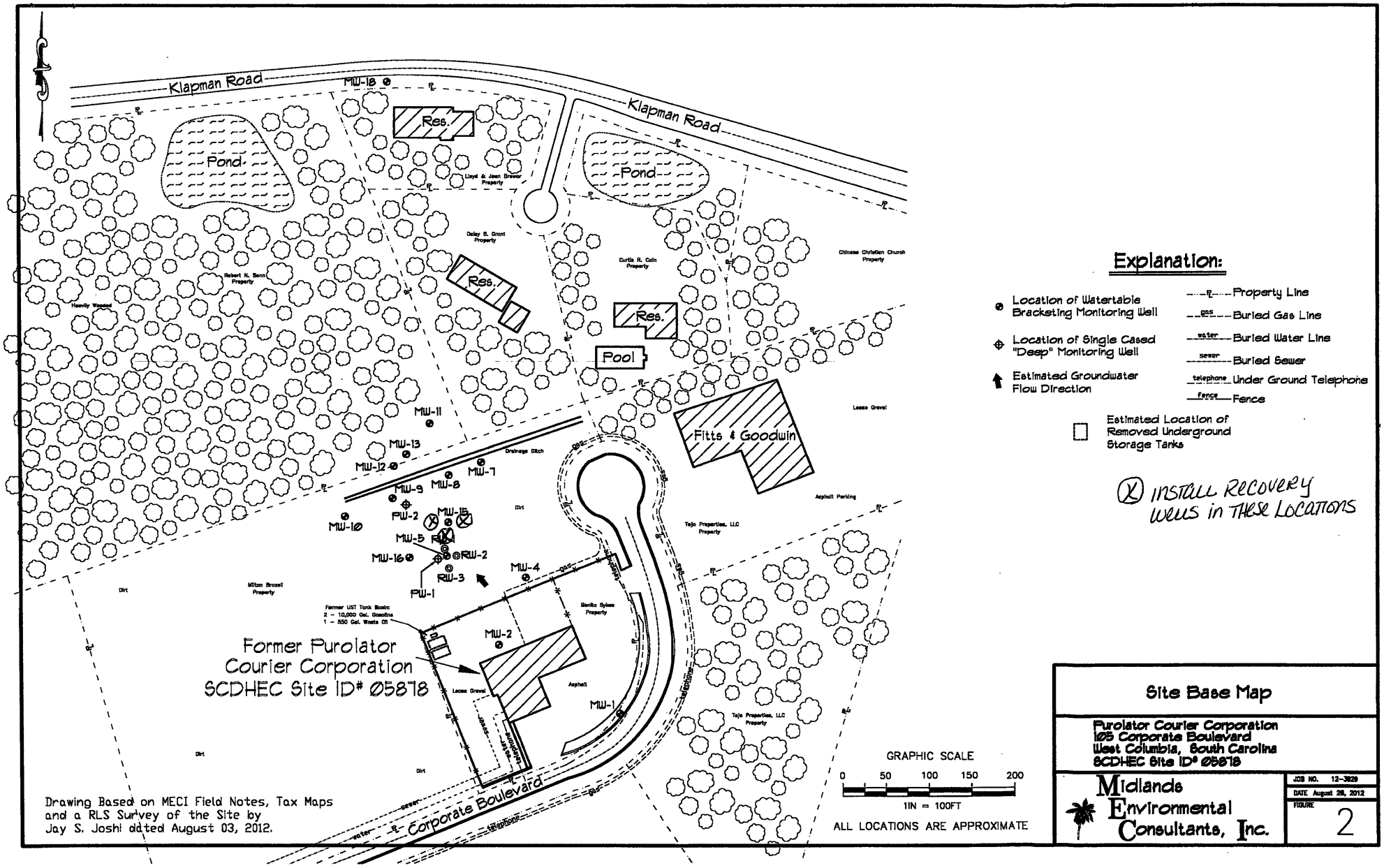
RICHLAND CO
LEXINGTON CO
RIVER
Branch
County Hospital
INTERCHANGE 110
Sunset Boulevard Ch
Trailer Park
Providence Ch
Trinity Ch
WEST COLUMBIA
Pineview Sch
Westwood Ch
Harbor Ch
Mt Hermon Ch
Mt Pleasant Ch
Graves Pond
Huffstetler Pond
Brookland-Cayce Sch No 1
INTERCHANGE 111
Gardens
DOUBLE BRANCH
BATCHELOR ST
HOLLAND
AUGUST
ROAD
Park



Site Base Map

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 12-3829
DATE August 28, 2012
FIGURE 2

D H E C
PROMOTE PROTECT PROSPER
Catherine B. Templeton, Director
Promoting and protecting the health of the public and the environment

BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071-0854

JUN 20 2014

Re: Notice to Proceed for Small Scope /SSWP Approval
Solicitation # 5400006561, PO# 4600301871
Purolator Courier Corp., 105 Corporate Blvd. West Columbia, SC
UST Permit #05878; CA #48007; MWA # UMW-25489
Site Specific Work Plan received May 20, 2014
Lexington County

Dear Mr. Shane:

In accordance with the bid solicitation # IFB-5400006561 and the UST Management Division Quality Assurance Program Plan (QAPP) Revision 2.0, the Site-Specific Work Plan has been reviewed and approved. If quality assurance problems occur, you must contact me within 24 hours by phone or e-mail and the final report must document the event(s), including quality assurance problems, and the action(s) taken.

A report meeting the contract specifications of Section 3.10, 3.11, or 3.12; contractor verification checklist; and invoice are due sixty (60) days from the date of this letter. A monitoring well approval is enclosed. The solicitation requires adherence to all applicable South Carolina certification requirements for laboratory analyses, well installation, and report preparation.

MECI will perform services at the site on behalf of the responsible party (RP); however, payment will be made from the SUPERB Account. The RP has no obligation for payment of this scope of work. Please coordinate access to the facility with the property owner. The Agency grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below Risk Based Screening Levels.

On all correspondence, please reference permit #05878. If you have any site-specific questions, please contact me at (803) 898-0634 or e-mail utzst@dhec.sc.gov. If you have any contract specific questions, please contact Minda Hornosky at (803) 898-7542 or via e-mail at hornosms@dhec.sc.gov.

Sincerely,

Sonya T. Utz, Hydrogeologist
Corrective Action Section
UST Management Division, Bureau of Land & Waste Management

enc: Approved Cost Agreement (CA)
Monitoring Well Approval

cc: Minda Hornosky, Assessment Section, UST Management Division (w/CA copy)
Technical File (w/enc)

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

Monitoring Well Approval

Approval is hereby granted to:	Midlands Environmental Consultants Inc.
Facility:	Purolator Courier Corp., 105 Corporate Blvd. West Columbia, SC
UST Permit Number:	05878
County:	Lexington

This approval is for the installation of three recovery wells. The monitoring wells are to be installed in the approved location. The monitoring wells are to be installed following the South Carolina Well Standards, R.61-71, and the applicable guidance documents.

Please note that R.61-71 requires the following:

1. All wells shall be drilled, constructed, and abandoned by a South Carolina certified well driller per R.61-71.D.1.

2. All monitoring wells shall be labeled as required by R.61-71.H.2.c.

3. A Water Well Record Form or other form provided or approved by the Agency shall be completed and submitted to the Agency within 30 days after well completion or abandonment unless another schedule has been approved by the Agency. The form should contain the "as-built" construction details and all other information required by R.61-71.H.1.f

4. All analytical data and water levels obtained from each monitoring well shall be submitted to the Agency within 30 days of receipt of laboratory results unless another schedule has been approved by the Agency as required by R.61-71.H.1.d.

5. If any of the information provided to the Agency changes, notification to Sonya Utz (tel: 803-898-0634 or e-mail: utzst@dhec.sc.gov) shall be provided a minimum of twenty-four (24) hours prior to well construction as required by R.61-71.H.1.a.

6. All temporary monitoring wells shall be abandoned within 5 days of borehole completion using appropriate methods as required by R.61-71.H.4.c. All other wells shall be properly developed per R.61-71.H.2.d.

7. Agency approval is required prior to abandonment of all monitoring wells as required by R.61-71.H.1.a.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and R.61-71 of the South Carolina Well Standards and Regulations, dated April 26, 2002. A copy of this approval should be on the site during well installation.

Date of Issue: May 30, 2014 **Approval No.: UMW-25489**

Sonya T. Utz, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

Approved Cost Agreement 48007

Facility: 05878 PUROLATOR COURIER CORP

UTZST

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
01 PLAN						
		A1	SITE SPECIFIC WORK PLAN	1.0000	400.00	400.00
04 MOB/DEMOB						
		A1	EQUIPMENT	1.0000	250.00	250.00
		B1	PERSONNEL	3.0000	200.00	600.00
09 WELL INSTALLATION						
		H1	RECOVERY WELL (4" DIA)	33.0000	28.00	924.00
10 SAMPLE COLLECTION						
		A1	GROUNDWATER (PURGE)	19.0000	15.00	285.00
		D1	GROUNDWATER NO PURGE/DUPLICATE	2.0000	15.00	30.00
11 ANALYSES	GW GROUNDWATER					
		A2	BTEXNM+OXYGS+1,2-DCA+ETH-8260B	22.0000	50.00	1,100.00
		F1	EDB BY 8011	21.0000	27.00	567.00
16 SUBSEQUENT SURVEY						
		A1	SUBSEQUENT SURVEY	1.0000	300.00	300.00
17 DISPOSAL						
		AA	WASTEWATER	100.0000	1.25	125.00
		C1	SOIL TREATMENT DISPOSAL	1.0000	50.04	50.04
				Total Amount		4,631.04

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

JUN 0 6 2012

UST 7 tech DOCKETING

BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071-0854

Re: Notice to Proceed for MW Installation/QAPP Contractor Addendum Approval
Solicitation # 5400003229, PO# 4600117789
Purolator Courier Corp., 105 Corporate Blvd. West Columbia, SC
UST Permit # 05878; CA#43554; MWA# 24622
QAPP Contractor Addendum received April 27, 2012
Lexington County

Dear Mr. Shane:

In accordance with the referenced bid solicitation # IFB-5400003229 the UST Management Division Quality Assurance Program Plan (QAPP), the Site-Specific Contractor Addendum has been reviewed and approved. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. In addition, a discussion of the problem(s) encountered, including quality assurance problems, the actions taken and the results must be included in the final report submitted to the UST Management Division.

A report, contractor verification checklist and invoice are due sixty (60) days from the date of this letter. Monitoring well approval for three recovery/monitoring wells is enclosed for your records. Please note that all applicable South Carolina certification requirements regarding laboratory analyses, well installation, and report preparation must be met in accordance with the referenced solicitation. All shallow wells are to be installed with screen intervals that bracket the water table. The final report should contain the requirements of Section 3.10 (IGWA), 3.11 (Tier I) or 3.12 (Well Installation) of the bid solicitation. The final report should be submitted to Minda Hornosky, the contract manager.

MECI will perform services at the site on behalf of the site's responsible party (RP); however, payment will be made from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. The site's RP has no obligation for payment for this scope of work. Please coordinate access to the facility with the property owner. The Agency grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included with the final report. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below Risk Based Screening Levels (RBSLs).

If you have any site-specific questions, please contact me at (803) 896-6323 or via e-mail at brineysm@dhec.sc.gov. If you have any contract specific questions, please contact Minda Hornosky at (803) 896-6395 or via e-mail at hornosmj@dhec.sc.gov.

Sincerely,

Stephanie Briney

Stephanie Briney, Hydrogeologist
Corrective Acton Section
UST Management Division
Bureau of Land & Waste Management

enc: Approved QAPP Contractor Addendum Signature Page
Approved Cost Agreement
Monitoring Well Approval

cc: Minda Hornosky, Assessment Section, UST Management Division (without enc)
Technical File (with enc)

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

Monitoring Well Approval

Approval is hereby granted to:	Midlands Environmental Consultants Inc.
Facility:	Purolator Courier Corp., 105 Corporate Blvd. West Columbia, SC
UST Permit Number:	05878
County:	Lexington

This approval is for the installation of three groundwater monitoring wells. The monitoring wells are to be installed in the approved location. The monitoring wells are to be installed following the South Carolina Well Standards, R.61-71, and the applicable guidance documents.

Please note that R.61-71 requires the following:

1. All wells shall be drilled, constructed, and abandoned by a South Carolina certified well driller per R.61-71.D.1.

2. All monitoring wells shall be labeled as required by R.61-71.H.2.c.

3. A Water Well Record Form or other form provided or approved by the Agency shall be completed and submitted to the Agency within 30 days after well completion or abandonment unless another schedule has been approved by the Agency. The form should contain the "as-built" construction details and all other information required by R.61-71.H.1.f

4. All analytical data and water levels obtained from each monitoring well shall be submitted to the Agency within 30 days of receipt of laboratory results unless another schedule has been approved by the Agency as required by R.61-71.H.1.d.

5. If any of the information provided to the Agency changes, notification to Stephanie Briney (tel: 803-896-6323 or e-mail: brineysm@dhec.sc.gov) shall be provided a minimum of twenty-four (24) hours prior to well construction as required by R.61-71.H.1.a.

6. All temporary monitoring wells shall be abandoned within 5 days of borehole completion using appropriate methods as required by R.61-71.H.4.c. All other wells shall be properly developed per R.61-71.H.2.d.

7. Agency approval is required prior to abandonment of all monitoring wells as required by R.61-71.H.1.a.

This approval is pursuant to the provisions of Section 44-55-40 of the 1976 South Carolina Code of Laws and R.61-71 of the South Carolina Well Standards and Regulations, dated April 26, 2002. A copy of this approval should be on the site during well installation.

Date of Issue: June 4, 2012 **Approval No.: UMW-24622**

Stephanie Briney

Stephanie Briney, Hydrogeologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

Section A: Project Management

A1 Title and Approval Page

Quality Assurance Project Plan
Addendum to the SC DHEC UST Programmatic QAPP
For
Purolator Courier Corp., SCDHEC Site ID# 05878

105 Corporate Boulevard, West Columbia, South Carolina

Prepared by:
Jeff L. Coleman
Senior Scientist
Midlands Environmental Consultants, Inc.
(Certified Site Rehabilitation Contractor UCC-0009)
235-B Dooley Road
Lexington, SC 29073
(803)808-2043

Date: April 26, 2012

Approvals

Stephanie Briney SC DHEC Project Manager	Signature	Date 6/1/12
Jeff L. Coleman Contractor QA Manager	Signature	Date 4/27/12
Bryan T. Shane, P.G. Site Rehabilitation Contractor	Signature	Date 4-27-12
Michael Woodrum Laboratory Director	Signature	Date 4/26/2012

Approved Cost Agreement 43554

Facility: 05878 PUROLATOR COURIER CORP

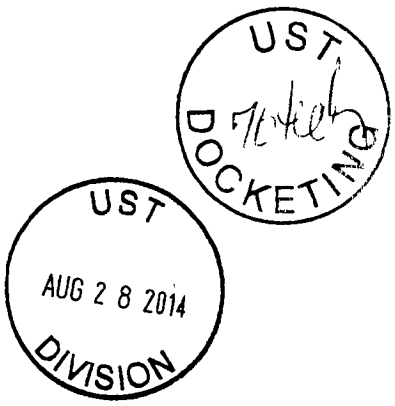
BRINEYSM

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
01 PLAN						
		C	TIER II/COMP. PLAN/QAPP APP B	1.0000	100.00	100.00
03 COMPREHENSIVE SURVEY						
			COMPREHENSIVE SURVEY	1.0000	1,000.00	1,000.00
04 MOB/DEMOB						
		A	EQUIPMENT	1.0000	100.00	100.00
		B	PERSONNEL	3.0000	100.00	300.00
09 WELL INSTALLATION						
		H	RECOVERY WELL (4 INCH DIA)	45.0000	25.00	1,125.00
10 SAMPLE COLLECTION						
		A	GROUND WATER	24.0000	5.00	120.00
		C	WATER SUPPLY	2.0000	5.00	10.00
		D	GROUNDWATER NO-PURGE	3.0000	5.00	15.00
		E	GAUGE WELL ONLY	1.0000	5.00	5.00
11 ANALYSES	GW GROUNDWATER					
		A1	BTEXNM+OXYGS+1,2-DCA+ETH-8260B	30.0000	48.00	1,440.00
		E	LEAD	29.0000	12.00	348.00
		F	EDB	29.0000	25.00	725.00
17 DISPOSAL						
		A	WASTEWATER	400.0000	0.30	120.00
		C	SOIL (TREATMENT/DISPOSAL)	3.0000	50.00	150.00
18 MISCELLANEOUS						
			REMOVAL OF PRODUCT RECOVERY SYSTEM	1.0000	500.00	500.00
25 WELL REPAIR						
		J	CONVERT STICKUP TO FLUSH-MOUNT	8.0000	75.00	600.00
				Total Amount		6,658.00

Midlands
Environmental
Consultants, Inc.

August 27, 2014



Ms. Sonya T. Utz, Hydrogeologist
Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land & Waste Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: Additional Assessment Report
Purolator Courier Corporation
105 Corporate Blvd
West Columbia, South Carolina
SCDHEC Site ID# 05878, CA # 48007
MECI Project Number 14-4816
Certified Site Rehabilitation Contractor UCC-0009

Dear Ms. Utz,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Additional Assessment Report for the referenced site. This report describes assessment activities conducted at the site and results of those activities in general accordance with South Carolina Department of Health and Environmental Control (SCDHEC) guidelines, including adherence to the UST Division Programmatic Quality Assurance Program Plan (QAPP).

Midlands Environmental appreciates the opportunity to offer our professional environmental services to you on this project. Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.

Jeff L. Coleman
Senior Scientist

Bryan T. Shane, P.G.
Principal Geologist

Post Office Box 854, Lexington SC 29071 • 231 Dooley Road, Lexington, SC 29073
Telephone: (803) 808-2043 • fax: (803) 808-2048

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1.0 INTRODUCTION

A. **Owner/Operator Information**

Facility Name:	Purolator Courier Corporation UST Permit #: 05878
Facility Address:	105 Corporate Blvd, West Columbia, SC 29169
Name:	Carolina Commerce Associates (Orphan)
Address:	N/A
Telephone #:	N/A

B. **Property Owner Information**

Name	Bonita M. Sykes
Tax Map #:	Lexington Co. Tax Map#: 004599-10-019
Address	2935 E. Ponce De Leon Ave., Decatur, GA 30030
Telephone #	(678) 714-9037 (H) or (404) 373-8782 (W)

C. **Contractor Information**

Name:	Midlands Environmental Consultants, Inc.
Certification #:	9
Address:	P. O. Box 854, Lexington, SC 29071
Telephone #:	(803) 808-2043

D. **SCDHEC Certified Well Driller**

Name:	Environmental Drilling & Probing Services, LLC.
Driller:	Tommy Bolyard
Certification #:	B 01846
Address:	17538 Greenhill Road, Charlotte, NC 28278
Telephone #:	(704) 607-7529

E. **SCDHEC Certified Laboratory**

Name:	Shealy Environmental Services, Inc.
Certification #:	32010
Address:	106 Vantage Point Drive, West Columbia, SC 29172
Telephone #:	(803) 791-9700

1.1 PROJECT INFORMATION

The subject site (Purolator Courier Corporation) is located at 105 Corporate Blvd, West Columbia, Lexington County, South Carolina. The subject site formally maintained one 500 gallon waste oil underground storage tank (UST), and two 10,000 gallon gasoline UST's. These UST's were abandoned by removal of the ground in September of 1991. A release of petroleum product from these UST's was reported in October of 1991 and confirmed in June of 1992. Currently, the subject site is occupied by a warehouse. The subject site is currently rated a Class 2BA.

Prior to commencement of the field activities described in this document, a Site Specific Work Plan (SSWP) was completed by MECI personnel, submitted to SCDHEC and approved by the SCDHEC project manager.

The above project information is based on MECI field notes and SCDHEC files.

2.0 SURROUNDING PROPERTY USAGE

The subject site (Purolator Courier Corporation) is located at 105 Corporate Blvd, West Columbia, Lexington County, South Carolina (Figure 1). Wooded areas and residential properties border the site to the north, beyond which is Klapman Road. East of the subject site is bordered by commercial and wooded lots. South of the subject site is bordered by Corporate Boulevard, beyond which are commercial properties. Commercial properties are also located to the west of the referenced site.

3.0 AREA GEOLOGY AND HYDROGEOLOGY

The project site is located in the Atlantic Coastal Plain Physiographic Province. The mean elevation of the property as depicted on the local USGS quadrangle (Southwest Columbia, SC) appears to be approximately 270 feet above sea level. The soils in this province are generally interbedded silts, sands and clays that have been deposited during successive advances and retreats of the ocean over the past several million years. This interbedding can cause perched water and makes hydrogeological interpretation difficult.

In this geologic setting, the uppermost aquifer is the surficial aquifer of sands with lenses and layers of clays and silts. Water occupies the interstices between the formation particles and is in hydrostatic balance with the atmosphere at the water table surface.

Local precipitation is the source of freshwater recharge to the Coastal Plain formations. Groundwater recharge varies considerably over the region and is attributed to the differences in precipitation and to the variability in the infiltration rates.

Coastal Plain formations generally dip toward the Atlantic Ocean. Consequently, regional groundwater movement is to the southeast. On a regional scale, hydraulic gradients are relatively low.

Locally, in the surficial aquifer, groundwater discharges into streams, lakes or springs where the groundwater table intersects lows occupied by these water bodies. The apparent direction (based on hydraulic gradient) of groundwater flow from the release is to the north-northwest toward an intermittent stream associated with Double Branch Creek, a drainage feature of the Saluda River.

3.1 LOCAL SUBSURFACE CONDITIONS

Coastal plain sediments were encountered during drilling activities conducted at the site. The soils encountered in our borings generally consisted silty and clayey fine to medium grained sands. Test Boring Records, which depict the materials encountered in each boring, are located in Appendix E.

On July 31st, 2014, stabilized groundwater levels were measured in the monitoring wells. Depth to groundwater ranged from 3.19 to 6.86 feet below top of casing in the wells measured. The groundwater measurements are summarized in tabular form in Table 2 and on Figure 5. Groundwater levels may fluctuate several feet with seasonal and rainfall variations and with change in the water level of adjacent drainage features. Normally, the highest groundwater levels occur in late winter and spring. The lowest levels occur in late summer and fall.

The above descriptions provide a general summary of the subsurface conditions encountered. The attached Test Boring Records (Appendix E) contain detailed information recorded at each new recovery well location. The Test Boring Records represent our interpretation of the field logs based on examination of the field samples. The lines designating the interfaces between various strata represent approximate boundaries, and the transition between strata may be gradational.

4.0 FIELD EXPLORATION

Field exploration conducted at the site included:

- Construction of three recovery wells;
- sampling and chemical analyses of the entire monitoring well network; and
- a subsequent survey of the subject site.

The monitoring well locations were selected based on SCDHEC project manager instructions, existing site conditions, and drilling accessibility.

4.1 RECOVERY WELL INSTALLATION

On July 28th, 2014, three four-inch, single cased recovery wells were installed at the subject site. These wells were installed by Environmental Drilling and Probing Services, LLC. of Rock Hill, SC (S.C. Driller Certification: Tommy Bolyard # B 01846) using an track-mounted drilling rig employing 10.0-inch outer diameter hollow stem augers to construct the boreholes.

The following table presents well installation details:

Well Number	Single Cased	Double Cased	Screened Interval (ft)	Total Depth (ft)
RW-1	X		1.0-11.0	11.0
RW-2	X		1.0-11.0	11.0
RW-3	X		1.0-11.0	11.0

The soils encountered during drilling activities consisted of clayey and silty, fine to medium grained sands of the Atlantic Coastal Plain Province. Representative portions of soil samples were screened with a Photo Ionization Detector (PID) and classified by MECI personnel. Test boring records showing soil descriptions and screening result are attached in Appendix E.

Drill cuttings were containerized and transported to Waste Management/Richland County Landfill, Elgin, SC by MECI personnel. A total of 0.95 tons was disposed of in this manner. A disposal manifest for these soils is attached at the end of this report.

Following completion of the monitoring wells, the wells were developed by purging until they were determined to be functioning properly and turbidity was reduced. These wells were developed utilizing a Proactive Mini-Monsoon well pump. The drum of purge water was treated by MECI personnel using a granular activated carbon drum. A total of 30.0 gallons of purge/development water was disposed of in this manner. A disposal manifest for the treated purge water is presented in Appendix G.

4.2 MONITORING WELL SAMPLING AND CHEMICAL ANALYSES

On July 31st, 2014, MECI personnel collected groundwater samples from the nineteen (19) monitoring wells at the subject site. Monitoring wells MW-5 and MW-15 were gauged and determined to contain free phase petroleum product. Monitoring wells MW-3, MW-6, MW-14, MW-17, MW-18, MW-21, MW-23, and MW-25 were not located during the initial site visit or at the time of sampling. Due to the well not being purged in the last twelve months, all monitoring wells were to be purged prior to sample collection, however monitoring wells MW-11 and MW-13 did not contain sufficient water to purge prior to sampling. Seventeen (17) monitoring well were purged prior to sampling.

Sampling/purging of the wells were completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. Purging was completed by bailing three to five well volumes of water from the well, until pH, conductivity, dissolved oxygen stabilized and turbidity stabilized, or until all available water was evacuated from the well, whichever occurred first. A new set of nitrile gloves were worn at each monitoring well, and at all times samples were handled. Field measurements of turbidity, pH, conductivity, dissolved oxygen, and water temperature were obtained before the well sampling process. MECI utilized YSI550A meters for DO (mg/L) and temperature readings (°C), an YSI63 meters for pH and conductivity (uS) readings, and a MicroTPI/TPW Turbidimeter for turbidity (NTU) readings. The attached Field Data Information Sheets presents the results of the field measurements obtained during sampling processes. All wells were sampled in accordance with SCDHEC's Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP, Revision 2.0) and MECI's Standard Operating Procedures (MECI SOP, January 2014). Groundwater samples obtained were sent to Shealy Environmental Services, Inc. of West Columbia, SC (SCDHEC Laboratory Certification #32010) for analysis.

The following sampling matrix contains well development and requested analyses for each well:

Monitoring Well	Purge	No Purge	Gauge Well Only	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	Filtered Lead (EPA Method 6010)	Sulfate (EPA Method 375.2)	Nitrate (EPA Method 335.2)	Methane (RSK Method)	PAH's (EPA Method 8270)
					Analyte Sampled									
MW-1	X				X	X	X	X						
MW-2	X				X	X	X	X						
MW-3				X										
MW-4	X				X	X	X	X						
MW-5			X											
MW-6				X										

Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dicloroethane
PAH = polycyclic aromatic hydrocarbons

** = Indicates Field Duplicate

Monitoring Well	Purge	No Purge	Gauge Well Only	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	Filtered Lead (EPA Method 6010)	Sulfate (EPA Method 375.2)	Nitrate (EPA Method 335.2)	Methane (RSK Method)	PAH's (EPA Method 8270)
					Analyte Sampled									
MW-7	X				X	X	X	X						
MW-8	X				X	X	X	X						
MW-9	X				X	X	X	X						
MW-10	X				X	X	X	X						
MW-11		X			X	X	X	X						
MW-12	X													
MW-13		X			X	X	X	X						
MW-14				X										
MW-15			X											
MW-16	X				X	X	X	X						
MW-17				X										
MW-18				X										
MW-21				X										
MW-23				X										
MW-25				X										
PW-1	X				X	X	X	X						
PW-2	X				X	X	X	X						
RW-1	X				X	X	X	X						
RW-2	X				X	X	X	X						
RW-3	X				X	X	X	X						
RW-4	X				X	X	X	X						
RW-5	X				X	X	X	X						
RW-6	X				X	X	X	X						
RW-4 Dup.		X			X	X	X	X						
RW-6 Dup.		X			X	X	X	X						
Field Blank		X			X	X	X	X						
Trip Blank					X		X	X						

Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dicloroethane PAH = polycyclic aromatic hydrocarbons

**** = Indicates Field Duplicate**

The results of the laboratory analyses are summarized in Table 3 & 3A and presented in Appendix B.

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 167.5 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is presented in Appendix G.

4.3 SURFACE WATER SAMPLING AND CHEMICAL ANALYSIS

Two (2) surface water samples were collected on July 31st, 2014. SW-1 was collected from a nearby pond located approximately 425' feet northwest of MW-15. SW-2 was collected from another pond located approximately 450' feet northeast of MW-15. These ponds may act as a point of local groundwater discharge.

The samples obtained from the surface water locales were analyzed for volatile organic compounds including BTEX, naphthalene, methyl-tertiary-butyl-ether, 1,2 DCA, 8 oxygenates (EPA Method 8260B) and EDB (EPA Method 8011). Results of the laboratory analyses are discussed in Section 5.2 and summarized in Table 3 & 3A. The analytical results are also presented in Appendix B

4.4 SITE SURVEY

Following the well installation, a subsequent survey was conducted by MECI personnel, utilizing a fiberglass rod, level, and tape to determine the horizontal and vertical position of the newly installed monitoring wells. A TOC elevation of 98.36 for RW-2 and a TOC elevation of 98.07 for RW-3 were used as benchmarks for the newly installed recovery wells. Elevations were based on site datum obtained from SCDHEC Files. Table 2 and Figure 5 present potentiometric data for the entire monitoring well network associated with the subject site.

5.0 TEST RESULTS AND EVALUATION

The following sections discuss groundwater test results for the subject site.

5.1 GROUNDWATER ANALYTICAL RESULTS

As discussed in Section 4.2, groundwater samples obtained from the monitoring wells during the July 31st, 2014, comprehensive groundwater sampling event were analyzed for dissolved phase petroleum constituents. Monitoring well MW-5 was gauged and determined to contain 0.61' feet of product and MW-15 was gauged and determined 0.39' feet of product. Groundwater samples were not collected from beneath the free product layer during the subject sampling event. The analytical results indicate petroleum impact to the surficial aquifer ("Shallow" Zone), with the highest dissolved concentrations being detected in the area of RW-6. Of the seventeen monitoring wells sampled, ten monitoring wells (MW-2, MW-8, MW-9, MW-12, MW-16, RW-1, RW-2, RW-3, RW-5 & RW-6) detected petroleum constituents above Risked Based Screening Levels (RBSL's). Petroleum constituents detected above the established RBSL include:

Compound	*RBSL (ug/l)*	*Wells Above RBSL*
Product	N/A	MW-5 & MW-15
Benzene	5	MW-2, MW-8, MW-9, MW-12, MW-16, RW-1, RW-2, RW-3, RW-5 & RW-6
Toluene	1,000	MW-8, RW-1, RW-3, RW-5 & RW-6
Ethylbenzene	700	RW-5 & RW-6
Total Xylenes	10,000	RW-6
Naphthalene	25	MW-8, MW-9, RW-1, RW-2, RW-3, RW-5 & RW-6
MTBE	40	MW-9, RW-1, RW-3 & RW-5
EDB	0.05	RW-1, RW-2, RW-3, RW-5 & RW-6

In addition, the analytical results also detected petroleum constituents above the laboratory method detection limit in monitoring wells PW-1, PW-2 and RW-4; however the concentrations detected did not exceed the RBSL. The results of the analyses for each monitoring well and specific parameters are listed on Table 3, Table 3A, and provided in Appendix B.

5.2 SURFACE WATER SAMPLING AND CHEMICAL ANALYSIS

During the July 31st, 2014 sampling event, two surface water samples were collected from two nearby ponds located north of the site. Samples collected did not indicate petroleum impact to either of these surface water bodies. The results of the analysis for the surface water and specific parameters are listed on Table 3, Table 3A, and provided in the laboratory reports (Appendix B).

6.0 ASSESSMENT SUMMARY & RECOMMENDATIONS

Based on the results of our assessment activities, it appears that impact to the surficial aquifer has occurred due to a release of petroleum hydrocarbons. The highest concentrations of dissolved phase contaminants are located northwest of the former UST basin on an adjoining property. The contaminants appear to be gasoline range constituents. Impacted groundwater appears to be moving north-northwest toward an intermittent stream associated with Double Branch Creek, a drainage feature of the Saluda River

Monitoring well MW-5 was gauged and determined to contain 0.61' feet of product and MW-15 was gauged and determined 0.39' feet of product. Groundwater samples were not collected from beneath the free product layer during the subject sampling event. The analytical results indicate petroleum impact to the surficial aquifer ("Shallow" Zone), with the highest dissolved concentrations being detected in the area of RW-6. Of the seventeen monitoring wells sampled, ten monitoring wells (MW-2, MW-8, MW-9, MW-12, MW-16, RW-1, RW-2, RW-3, RW-5 & RW-6) detected petroleum constituents above Risked Based Screening Levels (RBSL's). Petroleum constituents detected above the established RBSL include:

Compound	***RBSL (ug/l)***	***Wells Above RBSL***
Product	N/A	MW-5 & MW-15
Benzene	5	MW-2, MW-8, MW-9, MW-12, MW-16, RW-1, RW-2, RW-3, RW-5 & RW-6
Toluene	1,000	MW-8, RW-1, RW-3, RW-5 & RW-6
Ethylbenzene	700	RW-5 & RW-6
Total Xylenes	10,000	RW-6
Naphthalene	25	MW-8, MW-9, RW-1, RW-2, RW-3, RW-5 & RW-6
MTBE	40	MW-9, RW-1, RW-3 & RW-5
EDB	0.05	RW-1, RW-2, RW-3, RW-5 & RW-6

In addition, the analytical results also detected petroleum constituents above the laboratory method detection limit in monitoring wells PW-1, PW-2 and RW-4; however the concentrations detected did not exceed the RBSL. The results of the analyses for each monitoring well and specific parameters are listed on Table 3, Table 3A, and provided in Appendix B.

Analytical results indicate the "shallow" watertable bracketing zone at the subject site is not currently defined to the northwest of monitoring well MW-9 and MW-12. Current analytical data indicate

Benzene concentrations above risk based screening levels (RBSL's) in MW-9 and in MW-12. It is MECI's professional opinion that further investigation is necessary to define the contaminant plume. MECI recommends installing additional monitoring wells downgradient of MW-9 and MW-12 to better define the contaminant plume. Following the proposed well installation, additional groundwater sampling events should be conducted to obtain current analytical results and to insure the contaminant plume is defined. Additionally, MECI recommends a series of Aggressive Fluid Vapor Recovery (AFVR) events be conducted on MW-5, MW-15 and the installed recovery wells to remove free phase petroleum product and reduce dissolved CoC concentrations.

7.0 QUALIFICATIONS OF REPORT

The activities and evaluative approaches used in this assessment are consistent with those normally employed in hydrogeological assessment and waste management projects of this type. Our evaluation of site conditions has been based on our understanding of the site, project information provided to us, and data obtained in our exploration. The general subsurface conditions utilized in our evaluation have been based on interpretation of subsurface data between borings. Contents of this report are intended for the sole use of SCDHEC under mutually agreed upon terms and conditions. If other parties wish to rely on this report please contact MECI prior to their use of this information so that a mutual understanding and agreement of the terms and conditions of our services can be established.

-oOo-

TABLES

TABLE 2
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JULY 31, 2014 SAMPLING EVENT
POTENTIOMETRIC DATA
PUROLATOR COURIER CORPORATION
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 14-4816
SCDHEC SITE ID NUMBER 05878

Well Number	Sample Date	Screened Interval (feet)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Well-head Elevation	Groundwater Elevation
MW-1	8/3/2012	4-14	***	8.13	***	102 60	94 47
	5/29/2013	-	***	5.14	***	102 60	97 46
	7/31/2014	-	***	6.58	***	102.60	96 02
MW-2	8/3/2012	3-13	***	6.86	***	101.18	94.32
	5/29/2013	-	***	NS	***	101.18	NS
	7/31/2014	-	***	6.42	***	101.18	94.76
MW-3	8/3/2012	4-14	NL	NL	NL	NL	NL
	5/29/2013	-	NL	NL	NL	NL	NL
	7/31/2014	-	NL	NL	NL	NL	NL
MW-4	8/3/2012	4-14	NS	NS	NS	99.92	NS
	5/29/2013	-	***	4.07	***	99.92	95.85
	7/31/2014	-	***	5.09	***	99.92	94.83
MW-5	8/3/2012	4-14	4.75	5.19	0.44	98.47	93.65
	5/29/2013	-	3.20	4 70	1.50	98.47	95.05
	7/31/2014	-	4.12	4.73	0.61	98.47	94.26
MW-6	8/3/2012	4-14	NL	NL	NL	NL	NL
	5/29/2013	-	NL	NL	NL	NL	NL
	7/31/2014	-	NL	NL	NL	NL	NL
MW-7	8/3/2012	4-14	***	5.80	***	98 77	92 97
	5/29/2013	-	***	4.32	***	98 77	94 45
	7/31/2014	-	***	5.34	***	98.77	93.43
MW-8	8/3/2012	4-14	***	4.82	***	97.87	93.05
	5/29/2013	-	***	4.00	***	97.87	93.87
	7/31/2014	-	***	5.85	***	97.87	92.02
MW-9	8/3/2012	4-14	***	3.92	***	96.83	92.91
	5/29/2013	-	***	3 70	***	96.83	93.13
	7/31/2014	-	***	3 73	***	96.83	93.10
MW-10	8/3/2012	4-14	***	3.39	***	96.05	92.66
	5/29/2013	-	***	2.90	***	96.05	93.15
	7/31/2014	-	***	3.19	***	96.05	92.86
MW-11	8/3/2012	4-9	NS	NS	NS	97 02	NS
	5/29/2013	-	***	4 43	***	97 02	92 59
	7/31/2014	-	***	7.64	***	97.02	89.38
MW-12	8/3/2012	4-9	***	4.31	***	96.11	91.80
	5/29/2013	-	***	4.09	***	96.11	92.02
	7/31/2014	-	***	4.84	***	96.11	91.27
MW-13	8/3/2012	4-9	***	4 71	***	96.59	91 88
	5/29/2013	-	***	4 09	***	96 59	92 50
	7/31/2014	-	***	6 86	***	96.59	89 73
MW-14	8/3/2014	4-9	NL	NL	NL	NL	NL
	5/29/2013	-	NL	NL	NL	NL	NL
	7/31/2014	-	NL	NL	NL	NL	NL

Notes

1 Elevations are referenced to an assumed site datum
2. Groundwater depths were measured from the top of the PVC riser pipe
3 Groundwater levels measured on 7/31/2014
4 NL = Not Located
5 NS = Not sampled due to well obstruction
6 Groundwater elevation for MW-5 and MW-15 corrected for the presence of free phase petroleum product using a specific gravity for fuel of 0 85.

TABLE 2
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JULY 31, 2014 SAMPLING EVENT
POTENTIOMETRIC DATA
PUROLATOR COURIER CORPORATION
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 14-4816
SCDHEC SITE ID NUMBER 05878

Well Number	Sample Date	Screened Interval (feet)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Well-head Elevation	Groundwater Elevation
MW-15	8/3/2012	3-13	4.44	4.87	0.43	97 86	93 36
	5/29/2013	-	2.98	3.40	0.42	97 86	94 82
	7/31/2014	-	3.82	4.21	0.39	97 86	93.98
MW-16	8/3/2012	3-13	***	4.13	***	97.73	93.60
	5/29/2013	-	***	2.70	***	97.73	95.03
	7/31/2014	-	***	3.32	***	97.73	94.41
MW-17	8/3/2012	3-13	NL	NL	NL	NL	NL
	5/29/2013	-	NL	NL	NL	NL	NL
	7/31/2014	-	NL	NL	NL	NL	NL
MW-18	8/3/2012	2-12	***	3.37	***	91.16	87.79
	5/29/2013	-	NL	NL	NL	91.16	NL
	7/31/2014	-	NL	NL	NL	91.16	NL
MW-21	8/3/2012	1-6	NL	NL	NL	NL	NL
	5/29/2013	-	NL	NL	NL	NL	NL
	7/31/2014	-	NL	NL	NL	NL	NL
MW-23	8/3/2012	1-6	NL	NL	NL	NL	NL
	5/29/2013	-	NL	NL	NL	NL	NL
	7/31/2014	-	NL	NL	NL	NL	NL
MW-25	8/3/2012	1-6	NL	NL	NL	NL	NL
	5/29/2013	-	NL	NL	NL	NL	NL
	7/31/2014	-	NL	NL	NL	NL	NL
PW-1	8/3/2012	16-21	***	4.94	***	98.51	93.57
	5/29/2013	-	***	3.70	***	98.51	94.81
	7/31/2014	-	***	4.28	***	98.51	94.23
PW-2	8/3/2012	21-26	***	3.91	***	97.67	93.76
	5/29/2013	-	***	5.20	***	97.67	92.47
	7/31/2014	-	***	4.01	***	97.67	93.66
RW-1	8/3/2012	5-15	***	4.39	***	97.95	93.56
	5/29/2013	-	***	2.89	***	97.95	95.06
	7/31/2014	-	***	3.85	***	97.95	94.10
RW-2	8/3/2012	5-15	***	4 68	***	98 36	93.68
	5/29/2013	-	***	3 10	***	98.36	95.26
	7/31/2014	-	***	4 10	***	98.36	94.26
RW-3	8/3/2012	5-15	***	4.30	***	98.07	93.77
	5/29/2013	-	***	2.70	***	98.07	95.37
	7/31/2014	-	***	3.81	***	98.07	94 26
RW-4	7/31/2014	1-11	***	4.29	***	98 28	93 99
RW-5	7/31/2014	1-11	***	3.82	***	97.76	93 94
RW-6	7/31/2014	1-11	***	3.85	***	97.90	94 05

Notes

1 Elevations are referenced to an assumed site datum
2 Groundwater depths were measured from the top of the PVC riser pipe
3 Groundwater levels measured on 7/31/2014
4 NL = Not Located
5 NS = Not sampled due to well obstruction
6. Groundwater elevation for MW-5 and MW-15 corrected for the presence of free phase petroleum product using a specific gravity for fuel of 0 85

TABLE 3
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GROUNDWATER COC CONCENTRATION DATA
JULY 31, 2014 SAMPLING EVENT
PUROLATOR COURIER CORPORATION
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 14-4816
SCDHEC ID NUMBER 05878

Well Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	MTBE (ug/l)	1,2 DCA (ug/l)	EDB (ug/l)	Total Lead (ug/l)
MW-1	8/3/12	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	<0 020	**43B**
	5/29/13	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	<0 020	NT
	7/31/14	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	<0 020	NT
MW-2	8/3/12	**360**	**21J**	**130**	**200**	**711J**	**11J**	**26**	<25	<0.019	**130B**
	5/29/13	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/31/14	**6.6**	<5.0	**3.6J**	<5 0	**10.2J**	<5.0	**0.99J**	<5.0	<0.020	NT
MW-3	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	5/29/13	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	7/31/14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-4	8/3/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/13	<5.0	**120**	<5.0	<5.0	**120**	<5.0	<5.0	<5.0	<0.020	NT
	7/31/14	<5 0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020	NT
MW-5	8/3/12	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
	5/29/13	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
	7/31/14	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-6	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	5/29/13	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	7/31/14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-7	8/3/12	**27**	**4.7J**	<5 0	**14**	**45.7J**	<5 0	**2.0J**	<5 0	<0 020	**27B**
	5/29/13	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	<0 019	NT
	7/31/14	<5 0	<5.0	<5 0	<5.0	BDL	<5 0	<5 0	<5 0	<0 020	NT
MW-8	8/3/12	**330**	**1,400**	**22J**	**5,100**	**6,852J**	**64**	**3.3J**	**7.9J**	**0.13**	**22B**
	5/29/13	**220**	**1,700**	**55**	**6,000**	**7,975**	**72**	<2,000	**6.1**	<0.020	NT
	7/31/14	**180**	**2,700**	**210**	**4,600**	**7,690**	**150**	<100	<100	<0 020	NT
MW-9	8/3/12	**0.20J**	**2.5J**	<5 0	<5 0	**2.70J**	<5 0	<5 0	<5 0	<0 020	**26B**
	5/29/13	<5 0	<5.0	<5 0	<5.0	BDL	<5 0	<5 0	<5 0	<0 020	NT
	7/31/14	**470**	**15J**	**86**	**73**	**644J**	**30**	**42**	<25	<0 019	NT
MW-10	8/3/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020	**26B**
	5/29/13	<5.0	<5.0	<5.0	<5.0	BDL	<5 0	<5.0	<5.0	<0.021	NT
	7/31/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0 020	NT
MW-11	8/3/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/29/13	**15**	<5 0	<5 0	**3.8**	**18.8**	<5 0	**1.3**	<5.0	<0 020	NT
	7/31/14	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	<0 020	NT
MW-12	8/3/12	**0.22J**	**1.7J**	<5.0	<5 0	**1.92J**	<5.0	<5.0	<5.0	<0.019	**1.7B**
	5/29/13	**68**	**2.3**	**6.6**	**15**	**91.9**	<5.0	**7.3**	<5.0	<0 020	NT
	7/31/14	**150**	**38**	**24**	**58**	**270**	**9.3**	**13**	<5.0	<0.020	NT
MW-13	8/3/12	**5.3**	<5 0	<5 0	<5 0	**5.3**	<5 0	**0.69J**	<5 0	<0 019	**6.8B**
	5/29/13	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	<0 019	NT
	7/31/14	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	<0 020	NT
MW-14	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	5/29/13	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	7/31/14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-15	8/3/12	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
	5/29/13	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
	7/31/14	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-16	8/3/12	**27**	**26**	**88**	**50**	**191**	**37**	<5 0	<5 0	<0.019	**13B**
	5/29/13	**75**	**3**	**22**	**22**	**122**	**26**	**3.2**	**1.6**	<0 020	NT
	7/31/14	**28**	<5.0	**3.1J**	**1.7J**	**32.8J**	**1.9J**	**4.2J**	<5.0	<0.020	NT
MW-17	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	5/29/13	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	7/31/14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL

Notes

1 BDL = Below Practical Quantitative Limits
2 ug/l = micrograms per liter
3 MTBE = Methyl-Tertiary-Butyl Ether
4 EDB = Ethylene Dibromide
5 1,2 DCA = 1,2-Dichloroethane
6 "J" Values included in Total BTEX Calculations
7 "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL)
8 NS = Not sampled due to obstruction in well
9 NL = Not Located
10 PROD = Free Phase Petroleum Product Detected
11 P = The RPD between two GC columns exceeds 40%

TABLE 3
PAGE 2 OF 2
GROUNDWATER COC CONCENTRATION DATA
AUGUST 31, 2014 SAMPLING EVENT
PUROLATOR COURIER CORPORATION
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 14-4816
SCDHEC ID NUMBER 05878

Well Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	MTBE (ug/l)	1,2 DCA (ug/l)	EDB (ug/l)	Total Lead (ug/l)
MW-18	8/3/12	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	<0 020	**9.8B**
	5/29/13	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	7/31/14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-21	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	5/29/13	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	7/31/14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-23	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	5/29/13	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	7/31/14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-25	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	5/29/13	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	7/31/14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
PW-1	8/3/12	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	<0 019	**2.4B**
	5/29/13	**2**	**5.4**	<5 0	**8.7**	**16.1**	<5 0	**3.8**	<5 0	**0.075**	NT
	7/31/14	<5 0	<5 0	<5 0	**3.9J**	**3.9J**	<5 0	<5 0	<5 0	<0 020	NT
PW-2	8/3/12	<20	<20	<20	<20	BDL	<20	<20	<20	<0.021	**20B**
	5/29/13	**1.3**	<5 0	<5.0	<5.0	**1.3**	<5.0	**30**	<5.0	<0.021	NT
	7/31/14	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	**8.7**	<5 0	<0.023	NT
RW-1	8/3/12	**980**	**1,900**	**150J**	**1,100**	**4,130J**	<200	**31J**	<200	**1.4**	**49B**
	5/29/13	**1,800**	**4,800**	**500**	**2,600**	**9,700**	**150**	**160**	**42**	**5.3**	NT
	7/31/14	**1,800**	**4,400**	**350**	**2,000**	**8,550**	**120J**	**64J**	<250	**3.4**	NT
RW-2	8/3/12	**600**	**750**	**140**	**570**	**2,060**	**65J**	**39J**	<100	**0.25**	**1.1B**
	5/29/13	**290**	**810**	**1,310**	**580**	**2,990**	**46**	**22**	**6.2**	**0.23**	NT
	7/31/14	**140**	**600**	**220**	**1,000**	**1,960**	**100**	**7.7J**	**3.6J**	**0.070P**	NT
RW-3	8/3/12	**1,400**	**2,500**	**430**	**2,100**	**6,430**	**160J**	**63J**	<250	**1.8**	**6.7B**
	5/29/13	**1,900**	**5,400**	**400**	**2,200**	**9,900**	**120**	**74**	**41**	**4.4**	NT
	7/31/14	**2,500**	**5,700**	**500**	**2,700**	**11,400**	**170J**	**150J**	<500	**4.5**	NT
RW-4	7/31/14	<5.0	**23**	**44**	**220**	**287**	**22**	<5.0	<5.0	**0.028P**	NT
RW-5	7/31/14	**3,500**	**10,000**	**1,300**	**6,600**	**21,400**	**440J**	**120J**	<500	**4.6**	NT
RW-6	7/31/14	**4,900**	**21,000**	**2,800**	**15,000**	**43,700**	**890J**	<1,000	<1,000	**7.5**	NT
Grant WSW	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	5/29/13	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	7/31/14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
Lucas WSW	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	5/29/13	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
	7/31/14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
SW-1	7/31/14	<1 0	<1 0	<1 0	<1 0	BDL	<1 0	<1 0	<1 0	<0 020	NT
SW-2	7/31/14	<1 0	<1.0	<1 0	<1.0	BDL	<1 0	<1.0	<1.0	<0 020	NT
MW-1 Dup	8/3/12	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	<0 019	**56B**
RW-4 Dup	7/31/14	<5 0	**14**	**26**	**140**	**180**	**14**	<5 0	<5.0	<0 020	NT
RW-6 Dup	7/31/14	**4,900**	**21,000**	**3,000**	**16,000**	**44,900**	**1,100**	**80J**	<1,000	**7.5**	NT
Field Blank	8/3/12	<5.0	<5.0	<5.0	<5 0	BDL	<5 0	<5.0	<5 0	<0.019	NT
	5/29/13	<5 0	<5.0	<5.0	<5.0	BDL	<5 0	<5.0	<5 0	<0.019	NT
	7/31/14	<5 0	<5.0	<5.0	<5 0	BDL	<5 0	<5.0	<5.0	<0 020	NT
Trip Blank	8/3/12	<5 0	<5 0	<5.0	<5 0	BDL	<5 0	<5 0	<5 0	NT	NT
	5/29/13	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	NT	NT
	7/31/14	<5 0	<5 0	<5 0	<5 0	BDL	<5 0	<5 0	<5 0	NT	NT

Notes

1 BDL = Below Practical Quantitative Limits
2 ug/l = micrograms per liter
3 MTBE = Methyl-Tertiary-Butyl Ether
4 EDB = Ethylene Dibromide
5 1,2 DCA = 1,2-Dichloroethane
6 "J" Values included in Total BTEX Calculations
7 "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL)
8 NS = Not sampled due to obstruction in well
9 NL = Not Located
10 PROD = Free Phase Petroleum Product Detected
11 P = The RPD between two GC columns exceeds 40%

TABLE 3A
PAGE 1 OF 2
GROUNDWATER COC CONCENTRATION DATA (OXYGENATES)
JULY 31, 2014 SAMPLING EVENT
PUROLATOR COURIER CORPORATION
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 14-4816
SCDHEC SITE ID NUMBER 05878

Well Number	Sample Date	TAA (µg/l)	TAME (µg/l)	TBF (µg/l)	DIPE (µg/l)	3,3-Dimethyl-1-butanol (µg/l)	Ethanol (µg/l)	ETBE (µg/l)	TBA (µg/l)
MW-1	08/03/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	<100	<10	<100	<10	<100	<1,000	<100	<100
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-2	08/03/12	**68J**	<50	<500	<50	<500	<5,000	<500	<500
	05/29/13	NS	NS	NS	NS	NS	NS	NS	NS
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-3	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
	05/29/13	NL	NL	NL	NL	NL	NL	NL	NL
	07/31/14	NL	NL	NL	NL	NL	NL	NL	NL
MW-4	08/03/12	NS	NS	NS	NS	NS	NS	NS	NS
	05/29/13	<100	<10	<100	<10	<100	<1,000	<100	<100
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-5	08/03/12	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**
	05/29/13	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**
	07/31/14	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**
MW-6	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
	05/29/13	NL	NL	NL	NL	NL	NL	NL	NL
	07/31/14	NL	NL	NL	NL	NL	NL	NL	NL
MW-7	08/03/12	**24J**	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	<100	<10	<100	<10	<100	<1,000	<100	<100
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-8	08/03/12	**530**	<50	<500	<50	<500	<5,000	<500	**47J**
	05/29/13	**510**	<200	<2,000	<200	<2,000	<20,000	<2,000	<2,000
	07/31/14	**490J**	<200	<2,000	<200	<2,000	<20,000	<2,000	<2,000
MW-9	08/03/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	<100	<10	<100	<10	<100	<1,000	<100	<100
	07/31/14	**210J**	<50	<500	**5.7J**	<500	<5,000	<500	<500
MW-10	08/03/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	<100	<10	<100	<10	<100	<1,000	<100	<100
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-11	08/03/12	NS	NS	NS	NS	NS	NS	NS	NS
	05/29/13	**14**	<10	<100	<10	<100	<1,000	<100	<100
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-12	08/03/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	**32**	<10	<100	**1.1**	<100	<1,000	<100	<100
	07/31/14	**110**	<10	<100	**2.0J**	<100	<1,000	<100	<100
MW-13	08/03/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	<100	<10	<100	<10	<100	<1,000	<100	<100
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-14	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
	05/29/13	NL	NL	NL	NL	NL	NL	NL	NL
	07/31/14	NL	NL	NL	NL	NL	NL	NL	NL
MW-15	08/03/12	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**
	05/29/13	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**
	07/31/14	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**
MW-16	08/03/12	**28J**	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	**38**	<10	<100	**0.77**	<100	<1,000	<100	<100
	07/31/14	**39J**	<10	<100	**0.49J**	<100	<1,000	<100	<100
MW-17	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
	05/29/13	NL	NL	NL	NL	NL	NL	NL	NL
	07/31/14	NL	NL	NL	NL	NL	NL	NL	NL

Notes

1 ug/l = micrograms per liter
2 DIPE = Diisopropyl Ether
3 ETBE = Ethyl ter-butyl Ether
4 TAA = tert-Amyl Alcohol
5 TAME = tert-Amyl Methyl Ether
6 TBA = ter-Butyl Alcohol
7 TBF = tert-Butyl Formate
8 NS = Not sampled due to obstruction in well
9 "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL)
10 NL = Monitoring Well Not Located
11 PROD = Free Phase Petroleum Product Dectected (Not Sampled)

TABLE 3A
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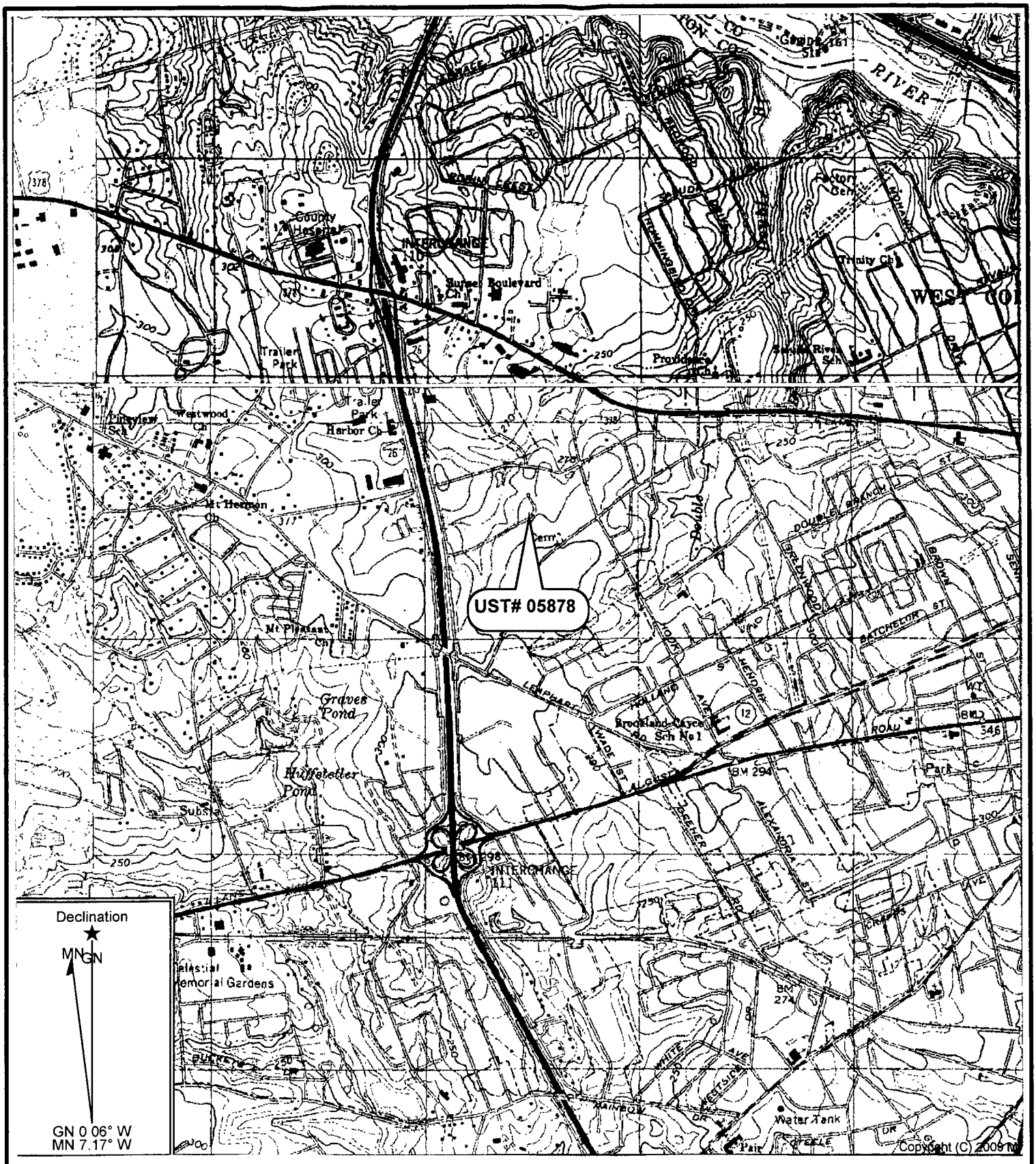
GROUNDWATER COC CONCENTRATION DATA (OXYGENATES)
JULY 31, 2014 SAMPLING EVENT
PUROLATOR COURIER CORPORATION
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 14-4816
SCDHEC SITE ID NUMBER 05878

Well Number	Sample Date	TAA (µg/l)	TAME (µg/l)	TBF (µg/l)	DIPE (µg/l)	3,3-Dimethyl-1-butanol (µg/l)	Ethanol (µg/l)	ETBE (µg/l)	TBA (µg/l)
MW-18	08/03/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	NL	NL	NL	NL	NL	NL	NL	NL
	07/31/14	NL	NL	NL	NL	NL	NL	NL	NL
MW-21	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
	05/29/13	NL	NL	NL	NL	NL	NL	NL	NL
	07/31/14	NL	NL	NL	NL	NL	NL	NL	NL
MW-23	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
	05/29/13	NL	NL	NL	NL	NL	NL	NL	NL
	07/31/14	NL	NL	NL	NL	NL	NL	NL	NL
MW-25	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
	05/29/13	NL	NL	NL	NL	NL	NL	NL	NL
	07/31/14	NL	NL	NL	NL	NL	NL	NL	NL
PW-1	08/03/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	**34**	<10	<100	**0.44**	<100	<1,000	<100	<100
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
PW-2	08/03/12	<400	<40	<400	<40	<400	<4,000	<400	<400
	05/29/13	<100	<10	<100	<10	<100	<1,000	<100	<100
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
RW-1	08/03/12	**470J**	<400	<4,000	<400	<4,000	<40,000	<4,000	<4,000
	05/29/13	**2,000**	<200	<2,000	**12**	<2,000	<20,000	<2,000	<2,000
	07/31/14	**1,600J**	<500	<5,000	<500	<5,000	<50,000	<5,000	<5,000
RW-2	08/03/12	**490J**	<200	<2,000	<200	<2,000	<20,000	<2,000	<2,000
	05/29/13	**240**	<50	<500	<50	<500	<5,000	<500	<500
	07/31/14	**210J**	<100	<1,000	<100	<1,000	<10,000	<1,000	<1,000
RW-3	08/03/12	<5,000	<500	<5,000	<500	<5,000	<50,000	<5,000	<5,000
	05/29/13	**1,300**	<500	<5,000	<500	<5,000	<50,000	<5,000	<5,000
	07/31/14	**3,800J**	<1,000	<10,000	<1,000	<10,000	<100,000	<10,000	<10,000
RW-4	07/31/14	**21J**	<10	<100	<10	<100	<1,000	<100	<100
RW-5	07/31/14	**3,400J**	<1,000	<10,000	<1,000	<10,000	<100,000	<10,000	<10,000
RW-6	07/31/14	**3,100J**	<2,000	<20,000	<2,000	<20,000	<200,000	<20,000	<20,000
Grant WSW	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
	05/29/13	NL	NL	NL	NL	NL	NL	NL	NL
	07/31/14	NL	NL	NL	NL	NL	NL	NL	NL
Lucas WSW	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
	05/29/13	NL	NL	NL	NL	NL	NL	NL	NL
	07/31/14	NL	NL	NL	NL	NL	NL	NL	NL
SW-1	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
SW-2	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-1 Duplicate	08/03/12	<100	<10	<100	<10	<100	<1,000	<100	<100
RW-4 Dup	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
RW-6 Dup	07/31/14	**3,100J**	<2,000	<20,000	<2,000	<20,000	<200,000	<20,000	<20,000
Field Blank	08/03/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	<100	<10	<100	<10	<100	<1,000	<100	<100
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100
Trip Blank	08/03/12	<100	<10	<100	<10	<100	<1,000	<100	<100
	05/29/13	<100	<10	<100	<10	<100	<1,000	<100	<100
	07/31/14	<100	<10	<100	<10	<100	<1,000	<100	<100

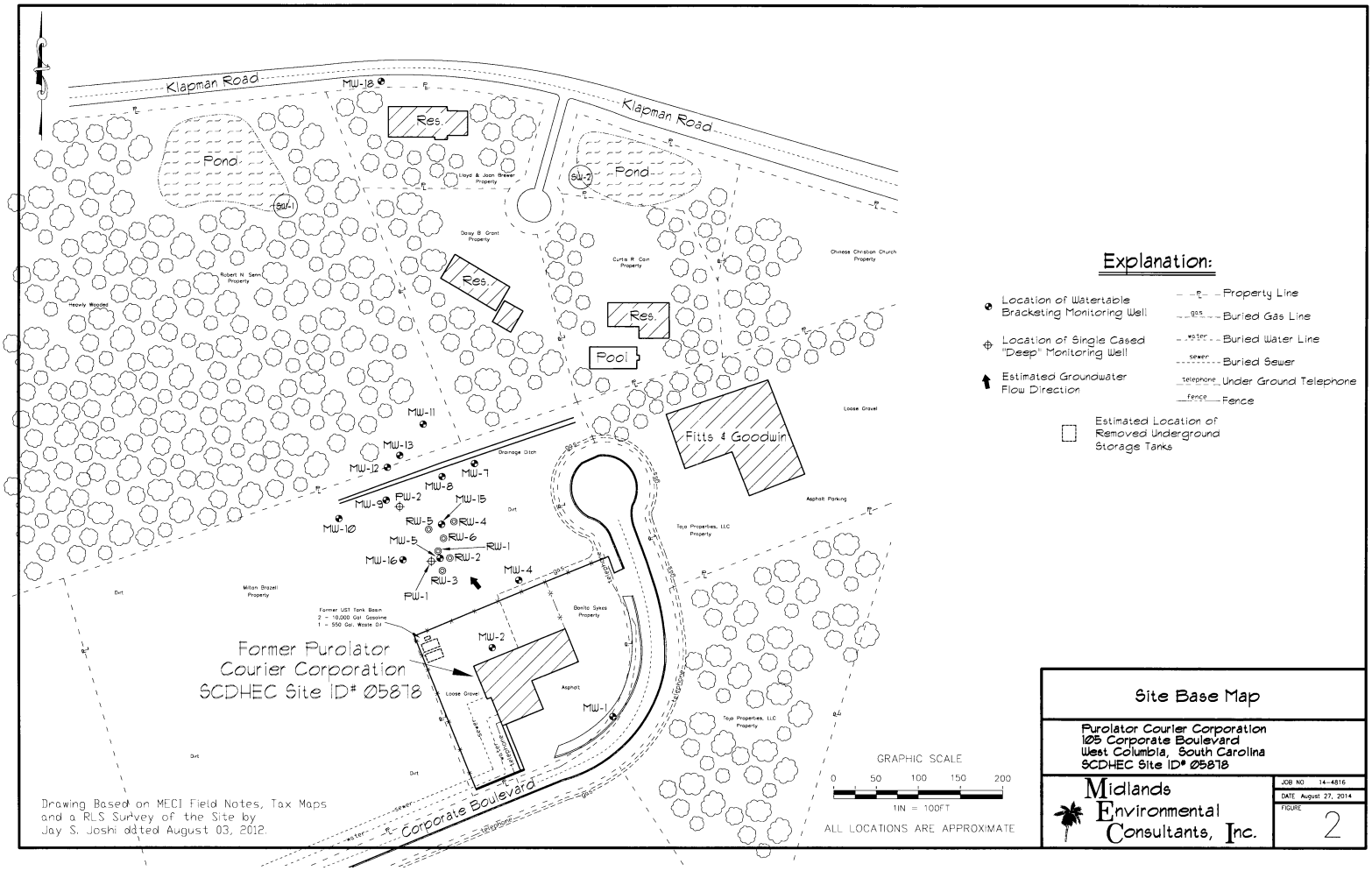
Notes
1 ug/l = micrograms per liter
2 DIPE = Diisopropyl Ether
3 ETBE = Ethyl ter-butyl Ether
4 TAA = tert-Amyl Alcohol
5 TAME = tert-Amyl Methyl Ether
6 TBA = ter-Butyl Alcohol
7 TBF = tert-Butyl Formate
8 NS = Not sampled due to obstruction in well
9 "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL)
10 NL = Monitoring Well Not Located
11 PROD = Free Phase Petroleum Product Dectected (Not Sampled)

FIGURES



Reference: Southwest Columbia, South Carolina
USGS 7.5 Min. Quad
Contour Interval – 10 Feet

Midlands Environmental Consultants, Inc.	Site Location
Purolator Courier Corporation 105 Corporate Boulevard, West Columbia, SC SCDHEC Site ID# 05878	
Figure 1	MECI 14-4816



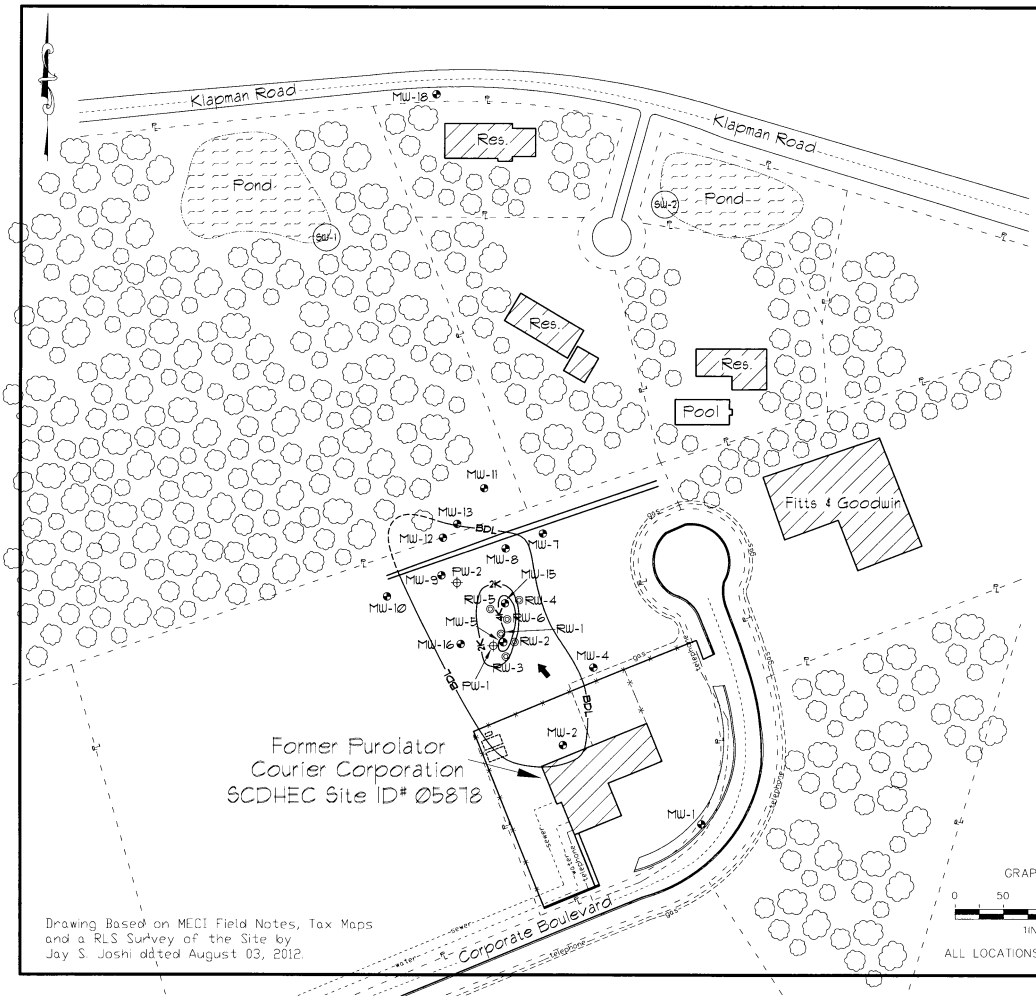
Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated August 03, 2012.

Site Base Map

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO 14-4816
DATE August 27, 2014
FIGURE 2



Explanation:

- Location of Watertable Bracketing Monitoring Well
- Location of Single Cased "Deep" Monitoring Well
- Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Benzene Concentration Isopleth (ug/l)

Groundwater COC Concentration Data

Sample #	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	MTBE (ug/l)	1,2 DCA (ug/l)	EDB (ug/l)
MW-1	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-2	6.6	<5.0	3.6J	<5.0	10.2J	<5.0	0.99J	<5.0	<0.020
MW-3	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-4	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-5	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-6	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-7	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-8	180	2,700	210	4,600	7,690	150	<100	<100	<0.020
MW-9	470	15J	86	73	644J	30	42	<25	<0.019
MW-10	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-11	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-12	150	38	24	58	270	9.3	13	<5.0	<0.020
MW-13	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-14	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-15	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-16	28	<5.0	3.1J	1.7J	32.8J	1.9J	4.2J	<5.0	<0.020
MW-17	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-18	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-21	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-23	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-25	NL	NL	NL	NL	NL	NL	NL	NL	NL
PW-1	<5.0	<5.0	<5.0	3.9J	3.9J	<5.0	<5.0	<5.0	<0.020
PW-2	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	8.7	<5.0	<0.023
RW-1	1,800	4,400	350	2,000	8,550	120J	64J	<250	3.4
RW-2	140	600	220	1,000	1,960	100	7.7J	3.6J	0.070P
RW-3	2,500	5,700	500	2,700	11,400	170J	150J	<500	4.5
RW-4	<5.0	23	44	220	287	22	<5.0	<5.0	0.028P
RW-5	3,500	10,000	1,300	6,600	21,400	440J	120J	<500	4.6
RW-6	4,900	21,000	2,800	15,000	43,700	890J	<1,000	<1,000	7.5
Grant WSW	NL	NL	NL	NL	NL	NL	NL	NL	NL
Lucas WSW	NL	NL	NL	NL	NL	NL	NL	NL	NL
SW-1	<1.0	<1.0	<1.0	<1.0	BDL	<1.0	<1.0	<1.0	<0.020
SW-2	<1.0	<1.0	<1.0	<1.0	BDL	<1.0	<1.0	<1.0	<0.020
RW-4 Duplicate	<5.0	14	26	140	180	14	<5.0	<5.0	<0.020
RW-6 Duplicate	4,900	21,000	3,000	16,000	44,900	1,100	80J	<1,000	7.5
Field Blank	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
Trip Blank	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	NT

Notes:
Groundwater samples collected on July 31, 2014
Isopleth interval = 2,000 mg/l
BDL = Below Detection Limits
"J" Values included in Total BTEX Calculations
"Deep" monitoring wells not used in Isopleth generation
PROD = Free Phase Petroleum Product
P = The RPD between two GC columns exceeds 40%
NL = Not Located
Contours Computer Generated using Surfer by Golden Graphics and Modified by MECI Personnel

GRAPHIC SCALE
0 50 100 150 200
1IN = 100FT

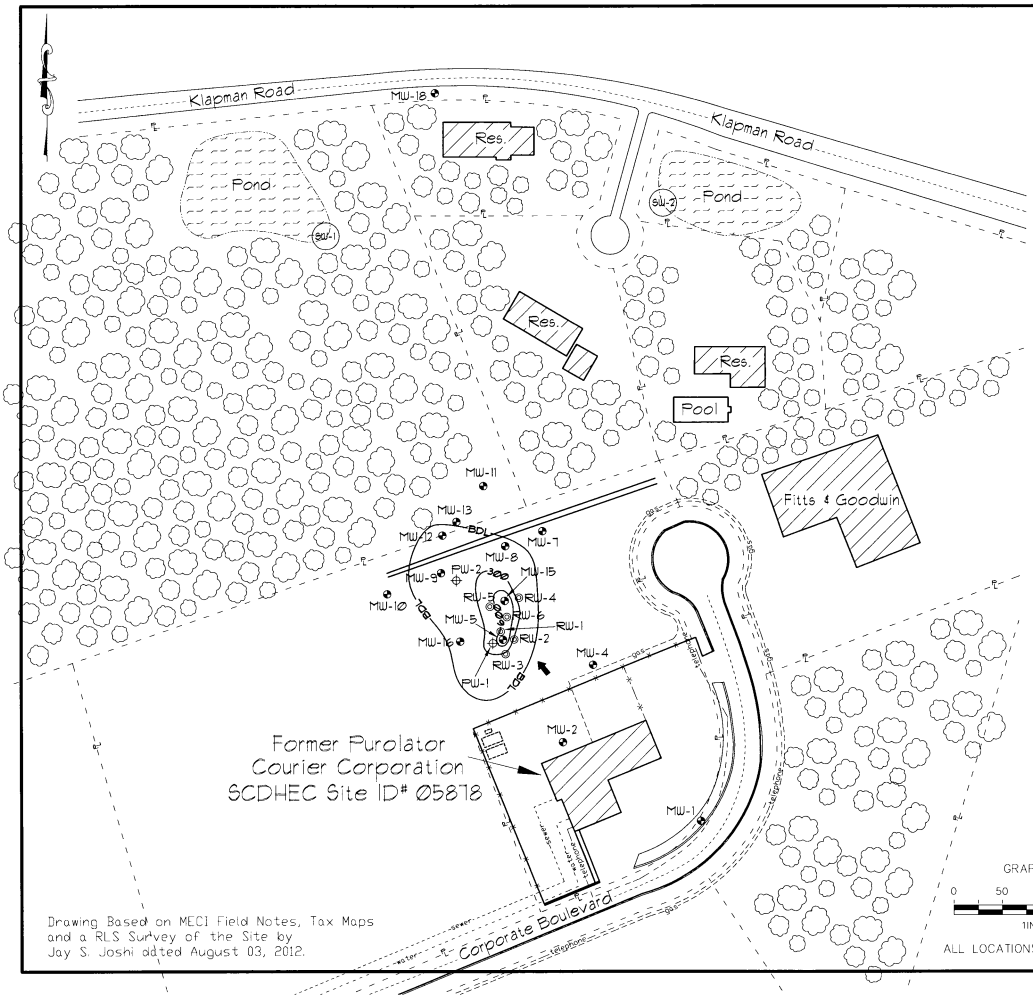
ALL LOCATIONS ARE APPROXIMATE

Groundwater CoC Site Map
(Benzene Isopleth)

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO 14-4816
DATE August 27, 2014
FIGURE 4



Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated August 03, 2012.

Explanation:

- Location of Watertable Bracketing Monitoring Well
- Location of Single Cased "Deep" Monitoring Well
- Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Naphthalene Concentration Isopleth (ug/l)

Groundwater COC Concentration Data

Sample #	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	MTBE (ug/l)	1,2 DCA (ug/l)	EDB (ug/l)
MW-1	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-2	6.6	<5.0	3.6J	<5.0	10.2J	<5.0	0.99J	<5.0	<0.020
MW-3	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-4	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-5	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-6	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-7	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-8	180	2,700	210	4,600	7,690	150	<100	<100	<0.020
MW-9	470	15J	86	73	644J	30	42	<25	<0.019
MW-10	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-11	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-12	150	38	24	58	270	9.3	13	<5.0	<0.020
MW-13	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
MW-14	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-15	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-16	28	<5.0	3.1J	1.7J	32.8J	1.9J	4.2J	<5.0	<0.020
MW-17	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-18	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-21	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-23	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-25	NL	NL	NL	NL	NL	NL	NL	NL	NL
FW-1	<5.0	<5.0	<5.0	3.9J	3.9J	<5.0	<5.0	<5.0	<0.020
FW-2	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	8.7	<5.0	<0.023
RW-1	1,800	4,400	350	2,000	8,550	120J	64J	<250	3.4
RW-2	140	600	220	1,000	1,960	100	7.7J	3.6J	0.070P
RW-3	2,500	5,700	500	2,700	11,400	170J	150J	<500	4.5
RW-4	<5.0	23	44	220	287	22	<5.0	<5.0	0.028P
RW-5	3,500	10,000	1,300	6,600	21,400	440J	120J	<500	4.6
RW-6	4,900	21,000	2,800	15,000	43,700	890J	<1,000	<1,000	7.5
Grant WSW	NL	NL	NL	NL	NL	NL	NL	NL	NL
Lucas WSW	NL	NL	NL	NL	NL	NL	NL	NL	NL
SW-1	<1.0	<1.0	<1.0	<1.0	BDL	<1.0	<1.0	<1.0	<0.020
SW-2	<1.0	<1.0	<1.0	<1.0	BDL	<1.0	<1.0	<1.0	<0.020
RW-4 Duplicate	<5.0	14	26	140	180	14	<5.0	<5.0	<0.020
RW-6 Duplicate	4,900	21,000	3,000	16,000	44,900	1,100	80J	<1,000	7.5
Field Blank	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020
Trip Blank	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	NT

Notes:
- Groundwater samples collected on July 31, 2014
- Isopleth Interval = 300 mg/l
- BDL = Below Detection Limits
- "J" Values included in Total BTEX Calculations
- "Deep" monitoring wells not used in Isopleth generation
- PROD = Free Phase Petroleum Product
- P = The RPD between two GC columns exceeds 40%
- NL = Not Located

Contours Computer Generated using Surfer by Golden Graphics and Modified by MECI Personnel

GRAPHIC SCALE
0 50 100 150 200
1IN = 100FT

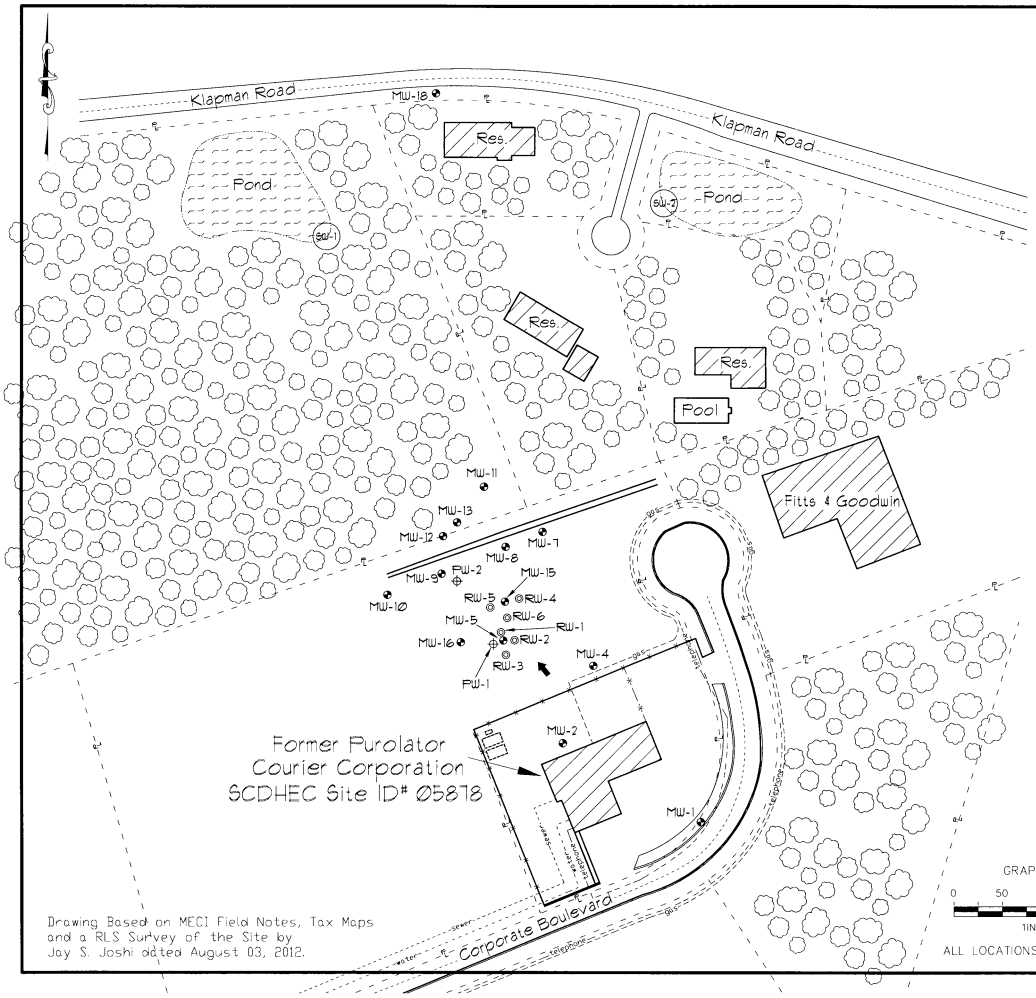
ALL LOCATIONS ARE APPROXIMATE

Groundwater CoC Site Map
(Naphthalene Isopleth)

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 14-4816
DATE August 27, 2014
FIGURE 4A



Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated August 03, 2012.

Explanation:

- Location of Watertable Bracketing Monitoring Well
- Location of Single Cased "Deep" Monitoring Well
- Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks

Groundwater CoC Concentration Data - Oxygenates

Sample #	TAA (ug/l)	TAME (ug/l)	TBF (ug/l)	DIPE (ug/l)	3,3-Dimethyl-1-butanol (ug/l)	Ethanol (ug/l)	ETBE (ug/l)	TBA (ug/l)
MW-1	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-2	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-3	NL	NL	NL	NL	NL	NL	NL	NL
MW-4	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-5	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-6	NL	NL	NL	NL	NL	NL	NL	NL
MW-7	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-8	490J	<200	<2,000	<200	<2,000	<20,000	<2,000	<2,000
MW-9	210J	<50	<500	5.7J	<500	<5,000	<500	<500
MW-10	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-11	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-12	110	<10	<100	2.0J	<100	<1,000	<100	<100
MW-13	<100	<10	<100	<10	<100	<1,000	<100	<100
MW-14	NL	NL	NL	NL	NL	NL	NL	NL
MW-15	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-16	39J	<10	<100	0.49J	<100	<1,000	<100	<100
MW-17	NL	NL	NL	NL	NL	NL	NL	NL
MW-18	NL	NL	NL	NL	NL	NL	NL	NL
MW-21	NL	NL	NL	NL	NL	NL	NL	NL
MW-23	NL	NL	NL	NL	NL	NL	NL	NL
MW-25	NL	NL	NL	NL	NL	NL	NL	NL
PW-1	<100	<10	<100	<10	<100	<1,000	<100	<100
PW-2	<100	<10	<100	<10	<100	<1,000	<100	<100
RW-1	1,600J	<500	<5,000	<500	<5,000	<50,000	<5,000	<5,000
RW-2	210J	<100	<1,000	<100	<1,000	<10,000	<1,000	<1,000
RW-3	3,800J	<1,000	<10,000	<1,000	<10,000	<100,000	<10,000	<10,000
RW-4	21J	<10	<100	<10	<100	<1,000	<100	<100
RW-5	3,400J	<1,000	<10,000	<1,000	<10,000	<100,000	<10,000	<10,000
RW-6	3,100J	<2,000	<20,000	<20,000	<20,000	<200,000	<20,000	<20,000
Grant WSW	NL	NL	NL	NL	NL	NL	NL	NL
Lucas WSW	NL	NL	NL	NL	NL	NL	NL	NL
SW-1	<100	<10	<100	<10	<100	<1,000	<100	<100
SW-2	<100	<10	<100	<10	<100	<1,000	<100	<100
RW-4 Duplicate	<100	<10	<100	<10	<100	<1,000	<100	<100
RW-6 Duplicate	3,100J	<2,000	<20,000	<20,000	<20,000	<200,000	<20,000	<20,000
Field Blank	<100	<10	<100	<10	<100	<1,000	<100	<100
Trip Blank	<100	<10	<100	<10	<100	<1,000	<100	<100

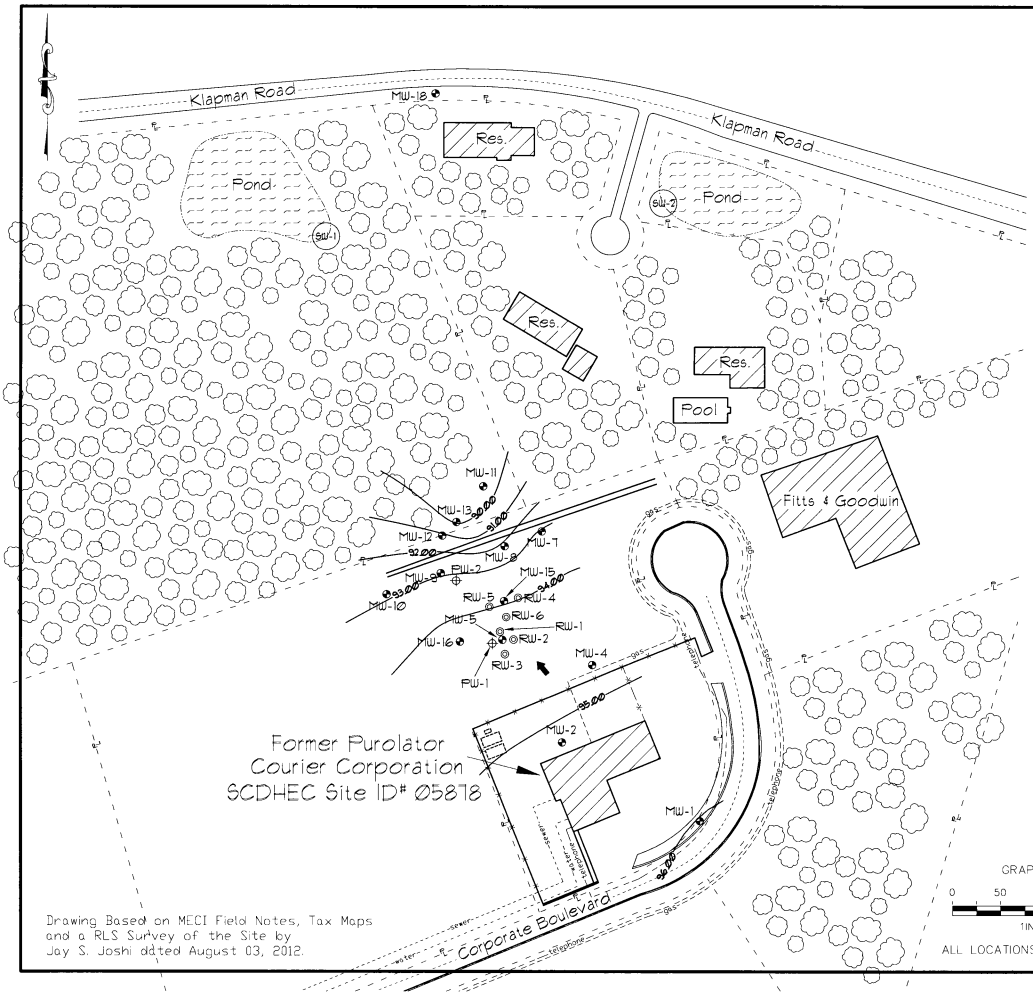
Notes: Groundwater samples collected on July 31, 2014
DIPE = Diisopropyl Ether
ETBE = Ethyl tert-butyl Ether
TAA = tert-Amyl Alcohol
TAME = tert-Amy Methyl Ether
TBA = tert-Butyl Alcohol
TBF = tert-Butyl Formate
PROD = Free Phase Petroleum Product
NS = Not Sampled due to Obstruction
NL = Not Located

Groundwater CoC Site Map
(Oxygenates)

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 14-4816
DATE August 27, 2014
FIGURE 4B



Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated August 03, 2012.

GRAPHIC SCALE
0 50 100 150 200
1IN = 100FT

ALL LOCATIONS ARE APPROXIMATE

Explanation:

- Location of Watertable Bracketing Monitoring Well
- Estimated Groundwater Flow Direction
- Location of Double Cased "Deep" Monitoring Well
- Estimated Location of Removed Underground Storage Tanks
- Groundwater Elevation Contour (feet)

Potentiometric Data

Well #	Screened Interval (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Well Head Elevation	Groundwater Elevation
MW-1	4-14	---	6.58	---	102.60	96.02
MW-2	3-13	---	6.42	---	101.18	94.76
MW-3	4-14	---	NL	---	NL	NL
MW-4	4-14	---	5.09	---	99.92	94.83
MW-5	4-14	4.12	4.73	0.61	98.47	94.26
MW-6	4-14	---	NL	---	NL	NL
MW-7	4-14	---	5.34	---	98.77	93.43
MW-8	4-14	---	5.85	---	97.87	92.02
MW-9	4-14	---	3.73	---	96.83	93.10
MW-10	4-14	---	3.19	---	96.05	92.86
MW-11	4-9	---	7.64	---	97.02	89.38
MW-12	4-9	---	4.84	---	96.11	91.27
MW-13	4-9	---	6.86	---	96.59	89.73
MW-14	4-9	---	NL	---	NL	NL
MW-15	3-13	3.82	4.21	0.39	97.86	93.98
MW-16	3-13	---	3.32	---	97.73	94.41
MW-17	3-13	---	NL	---	NL	NL
MW-18	2-12	---	NL	---	91.16	NL
MW-21	1-6	---	NL	---	NL	NL
MW-23	1-6	---	NL	---	NL	NL
MW-25	1-6	---	NL	---	NL	NL
PW-1	16-21	---	4.28	---	98.51	94.23
PW-2	21-26	---	4.01	---	97.67	93.66
RW-1	5-15	---	3.85	---	97.95	94.10
RW-2	5-15	---	4.10	---	98.36	94.26
RW-3	5-15	---	3.81	---	98.07	94.26
RW-4	1-11	---	4.29	---	98.28	93.99
RW-5	1-11	---	3.82	---	97.76	93.94
RW-6	1-11	---	3.85	---	97.90	94.05

Notes:
Depth to groundwater measured on July 31, 2014
Contour Interval = 1.00 Feet
Site Datum Based on Assumed Spot Elevation
Groundwater elevation for MW-5 and MW-15 corrected for the presence of free phase petroleum product using a specific gravity for fuel of 0.85.
NL = Not Located
Groundwater Contours Computer Generated using Surfer by Golden Graphics and Modified by MECI Personnel

Potentiometric Data Site Map
(Groundwater Contour)

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO 14-4816
DATE August 27, 2014
FIGURE 5

APPENDIX A:

SITE SURVEY
(Not Applicable)

APPENDIX B:

SAMPLING LOGS, LABORATORY DATA SHEETS, & CHAIN-OF-CUSTODY FORMS

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912A1	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** MW-1
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	6.58			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			7.42	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.21	gallons
3 casing volume (3 X CV)=		5	6.05	gallons

Total Volume of Water Purged Before Sampling 2.5 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	9:42	9:44	9:46					
pH (s.u.)	7.58	7.12	6.58					
Specific Conductivity (µmhos/cm)	131.6	142.6	130.2					
Water Temperature (°C)	25.8	25.4	24.9					
Dissolved Oxygen	5.41	4.84	3.23					
Turbidity (NTU)	24.64	286.3	381.9					
PID readings, if required								

Remarks: Sample Time: 9:46 **Dry at 2.5 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** MW-2
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	6.42			feet
Total Well Depth (TWD)	13			feet
Length of the water column (LWC=TWD-DGW)			6.58	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.07	gallons
3 casing volume (3 X CV)=		5	5.36	gallons

Total Volume of Water Purged Before Sampling 5.5 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	9:50	9:51	9:53	9:54	9:55	9:56		
pH (s.u.)	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen		
Specific Conductivity (µmhos/cm)	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen		
Water Temperature (°C)	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen		
Dissolved Oxygen	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen		
Turbidity (NTU)	Sheen	Sheen	Sheen	Sheen	Sheen	Sheen		
PID readings, if required								

Remarks: Sample Time: 9:56 **Sheen = Visible Petroleum Sheen on Samples**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-3

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	NL		feet
Total Well Depth (TWD)	14		feet
Length of the water column (LWC=TWD-DGW)		#VALUE!	feet
1 casing volume (CV=LWC X C)= _____ X	0.163	#VALUE!	gallons
3 casing volume (3 X CV)=	5	#VALUE!	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	NL							
pH (s.u.)	NL							
Specific Conductivity (µmhos/cm)	NL							
Water Temperature (°C)	NL							
Dissolved Oxygen	NL							
Turbidity (NTU)	NL							
PID readings, if required								

Remarks: Sample Time: NL **NL = Not Located**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-4

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	5.09			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			8.91	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.45	gallons
3 casing volume (3 X CV)=		5	7.26	gallons

Total Volume of Water Purged Before Sampling 2.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	14:24	14:26						
pH (s.u.)	5.04	5.21						
Specific Conductivity (µmhos/cm)	106.7	124.8						
Water Temperature (°C)	27.1	26.2						
Dissolved Oxygen	4.91	3.02						
Turbidity (NTU)	44.81	223.5						
PID readings, if required								

Remarks: Sample Time: 14:26 **Dry at 2.5 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-5

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:	0.61			feet
Depth to Free Product (DFP)	4.12			feet
Depth to Ground Water (DGW)	4.73			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			9.27	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.51	gallons
3 casing volume (3 X CV)=		5	7.56	gallons

Total Volume of Water Purged Before Sampling PROD gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	PROD							
pH (s.u.)	PROD							
Specific Conductivity (µmhos/cm)	PROD							
Water Temperature (°C)	PROD							
Dissolved Oxygen	PROD							
Turbidity (NTU)	PROD							
PID readings, if required								

Remarks: Sample Time: PROD

PROD = Free Phase Petroleum Product Gauged at a Thickness of 0.61 Feet.

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-6

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	NL		feet
Total Well Depth (TWD)	14		feet
Length of the water column (LWC=TWD-DGW)		#VALUE!	feet
1 casing volume (CV=LWC X C)= _____ X	0.163	#VALUE!	gallons
3 casing volume (3 X CV)=	5	#VALUE!	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	NL							
pH (s.u.)	NL							
Specific Conductivity (µmhos/cm)	NL							
Water Temperature (°C)	NL							
Dissolved Oxygen	NL							
Turbidity (NTU)	NL							
PID readings, if required								

Remarks: Sample Time: NL **NL = Not Located**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-7

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	5.34			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			8.66	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.41	gallons
3 casing volume (3 X CV)=		5	7.06	gallons

Total Volume of Water Purged Before Sampling 3 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	14:57	14:59	15:01					
pH (s.u.)	6.02	5.81	5.43					
Specific Conductivity (µmhos/cm)	141.9	123.6	91.4					
Water Temperature (°C)	24.8	24.3	24.1					
Dissolved Oxygen	4.13	4.62	3.81					
Turbidity (NTU)	19.81	261.9	339.8					
PID readings, if required								

Remarks: Sample Time: 15:01 **Dry at 3.0 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** MW-8
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	5.85			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			8.15	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.33	gallons
3 casing volume (3 X CV)=		5	6.64	gallons

Total Volume of Water Purged Before Sampling 2.5 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	15:09	15:11						
pH (s.u.)	6.31	6.24						
Specific Conductivity (µmhos/cm)	117.9	84.3						
Water Temperature (°C)	25.2	25.0						
Dissolved Oxygen	3.89	3.44						
Turbidity (NTU)	24.81	214.6						
PID readings, if required								

Remarks: Sample Time: 15:11 **Dry at 2.5 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-9

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.73			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			10.27	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.67	gallons
3 casing volume (3 X CV)=		5	8.37	gallons

Total Volume of Water Purged Before Sampling 3 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	15:12	15:14						
pH (s.u.)	6.46	6.21						
Specific Conductivity (µmhos/cm)	94.8	116.8						
Water Temperature (°C)	24.8	23.1						
Dissolved Oxygen	4.84	3.03						
Turbidity (NTU)	16.61	195.4						
PID readings, if required								

Remarks: Sample Time: 15:14 **Dry at 3.0 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** MW-10
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.19			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			10.81	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.76	gallons
3 casing volume (3 X CV)=		5	8.81	gallons

Total Volume of Water Purged Before Sampling 1.5 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	13:09	13:11						
pH (s.u.)	6.43	6.22						
Specific Conductivity (µmhos/cm)	119.6	81.3						
Water Temperature (°C)	25.1	24.8						
Dissolved Oxygen	3.83	3.55						
Turbidity (NTU)	281.60	495.8						
PID readings, if required								

Remarks: Sample Time: 13:11 **Dry at 1.5 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-11

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	7.64			feet
Total Well Depth (TWD)	9			feet
Length of the water column (LWC=TWD-DGW)			1.36	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	0.22	gallons
3 casing volume (3 X CV)=		5	1.11	gallons

Total Volume of Water Purged Before Sampling INS gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:34							
pH (s.u.)	INS							
Specific Conductivity (µmhos/cm)	INS							
Water Temperature (°C)	INS							
Dissolved Oxygen	INS							
Turbidity (NTU)	INS							
PID readings, if required								

Remarks: Sample Time: 12:34 **INS = Insufficient Water to Purge**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-12

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.84			feet
Total Well Depth (TWD)	9			feet
Length of the water column (LWC=TWD-DGW)			4.16	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	0.68	gallons
3 casing volume (3 X CV)=		5	3.39	gallons

Total Volume of Water Purged Before Sampling 0.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:41	12:42						
pH (s.u.)	6.06	6.01						
Specific Conductivity (µmhos/cm)	141.9	128.2						
Water Temperature (°C)	24.9	24.5						
Dissolved Oxygen	4.81	3.83						
Turbidity (NTU)	19.63	196.8						
PID readings, if required								

Remarks: Sample Time: 12:42 **Dry at 0.5 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** MW-13
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	6.86			feet
Total Well Depth (TWD)	9			feet
Length of the water column (LWC=TWD-DGW)			2.14	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	0.35	gallons
3 casing volume (3 X CV)=		5	1.74	gallons

Total Volume of Water Purged Before Sampling INS gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:48							
pH (s.u.)	INS							
Specific Conductivity (µmhos/cm)	INS							
Water Temperature (°C)	INS							
Dissolved Oxygen	INS							
Turbidity (NTU)	INS							
PID readings, if required								

Remarks: Sample Time: 12:48 **INS = Insufficient Water to Purge**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-14

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	NL		feet
Total Well Depth (TWD)	9		feet
Length of the water column (LWC=TWD-DGW)		#VALUE!	feet
1 casing volume (CV=LWC X C)= _____ X	0.163	#VALUE!	gallons
3 casing volume (3 X CV)=	5	#VALUE!	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	NL							
pH (s.u.)	NL							
Specific Conductivity (µmhos/cm)	NL							
Water Temperature (°C)	NL							
Dissolved Oxygen	NL							
Turbidity (NTU)	NL							
PID readings, if required								

Remarks: Sample Time: NL **NL = Not Located**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-15

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:	0.39			feet
Depth to Free Product (DFP)	3.82			feet
Depth to Ground Water (DGW)	4.21			feet
Total Well Depth (TWD)	13			feet
Length of the water column (LWC=TWD-DGW)			8.79	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.43	gallons
3 casing volume (3 X CV)=		5	7.16	gallons

Total Volume of Water Purged Before Sampling PROD gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	PROD							
pH (s.u.)	PROD							
Specific Conductivity (µmhos/cm)	PROD							
Water Temperature (°C)	PROD							
Dissolved Oxygen	PROD							
Turbidity (NTU)	PROD							
PID readings, if required								

Remarks: Sample Time: PROD **PROD = Free Phase Petroleum Product Gauged at a Thickness of 0.39 Feet.**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** MW-16
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.32			feet
Total Well Depth (TWD)	13			feet
Length of the water column (LWC=TWD-DGW)			9.68	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.58	gallons
3 casing volume (3 X CV)=		5	7.89	gallons

Total Volume of Water Purged Before Sampling 2 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:56	12:58						
pH (s.u.)	6.25	6.14						
Specific Conductivity (µmhos/cm)	98.8	81.3						
Water Temperature (°C)	25.8	24.9						
Dissolved Oxygen	4.21	3.22						
Turbidity (NTU)	19.61	339.3						
PID readings, if required								

Remarks: Sample Time: 12:58 **Dry at 2.0 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-17

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	NL		feet
Total Well Depth (TWD)	13		feet
Length of the water column (LWC=TWD-DGW)		#VALUE!	feet
1 casing volume (CV=LWC X C)= _____ X	0.163	#VALUE!	gallons
3 casing volume (3 X CV)=	5	#VALUE!	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	NL							
pH (s.u.)	NL							
Specific Conductivity (µmhos/cm)	NL							
Water Temperature (°C)	NL							
Dissolved Oxygen	NL							
Turbidity (NTU)	NL							
PID readings, if required								

Remarks: Sample Time: NL **NL = Not Located**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-18

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	NL		feet
Total Well Depth (TWD)	12		feet
Length of the water column (LWC=TWD-DGW)		#VALUE!	feet
1 casing volume (CV=LWC X C)= _____ X	0.163	#VALUE!	gallons
3 casing volume (3 X CV)=	5	#VALUE!	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	NL							
pH (s.u.)	NL							
Specific Conductivity (µmhos/cm)	NL							
Water Temperature (°C)	NL							
Dissolved Oxygen	NL							
Turbidity (NTU)	NL							
PID readings, if required								

Remarks: Sample Time: NL **NL = Not Located**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-21

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	NL		feet
Total Well Depth (TWD)	6		feet
Length of the water column (LWC=TWD-DGW)		#VALUE!	feet
1 casing volume (CV=LWC X C)= _____ X	0.163	#VALUE!	gallons
3 casing volume (3 X CV)=	5	#VALUE!	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	NL							
pH (s.u.)	NL							
Specific Conductivity (µmhos/cm)	NL							
Water Temperature (°C)	NL							
Dissolved Oxygen	NL							
Turbidity (NTU)	NL							
PID readings, if required								

Remarks: Sample Time: NL **NL = Not Located**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-23

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	NL			feet
Total Well Depth (TWD)	6			feet
Length of the water column (LWC=TWD-DGW)			#VALUE!	feet
1 casing volume (CV=LWC X C)=	_____ X	0.163	#VALUE!	gallons
3 casing volume (3 X CV)=		5	#VALUE!	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	NL							
pH (s.u.)	NL							
Specific Conductivity (µmhos/cm)	NL							
Water Temperature (°C)	NL							
Dissolved Oxygen	NL							
Turbidity (NTU)	NL							
PID readings, if required								

Remarks: Sample Time: NL **NL = Not Located**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912A1	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-25

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	NL		feet
Total Well Depth (TWD)	6		feet
Length of the water column (LWC=TWD-DGW)		#VALUE!	feet
1 casing volume (CV=LWC X C)= _____ X	0.163	#VALUE!	gallons
3 casing volume (3 X CV)=	5	#VALUE!	gallons

Total Volume of Water Purged Before Sampling _____ gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	NL							
pH (s.u.)	NL							
Specific Conductivity (µmhos/cm)	NL							
Water Temperature (°C)	NL							
Dissolved Oxygen	NL							
Turbidity (NTU)	NL							
PID readings, if required								

Remarks: Sample Time: NL **NL = Not Located**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** PW-1
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.28			feet
Total Well Depth (TWD)	21			feet
Length of the water column (LWC=TWD-DGW)			16.72	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	2.73	gallons
3 casing volume (3 X CV)=		5	13.63	gallons

Total Volume of Water Purged Before Sampling 4 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	14:08	14:11						
pH (s.u.)	5.90	5.71						
Specific Conductivity (µmhos/cm)	113.4	83.6						
Water Temperature (°C)	25.6	25.4						
Dissolved Oxygen	6.31	3.93						
Turbidity (NTU)	18.43	448.6						
PID readings, if required								

Remarks: Sample Time: 14:11 **Dry at 4.0 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** PW-2

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.01			feet
Total Well Depth (TWD)	26			feet
Length of the water column (LWC=TWD-DGW)			21.99	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	3.58	gallons
3 casing volume (3 X CV)=		5	17.92	gallons

Total Volume of Water Purged Before Sampling 7 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	14:30	14:34	14:38					
pH (s.u.)	5.23	5.24	5.21					
Specific Conductivity (µmhos/cm)	276.5	282.0	331.9					
Water Temperature (°C)	24.5	24.3	24.1					
Dissolved Oxygen	3.03	2.81	2.14					
Turbidity (NTU)	24.82	431.9	464.8					
PID readings, if required								

Remarks: Sample Time: 14:38 **Dry at 7.0 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** RW-1
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.85			feet
Total Well Depth (TWD)	15			feet
Length of the water column (LWC=TWD-DGW)			11.15	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	7.36	gallons
3 casing volume (3 X CV)=		5	36.80	gallons

Total Volume of Water Purged Before Sampling 22 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	13:00	13:10	13:20					
pH (s.u.)	Sheen	Sheen	Sheen					
Specific Conductivity (µmhos/cm)	Sheen	Sheen	Sheen					
Water Temperature (°C)	Sheen	Sheen	Sheen					
Dissolved Oxygen	Sheen	Sheen	Sheen					
Turbidity (NTU)	Sheen	Sheen	Sheen					
PID readings, if required								

Remarks: Sample Time: 13:20 **Dry at 22.0 Gallons**
Sheen = Visible Petroleum Sheen on Samples

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** RW-2
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.10			feet
Total Well Depth (TWD)	15			feet
Length of the water column (LWC=TWD-DGW)			10.9	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	7.19	gallons
3 casing volume (3 X CV)=		5	35.97	gallons

Total Volume of Water Purged Before Sampling 36 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:47	11:52	11:59	12:06	12:13	12:20		
pH (s.u.)	5.79	5.73	5.71	5.69	5.62	5.51		
Specific Conductivity (µmhos/cm)	94.3	91.1	88.6	89.4	91.9	82.3		
Water Temperature (°C)	24.3	24.2	24.3	24.4	24.3	24.1		
Dissolved Oxygen	2.02	1.81	1.62	1.94	1.61	1.42		
Turbidity (NTU)	24.81	191.8	261.6	282.3	313.4	329.8		
PID readings, if required								

Remarks: Sample Time: 12:20

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** RW-3

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.81			feet
Total Well Depth (TWD)	15			feet
Length of the water column (LWC=TWD-DGW)			11.19	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	7.39	gallons
3 casing volume (3 X CV)=		5	36.93	gallons

Total Volume of Water Purged Before Sampling 24 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:02	12:15	12:27					
pH (s.u.)	Sheen	Sheen	Sheen					
Specific Conductivity (µmhos/cm)	Sheen	Sheen	Sheen					
Water Temperature (°C)	Sheen	Sheen	Sheen					
Dissolved Oxygen	Sheen	Sheen	Sheen					
Turbidity (NTU)	Sheen	Sheen	Sheen					
PID readings, if required								

Remarks: Sample Time: 12:27 **Dry at 24.0 Gallons**

Sheen = Visible Petroleum Sheen on Samples

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** RW-4
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.29			feet
Total Well Depth (TWD)	11			feet
Length of the water column (LWC=TWD-DGW)			6.71	feet
1 casing volume (CV=LWC X C)= ____ X		0.66	4.43	gallons
3 casing volume (3 X CV)=		5	22.14	gallons

Total Volume of Water Purged Before Sampling 22.5 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	10:21	10:26	10:31	10:36	10:41	10:46		
pH (s.u.)	5.18	5.16	5.11	5.04	5.05	5.09		
Specific Conductivity (µmhos/cm)	87.3	89.6	94.8	99.5	101.3	90.3		
Water Temperature (°C)	24.8	24.7	24.3	24.2	24.1	24.1		
Dissolved Oxygen	2.62	2.31	2.02	1.81	1.62	1.31		
Turbidity (NTU)	181.60	242.6	339.4	481.90	626.4	863.9		
PID readings, if required								

Remarks: Sample Time: 10:46

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014

Field Personnel: W. Huss, F. Mitlin

General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** RW-5

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.82			feet
Total Well Depth (TWD)	11			feet
Length of the water column (LWC=TWD-DGW)			7.18	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	4.74	gallons
3 casing volume (3 X CV)=		5	23.69	gallons

Total Volume of Water Purged Before Sampling 24 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:15	11:20	11:25	11:30	11:35	11:40		
pH (s.u.)	5.42	5.44	5.48	5.56	5.54	5.51		
Specific Conductivity (µmhos/cm)	80.8	81.6	84.9	89.3	100.6	90.8		
Water Temperature (°C)	24.6	24.4	24.3	24.2	24.1	24		
Dissolved Oxygen	3.62	3.31	3.29	3.06	2.42	2.12		
Turbidity (NTU)	191.4	214.9	232.6	331.9	404.3	446.9		
PID readings, if required								

Remarks: Sample Time: 11:40

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/31/2014
Field Personnel: W. Huss, F. Mitlin
General Weather Conditions: Cloudy, Rain

Ambient Air Temperature: 31.0 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** RW-6
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.85			feet
Total Well Depth (TWD)	11			feet
Length of the water column (LWC=TWD-DGW)			7.15	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	4.72	gallons
3 casing volume (3 X CV)=		5	23.60	gallons

Total Volume of Water Purged Before Sampling 5 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	10:48	10:54						
pH (s.u.)	Sheen	Sheen						
Specific Conductivity (µmhos/cm)	Sheen	Sheen						
Water Temperature (°C)	Sheen	Sheen						
Dissolved Oxygen	Sheen	Sheen						
Turbidity (NTU)	Sheen	Sheen						
PID readings, if required								

Remarks: Sample Time: 10:54 **Dry at 5.0 Gallons**
Sheen = Visible Petroleum Sheen on Samples

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

Midlands Environmental Consultants, Inc.
235 Dooley Rd
Lexington, SC 29073
Attention: Bryan Shane

Project Name: **Purolator**

Project Number: **14-4816**

Lot Number: **PH01063**

Date Completed: **08/13/2014**

Kelly M. Maberry
Project Manager

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The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

Case Narrative

Midlands Environmental Consultants, Inc.

Lot Number: PH01063

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

GC/MS Volatiles
The MS/MSD associated with samples -009 and -019 had tert-butyl formate recovered outside of the acceptance limits and RPDs exceeded method control limits. The LCS/LCSD were recovered within the required acceptance limits; therefore, this demonstrates a matrix effect and data quality is not impacted.

EDB/DBCP
The sample results for -015 and -017 have a P qualifier because the relative percent difference (RPD) between the two dissimilar phase GC columns exceeds 40%. Section 7.10.4 of SW-846 method 8000B states the higher of the two results is reported; however the lower results are reported for these samples. The higher result for sample -015 was 0.11 ug/L. The higher result for sample -017 was 0.081 ug/L.

Due to high detections for target compounds, samples -014 and -018 were diluted 5x. As a result, the associated surrogates were recovered outside of the acceptance limits. No corrective action was required, as dilutions of 5x and greater may impact surrogate recoveries.

Sample -006 had sediment in the vials that altered the sample volume.

Sample Summary

Midlands Environmental Consultants, Inc.

Lot Number: PH01063

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-1	Aqueous	07/31/2014 0946	08/01/2014
002	MW-2	Aqueous	07/31/2014 0956	08/01/2014
003	MW-4	Aqueous	07/31/2014 1426	08/01/2014
004	MW-7	Aqueous	07/31/2014 1501	08/01/2014
005	MW-8	Aqueous	07/31/2014 1511	08/01/2014
006	MW-9	Aqueous	07/31/2014 1514	08/01/2014
007	MW-10	Aqueous	07/31/2014 1311	08/01/2014
008	MW-11	Aqueous	07/31/2014 1234	08/01/2014
009	MW-12	Aqueous	07/31/2014 1242	08/01/2014
010	MW-13	Aqueous	07/31/2014 1248	08/01/2014
011	MW-16	Aqueous	07/31/2014 1258	08/01/2014
012	PW-1	Aqueous	07/31/2014 1411	08/01/2014
013	PW-2	Aqueous	07/31/2014 1438	08/01/2014
014	RW-1	Aqueous	07/31/2014 1320	08/01/2014
015	RW-2	Aqueous	07/31/2014 1220	08/01/2014
016	RW-3	Aqueous	07/31/2014 1227	08/01/2014
017	RW-4	Aqueous	07/31/2014 1046	08/01/2014
018	RW-5	Aqueous	07/31/2014 1140	08/01/2014
019	RW-6	Aqueous	07/31/2014 1054	08/01/2014
020	SW-1	Aqueous	07/31/2014 0915	08/01/2014
021	SW-2	Aqueous	07/31/2014 0924	08/01/2014
022	RW-4 Dup	Aqueous	07/31/2014 1046	08/01/2014
023	RW-6 Dup	Aqueous	07/31/2014 1054	08/01/2014
024	Field Blank	Aqueous	07/31/2014 0921	08/01/2014
025	Trip Blank	Aqueous	07/31/2014 0922	08/01/2014

(25 samples)

Executive Summary

Midlands Environmental Consultants, Inc.

Lot Number: PH01063

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
002	MW-2	Aqueous	Benzene	8260B	6 6		ug/L	8
002	MW-2	Aqueous	Ethylbenzene	8260B	3.6	J	ug/L	8
002	MW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	0.99	J	ug/L	8
005	MW-8	Aqueous	tert-Amyl alcohol (TAA)	8260B	490	J	ug/L	11
005	MW-8	Aqueous	Benzene	8260B	180		ug/L	11
005	MW-8	Aqueous	Ethylbenzene	8260B	210		ug/L	11
005	MW-8	Aqueous	Naphthalene	8260B	150		ug/L	11
005	MW-8	Aqueous	Toluene	8260B	2700		ug/L	11
005	MW-8	Aqueous	Xylenes (total)	8260B	4600		ug/L	11
006	MW-9	Aqueous	tert-Amyl alcohol (TAA)	8260B	210	J	ug/L	12
006	MW-9	Aqueous	Benzene	8260B	470		ug/L	12
006	MW-9	Aqueous	Diisopropyl ether (IPE)	8260B	5.7	J	ug/L	12
006	MW-9	Aqueous	Ethylbenzene	8260B	86		ug/L	12
006	MW-9	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	42		ug/L	12
006	MW-9	Aqueous	Naphthalene	8260B	30		ug/L	12
006	MW-9	Aqueous	Toluene	8260B	15	J	ug/L	12
006	MW-9	Aqueous	Xylenes (total)	8260B	73		ug/L	12
009	MW-12	Aqueous	tert-Amyl alcohol (TAA)	8260B	110		ug/L	15
009	MW-12	Aqueous	Benzene	8260B	150		ug/L	15
009	MW-12	Aqueous	Diisopropyl ether (IPE)	8260B	2.0	J	ug/L	15
009	MW-12	Aqueous	Ethylbenzene	8260B	24		ug/L	15
009	MW-12	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	13		ug/L	15
009	MW-12	Aqueous	Naphthalene	8260B	9.3		ug/L	15
009	MW-12	Aqueous	Toluene	8260B	38		ug/L	15
009	MW-12	Aqueous	Xylenes (total)	8260B	58		ug/L	15
011	MW-16	Aqueous	tert-Amyl alcohol (TAA)	8260B	39	J	ug/L	17
011	MW-16	Aqueous	Benzene	8260B	28		ug/L	17
011	MW-16	Aqueous	Diisopropyl ether (IPE)	8260B	0.49	J	ug/L	17
011	MW-16	Aqueous	Ethylbenzene	8260B	3.1	J	ug/L	17
011	MW-16	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	4.2	J	ug/L	17
011	MW-16	Aqueous	Naphthalene	8260B	1.9	J	ug/L	17
011	MW-16	Aqueous	Xylenes (total)	8260B	1.7	J	ug/L	17
012	PW-1	Aqueous	Xylenes (total)	8260B	3.9	J	ug/L	18
013	PW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	8.7		ug/L	19
014	RW-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	1600	J	ug/L	20
014	RW-1	Aqueous	Benzene	8260B	1800		ug/L	20
014	RW-1	Aqueous	Ethylbenzene	8260B	350		ug/L	20
014	RW-1	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	64	J	ug/L	20
014	RW-1	Aqueous	Naphthalene	8260B	120	J	ug/L	20
014	RW-1	Aqueous	Toluene	8260B	4400		ug/L	20
014	RW-1	Aqueous	Xylenes (total)	8260B	2000		ug/L	20
014	RW-1	Aqueous	1,2-Dibromoethane (EDB)	8011	3.4		ug/L	20
015	RW-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	210	J	ug/L	21
015	RW-2	Aqueous	Benzene	8260B	140		ug/L	21
015	RW-2	Aqueous	1,2-Dichloroethane	8260B	3.6	J	ug/L	21

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
015	RW-2	Aqueous	Ethylbenzene	8260B	220		ug/L	21
015	RW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	7.7	J	ug/L	21
015	RW-2	Aqueous	Naphthalene	8260B	100		ug/L	21
015	RW-2	Aqueous	Toluene	8260B	600		ug/L	21
015	RW-2	Aqueous	Xylenes (total)	8260B	1000		ug/L	21
015	RW-2	Aqueous	1,2-Dibromoethane (EDB)	8011	0 070	P	ug/L	21
016	RW-3	Aqueous	tert-Amyl alcohol (TAA)	8260B	3800	J	ug/L	22
016	RW-3	Aqueous	Benzene	8260B	2500		ug/L	22
016	RW-3	Aqueous	Ethylbenzene	8260B	500		ug/L	22
016	RW-3	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	150	J	ug/L	22
016	RW-3	Aqueous	Naphthalene	8260B	170	J	ug/L	22
016	RW-3	Aqueous	Toluene	8260B	5700		ug/L	22
016	RW-3	Aqueous	Xylenes (total)	8260B	2700		ug/L	22
016	RW-3	Aqueous	1,2-Dibromoethane (EDB)	8011	4.5		ug/L	22
017	RW-4	Aqueous	tert-Amyl alcohol (TAA)	8260B	21	J	ug/L	23
017	RW-4	Aqueous	Ethylbenzene	8260B	44		ug/L	23
017	RW-4	Aqueous	Naphthalene	8260B	22		ug/L	23
017	RW-4	Aqueous	Toluene	8260B	23		ug/L	23
017	RW-4	Aqueous	Xylenes (total)	8260B	220		ug/L	23
017	RW-4	Aqueous	1,2-Dibromoethane (EDB)	8011	0 028	P	ug/L	23
018	RW-5	Aqueous	tert-Amyl alcohol (TAA)	8260B	3400	J	ug/L	24
018	RW-5	Aqueous	Benzene	8260B	3500		ug/L	24
018	RW-5	Aqueous	Ethylbenzene	8260B	1300		ug/L	24
018	RW-5	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	120	J	ug/L	24
018	RW-5	Aqueous	Naphthalene	8260B	440	J	ug/L	24
018	RW-5	Aqueous	Toluene	8260B	10000		ug/L	24
018	RW-5	Aqueous	Xylenes (total)	8260B	6600		ug/L	24
018	RW-5	Aqueous	1,2-Dibromoethane (EDB)	8011	4.6		ug/L	24
019	RW-6	Aqueous	tert-Amyl alcohol (TAA)	8260B	3100	J	ug/L	25
019	RW-6	Aqueous	Benzene	8260B	4900		ug/L	25
019	RW-6	Aqueous	Ethylbenzene	8260B	2800		ug/L	25
019	RW-6	Aqueous	Naphthalene	8260B	890	J	ug/L	25
019	RW-6	Aqueous	Toluene	8260B	21000		ug/L	25
019	RW-6	Aqueous	Xylenes (total)	8260B	15000		ug/L	25
019	RW-6	Aqueous	1,2-Dibromoethane (EDB)	8011	7.5		ug/L	25
022	RW-4 Dup	Aqueous	Ethylbenzene	8260B	26		ug/L	28
022	RW-4 Dup	Aqueous	Naphthalene	8260B	14		ug/L	28
022	RW-4 Dup	Aqueous	Toluene	8260B	14		ug/L	28
022	RW-4 Dup	Aqueous	Xylenes (total)	8260B	140		ug/L	28
023	RW-6 Dup	Aqueous	tert-Amyl alcohol (TAA)	8260B	3100	J	ug/L	29
023	RW-6 Dup	Aqueous	Benzene	8260B	4900		ug/L	29
023	RW-6 Dup	Aqueous	Ethylbenzene	8260B	3000		ug/L	29
023	RW-6 Dup	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	80	J	ug/L	29
023	RW-6 Dup	Aqueous	Naphthalene	8260B	1100		ug/L	29
023	RW-6 Dup	Aqueous	Toluene	8260B	21000		ug/L	29
023	RW-6 Dup	Aqueous	Xylenes (total)	8260B	16000		ug/L	29
023	RW-6 Dup	Aqueous	1,2-Dibromoethane (EDB)	8011	7.5		ug/L	29

Sample Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page

(92 detections)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-1**
Date Sampled: **07/31/2014 0946**
Date Received: **08/01/2014**

Laboratory ID: **PH01063-001**
Matrix **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2014 1552	PMM2		53668

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6 7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5 0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		101	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 1805	MEM	08/07/2014 1125	53369

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		83	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description. **MW-2**
Date Sampled: **07/31/2014 0956**
Date Received: **08/01/2014**

Laboratory ID: **PH01063-002**
Matrix **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2014 1614	PMM2		53668

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	**71-43-2**	**8260B**	**6.6**		**5.0**	**0.20**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0 40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**3.6**	**J**	**5.0**	**1.7**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**0.99**	**J**	**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5 0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 1815	MEM	08/07/2014 1125	53369

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0 020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		118	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-4**
Date Sampled: **07/31/2014 1426**
Date Received: **08/01/2014**

Laboratory ID **PH01063-003**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2014 1635	PMM2		53668

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0 20	ug/L	1
Benzene	71-43-2	8260B	ND		5 0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0 30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5 0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		103	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 1825	MEM	08/07/2014 1125	53369

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		89	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **PH01063-004**
Description: **MW-7** Matrix: **Aqueous**
Date Sampled: **07/31/2014 1501**
Date Received: **08/01/2014**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2014 1656	PMM2		53668

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6 7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1 0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0 40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0 20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5 0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		102	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 1835	MEM	08/07/2014 1125	53369

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		94	57-137

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-8**
Date Sampled: **07/31/2014 1511**
Date Received: **08/01/2014**

Laboratory ID: **PH01063-005**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	20	08/10/2014 2009	PMM2		53668

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**490**	**J**	**2000**	**130**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		200	4.0	ug/L	1
Benzene	**71-43-2**	**8260B**	**180**		**100**	**4.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		2000	20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		100	6 0	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		200	8.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		2000	20	ug/L	1
Ethanol	64-17-5	8260B	ND		20000	660	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**210**		**100**	**34**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		2000	4 0	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		100	8.0	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**150**		**100**	**34**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		2000	130	ug/L	1
Toluene	**108-88-3**	**8260B**	**2700**		**100**	**34**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**4600**		**100**	**34**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		107	70-130
Toluene-d8		105	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 1846	MEM	08/07/2014 1125	53369

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		108	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-9**
Date Sampled **07/31/2014 1514**
Date Received **08/01/2014**

Laboratory ID **PH01063-006**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	08/10/2014 2030	PMM2		53668

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**210**	**J**	**500**	**34**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	1.0	ug/L	1
Benzene	**71-43-2**	**8260B**	**470**		**25**	**1.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	5.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		25	1.5	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**5.7**	**J**	**50**	**2.0**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		500	5.0	ug/L	1
Ethanol	64-17-5	8260B	ND		5000	170	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**86**		**25**	**8.5**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		500	1.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**42**		**25**	**2.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**30**		**25**	**8.5**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		500	34	ug/L	1
Toluene	**108-88-3**	**8260B**	**15**	**J**	**25**	**8.5**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**73**		**25**	**8.5**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		108	70-130
Toluene-d8		105	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 1927	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		107	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-10**
Date Sampled: **07/31/2014 1311**
Date Received: **08/01/2014**

Laboratory ID **PH01063-007**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2014 1718	PMM2		53668

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0 20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1 0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5 0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		103	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 1937	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		97	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-11**
Date Sampled: **07/31/2014 1234**
Date Received: **08/01/2014**

Laboratory ID: **PH01063-008**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2014 1739	PMM2		53668

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6 7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5 0	0 30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5 0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 1948	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		94	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **PH01063-009**

Description: **MW-12** Matrix: **Aqueous**

Date Sampled: **07/31/2014 1242**

Date Received **08/01/2014**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	1	08/11/2014 2142	PMM2		53767

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**110**		**100**	**6.7**	**ug/L**	**2**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	2
Benzene	**71-43-2**	**8260B**	**150**		**5.0**	**0.20**	**ug/L**	**2**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	2
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	2
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**2.0**	**J**	**10**	**0.40**	**ug/L**	**2**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	2
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	2
Ethylbenzene	**100-41-4**	**8260B**	**24**		**5.0**	**1.7**	**ug/L**	**2**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	2
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**13**		**5.0**	**0.40**	**ug/L**	**2**
Naphthalene	**91-20-3**	**8260B**	**9.3**		**5.0**	**1.7**	**ug/L**	**2**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	2
Toluene	**108-88-3**	**8260B**	**38**		**5.0**	**1.7**	**ug/L**	**2**
Xylenes (total)	**1330-20-7**	**8260B**	**58**		**5.0**	**1.7**	**ug/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		105	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 1958	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		98	57-137

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-13**
Date Sampled: **07/31/2014 1248**
Date Received: **08/01/2014**

Laboratory ID: **PH01063-010**
Matrix. **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2014 1800	PMM2		53668

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1 7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 2008	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		96	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client **Midlands Environmental Consultants, Inc.**
Description: **MW-16**
Date Sampled: **07/31/2014 1258**
Date Received: **08/01/2014**

Laboratory ID **PH01063-011**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2014 1822	PMM2		53668

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**39**	**J**	**100**	**6.7**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	**71-43-2**	**8260B**	**28**		**5.0**	**0.20**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	**108-20-3**	**8260B**	**0.49**	**J**	**10**	**0.40**	**ug/L**	**1**
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1 0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**3.1**	**J**	**5.0**	**1.7**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**4.2**	**J**	**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**1.9**	**J**	**5.0**	**1.7**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	**1330-20-7**	**8260B**	**1.7**	**J**	**5.0**	**1.7**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 2039	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		100	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID. **PH01063-012**
Description: **PW-1** Matrix: **Aqueous**
Date Sampled **07/31/2014 1411**
Date Received: **08/01/2014**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2014 1145	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	**1330-20-7**	**8260B**	**3.9**	**J**	**5.0**	**1.7**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		105	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 2049	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		97	57-137

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **PW-2**
Date Sampled: **07/31/2014 1438**
Date Received: **08/01/2014**

Laboratory ID **PH01063-013**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2014 1206	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5 0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**8.7**		**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 2100	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.023	0.023	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		86	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description **RW-1**
Date Sampled: **07/31/2014 1320**
Date Received. **08/01/2014**

Laboratory ID: **PH01063-014**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	50	08/11/2014 1457	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**1600**	**J**	**5000**	**340**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		500	10	ug/L	1
Benzene	**71-43-2**	**8260B**	**1800**		**250**	**10**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5000	50	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		250	15	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		500	20	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		5000	50	ug/L	1
Ethanol	64-17-5	8260B	ND		50000	1700	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**350**		**250**	**85**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		5000	10	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**64**	**J**	**250**	**20**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**120**	**J**	**250**	**85**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		5000	340	ug/L	1
Toluene	**108-88-3**	**8260B**	**4400**		**250**	**85**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**2000**		**250**	**85**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		106	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	5	08/08/2014 1110	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**3.4**		**0.099**	**0.099**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane	N	180	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **RW-2**
Date Sampled: **07/31/2014 1220**
Date Received: **08/01/2014**

Laboratory ID: **PH01063-015**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	10	08/11/2014 1519	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**210**	**J**	**1000**	**67**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		100	2.0	ug/L	1
Benzene	**71-43-2**	**8260B**	**140**		**50**	**2.0**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		1000	10	ug/L	1
1,2-Dichloroethane	**107-06-2**	**8260B**	**3.6**	**J**	**50**	**3.0**	**ug/L**	**1**
Diisopropyl ether (IPE)	108-20-3	8260B	ND		100	4.0	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		1000	10	ug/L	1
Ethanol	64-17-5	8260B	ND		10000	330	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**220**		**50**	**17**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1000	2.0	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**7.7**	**J**	**50**	**4.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**100**		**50**	**17**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		1000	67	ug/L	1
Toluene	**108-88-3**	**8260B**	**600**		**50**	**17**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**1000**		**50**	**17**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 2120	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**0.070**	**P**	**0.020**	**0.020**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		83	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **PH01063-016**

Description **RW-3** Matrix: **Aqueous**

Date Sampled: **07/31/2014 1227**

Date Received. **08/01/2014**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	100	08/11/2014 1540	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**3800**	**J**	**10000**	**670**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		1000	20	ug/L	1
Benzene	**71-43-2**	**8260B**	**2500**		**500**	**20**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		10000	100	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		500	30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1000	40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		10000	100	ug/L	1
Ethanol	64-17-5	8260B	ND		100000	3300	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**500**		**500**	**170**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		10000	20	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**150**	**J**	**500**	**40**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**170**	**J**	**500**	**170**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		10000	670	ug/L	1
Toluene	**108-88-3**	**8260B**	**5700**		**500**	**170**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**2700**		**500**	**170**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		106	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	5	08/08/2014 1120	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**4.5**		**0.097**	**0.097**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		122	57-137

PQL = Practical quantitation limit B = Detected in the method blank E = Quantitation of compound exceeded the calibration range H = Out of holding time

ND = Not detected at or above the MDL J = Estimated result < PQL and ≥ MDL P = The RPD between two GC columns exceeds 40% N = Recovery is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **RW-4**
Date Sampled: **07/31/2014 1046**
Date Received: **08/01/2014**

Laboratory ID **PH01063-017**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	1	08/12/2014 2154	PMM2		53864

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**21**	**J**	**100**	**6.7**	**ug/L**	**2**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	2
Benzene	71-43-2	8260B	ND		5.0	0 20	ug/L	2
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	2
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	2
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0 40	ug/L	2
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	2
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	2
Ethylbenzene	**100-41-4**	**8260B**	**44**		**5.0**	**1.7**	**ug/L**	**2**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5 0	0.40	ug/L	2
Naphthalene	**91-20-3**	**8260B**	**22**		**5.0**	**1.7**	**ug/L**	**2**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	2
Toluene	**108-88-3**	**8260B**	**23**		**5.0**	**1.7**	**ug/L**	**2**
Xylenes (total)	**1330-20-7**	**8260B**	**220**		**5.0**	**1.7**	**ug/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		103	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 2141	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**0.028**	**P**	**0.020**	**0.020**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		119	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **RW-5**
Date Sampled: **07/31/2014 1140**
Date Received: **08/01/2014**

Laboratory ID: **PH01063-018**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	100	08/11/2014 1644	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**3400**	**J**	**10000**	**670**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		1000	20	ug/L	1
Benzene	**71-43-2**	**8260B**	**3500**		**500**	**20**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		10000	100	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		500	30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1000	40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		10000	100	ug/L	1
Ethanol	64-17-5	8260B	ND		100000	3300	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**1300**		**500**	**170**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		10000	20	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**120**	**J**	**500**	**40**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**440**	**J**	**500**	**170**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		10000	670	ug/L	1
Toluene	**108-88-3**	**8260B**	**10000**		**500**	**170**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**6600**		**500**	**170**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		101	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		107	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	5	08/08/2014 1130	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**4.6**		**0.10**	**0.10**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane	N	191	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client **Midlands Environmental Consultants, Inc.**
Description. **RW-6**
Date Sampled:**07/31/2014 1054**
Date Received. **08/01/2014**

Laboratory ID: **PH01063-019**
Matrix **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	200	08/11/2014 1706	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**3100**	**J**	**20000**	**1300**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		2000	40	ug/L	1
Benzene	**71-43-2**	**8260B**	**4900**		**1000**	**40**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		20000	200	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1000	60	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		2000	80	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20000	200	ug/L	1
Ethanol	64-17-5	8260B	ND		200000	6600	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**2800**		**1000**	**340**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		20000	40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1000	80	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**890**	**J**	**1000**	**340**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20000	1300	ug/L	1
Toluene	**108-88-3**	**8260B**	**21000**		**1000**	**340**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**15000**		**1000**	**340**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		101	70-130
Bromofluorobenzene		108	70-130
Toluene-d8		106	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	10	08/08/2014 1141	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**7.5**		**0.20**	**0.20**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		129	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **PH01063-020**

Description: **SW-1** Matrix: **Aqueous**

Date Sampled: **07/31/2014 0915**

Date Received: **08/01/2014**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2014 1748	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.13	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.15	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.33	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.33	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.33	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		106	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 2212	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0 020	0 020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		86	57-137

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client **Midlands Environmental Consultants, Inc.**
Description: **SW-2**
Date Sampled **07/31/2014 0924**
Date Received **08/01/2014**

Laboratory ID: **PH01063-021**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2014 1228	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0 20	ug/L	1
Benzene	71-43-2	8260B	ND		1.0	0.13	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1.0	0.15	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		1.0	0.33	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		1.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		1.0	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		1.0	0.33	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		1.0	0.33	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 2222	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0 020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		98	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **RW-4 Dup**
Date Sampled: **07/31/2014 1046**
Date Received: **08/01/2014**

Laboratory ID: **PH01063-022**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	1	08/12/2014 2216	PMM2		53864

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	2
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	2
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	2
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	2
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	2
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0 40	ug/L	2
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	2
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	2
Ethylbenzene	**100-41-4**	**8260B**	**26**		**5.0**	**1.7**	**ug/L**	**2**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	2
Naphthalene	**91-20-3**	**8260B**	**14**		**5.0**	**1.7**	**ug/L**	**2**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	2
Toluene	**108-88-3**	**8260B**	**14**		**5.0**	**1.7**	**ug/L**	**2**
Xylenes (total)	**1330-20-7**	**8260B**	**140**		**5.0**	**1.7**	**ug/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		104	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 2232	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		115	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client **Midlands Environmental Consultants, Inc.**
Description: **RW-6 Dup**
Date Sampled **07/31/2014 1054**
Date Received **08/01/2014**

Laboratory ID. **PH01063-023**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	200	08/11/2014 1727	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**3100**	**J**	**20000**	**1300**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		2000	40	ug/L	1
Benzene	**71-43-2**	**8260B**	**4900**		**1000**	**40**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		20000	200	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		1000	60	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		2000	80	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20000	200	ug/L	1
Ethanol	64-17-5	8260B	ND		200000	6600	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**3000**		**1000**	**340**	**ug/L**	**1**
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		20000	40	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**80**	**J**	**1000**	**80**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**1100**		**1000**	**340**	**ug/L**	**1**
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20000	1300	ug/L	1
Toluene	**108-88-3**	**8260B**	**21000**		**1000**	**340**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**16000**		**1000**	**340**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		107	70-130
Toluene-d8		107	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	10	08/08/2014 1151	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**7.5**		**0.21**	**0.21**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		129	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **Field Blank**
Date Sampled: **07/31/2014 0921**
Date Received: **08/01/2014**

Laboratory ID: **PH01063-024**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2014 1102	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		103	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/07/2014 2253	RBH	08/07/2014 1350	53429

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		94	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Client: **Midlands Environmental Consultants, Inc.**
Description: **Trip Blank**
Date Sampled: **07/31/2014 0922**
Date Received: **08/01/2014**

Laboratory ID: **PH01063-025**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2014 1124	EH1		53715

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0 20	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5 0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		100	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ53668-001
Batch: 53668
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/10/2014 1343
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	08/10/2014 1343
Benzene	ND		1	5.0	0.20	ug/L	08/10/2014 1343
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/10/2014 1343
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	08/10/2014 1343
Diisopropyl ether (IPE)	ND		1	10	0 40	ug/L	08/10/2014 1343
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/10/2014 1343
Ethanol	ND		1	1000	33	ug/L	08/10/2014 1343
Ethylbenzene	ND		1	5 0	1.7	ug/L	08/10/2014 1343
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/10/2014 1343
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/10/2014 1343
Naphthalene	ND		1	5.0	1.7	ug/L	08/10/2014 1343
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/10/2014 1343
Toluene	ND		1	5.0	1.7	ug/L	08/10/2014 1343
Xylenes (total)	ND		1	5 0	1.7	ug/L	08/10/2014 1343

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		107	70-130
1,2-Dichloroethane-d4		100	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ53668-002
Batch: 53668
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	980		1	98	70-130	08/10/2014 1215
tert-Amyl methyl ether (TAME)	50	52		1	104	70-130	08/10/2014 1215
Benzene	50	51		1	102	70-130	08/10/2014 1215
tert-Butyl formate (TBF)	250	250		1	101	70-130	08/10/2014 1215
1,2-Dichloroethane	50	50		1	100	70-130	08/10/2014 1215
Diisopropyl ether (IPE)	50	54		1	108	70-130	08/10/2014 1215
3,3-Dimethyl-1-butanol	1000	1100		1	108	70-130	08/10/2014 1215
Ethanol	5000	4800		1	96	60-140	08/10/2014 1215
Ethylbenzene	50	49		1	98	70-130	08/10/2014 1215
Ethyl-tert-butyl ether (ETBE)	50	53		1	106	70-130	08/10/2014 1215
Methyl tertiary butyl ether (MTBE)	50	58		1	115	70-130	08/10/2014 1215
Naphthalene	50	54		1	107	70-130	08/10/2014 1215
tert-butyl alcohol (TBA)	1000	880		1	88	70-130	08/10/2014 1215
Toluene	50	53		1	105	70-130	08/10/2014 1215
Xylenes (total)	100	100		1	104	70-130	08/10/2014 1215

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ53668-003
Batch: 53668
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	930		1	93	5.0	70-130	20	08/10/2014 1237
tert-Amyl methyl ether (TAME)	50	51		1	103	1 0	70-130	20	08/10/2014 1237
Benzene	50	50		1	100	2.2	70-130	20	08/10/2014 1237
tert-Butyl formate (TBF)	250	240		1	97	4.8	70-130	20	08/10/2014 1237
1,2-Dichloroethane	50	49		1	98	1.8	70-130	20	08/10/2014 1237
Diisopropyl ether (IPE)	50	53		1	105	2 9	70-130	20	08/10/2014 1237
3,3-Dimethyl-1-butanol	1000	1000		1	105	3.0	70-130	20	08/10/2014 1237
Ethanol	5000	4600		1	91	4 9	60-140	20	08/10/2014 1237
Ethylbenzene	50	49		1	98	0.016	70-130	20	08/10/2014 1237
Ethyl-tert-butyl ether (ETBE)	50	52		1	105	1.6	70-130	20	08/10/2014 1237
Methyl tertiary butyl ether (MTBE)	50	57		1	114	0.83	70-130	20	08/10/2014 1237
Naphthalene	50	52		1	104	3 7	70-130	20	08/10/2014 1237
tert-butyl alcohol (TBA)	1000	850		1	85	2.8	70-130	20	08/10/2014 1237
Toluene	50	52		1	103	1.7	70-130	20	08/10/2014 1237
Xylenes (total)	100	100		1	101	2.4	70-130	20	08/10/2014 1237

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: PH01063-009MS
Batch: 53668
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	110	5000	5000		5	100	70-130	08/10/2014 2113
tert-Amyl methyl ether (TAME)	ND	250	250		5	99	70-130	08/10/2014 2113
Benzene	150	250	300		5	107	70-130	08/10/2014 2113
tert-Butyl formate (TBF)	ND	1300	190	N	5	15	70-130	08/10/2014 2113
1,2-Dichloroethane	ND	250	240		5	97	70-130	08/10/2014 2113
Diisopropyl ether (IPE)	2.0	250	270		5	106	70-130	08/10/2014 2113
3,3-Dimethyl-1-butanol	ND	5000	4900		5	97	70-130	08/10/2014 2113
Ethanol	ND	25000	23000		5	92	70-130	08/10/2014 2113
Ethylbenzene	24	250	260		5	103	70-130	08/10/2014 2113
Ethyl-tert-butyl ether (ETBE)	ND	250	250		5	102	70-130	08/10/2014 2113
Methyl tertiary butyl ether (MTBE)	13	250	280		5	109	70-130	08/10/2014 2113
Naphthalene	9.3	250	260		5	102	70-130	08/10/2014 2113
tert-butyl alcohol (TBA)	ND	5000	5400		5	109	70-130	08/10/2014 2113
Toluene	38	250	280		5	107	70-130	08/10/2014 2113
Xylenes (total)	58	500	540		5	106	70-130	08/10/2014 2113

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: PH01063-009MD
Batch: 53668
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	110	5000	4000	+	5	80	22	70-130	20	08/10/2014 2134
tert-Amyl methyl ether (TAME)	ND	250	240		5	96	3.2	70-130	20	08/10/2014 2134
Benzene	150	250	300		5	104	3.0	70-130	20	08/10/2014 2134
tert-Butyl formate (TBF)	ND	1300	180	N	5	14	6.9	70-130	20	08/10/2014 2134
1,2-Dichloroethane	ND	250	230		5	94	3.0	70-130	20	08/10/2014 2134
Diisopropyl ether (IPE)	2.0	250	260		5	102	3.6	70-130	20	08/10/2014 2134
3,3-Dimethyl-1-butanol	ND	5000	4500		5	89	8 4	70-130	20	08/10/2014 2134
Ethanol	ND	25000	18000	+	5	74	22	70-130	20	08/10/2014 2134
Ethylbenzene	24	250	250		5	98	5.0	70-130	20	08/10/2014 2134
Ethyl-tert-butyl ether (ETBE)	ND	250	250		5	99	2.6	70-130	20	08/10/2014 2134
Methyl tertiary butyl ether (MTBE)	13	250	270		5	108	1.6	70-130	20	08/10/2014 2134
Naphthalene	9.3	250	270		5	105	3.2	70-130	20	08/10/2014 2134
tert-butyl alcohol (TBA)	ND	5000	4900		5	98	10	70-130	20	08/10/2014 2134
Toluene	38	250	270		5	103	4.4	70-130	20	08/10/2014 2134
Xylenes (total)	58	500	520		5	102	3.7	70-130	20	08/10/2014 2134

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ53715-001
Batch: 53715
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/11/2014 1041
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	08/11/2014 1041
Benzene	ND		1	5.0	0.20	ug/L	08/11/2014 1041
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/11/2014 1041
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	08/11/2014 1041
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	08/11/2014 1041
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/11/2014 1041
Ethanol	ND		1	1000	33	ug/L	08/11/2014 1041
Ethylbenzene	ND		1	5.0	1 7	ug/L	08/11/2014 1041
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/11/2014 1041
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/11/2014 1041
Naphthalene	ND		1	5 0	1.7	ug/L	08/11/2014 1041
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/11/2014 1041
Toluene	ND		1	5.0	1.7	ug/L	08/11/2014 1041
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/11/2014 1041

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	70-130
1,2-Dichloroethane-d4		100	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ53715-002
Batch: 53715
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	910		1	91	70-130	08/11/2014 0915
tert-Amyl methyl ether (TAME)	50	49		1	98	70-130	08/11/2014 0915
Benzene	50	49		1	97	70-130	08/11/2014 0915
tert-Butyl formate (TBF)	250	230		1	93	70-130	08/11/2014 0915
1,2-Dichloroethane	50	47		1	94	70-130	08/11/2014 0915
Diisopropyl ether (IPE)	50	52		1	103	70-130	08/11/2014 0915
3,3-Dimethyl-1-butanol	1000	1000		1	102	70-130	08/11/2014 0915
Ethanol	5000	4600		1	92	60-140	08/11/2014 0915
Ethylbenzene	50	48		1	95	70-130	08/11/2014 0915
Ethyl-tert-butyl ether (ETBE)	50	51		1	102	70-130	08/11/2014 0915
Methyl tertiary butyl ether (MTBE)	50	55		1	109	70-130	08/11/2014 0915
Naphthalene	50	52		1	105	70-130	08/11/2014 0915
tert-butyl alcohol (TBA)	1000	1100		1	105	70-130	08/11/2014 0915
Toluene	50	51		1	101	70-130	08/11/2014 0915
Xylenes (total)	100	99		1	99	70-130	08/11/2014 0915

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ53715-003
Batch: 53715
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	930		1	93	2 3	70-130	20	08/11/2014 0937
tert-Amyl methyl ether (TAME)	50	50		1	99	1.6	70-130	20	08/11/2014 0937
Benzene	50	49		1	98	0.16	70-130	20	08/11/2014 0937
tert-Butyl formate (TBF)	250	230		1	93	0.69	70-130	20	08/11/2014 0937
1,2-Dichloroethane	50	47		1	94	0.0085	70-130	20	08/11/2014 0937
Diisopropyl ether (IPE)	50	52		1	103	0 24	70-130	20	08/11/2014 0937
3,3-Dimethyl-1-butanol	1000	1000		1	102	0.40	70-130	20	08/11/2014 0937
Ethanol	5000	4700		1	95	2.9	60-140	20	08/11/2014 0937
Ethylbenzene	50	48		1	97	1.7	70-130	20	08/11/2014 0937
Ethyl-tert-butyl ether (ETBE)	50	50		1	99	3.3	70-130	20	08/11/2014 0937
Methyl tertiary butyl ether (MTBE)	50	55		1	109	0.30	70-130	20	08/11/2014 0937
Naphthalene	50	52		1	105	0.18	70-130	20	08/11/2014 0937
tert-butyl alcohol (TBA)	1000	1000		1	102	2.6	70-130	20	08/11/2014 0937
Toluene	50	50		1	101	0.86	70-130	20	08/11/2014 0937
Xylenes (total)	100	100		1	100	0.91	70-130	20	08/11/2014 0937

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		98	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
+ = RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: PH01063-019MS
Batch: 53715
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	3100	200000	190000		200	92	70-130	08/11/2014 1809
tert-Amyl methyl ether (TAME)	ND	10000	9900		200	99	70-130	08/11/2014 1809
Benzene	4900	10000	15000		200	105	70-130	08/11/2014 1809
tert-Butyl formate (TBF)	ND	50000	43000		200	85	70-130	08/11/2014 1809
1,2-Dichloroethane	ND	10000	9800		200	98	70-130	08/11/2014 1809
Diisopropyl ether (IPE)	ND	10000	11000		200	105	70-130	08/11/2014 1809
3,3-Dimethyl-1-butanol	ND	200000	200000		200	99	70-130	08/11/2014 1809
Ethanol	ND	1000000	910000		200	91	70-130	08/11/2014 1809
Ethylbenzene	2800	10000	13000		200	102	70-130	08/11/2014 1809
Ethyl-tert-butyl ether (ETBE)	ND	10000	10000		200	100	70-130	08/11/2014 1809
Methyl tertiary butyl ether (MTBE)	ND	10000	11000		200	105	70-130	08/11/2014 1809
Naphthalene	890	10000	11000		200	103	70-130	08/11/2014 1809
tert-butyl alcohol (TBA)	ND	200000	190000		200	95	70-130	08/11/2014 1809
Toluene	21000	10000	31000		200	104	70-130	08/11/2014 1809
Xylenes (total)	15000	20000	36000		200	103	70-130	08/11/2014 1809

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		107	70-130
Toluene-d8		107	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: PH01063-019MD
Batch: 53715
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	3100	200000	160000		200	80	14	70-130	20	08/11/2014 1830
tert-Amyl methyl ether (TAME)	ND	10000	10000		200	100	0.82	70-130	20	08/11/2014 1830
Benzene	4900	10000	16000		200	107	1.6	70-130	20	08/11/2014 1830
tert-Butyl formate (TBF)	ND	50000	43000		200	85	0.063	70-130	20	08/11/2014 1830
1,2-Dichloroethane	ND	10000	9500		200	95	2 6	70-130	20	08/11/2014 1830
Diisopropyl ether (IPE)	ND	10000	11000		200	106	0.49	70-130	20	08/11/2014 1830
3,3-Dimethyl-1-butanol	ND	200000	180000		200	91	8.5	70-130	20	08/11/2014 1830
Ethanol	ND	1000000	710000	+	200	71	25	70-130	20	08/11/2014 1830
Ethylbenzene	2800	10000	13000		200	99	2 4	70-130	20	08/11/2014 1830
Ethyl-tert-butyl ether (ETBE)	ND	10000	10000		200	101	0.41	70-130	20	08/11/2014 1830
Methyl tertiary butyl ether (MTBE)	ND	10000	11000		200	106	0.99	70-130	20	08/11/2014 1830
Naphthalene	890	10000	12000		200	107	3.0	70-130	20	08/11/2014 1830
tert-butyl alcohol (TBA)	ND	200000	180000		200	90	5.2	70-130	20	08/11/2014 1830
Toluene	21000	10000	32000		200	110	1.8	70-130	20	08/11/2014 1830
Xylenes (total)	15000	20000	36000		200	104	0.29	70-130	20	08/11/2014 1830

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		108	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ53715-001
Batch: 53715
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/11/2014 1041
tert-Amyl methyl ether (TAME)	ND		1	10	0 20	ug/L	08/11/2014 1041
Benzene	ND		1	1.0	0.13	ug/L	08/11/2014 1041
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/11/2014 1041
1,2-Dichloroethane	ND		1	1.0	0.15	ug/L	08/11/2014 1041
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	08/11/2014 1041
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/11/2014 1041
Ethanol	ND		1	1000	33	ug/L	08/11/2014 1041
Ethylbenzene	ND		1	1.0	0 33	ug/L	08/11/2014 1041
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/11/2014 1041
Methyl tertiary butyl ether (MTBE)	ND		1	1.0	0.40	ug/L	08/11/2014 1041
Naphthalene	ND		1	1.0	0.40	ug/L	08/11/2014 1041
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/11/2014 1041
Toluene	ND		1	1.0	0.33	ug/L	08/11/2014 1041
Xylenes (total)	ND		1	1.0	0.33	ug/L	08/11/2014 1041

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	70-130
1,2-Dichloroethane-d4		100	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ53715-002
Batch: 53715
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	910		1	91	70-130	08/11/2014 0915
tert-Amyl methyl ether (TAME)	50	49		1	98	70-130	08/11/2014 0915
Benzene	50	49		1	97	70-130	08/11/2014 0915
tert-Butyl formate (TBF)	250	230		1	93	70-130	08/11/2014 0915
1,2-Dichloroethane	50	47		1	94	70-130	08/11/2014 0915
Diisopropyl ether (IPE)	50	52		1	103	70-130	08/11/2014 0915
3,3-Dimethyl-1-butanol	1000	1000		1	102	70-130	08/11/2014 0915
Ethanol	5000	4600		1	92	60-140	08/11/2014 0915
Ethylbenzene	50	48		1	95	70-130	08/11/2014 0915
Ethyl-tert-butyl ether (ETBE)	50	51		1	102	70-130	08/11/2014 0915
Methyl tertiary butyl ether (MTBE)	50	55		1	109	70-130	08/11/2014 0915
Naphthalene	50	52		1	105	70-130	08/11/2014 0915
tert-butyl alcohol (TBA)	1000	1100		1	105	70-130	08/11/2014 0915
Toluene	50	51		1	101	70-130	08/11/2014 0915
Xylenes (total)	100	99		1	99	70-130	08/11/2014 0915

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ53715-003
Batch: 53715
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	930		1	93	2.3	70-130	20	08/11/2014 0937
tert-Amyl methyl ether (TAME)	50	50		1	99	1.6	70-130	20	08/11/2014 0937
Benzene	50	49		1	98	0.16	70-130	20	08/11/2014 0937
tert-Butyl formate (TBF)	250	230		1	93	0 69	70-130	20	08/11/2014 0937
1,2-Dichloroethane	50	47		1	94	0.0085	70-130	20	08/11/2014 0937
Diisopropyl ether (IPE)	50	52		1	103	0.24	70-130	20	08/11/2014 0937
3,3-Dimethyl-1-butanol	1000	1000		1	102	0.40	70-130	20	08/11/2014 0937
Ethanol	5000	4700		1	95	2.9	60-140	20	08/11/2014 0937
Ethylbenzene	50	48		1	97	1.7	70-130	20	08/11/2014 0937
Ethyl-tert-butyl ether (ETBE)	50	50		1	99	3.3	70-130	20	08/11/2014 0937
Methyl tertiary butyl ether (MTBE)	50	55		1	109	0.30	70-130	20	08/11/2014 0937
Naphthalene	50	52		1	105	0.18	70-130	20	08/11/2014 0937
tert-butyl alcohol (TBA)	1000	1000		1	102	2.6	70-130	20	08/11/2014 0937
Toluene	50	50		1	101	0.86	70-130	20	08/11/2014 0937
Xylenes (total)	100	100		1	100	0.91	70-130	20	08/11/2014 0937

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		98	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ53767-001
Batch: 53767
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/11/2014 2120
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	08/11/2014 2120
Benzene	ND		1	5.0	0.20	ug/L	08/11/2014 2120
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/11/2014 2120
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	08/11/2014 2120
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	08/11/2014 2120
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/11/2014 2120
Ethanol	ND		1	1000	33	ug/L	08/11/2014 2120
Ethylbenzene	ND		1	5.0	1.7	ug/L	08/11/2014 2120
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/11/2014 2120
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/11/2014 2120
Naphthalene	ND		1	5.0	1.7	ug/L	08/11/2014 2120
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/11/2014 2120
Toluene	ND		1	5 0	1.7	ug/L	08/11/2014 2120
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/11/2014 2120

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		106	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ53767-002
Batch: 53767
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	960		1	96	70-130	08/11/2014 1955
tert-Amyl methyl ether (TAME)	50	53		1	105	70-130	08/11/2014 1955
Benzene	50	51		1	101	70-130	08/11/2014 1955
tert-Butyl formate (TBF)	250	240		1	96	70-130	08/11/2014 1955
1,2-Dichloroethane	50	50		1	100	70-130	08/11/2014 1955
Diisopropyl ether (IPE)	50	54		1	109	70-130	08/11/2014 1955
3,3-Dimethyl-1-butanol	1000	1100		1	111	70-130	08/11/2014 1955
Ethanol	5000	4500		1	90	60-140	08/11/2014 1955
Ethylbenzene	50	49		1	99	70-130	08/11/2014 1955
Ethyl-tert-butyl ether (ETBE)	50	54		1	107	70-130	08/11/2014 1955
Methyl tertiary butyl ether (MTBE)	50	55		1	111	70-130	08/11/2014 1955
Naphthalene	50	55		1	110	70-130	08/11/2014 1955
tert-butyl alcohol (TBA)	1000	1100		1	113	70-130	08/11/2014 1955
Toluene	50	53		1	106	70-130	08/11/2014 1955
Xylenes (total)	100	100		1	102	70-130	08/11/2014 1955

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		99	70-130
Toluene-d8		107	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ53767-003
Batch: 53767
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	970		1	97	0.71	70-130	20	08/11/2014 2016
tert-Amyl methyl ether (TAME)	50	51		1	103	2.5	70-130	20	08/11/2014 2016
Benzene	50	51		1	101	0 31	70-130	20	08/11/2014 2016
tert-Butyl formate (TBF)	250	240		1	95	0 55	70-130	20	08/11/2014 2016
1,2-Dichloroethane	50	49		1	98	1.9	70-130	20	08/11/2014 2016
Diisopropyl ether (IPE)	50	53		1	107	1.7	70-130	20	08/11/2014 2016
3,3-Dimethyl-1-butanol	1000	1100		1	109	1.9	70-130	20	08/11/2014 2016
Ethanol	5000	4700		1	93	3 4	60-140	20	08/11/2014 2016
Ethylbenzene	50	50		1	99	0.27	70-130	20	08/11/2014 2016
Ethyl-tert-butyl ether (ETBE)	50	52		1	104	3.1	70-130	20	08/11/2014 2016
Methyl tertiary butyl ether (MTBE)	50	55		1	109	1.3	70-130	20	08/11/2014 2016
Naphthalene	50	55		1	111	0.65	70-130	20	08/11/2014 2016
tert-butyl alcohol (TBA)	1000	1100		1	109	3.1	70-130	20	08/11/2014 2016
Toluene	50	52		1	105	1.8	70-130	20	08/11/2014 2016
Xylenes (total)	100	100		1	103	0.97	70-130	20	08/11/2014 2016

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		100	70-130
Toluene-d8		107	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: PQ53864-001
Batch: 53864
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/12/2014 2112
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	08/12/2014 2112
Benzene	ND		1	5.0	0.20	ug/L	08/12/2014 2112
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/12/2014 2112
1,2-Dichloroethane	ND		1	5 0	0.30	ug/L	08/12/2014 2112
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	08/12/2014 2112
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/12/2014 2112
Ethanol	ND		1	1000	33	ug/L	08/12/2014 2112
Ethylbenzene	ND		1	5.0	1.7	ug/L	08/12/2014 2112
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/12/2014 2112
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/12/2014 2112
Naphthalene	ND		1	5.0	1.7	ug/L	08/12/2014 2112
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/12/2014 2112
Toluene	ND		1	5.0	1.7	ug/L	08/12/2014 2112
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/12/2014 2112

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		98	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: PQ53864-002
Batch: 53864
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	900		1	90	70-130	08/12/2014 1946
tert-Amyl methyl ether (TAME)	50	49		1	99	70-130	08/12/2014 1946
Benzene	50	50		1	101	70-130	08/12/2014 1946
tert-Butyl formate (TBF)	250	230		1	90	70-130	08/12/2014 1946
1,2-Dichloroethane	50	48		1	95	70-130	08/12/2014 1946
Diisopropyl ether (IPE)	50	52		1	104	70-130	08/12/2014 1946
3,3-Dimethyl-1-butanol	1000	1000		1	103	70-130	08/12/2014 1946
Ethanol	5000	4300		1	85	60-140	08/12/2014 1946
Ethylbenzene	50	51		1	102	70-130	08/12/2014 1946
Ethyl-tert-butyl ether (ETBE)	50	51		1	102	70-130	08/12/2014 1946
Methyl tertiary butyl ether (MTBE)	50	53		1	107	70-130	08/12/2014 1946
Naphthalene	50	56		1	112	70-130	08/12/2014 1946
tert-butyl alcohol (TBA)	1000	1000		1	104	70-130	08/12/2014 1946
Toluene	50	52		1	105	70-130	08/12/2014 1946
Xylenes (total)	100	100		1	104	70-130	08/12/2014 1946

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		105	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: PQ53864-003
Batch: 53864
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	950		1	95	6.3	70-130	20	08/12/2014 2008
tert-Amyl methyl ether (TAME)	50	50		1	99	0.020	70-130	20	08/12/2014 2008
Benzene	50	49		1	97	3.6	70-130	20	08/12/2014 2008
tert-Butyl formate (TBF)	250	220		1	90	0.70	70-130	20	08/12/2014 2008
1,2-Dichloroethane	50	47		1	94	0.96	70-130	20	08/12/2014 2008
Diisopropyl ether (IPE)	50	52		1	103	0.67	70-130	20	08/12/2014 2008
3,3-Dimethyl-1-butanol	1000	1100		1	106	2.5	70-130	20	08/12/2014 2008
Ethanol	5000	4700		1	94	9.3	60-140	20	08/12/2014 2008
Ethylbenzene	50	50		1	99	2 9	70-130	20	08/12/2014 2008
Ethyl-tert-butyl ether (ETBE)	50	50		1	100	1.3	70-130	20	08/12/2014 2008
Methyl tertiary butyl ether (MTBE)	50	53		1	106	0.63	70-130	20	08/12/2014 2008
Naphthalene	50	54		1	108	4.0	70-130	20	08/12/2014 2008
tert-butyl alcohol (TBA)	1000	960		1	96	8.7	70-130	20	08/12/2014 2008
Toluene	50	51		1	102	2.2	70-130	20	08/12/2014 2008
Xylenes (total)	100	100		1	103	1.4	70-130	20	08/12/2014 2008

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		105	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MB

Sample ID: PQ53369-001
Batch: 53369
Analytical Method: 8011

Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/07/2014 1125

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	08/07/2014 1441

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		90	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - LCS

Sample ID: PQ53369-002
Batch: 53369
Analytical Method: 8011

Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/07/2014 1125

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0 23		1	91	60-140	08/07/2014 1451

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		97	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MB

Sample ID: PQ53429-001
Batch: 53429
Analytical Method: 8011

Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/07/2014 1350

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0 020	0.020	ug/L	08/07/2014 1907

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		99	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - LCS

Sample ID: PQ53429-002
Batch: 53429
Analytical Method: 8011

Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/07/2014 1350

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.26		1	105	60-140	08/07/2014 1917

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		96	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MS

Sample ID: PH01063-010MS
Batch: 53429
Analytical Method: 8011

Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/07/2014 1350

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	ND	0.25	0.27		1	110	60-140	08/07/2014 2018

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		95	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MSD

Sample ID: PH01063-010MD
Batch: 53429
Analytical Method: 8011

Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/07/2014 1350

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,2-Dibromoethane (EDB)	ND	0.25	0.27		1	111	0.00	60-140	20	08/07/2014 2029

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		97	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N = Recovery is out of criteria
+ = RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

SHEALY

Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number 06065

Client: MECI	Report to Contact: B. Shane	Sampler (Printed Name): Wesley Huss	Quote No
Address: 231 Dooley Rd	Telephone No. / Fax No. / Email: 803-808-2043	Waybill No	Page 1 of 4
City: Lexington State: SC Zip Code: 29073	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		Number of Containers
Project Name: Purolator			Bottle (See Instructions on back)
Project Number: 14-4816	P.O Number		Preservative

PH01063

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: QW	DW	WW	S	Other	Analysis	BTEX, NAPTH MTDE	1,2DCA	8-OXY	EDB									
MW-1	7/31	9:46								X	X	X	X									
MW-2		9:56								X	X	X	X									
MW-3																						Not Located
MW-4		14:26								X	X	X	X									
MW-5																						Product
MW-6																						Not Located
MW-7		15:01								X	X	X	X									
MW-8		15:11																				
MW-9		15:14																				
MW-10	7/31	13:11								X	X	X	X									

Turn Around Time Required (Prior lab approval required for expedited TAT): ☐ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: [signature]	7/31/14	16:10	1. Received by: [signature]	7/31/14	1610
2. Relinquished by: [signature]	8/1/14	1120	2. Received by: [signature]	8/1/14	1120
3. Relinquished by			3. Received by		
4. Relinquished by: [signature]	8/1/14	1300	4. Laboratory Received by: Kelly [signature]	8-1-14	1300

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY: Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack — Receipt Temp. 4.3 °C — Temp. Blank ☐ Y ☐ N

870

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY **Chain of Custody Record**

Number 06064

Client: MECI	Report to Contact: B. Shane	Sampler (Printed Name): Wesley Hass	Quote No.
Address: 231 Dooley Rd	Telephone No. / Fax No. / Email: 803-808-2047	Waybill No.	Page 2 of 4
City: Lexington State: SC Zip Code: 29071	Preservative: 1. Urpres 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		Number of Containers
Project Name: Purolator			Bottle (See Instructions on back)
Project Number: 14-4811	P O Number		Preservative

PH01063

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix GW	DW	WW	S	Other	Analysis	BTEX, Naph+ MTBE	1,2DCA	8-OXY	EDB									
MW-11	7/31	12:34								X	X	X	X									
MW-12	7/31	12:42								|	|	|	|									
MW-13	7/31	12:48								X	X	X	X									
MW-14																						Not Located
MW-15																						Product
MW-16	7/31	12:58								X	X	X	X									
MW-17																						Not Located
MW-18																						Not Located
MW-21																						Not Located
MW-23																						Not Located

Turn Around Time Required (Prior lab approval required for expedited TAT): ☐ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: [signature]	7/31/14	16:10	1. Received by: [signature]	7/31/14	1610
2. Relinquished by: [signature]	8/1/14	1120	2. Received by: [signature]	8/1/14	1120
3. Relinquished by			3. Received by		
4. Relinquished by: [signature]	8/1/14	1300	4. Laboratory Received by: Kelly W.R.	8-1-14	1300

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY: Received on Ice (Check) ☑ Yes ☐ No ☐ Ice Pack — Receipt Temp. 4.3 °C — Temp. Blank ☐ Y / ☑ N

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West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY

Chain of Custody Record

Number 06077

Client: MECI	Report to Contact: B. Shane	Sampler (Printed Name): Wesley Huss	Quote No.
Address: 231 Dooley Rd	Telephone No. / Fax No. / Email: 803-808-2043	Waybill No.	Page 3 of 4
City: Lexington; State: SC; Zip Code: 29073	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCL 6. Na Thio. 7. NaOH		Number of Containers
Project Name: Purolator			Bottle (See Instructions on back)
Project Number: 14-4816	P.O Number		Preservative

PH01063

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: GW	DW	WW	S	Other	Analysis	BTEX Aboth MTBE	1,2 DCA	8 Oxy	EDB									
MW-25																						Not Located
PW-1	7/31	14:11								X	X	X	X									
PW-2		14:38																				
RW-1		11:20																				
RW-2		12:20																				
RW-3		12:27																				
RW-4		10:46																				
RW-5		11:40																				
RW-6		10:54																				
SW-1	7/31	9:15								X	X	X	X									LDL 1ppb

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	QC Requirements (Specify)	Possible Hazard Identification
☐ Standard ☐ Rush (Please Specify)	☐ Return to Client ☐ Disposal by Lab		☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by Sampler: [signature]	7/31/14	16:09	1. Received by: [signature]	7/31/14	1609
2. Relinquished by: [signature]	8/1/14	1120	2. Received by: [signature]	8/1/14	1120
3. Relinquished by			3. Received by		
4. Relinquished by: [signature]	8/1/14	1300	4. Laboratory Received by: [signature]	8-1-14	1300

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY: Received on Ice (Check) ☑ Yes ☐ No ☐ Ice Pack — Receipt Temp 4.3 °C — Temp. Blank ☐ Y / ☑ N

Chain of Custody Record

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106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number 06078

Client: MECI	Report to Contact: B. Shane	Sampler (Printed Name): Wesley Huss	Quote No.
Address: 231 Dooley Rd	Telephone No. / Fax No. / Email: 803-808-2043	Waybill No	Page 4 of 4
City: Lexington State: SC Zip Code: 29073	Preservative: 1. Unpres. 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCl 6. Na 1 No. 7. NaOH		Number of Containers / Bottle (See Instructions on back) / Preservative
Project Name: Purolator			PH01063
Project Number: 14-4816	P.O Number		

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G=Grab C=Composite	Matrix: GW	DW	WW	S	Other	Analysis	BTEX, Naphth MTBE	1,2 DCA	8-OXY	EDB									Preservative
SW-2		9:21	C	X						X	X	X	X									LDL 1ppb
~~[illegible]~~ RW-4 Dup		10:46	C																			
RW-6 Dup		10:54	C																			
Field Blank		9:21	C																			
Trip Blank		9:22	C	X						X	X	X	X									

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	QC Requirements (Specify)	Possible Hazard Identification
☐ Standard ☐ Rush (Please Specify)	☐ Return to Client ☐ Disposal by Lab		☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: [signature]	7/31/14	16:09	1. Received by: [signature]	7/31/14	1605
2. Relinquished by: [signature]	8/1/14	1120	2. Received by: [signature]	8/1/14	1120
3. Relinquished by			3. Received by		
4. Relinquished by: [signature]	8/1/14	1300	4. Laboratory Received by: [signature]	8-1-14	1300

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY: Received on Ice (Check) ☑ Yes ☐ No ☐ Ice Pack | Receipt Temp 4.3 °C | Temp Blank ☐ Y ☑ N

Shealy Environmental Services, Inc
Document Number: F-AD-016
Revision Number: 15

Page 1 of 1
Replaces Date: 03/07/14
Effective Date: 07/15/14

Sample Receipt Checklist (SRC)

Client: Midlands Env. Cooler Inspected by/date: KWP / 8-1-14 Lot #: PH01063

Means of receipt: ☑ SESI ☐ Client ☐ UPS ☐ FedEx ☐ Airborne Exp ☐ Other

Yes ☐	No ☑		1. Were custody seals present on the cooler?
Yes ☐	No ☐	NA ☑	2. If custody seals were present, were they intact and unbroken?

Cooler ID/Original temperature upon receipt/Derived (corrected) temperature upon receipt:
870/4.2/4.3 °C ___/___ °C ___/___ °C ___/___ °C

Method: ☐ Temperature Blank ☑ Against Bottles IR Gun ID: #3 IR Gun Correction Factor: +0.1 °C
Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None

Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other:_____. (For coolers received via commercial courier, PMs are to be notified immediately.)
Yes ☐	No ☐	NA ☑	4. Is the commercial courier's packing slip attached to this form?
Yes ☑	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☐	NA ☑	5a Were samples relinquished by client to commercial courier?
Yes ☑	No ☐		6. Were sample IDs listed on the COC?
Yes ☑	No ☐		7. Were sample IDs listed on all sample containers?
Yes ☑	No ☐		8. Was collection date & time listed on the COC?
Yes ☑	No ☐		9. Was collection date & time listed on all sample containers?
Yes ☑	No ☐		10. Did all container label information (ID, date, time) agree with the COC?
Yes ☑	No ☐		11. Were tests to be performed listed on the COC?
Yes ☑	No ☐		12. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐		13. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		14. Was adequate sample volume available?
Yes ☑	No ☐		15. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		16. Were any samples containers missing?
Yes ☐	No ☑		17. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	18. Were bubbles present >"pea-size" (¼"or 6mm in diameter) in any VOA vials?
Yes ☐	No ☐	NA ☑	19. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	20. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	21. Were all applicable NH3/TKN/cyanide/phenol (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	22. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☑	23. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
Yes ☐	No ☑		24. Was the quote number used taken from the container label?

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s)_____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H_2SO_4,HNO_3,HCl,NaOH) using SR # _____.

Sample(s)_____ were received with bubbles >6 mm in diameter

Sample(s)_____ were received with TRC >0.2 mg/L (If #21 is No)

SC Drinking Water Project Sample(s) pH verified to be > 2 by _____ Date: _____

Sample(s)_____ were not received at a pH of <2 and were adjusted accordingly using SR#_____

Sample labels applied by: KWP Verified by: _____ Date: 8-1-14

Comments:

APPENDIX C:

TAX MAP
(Not Applicable)

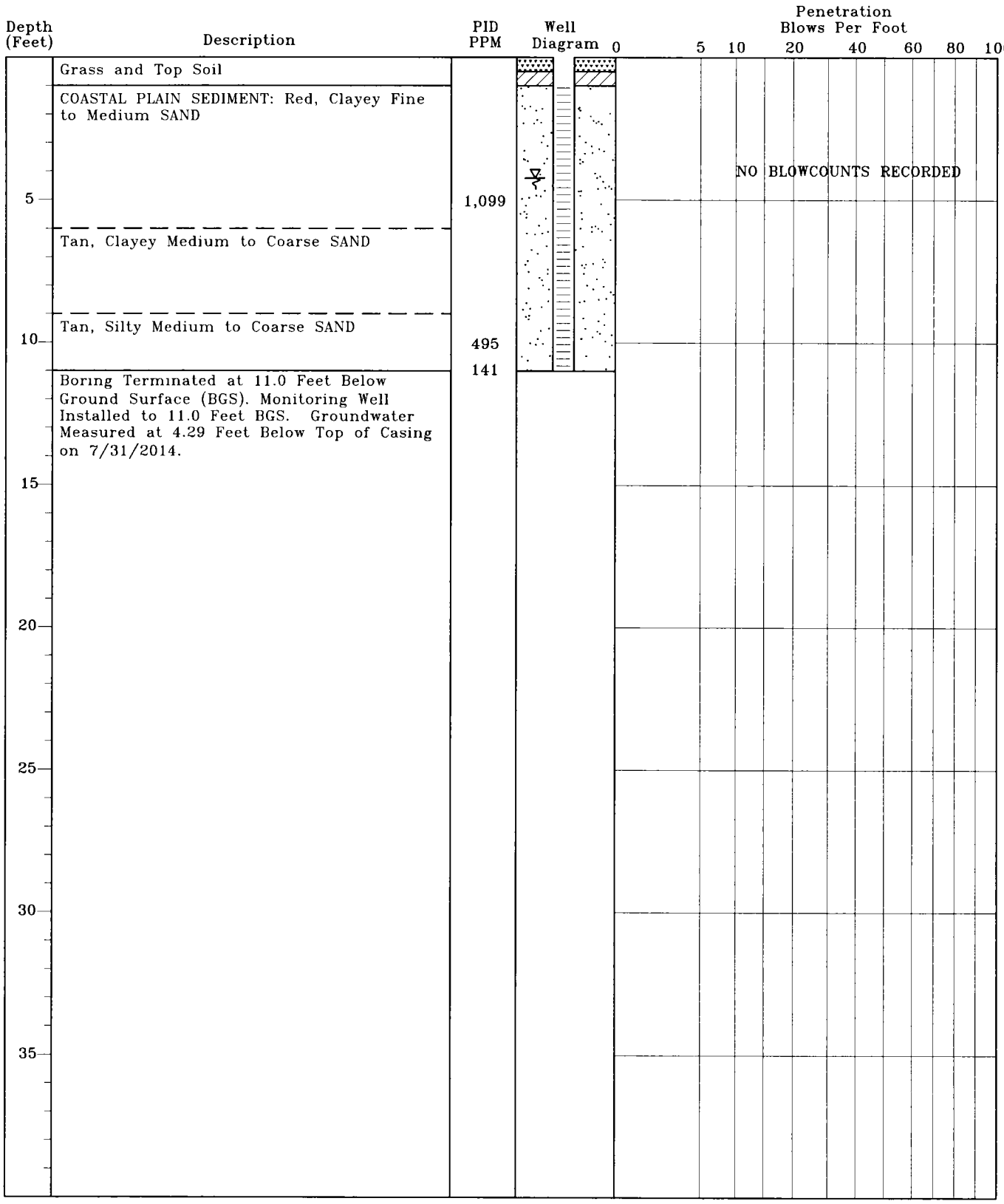
APPENDIX D:

SOIL BORING/FIELD SCREENING LOGS & 1903 FORMS

(Not Applicable)

APPENDIX E:

WELL COMPLETION LOGS & 1903 FORMS



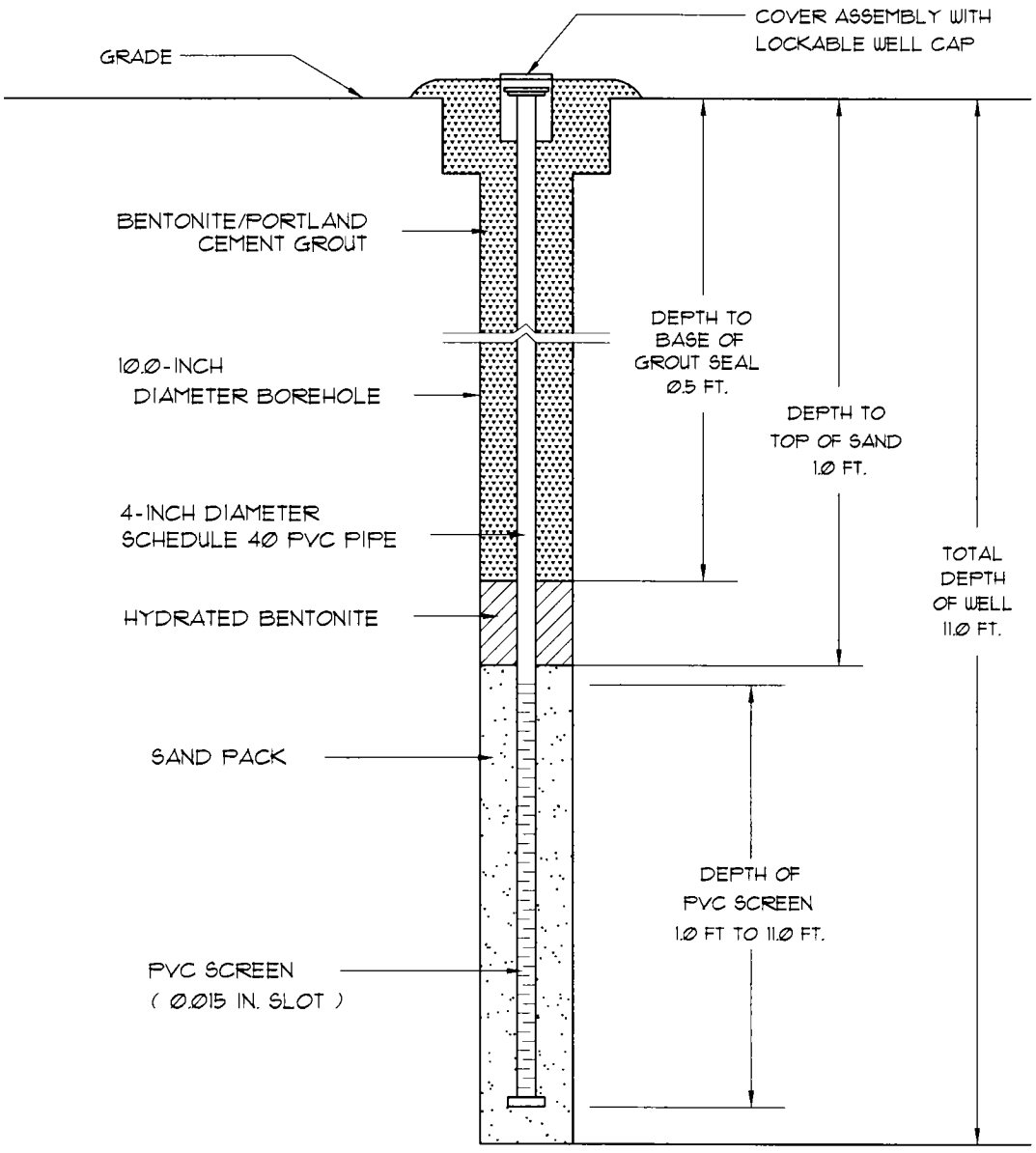
TEST BORING RECORD
Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID# 05878
MECI Project Number 14-4816

Boring Number:	RW-4 (05878)
Date Drilled:	7/28/2014
Drilled By:	Environmental Drilling & Probing Services, LLC.
Logged By:	W. Huss

Prepared By
Midlands Environmental Consultants, Inc.
231 Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax 808-2048

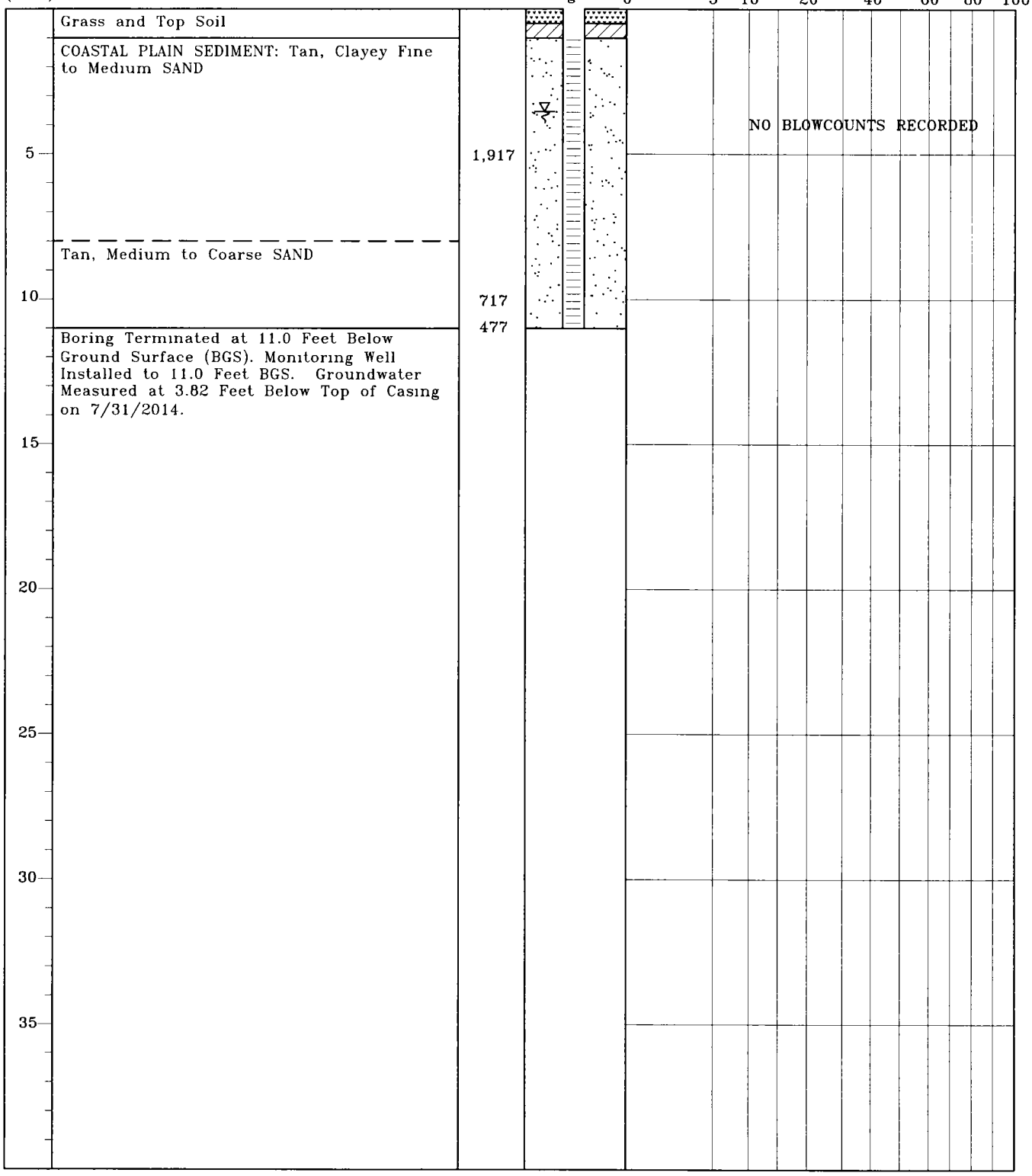
MONITORING WELL INSTALLATION RECORD

Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID* 05878
MECI Project Number 14-4816



Well Number:	RW-4 (05878)
Date Drilled:	7/28/2012
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller: T. Bolyard	S.C. I.D. #: B 01846
Logged By:	W. Huss

Prepared By
Midlands Environmental Consultants, Inc.
231 Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax 808-2048



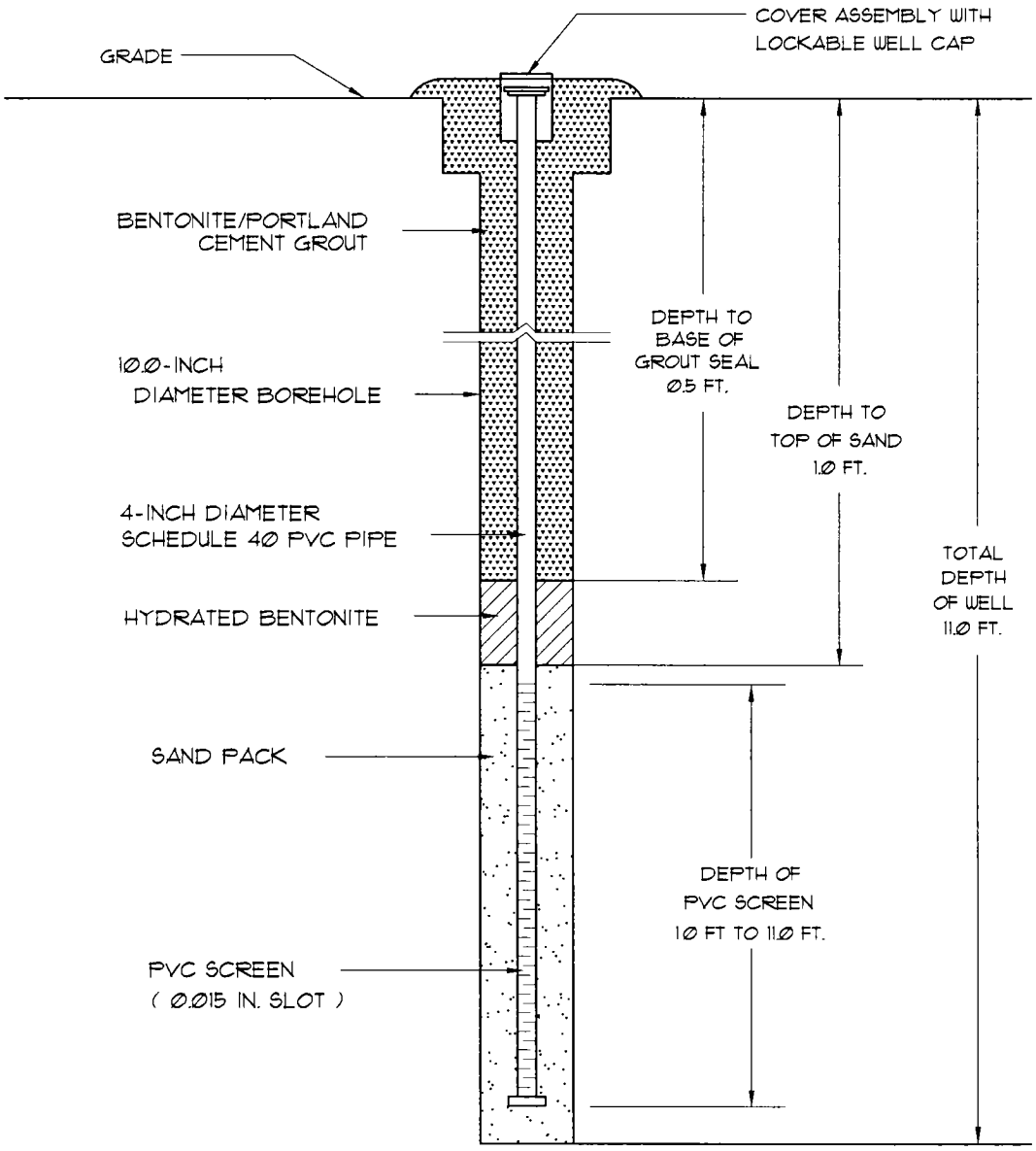
TEST BORING RECORD
Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID# 05878
MECI Project Number 14-4816

Boring Number:	RW-5 (05878)
Date Drilled:	7/28/2014
Drilled By:	Environmental Drilling & Probing Services, LLC
Logged By:	W Huss

Prepared By
Midlands Environmental Consultants, Inc.
231 Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax 808-2048

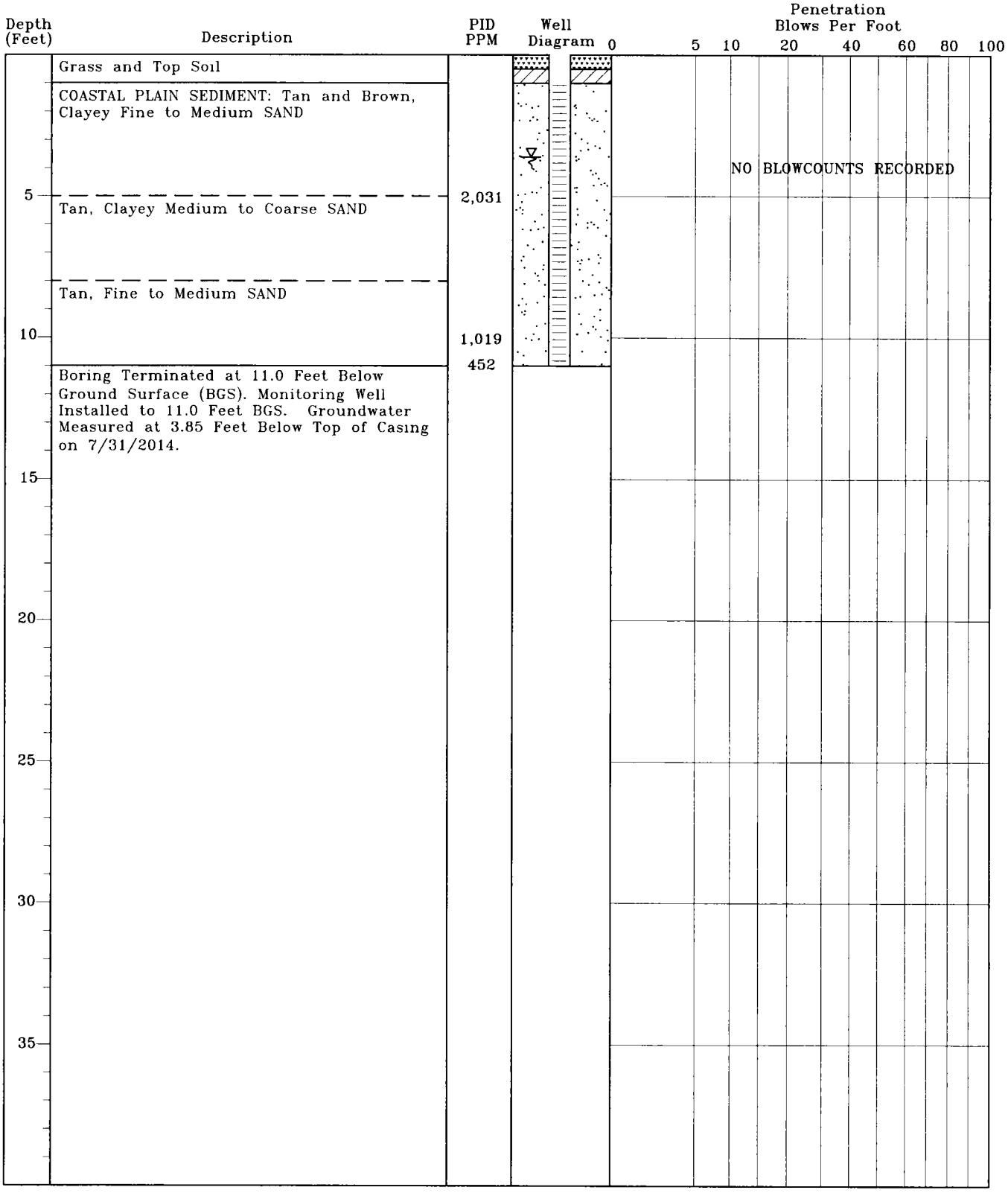
MONITORING WELL INSTALLATION RECORD

Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID* 05878
MECI Project Number 14-4816



Well Number:	RW-5 (05878)
Date Drilled:	7/28/2012
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller: T. Bolyard	S.C. I.D. #: B 01846
Logged By:	W. Huss

Prepared By
Midlands Environmental Consultants, Inc.
231 Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax 808-2048



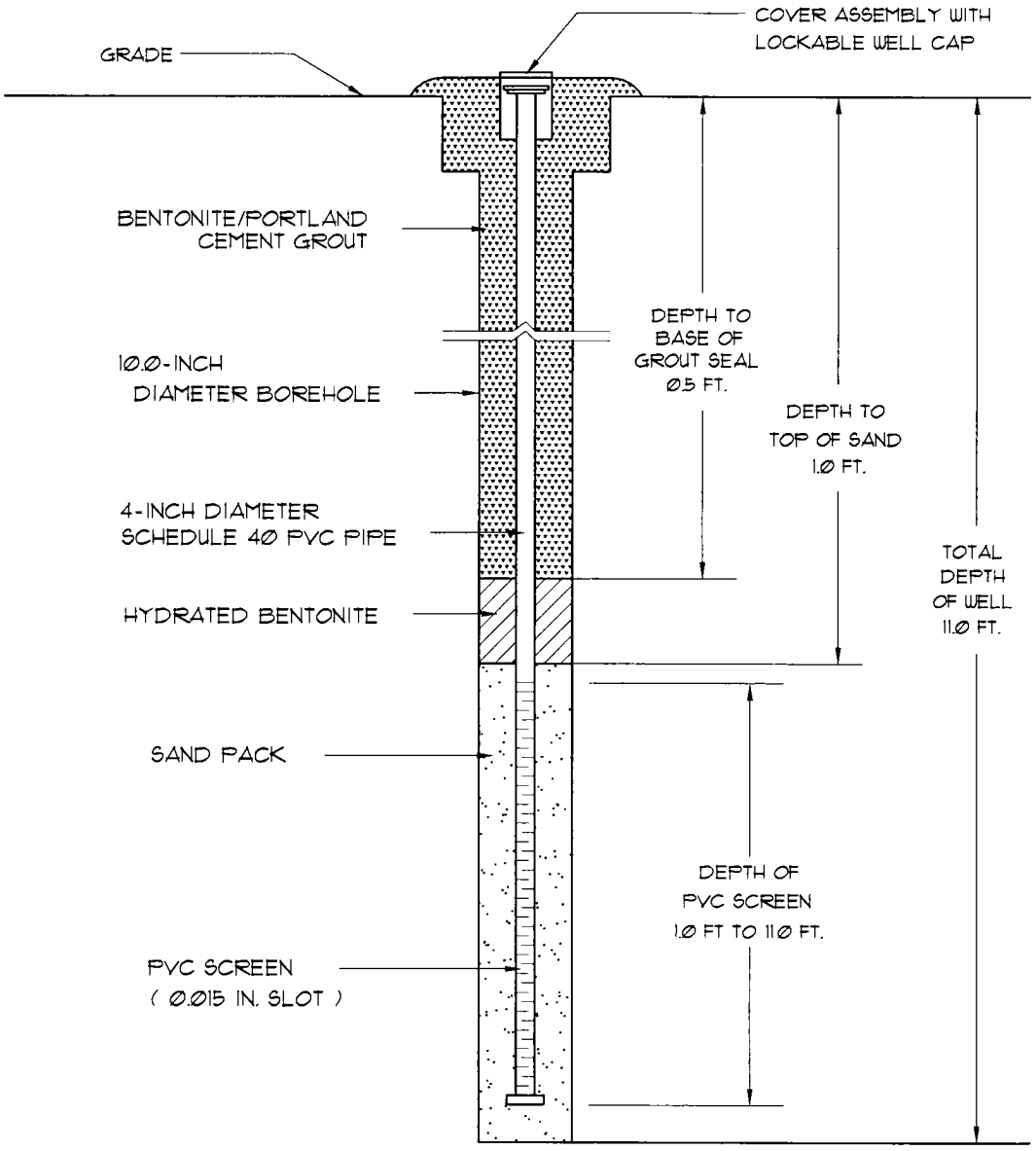
TEST BORING RECORD
Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID# 05878
MECI Project Number 14-4816

Boring Number:	RW-6 (05878)
Date Drilled:	7/28/2014
Drilled By:	Environmental Drilling & Probing Services, LLC.
Logged By:	W. Huss

Prepared By
Midlands Environmental Consultants, Inc.
231 Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax 808-2048

MONITORING WELL INSTALLATION RECORD

Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID# 05878
MECI Project Number 14-4816



Well Number:	RW-6 (05878)
Date Drilled:	7/28/2012
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller: T. Bolyard	S.C. I.D. #: B 01846
Logged By:	W. Huss

Prepared By
Midlands Environmental Consultants, Inc.
231 Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax 808-2048

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: SCDHEC (last) (first)
Address: 2600 Bull Street
City: Columbia State: SC Zip: 29201-1708
Telephone: Work: (803) 898-4300 Home

2. LOCATION OF WELL: **COUNTY:**
Name: Purolator Courier Corporation
Street Address: 105 Corporate Blvd
City: West Columbia Zip: 29169-3459
Latitude Longitude.

3. PUBLIC SYSTEM NAME: 05878 **PUBLIC SYSTEM NUMBER:** RW-4

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Topsoil	0.5	0.5
Red, Clayey SAND	5.5	6.0
Tan, Silty SAND	5.0	11.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
RW-4

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other-Auger

7. PERMIT NUMBER: UWM-25489

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) Date Started: 7/28/2014
11.0 ft. Date Completed: 7/28/2014

10. CASING: ☑ Threaded ☐ Welded
Diam.: 4"
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
4.0 in. to 1.0 ft. depth
_____ in. to _____ ft. depth
Height: Above /Below Surface 0.0 ft.
Weight _____ lb /ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 4 Inch
Slot/Gauge: .015 Length: 10.0 Feet
Set Between: 1.0 ft and 11.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 4.29 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 1.0 ft. to 11.0 ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft to 0.5 ft

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft.____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount. _____

18. PUMP: Date installed. _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Tommy Bolyard **CERT. NO.:** 01846
Address: (Print) Level: A B C D (circle one)
17538 Greenhill Road
Charlotte. NC 28278
Telephone No.: 704-607-7529 Fax No : 803-548-2233

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief

Signed: _____ Date 8/26/2014
Well Driller
If D Level Driller, provide supervising driller's name.

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: SCDHEC (last) (first)
Address: 2600 Bull Street
City: Columbia State: SC Zip: 29201-1708
Telephone: Work: (803) 898-4300 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: Purolator Courier Corporation
Street Address: 105 Corporate Blvd
City: West Columbia Zip: 29169-3459
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: 05878 **PUBLIC SYSTEM NUMBER:** RW-5

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Topsoil	0.5	0.5
Tan, Clayey SAND	7.5	8.0
Tan, SAND	3.0	11.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
RW-5

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other-Auger

7. PERMIT NUMBER: UWM-25489

8. USE:
☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 11.0 ft Date Started: 7/28/2014 Date Completed: 7/28/2014

10. CASING: ☑ Threaded ☐ Welded
Diam.: 4"
Type. ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
4.0 in. to 1.0 ft. depth
_____ in. to _____ ft. depth
Height: Above /Below Surface 0.0 ft
Weight _____ lb./ft
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 4 Inch
Slot/Gauge: .015 Length: 10.0 Feet
Set Between: 1.0 ft. and 11.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 3.82 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G P.M
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 1.0 ft. to 11.0 ft
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft to 0.5 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft.____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name. _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Tommy Bolyard **CERT. NO.:** 01846
Address: (Print) Level: A B C D (circle one)
17538 Greenhill Road
Charlotte. NC 28278
Telephone No : 704-607-7529 Fax No.: 803-548-2233

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed _____ (Well Driller) Date 8/26/2014

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: SCDHEC (last) (first)
Address: 2600 Bull Street
City: Columbia State: SC Zip: 29201-1708
Telephone: Work. (803) 898-4300 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: Purolator Courier Corporation
Street Address: 105 Corporate Blvd
City. West Columbia Zip. 29169-3459
Latitude. Longitude:

3. PUBLIC SYSTEM NAME: 05878 **PUBLIC SYSTEM NUMBER:** RW-6

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Topsoil	0.5	0.5
Red, Clayey SAND	4.5	5.0
Tan, Silty SAND	6.0	11.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS: RW-6

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other -Auger

7. PERMIT NUMBER: UWM-25489

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 11.0 ft Date Started: 7/28/2014 Date Completed: 7/28/2014

10. CASING: ☑ Threaded ☐ Welded
Diam.: 4"
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
4.0 in. to 1.0 ft. depth
_____ in. to _____ ft. depth
Height Above /Below Surface 0.0 ft.
Weight _____ lb./ft
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.. 4 Inch
Slot/Gauge: .015 Length: 10.0 Feet
Set Between: 1.0 ft. and 11.0 ft
_____ ft. and _____ ft
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 3.85 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs Pumping _____ G.P.M.
Pumping Test· ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 1.0 ft. to 11.0 ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 0.5 ft

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft.____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No · _____
H.P_____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Tommy Bolyard **CERT. NO.:** 01846
Address: (Print) Level: A B C D (circle one) ✓
17538 Greenhill Road
Charlotte. NC 28278
Telephone No.: 704-607-7529 Fax No · 803-548-2233

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Well Driller Date. 8/26/2014

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

APPENDIX F:

AQUIFER EVALUATION SUMMARY FORMS, DATA, GRAPHS, EQUATIONS

(Not Applicable)

APPENDIX G:

DISPOSAL MANIFEST

Midlands
Environmental
Consultants, Inc.

August 27, 2014

Re: Treatment of Purge Water
Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID Number 05878
MECI Project Number 14-4816

To Whom It May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

All purge waters were treated on-site using an up-flow treatment drum loaded with 30 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

- **30.0 gallons was treated on July 28th, 2012 during the development of the newly installed monitoring wells.**

Post Office Box 854, Lexington SC 29071 • 231 Dooley Road, Lexington, SC 29073
Telephone: (803) 808-2043 • fax: (803) 808-2048

- **167.5 gallons were treated on July 31st, 2014 during the comprehensive groundwater sampling event.**

- **A total 197.5 gallons were treated at the referenced site during the subject assessment**

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.

Jeff L. Coleman
Senior Scientist

WASTE MANAGEMENT

Richland County LF
1047 Highway Church Road
Elgin, SC, 29045
Ph: (803) 788-3054

Original
Ticket# 1325993

Customer Name MIDLANDSENVIRON MIDLANDS ENVI
Ticket Date 08/08/2014
Payment Type Credit Account
Manual Ticket#
Hauling Ticket#
Route
State Waste Code
Manifest 0
Destination
PO
Profile VA2718 (SOIL FROM UST ASSESSMENT)
Generator 126-MIDLANDSENVIRONMENTAL MIDLANDS ENVIRONMENTAL

Carrier MIDLANDSENVIRON MIDLANDS ENVIRONMENT
Vehicle# 1
Container
Driver
Check#
Billing # 0000469
Gen EPA ID

Volume

	Time	Scale	ScaleMaster		
In	08/08/2014 15:13:51	Inbound #2	Dwayne	Gross	12640 lb
Out	08/08/2014 15:38:34	Outbound	Dwayne	Tare	8840 lb
				Net	3800 lb
				Tons	1.90

Comments

	Product	LD%	Qty	UOM	Rate	Fee	Amount	Origin
1	SOIL-Cont. Soil -	100	1.90	Tons				32-LEXINGT
2	FUEL-Fuel Surcharg	100		%				32-LEXINGT
3	EVF-P-Standard Env	100		%				32-LEXINGT
4	RCR-P-Regulatory C	100		%				32-LEXINGT

Total Fees
Total Ticket

SIGNATURE

SPECIAL WASTE MANIFEST

WASTE ID NUMBER VA2718	*Richland Landfill* 1047 Highway Church Road Elgin, SC 29045
EXPIRATION DATE **December 11, 2016**	Special Waste Phone: 803-744-3345 Fax: 866-904-7194

Prepared by: Sandra Reeves

GENERATOR OF WASTE: MIDLANDS ENV. CONSULTANTS, INC. - VARIOUS

CUSTOMER: MIDLANDS ENV. CONSULTANTS, INC. ACCOUNT NUMBER: 820-469

LOCATION OF WASTE:

CITY: Lexington COUNTY: Lexington

PHONE NUMBER: 803-808-2043 CONTACT: LYNN SHANE

FAX NUMBER: 803-808-2048

GENERATOR'S SIGNATURE Darien McCants DATE: 6/08/14

TRANSPORTER OF WASTE: Darien McCants

DATE: 6/08/14 TRUCK NUMBER: 1

DRIVER'S SIGNATURE Darien McCants

**** TO BE COMPLETED BY RICHLAND LANDFILL******

DISPOSAL SITE: RICHLAND LANDFILL ELGIN, SC

Waste Class: SOIL

DESCRIPTION OF WASTE: SOIL FROM UST ASSESSMENT

TICKET NUMBER: 1325993 TONNAGE: 1.90

RECEIVED BY: DCM

Purolator = 50%/0.95 tons
Alcoln Exxon = 16%/0.316 tons
Keith's Grocery = 16%/0.316 tons
Pitt Stop 36 = 16%/0.316 tons

APPENDIX H:

LOCAL ZONING REGULATIONS

(Not Applicable)

APPENDIX I:

FATE AND TRANSPORT MODELING

(Not Applicable)

APPENDIX J:
ACCESS AGREEMENTS

ROBINSON & BLAZER, LLP
ATTORNEYS AT LAW
(A PARTNERSHIP OF PROFESSIONAL CORPORATIONS)
SUITE 475 - ONE DECATUR TOWNCENTER
150 EAST PONCE DE LEON AVENUE
DECATUR, GEORGIA 30030
(404) 377-6464
TELECOPIER (404) 377-3858

UST 5 tech DOCKETING

UST MAY 07 2012 PROGRAM

April 5, 2012

Ms. Stephanie Briney
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management
2600 Bull Street
Columbia, South Carolina 29201

RE: 105 Corporate Boulevard West Columbia, South Carolina
UST Permit No. 05878
Release reported October 17, 1991
Tax map No. 004599-10-019
Lexington County, South Carolina

Dear Ms. Briney:

I am in receipt of your letter dated March 29, 2012 concerning the above-referenced matter. I am the attorney for the owner of this property, Bonita Sykes.

We have completed the right of entry which is subject to the rights of Ms. Sykes' tenant, William Durham Company, who may be reached by calling Tonya C. Harmon at 1-803-256-3591.

This right of entry has been completed and is being returned to you with the express understanding that SCDHEC and its contractor are solely liable for any property damage, and personal injury caused as a result of any intentional act, or negligence, and that the contractor will hold both Ms. Sykes and her tenant totally and completely harmless as to any work done on the property which causes damage or injury.

Please let me know if you have any further questions or concerns. Thank you.

Sincerely yours,

JOHN E. ROBINSON

JER\jab
Enclosure
cc: Ms. Bonita Sykes

ljbriney

PROPERTY OWNER
RIGHT OF ENTRY - UST Permit # 05878

If you are the Property Owner or are the authorized representative for that person, but did not own the former or existing underground storage tanks at the time the release was reported, please complete this form.

I, Bonita M. Sykes, certify that I am the legal owner of the property identified below or serve as the authorized representative for the property owner. I authorize the South Carolina Department of Health and Environmental Control (SCDHEC), or a contractor selected by SCDHEC, to enter this property at reasonable times only to conduct assessment and corrective action activities, as required. The contractor will be designated as the contractor for the UST owner or operator for only the required environmental site rehabilitation activities. Compensation to the contractor will be from the SUPERB Account and I will have no obligation to pay the contractor. I understand that SCDHEC will notify me of all activities that are necessary prior to their initiation and will promptly provide to me a summary of the data upon request.

Name of Facility Warehouse Phone # _____

Street Address of Facility 105 Corporate Blvd

Town, City, District, Suburb West Columbia, SC 29169

Name of nearest intersecting street, road, highway, alley I 26 + Frontage Road

Is this facility within the city limits? (yes or no) No

Is this facility serviced by a public water or sewer utility? (yes or no) yes, if no, please provide the name of a person we can contact that can assist in the location of private water and septic tank lines Name _____, phone number _____

Were underground storage tanks previously removed from the ground at this facility? (yes or no) ?, if yes, please provide the name of a person we can contact that can assist in the location of the former underground storage tank excavation _____, Phone number _____

Is the property currently leased or rented to someone? (yes or no) yes, if yes, please provide their name Watts Brothers and phone number _____ and let them know about the pending assessment activities. If vehicles or other mobile structures are parked over the monitoring wells, they should be moved before SCDHEC's contractor arrives at the site.

NAME of property owner (Please Print): Bonita M. Sykes

Phone Number (home) 678-714-9037 (work) 404-373-8782

Current Mailing Address 2935 E. Ponce de Leon Ave, Decatur, GA 30030

Signature of Property Owner: Bonita M. Sykes

Witness [signature]

Date: 5/3/2012 Month _____
Day _____ Year

UST Division/ SMB

APPENDIX K:
DATA VERIFICATION CHECKLIST

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Are Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?	X		
3	Is name, address, & phone number of current property owner provided?	X		
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?	X		
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?	X		
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?	X		
11	Has the site-specific geology and hydrogeology been described?	X		
12	Has the primary soil type been described?	X		
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?	X		
17	Has the method of well development been detailed?	X		
18	Has justification been provided for the locations of the monitoring wells?	X		
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?	X		
20	Has the groundwater sampling methodology been detailed?	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? (Table 2 & Figure 5)	X		
22	Has the purging methodology been detailed?	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? (Appendix B)	X		
24	If free-product is present, has the thickness been provided?	X		
25	Does the report include a brief discussion of the assessment done and the results?	X		
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?	X		
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)	X		
34	Has the current and historical laboratory data been provided in tabular format? (Tables 3 & 3A)	X		
35	Have the aquifer characteristics been provided and summarized on the appropriate form? (Appendix F)			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figures 3, 4)	X		
40	Has the site potentiometric map been provided? (Figure 5)	X		
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)	X		
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? (Appendix G)	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)	X		
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided? (Appendix K)	X		

D H E C

PROMOTE PROTECT PROSPER

W. Marshall Taylor Jr., Acting Director

Promoting and protecting the health of the public and the environment

UST DOCKETING

MR RONNY LOWDER
EMERALD INC
P O BOX 3050
SUMTER SC 29151-3050

JAN 27 2015

Re: AFVR
Contract #IFB-5400005023-11/8/12-EMW; PO #4600368249
Notice to proceed

Dear Mr. Lowder:

Under the terms and conditions of the referenced contract, and per the schedule submitted to the Underground Storage Tank (UST) Management Division on October 14, 2014, free-phase product (FPP) recovery using aggressive fluid vapor recovery (AFVR) has been approved for the UST facilities listed below. Emerald, Inc. may proceed upon receipt of this letter. Enclosed are packets containing necessary information to perform FPP recovery at each facility. Each facility has been assigned an individual cost agreement (CA) number, work scope, work scope start date, and report due date. As specified in the contract, a report and invoice must be submitted on or before the due date. The appropriate CA number and Purchase Order (PO) #4600368249 should be referenced on each invoice submitted.

Permit	Facility	County	Work Scope	CA	Start Date	Due Date
00479	Service Station	Anderson	1 96-hour event	48990	4/20/15	6/22/15
00540	Delta Mills	Greenville	2 96-hour events	48069	5/17/15	6/22/15
00849	Hilda Garage	Barnwell	1 96-hour event	49099	4/13/15	4/21/15
01854	Freeman Mechanical	Charleston	2 96-hour events	49176	5/11/15	6/22/15
02618	Terry's Food Mart	Lee	1 96-hour event	48241	3/23/15	3/30/15
02906	Strickland's Auto	Dillon	2 48-hour events	48723	5/11/15	6/22/15
03198	Summer's Store	Fairfield	1 96-hour event	48603	3/30/15	4/8/15
03439	Highway 11 Grocery	Oconee	2 96-hour events	48443	4/27/15	5/8/15
~~05278~~	Brown Bag	Jasper	2 96-hour events	49018	5/4/15	6/29/15
05878	Purolator	Lexington	2 96-hour events	48008	3/30/15	5/8/15
08071	Waldensian Bakeries	Spartanburg	1 96-hour event	48453	4/20/15	4/28/15
09089	Pressley & Son	Williamsburg	1 96-hour event	49530	4/6/15	4/14/15
10658	Joker Joe's	Jasper	1 96-hour event	48363	5/4/15	5/13/15
11781	Cooper's Gas King	Greenville	1 96-hour event	48832	5/17/15	5/26/15

Permit	Facility	County	Work Scope	CA	Start Date	Due Date
11890	Stanco Inc.	Lexington	1 96-hour event	48475	3/30/15	4/9/15
14102	Holly Oak	Greenwood	3 48-hour events	48568	5/17/15	6/1/15
14162	Getsinger's Grocery	Anderson	1 96-hour event	48989	4/13/15	6/22/15
15857	Grant's Grocery	Chester	2 96-hour events	49082	3/23/15	4/30/15
16009	Mary Moorhead	Anderson	1 96-hour event	48597	5/31/15	6/8/15
16093	Fry Enterprises	Jasper	1 96-hour event	48450	5/4/15	5/13/15
18529	B J's Wholesale	Greenville	2 48-hour events	48637	4/20/15	6/22/15
18787	Blitchington's Grocery	Orangeburg	1 96-hour event	48600	4/13/15	4/21/15
19340	Former Minute Saver	Dorchester	2 48-hour events	49116	5/11/15	5/20/15
19646	Former Dabney's Amoco	Kershaw	1 96-hour event	48617	4/16/15	5/1/15
19683	Former Adams Service	Orangeburg	1 96-hour event	48625	5/11/15	6/22/15

The FPP recovery at each facility will be performed on behalf of the UST Owner/Operator (O/O) and payment will be made from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. The O/O has no obligation to pay for the specified work scope. Please note that Sections 44-2-110(4) and 44-2-130(B) of the SUPERB Statute state that no costs will be allowed (considered for payment) unless prior approval from the South Carolina Department of Health and Environmental Control (Agency) is obtained.

Any changes to the work scope must be pre-approved by UST Management Division in order for Emerald to seek payment. Please contact the UST Project Manager for technical and/or financial approval. Any item that is not clearly or completely addressed in the report will not be compensated by SUPERB.

The Division grants pre-approval for transportation of FPP and petroleum-contaminated groundwater from the referenced UST facility to a permitted treatment facility. The FPP and contaminated groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest from the receiving facility that clearly designates the quantity received must be included as an appendix to the report.

If you have any questions concerning this correspondence or need further assistance, please contact me by phone at (803) 898-0655, by fax at (803) 898-0673, or by e-mail at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, Geologist/Hydrologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

enc: Information packets
AFVR Schedule 13
cc: Technical file (w/o enc)

D H E C
PROMOTE PROTECT PROSPER

Underground Storage Tank Management Division
Field Data Information Sheet – Notes

Site Information		
Date: 3-4-15	Site ID #: 05878	Site Name: Purolater
County: RICHLAND	Project Manager: S. Utz	Field Personnel: S. Utz, R. Arnail

Notes:

SU-1 to check on new recovery wells.

RW-4 needs a newpad because the old one has come up off the ground about 3 inches

RW-6 needs a newpad because the old one has come up off the ground about 1-2 inches.

UST DOCKETING 12 feet

Signature: S Utz Date: 3-4-15

D H E C
PROMOTE PROTECT PROSPER
W. Marshall Taylor Jr., Acting Director
Promoting and protecting the health of the public and the environment

MR MILTON BRAZELL
220 LORAINE CT
WEST COLUMBIA SC 29169

MAR 2 5 2015

UST 73tech DOCKETING

Re: Letter of Concern
Former Purolator Courier Corp, 105 Corporate Blvd, West Columbia, SC
UST Permit #05878
Adjacent property tax map # 004599-10-008
Lexington County

Dear Mr. Brazell:

In response to your request for information about environmental conditions and liability associated with the referenced facility and adjacent property, the following is provided.

The Underground Storage Tank (UST) Management Division (Agency) received a report on October 17, 1991 documenting petroleum chemicals of concern in the subsurface in the vicinity of the former underground storage tanks. Agency records revealed that three (3) USTs owned by Carolina Commerce Associates were abandoned by removal in September 1991. In response to the initial report of petroleum chemicals of concern, the UST Division directed the Carolina Commerce Associates as the party responsible for performing this activity under state and federal law, to assess the extent and severity of the contamination. An Aggressive Fluid and Vapor Recovery (AFVR) report will be submitted in the near future.

The UST Division would also like to clarify for you the financial and liability issues surrounding the petroleum chemicals of concern at this facility. The release of petroleum products from the UST is qualified to receive funding from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. This means that reasonable costs up to $1,000,000 can be paid by the SUPERB Account for site rehabilitation actions associated with this release.

Monitoring wells MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-15, MW-16, MW-17, PW-1, PW-2, RW-1, RW-2, RW-3, RW-4, RW-5 and RW-6 were installed on your property as part of the assessment investigation. AFVR events are being conducted currently to remove free product from monitoring wells MW-5 and MW-15. If free product is detected in the next groundwater sampling event then the AFVR events will continue to be conducted. The UST owner/operator and the Agency will require access to your property during reasonable hours to perform necessary rehabilitation activities.

The Division is not aware of any laws or regulations that prohibit the use or development of adjacent properties where a petroleum release has occurred. However, the Agency advises against installing a water supply well for drinking, cooking, or bathing purposes until active corrective action is completed. If you should choose to install a water supply well for these purposes at this time, it is at your discretion. Any future work required by the Agency should not cause any damage to the building, disrupt deliveries, prevent access to customers, or block main access routes. To further assure you, any required activities associated with the petroleum release would be performed by a SC Certified Site Rehabilitation Contractor who maintains specific levels of insurance coverage for General and Professional Liability and Pollution/Property Damage. Such coverage is required by Section IV of the SUPERB Site Rehabilitation and Fund Access Regulations R. 61-98.

If you have any questions, please contact me at (803) 898-0634. I can also be reached by email at utzst@dhec.sc.gov.

Sincerely,

Sonya T. Utz, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

cc: Dee O'Brien, Crawford Environmental Services, 104 Corporate Blvd, Ste 412, West Columbia, SC 29169
Technical File

Emerald, Inc.

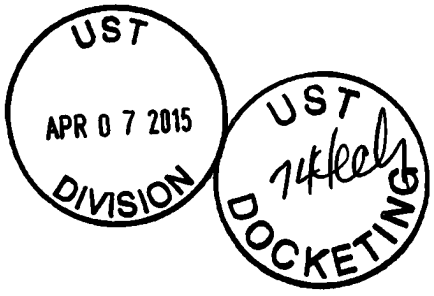
CONSULTING AND ENGINEERING
SERVICES IN ENVIRONMENTAL AFFAIRS

2520 TAHOE DRIVE • POST OFFICE BOX 3050 • SUMTER, SOUTH CAROLINA 29151

WEBSITE:
www.emeraldinc-us.com

TELEPHONE (803) 469-5454
FAX (803) 469-5465

March 30, 2015



Sonya Utz, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Underground Storage Tank Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

Aggressive Fluid Vapor Recovery Report
Purolator
West Columbia, South Carolina
Lexington County
UST Permit #05878; CA #48008
Emerald Job 14-092A

Ms. Utz,

Please find the attached Aggressive Fluid Vapor Recovery (AFVR) Report for the Purolator site. A site reconnaissance was conducted on February 27, 2015 to locate monitoring wells, gauge extraction wells, and assess site conditions. Prior to conducting this AFVR event information gathered during the site reconnaissance was presented to the SCDHEC project manager for review.

AGGRESSIVE FLUID VAPOR RECOVERY EVENT

On March 23 through 27, 2015, Emerald, Inc. personnel performed a 96-hour AFVR event using MW-15, RW-5 and RW-6 as extraction locations. This 96-hour AFVR event was conducted to remove free product previously detected at the subject site. Free phase petroleum product was detected in MW-15 at a thickness of 1.20 ft. prior to the event. At the

conclusion of the event free phase product was not detected. Monitoring well locations are presented on the attached site map provided by SCDHEC.

Table 1 presents the off-gas concentrations (using a Photoionization Detector), post treatment off-gas concentrations, off-gas velocity, and knockout tank vacuum. Table 2 presents the stinger depths, wellhead vacuum measurements, water levels measurements and magnehelic readings obtained during the event. Emerald, Inc. field personnel normally record data at thirty minute intervals for the first eight hours of the event, then at one hour intervals from hours nine through twenty four and at two hour intervals from hour twenty four until the conclusion of the event. During the hours of midnight to 8 AM event monitoring was suspended. Due to the location of the site being vacant, off-gas treatment was not utilized during this event.

According to the calculations as presented on Table 1, a total of 57.63 pounds of hydrocarbons (as vapor) and 9.22 equivalent gallons of hydrocarbons were removed during this event. Approximately 0.01 gallons of free phase product was detected in the knockout tank during this event. A total of 21,550 gallons of petroleum contaminated groundwater was transported to the City of Manning Wastewater Treatment Facility in Manning, SC for proper disposal. A copy of the disposal manifests for this event are included as an attachment.

If you have any questions or concerns please feel free to contact Emerald, Inc. at 803-469-5454.

Sincerely,
Emerald, Inc.

William C. McClary, P.G.
Project Manager

Ronny L. Lowder
President

Attachments

TABLE 1
AFVR MONITORING DATA
PUROLATOR
WEST COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #14-092A

Extraction Wells	Date	Time (hh:mm)	Differential Time (hr)	Knockout Tank Vacuum (in. Hg)	Off-Gas Concentration (PPM)	Post-Treatment Concentration (PPM)	Offgas Velocity (ft/min)	Flow Rate (CFM)	CG:M (mg/dsm^{3})	Cg (Lb/Dscf)	Removal Rate (Lbs/Hr)	Interval Removal (Lbs)
MW-15	3/23/15	8:30	Start	13	977	N/A	2,591	127.18	5,195	3.24E-04	2.48	-
RW-5		9:00 ↓	0.5	13	964	N/A	2,386	117.12	5,126	3.20E-04	2.25	1.18
RW-6		9:30 ↓	0.5	11	702	N/A	2,409	118.25	3,733	2.33E-04	1.65	0.98
		10:00 ↓	0.5	9	511	N/A	2,673	131.20	2,717	1.70E-04	1.34	0.75
		10:30 ↓	0.5	8	425	N/A	2,563	125.80	2,260	1.41E-04	1.07	0.60
		11:00 ↓	0.5	8	407	N/A	2,801	137.49	2,164	1.35E-04	1.11	0.54
		11:30 ↓	0.5	8	213	N/A	2,757	135.33	1,133	7.07E-05	0.57	0.42
		12:00 ↓	0.5	7	202	N/A	2,433	119.42	1,074	6.71E-05	0.48	0.26
		12:30 ↓	0.5	6	131	N/A	2,821	138.47	697	4.35E-05	0.36	0.21
		13:00 ↓	0.5	6	137	N/A	2,632	129.19	729	4.55E-05	0.35	0.18
		13:30 ↓	0.5	6	93	N/A	2,891	141.90	495	3.09E-05	0.26	0.15
		14:00 ↓	0.5	6	101	N/A	2,552	125.26	537	3.35E-05	0.25	0.13
		14:30 ↓	0.5	6	127	N/A	2,519	123.65	675	4.22E-05	0.31	0.14
		15:00 ↓	0.5	6	95	N/A	2,837	139.25	505	3.15E-05	0.26	0.14
		15:30[1] ↓	0.5	6	179	N/A	2,979	146.22	952	5.94E-05	0.52	0.20
		16:00 ↓	0.5	6	262	N/A	3,121	153.19	1,393	8.70E-05	0.80	0.33
		16:30 ↓	0.5	6	173	N/A	3,095	151.92	920	5.74E-05	0.52	0.33
		17:30 ↓	1.0	7	90	N/A	2,818	138.32	479	2.99E-05	0.25	0.39
		18:30	1.0	6	74	N/A	3,146	154.42	394	2.46E-05	0.23	0.24
		19:30	1.0	6	77	N/A	3,123	153.29	409	2.56E-05	0.24	0.23
		20:30	1.0	6	79	N/A	3,130	153.64	420	2.62E-05	0.24	0.24
		21:30	1.0	6	72	N/A	3,098	152.07	383	2.39E-05	0.22	0.23
		22:30	1.0	6	74	N/A	3,144	154.32	394	2.46E-05	0.23	0.22
		23:30	1.0	6	76	N/A	3,127	153.49	404	2.52E-05	0.23	0.23
	3/24/15	0:30	1.0	6	69	N/A	3,122	153.24	367	2.29E-05	0.21	0.22
		8:00 ↑	7.5	6	488	N/A	3,409	167.33	2,595	1.62E-04	1.63	6.89
		10:00 ↓	2.0	7	237	N/A	2,983	146.42	1,260	7.87E-05	0.69	2.32
		12:00 ↓	2.0	6	199	N/A	2,877	141.22	1,058	6.61E-05	0.56	1.25
		14:00 ↓	2.0	5	128	N/A	3,094	151.87	681	4.25E-05	0.39	0.95
		16:00 ↑	2.0	5	97	N/A	3,126	153.44	516	3.22E-05	0.30	0.68
		18:00	2.0	5	104	N/A	2,894	142.05	553	3.45E-05	0.29	0.59
		20:00	2.0	6	67	N/A	2,963	145.44	356	2.22E-05	0.19	0.49
		22:00	2.0	6	53	N/A	3,027	148.58	282	1.76E-05	0.16	0.35

TABLE 1 Cont'd.
AFVR MONITORING DATA
PUROLATOR
WEST COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #14-092A

Extraction Wells	Date	Time (hh:mm)	Differential Time (hr)	Knockout Tank Vacuum (in. Hg)	Off-Gas Concentration (PPM)	Post-Treatment Concentration (PPM)	Offgas Velocity (ft/min)	Flow Rate (CFM)	CG:M (mg/dsm^3)	Cg (Lb/Dscf)	Removal Rate (Lbs/Hr)	Interval Removal (Lbs)
MW-15	3/25/15	0:00	2.0	6	44	N/A	3,130	153.64	234	1.46E-05	0.13	0.29
RW-5		8:00	8.0	6	183	N/A	2,783	136.60	973	6.08E-05	0.50	2.53
RW-6		10:00 ↓	2.0	6	147	N/A	3,059	150.15	782	4.88E-05	0.44	0.94
		12:00 ↓	2.0	6	162	N/A	3,147	154.47	861	5.38E-05	0.50	0.94
		14:00 ↓	2.0	6	131	N/A	2,842	139.50	697	4.35E-05	0.36	0.86
		16:00	2.0	6	129	N/A	2,970	145.78	686	4.28E-05	0.37	0.74
		18:00	2.0	7	114	N/A	3,003	147.40	606	3.78E-05	0.33	0.71
		20:00	2.0	7	209	N/A	2,919	143.28	1,111	6.94E-05	0.60	0.93
		22:00	2.0	7	223	N/A	2,954	145.00	1,186	7.40E-05	0.64	1.24
	3/26/15	0:00	2.0	7	316	N/A	2,919	143.28	1,680	1.05E-04	0.90	1.55
		8:00	8.0	7	391	N/A	3,134	153.83	2,079	1.30E-04	1.20	8.40
		10:00 ↓	2.0	6	242	N/A	2,849	139.84	1,287	8.03E-05	0.67	1.87
		12:00 ↓	2.0	5	201	N/A	3,006	147.55	1,069	6.67E-05	0.59	1.26
		14:00 ↓	2.0	5	195	N/A	2,947	144.65	1,037	6.47E-05	0.56	1.15
		16:00 ↓	2.0	5	207	N/A	2,811	137.98	1,101	6.87E-05	0.57	1.13
		18:00	2.0	5	162	N/A	3,036	149.02	861	5.38E-05	0.48	1.05
		20:00	2.0	6	179	N/A	2,982	146.37	952	5.94E-05	0.52	1.00
		22:00	2.0	6	187	N/A	2,976	146.08	994	6.21E-05	0.54	1.07
	3/27/15	0:00	2.0	6	188	N/A	2,945	144.56	1,000	6.24E-05	0.54	1.09
		8:00	8.0	6	362	N/A	2,937	144.16	1,925	1.20E-04	1.04	6.32
		8:30	0.5	6	319	N/A	3,009	147.70	1,696	1.06E-04	0.94	0.49

Well Gauging Data

Well No.	Diameter (in)	Screened Interval (ft)	Before AFVR Event: Depth to Product (ft)	Before AFVR Event: Depth to Water (ft)	Before AFVR Event: Product Thickness (ft)	After AFVR Event: Depth to Product (ft)	After AFVR Event: Depth to Water (ft)	After AFVR Event: Product Thickness (ft)
MW-15	2	3-13	1.81	3.01	1.20	-	5.65	-
RW-5	4	1-11	-	1.89	-	-	7.43	-
RW-6	4	1-11	-	1.35	-	-	3.92	-

Product Thickness

Product observed in Sight Tube? Yes

Product detected in Tanker? No

Weather Conditions

		Emerald, Inc. Personnel
3/23/15	Sunny, 64-67°F	S. Hutcheson
3/24/15	Sunny, 47-75°F	C. Papp
3/25/15	Sunny, 60-74°F	
3/26/15	Sunny, 63-78°F	
3/27/15	Rain, 40-62°F	

Recovery / Disposal Information

Hydrocarbons Removed (vapor):	57.63	Pounds
Hydrocarbons Removed (liquid):	0.01	Gallons
Total Hydrocarbons Removed:	9.22	Equivalent Gallons
Molecular Weight Utilized:	128	mg/mg-mole
Disposal Facility:	City of Manning Wastewater Treatment Facility	
Total Liquids Removed:	21,550	Gallons

Equations

Cg;m = PPMg*(Mg/K3)

Removal Rate = Cg * Flow Rate * 60Min/Hr

Interval Removal = $(T_1 + T_2)/2$

PPM = Part per Million (by PID)

Cg:m = mg/dsm3(mass concentration of gasoline emission)

Mg = 128 mg/mg-mole, molecular weight of gasoline

K3 = 24.07 dsm^3/1E6 mg-mole, mass to volume conversion

Cg = lb/dcsf, mass concentration of gasoline by emission

Removal Rate = lb/hr,pollutant mass removal rate of emission

Notes

↑ = Stinger raised ↓ = Stinger lowered

¹ Unit was shutdown due to maintenance, average readings from 15:00 and 16:00 used for 15:30 calculations.

TABLE 2
EVENT MONITORING DATA
PUROLATOR
WEST COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #14-092A

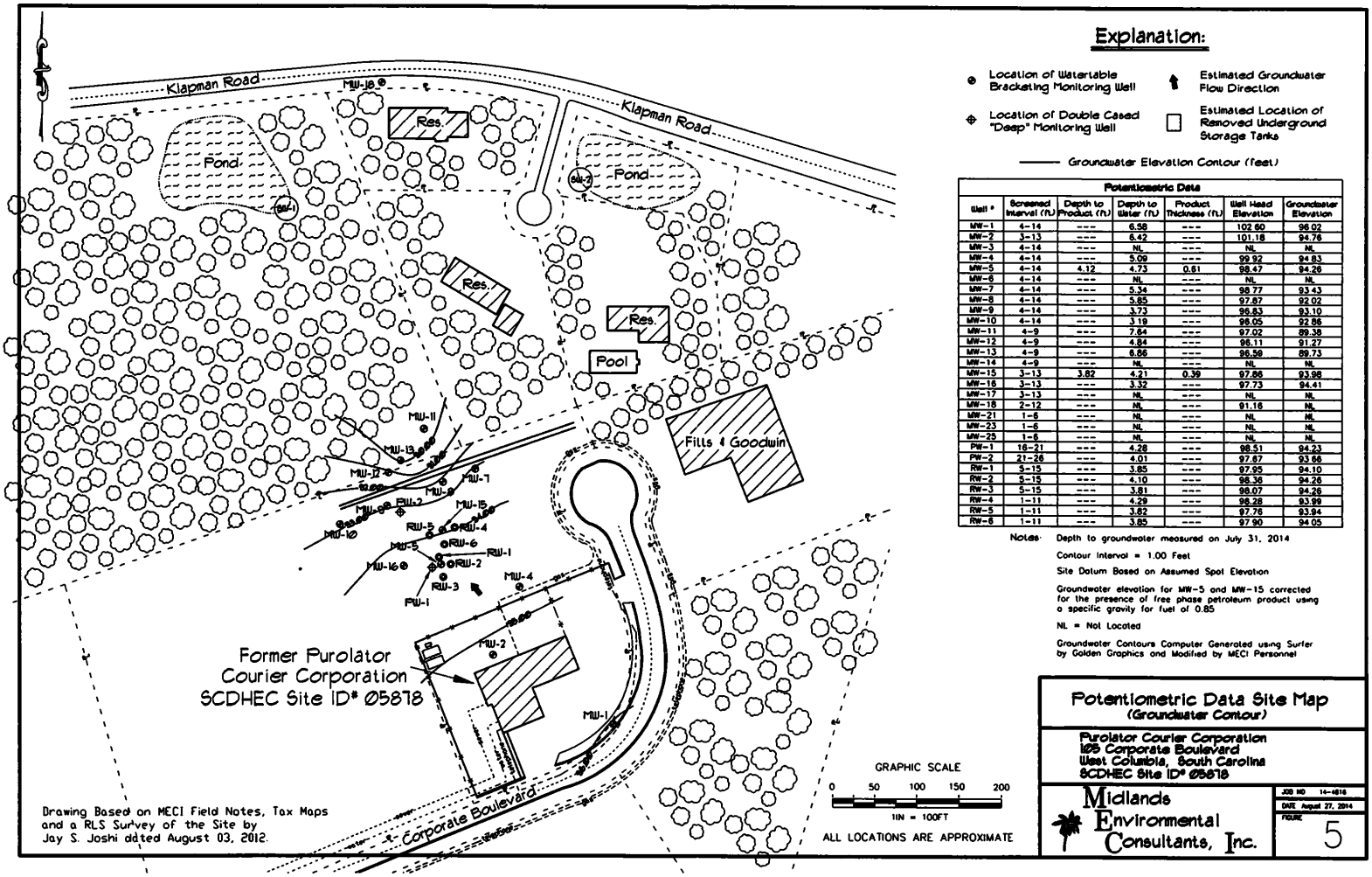
Date	Time (hh:mm)	Extraction Wells						Event Monitoring					
		MW-15		RW-5		RW-6		RW-1		RW-2		RW-4	
		Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water
3/23/15	8:30	3.0	12	1.5	11	2.0	11	Pre	1.49	Pre	1.68	Pre	1.84
	9:00	3.5	13	2.0	11	2.5	11	<1	1.60	<1	1.77	1.5	2.26
	9:30	4.0	13	2.5	10	3.0	10	<1	1.80	<1	1.91	1.1	2.49
	10:00	4.5	11	3.0	9	3.5	8	<1	1.89	<1	2.11	0.8	2.55
	10:30	5.0	9	3.5	8	4.0	7	<1	1.97	<1	2.30	0.2	2.68
	11:00	5.5	8	4.0	7	4.5	7	<1	2.13	<1	2.44	0.6	2.83
	11:30	6.0	8	4.5	7	5.0	7	<1	2.26	<1	2.60	0.7	2.97
	12:00	6.5	7	5.0	7	5.5	6	<1	2.30	<1	2.71	1.0	3.14
	12:30	7.0	7	5.5	5	6.0	6	<1	2.51	<1	2.88	0.9	3.26
	13:00	7.5	7	6.0	5	6.5	6	<1	2.68	<1	3.00	0.8	3.40
	13:30	8.0	6	6.5	5	7.0	6	<1	2.77	<1	3.03	0.7	3.51
	14:00	8.5	6	7.0	5	7.5	6	<1	2.83	<1	3.01	0.4	3.55
	14:30	9.0	6	7.5	5	8.0	6	<1	2.79	<1	3.00	0.5	3.62
	15:00	9.5	6	8.0	6	8.5	6	<1	2.71	<1	3.04	0.6	3.68
	15:30	10.0	6	8.5	6	9.0	6	<1	2.63	<1	3.06	0.4	3.74
	16:00	10.5	6	9.0	5	9.5	6	<1	2.59	<1	3.10	0.4	3.80
	16:30	11.0	6	9.5	5	10.0	6	<1	2.68	<1	3.14	0.5	3.88
	17:30	12.0	6	10.0	5	10.0	6	<1	2.70	<1	3.18	0.8	3.95
	18:30	12.0	5	10.0	5	10.0	5	<1	2.73	<1	3.23	0.6	4.00
	19:30	12.0	5	10.0	5	10.0	5	<1	2.75	<1	3.26	0.5	4.03
	20:30	12.0	5	10.0	5	10.0	5	<1	2.78	<1	3.29	0.5	4.07
	21:30	12.0	5	10.0	5	10.0	5	<1	2.81	<1	3.33	0.4	4.11
	22:30	12.0	5	10.0	5	10.0	5	<1	2.84	<1	3.35	0.4	4.16
	23:30	12.0	5	10.0	5	10.0	5	<1	2.87	<1	3.40	0.5	4.21
3/24/15	0:30	12.0	5	10.0	5	10.0	5	<1	2.88	<1	3.42	0.5	4.22
	8:00	3.0	5	3.0	5	3.0	5	<1	3.09	<1	3.36	0.4	3.71
	10:00	4.0	6	4.0	5	4.0	5	<1	3.19	<1	3.43	0.6	3.83
	12:00	5.0	5	5.0	5	5.0	5	<1	3.17	<1	3.46	0.5	3.84
	14:00	6.0	5	6.0	4	6.0	4	<1	3.10	<1	3.48	0.3	3.72
	16:00	3.0	4	3.0	4	3.0	4	<1	3.04	<1	3.42	0.3	3.59
	18:00	3.0	4	3.0	4	3.0	4	<1	3.08	<1	3.30	0.4	3.39
	20:00	3.0	4	3.0	4	3.0	4	<1	3.01	<1	3.22	0.5	3.23
	22:00	3.0	4	3.0	4	3.0	4	<1	3.00	<1	3.17	0.3	3.19

Notes:

TABLE 2 Cont'd.
EVENT MONITORING DATA
PUROLATOR
WEST COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #14-092A

Date	Time (hh:mm)	Extraction Wells						Event Monitoring					
		MW-15		RW-5		RW-6		RW-1		RW-2		RW-4	
		Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water
3/25/15	0:00	3.0	4	3.0	5	3.0	4	<1	2.97	<1	3.14	0.4	3.13
	8:00	3.0	4	3.0	4	3.0	4	<1	3.09	<1	3.31	0.7	3.42
	10:00	4.0	4	4.0	4	4.0	4	<1	3.12	<1	3.33	0.4	3.44
	12:00	5.0	5	5.0	4	5.0	4	<1	3.19	<1	3.36	0.5	3.50
	14:00	6.0	5	6.0	4	6.0	4	<1	3.16	<1	3.31	0.4	3.47
	16:00	6.0	5	6.0	4	6.0	4	<1	3.11	<1	3.21	0.3	3.43
	18:00	6.0	4	6.0	4	6.0	4	<1	3.07	<1	3.02	0.3	3.39
	20:00	6.0	4	6.0	4	6.0	4	<1	3.04	<1	2.94	0.4	3.32
	22:00	6.0	4	6.0	4	6.0	4	<1	3.05	<1	2.96	0.4	3.34
3/26/15	0:00	6.0	4	6.0	4	6.0	4	<1	3.07	<1	2.99	0.5	3.36
	8:00	6.0	4	6.0	4	6.0	4	<1	3.06	<1	3.02	0.4	3.35
	10:00	7.0	4	7.0	5	7.0	5	<1	3.30	<1	3.51	0.7	3.93
	12:00	8.0	4	8.0	4	8.0	4	<1	3.35	<1	3.54	0.6	3.95
	14:00	9.0	4	9.0	4	9.0	4	<1	3.41	<1	3.57	0.5	3.99
	16:00	10.0	4	10.0	4	10.0	4	<1	3.45	<1	3.61	0.3	4.03
	18:00	10.0	4	10.0	4	10.0	4	<1	3.50	<1	3.66	0.3	4.06
	20:00	10.0	5	10.0	5	10.0	5	<1	3.54	<1	3.69	0.4	4.08
	22:00	10.0	5	10.0	5	10.0	5	<1	3.59	<1	3.73	0.4	4.10
3/27/15	0:00	10.0	5	10.0	5	10.0	5	<1	3.64	<1	3.76	0.4	4.13
	8:00	10.0	5	10.0	5	10.0	5	<1	3.82	<1	3.92	0.7	5.01
	8:30	10.0	5	10.0	5	10.0	5	<1	3.83	<1	3.93	0.4	5.02

Notes:



Explanation:

- Location of Watertable Bracketing Monitoring Well
- Location of Double Cased "Deep" Monitoring Well
- Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Groundwater Elevation Contour (feet)

Potentiometric Data

Well #	Screened Interval (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Well Head Elevation	Groundwater Elevation
MW-1	4-14	---	6.58	---	102.60	96.02
MW-2	3-13	---	6.42	---	101.18	94.76
MW-3	4-14	---	NL	---	NL	NL
MW-4	4-14	---	5.09	---	99.92	94.83
MW-5	4-14	4.12	4.73	0.61	98.47	94.26
MW-6	4-14	---	NL	---	NL	NL
MW-7	4-14	---	5.34	---	98.77	93.43
MW-8	4-14	---	5.85	---	97.87	92.02
MW-9	4-14	---	3.73	---	96.83	93.10
MW-10	4-14	---	3.19	---	98.05	92.86
MW-11	4-9	---	7.84	---	97.02	89.38
MW-12	4-9	---	4.84	---	96.11	91.27
MW-13	4-9	---	6.86	---	96.59	89.73
MW-14	4-9	---	NL	---	NL	NL
MW-15	3-13	3.82	4.21	0.39	97.86	93.98
MW-16	3-13	---	3.32	---	97.73	94.41
MW-17	3-13	---	NL	---	NL	NL
MW-18	2-12	---	NL	---	91.16	NL
MW-21	1-6	---	NL	---	NL	NL
MW-23	1-6	---	NL	---	NL	NL
MW-25	1-6	---	NL	---	NL	NL
PW-1	16-21	---	4.28	---	98.51	94.23
PW-2	21-26	---	4.01	---	97.87	93.86
RW-1	5-15	---	3.85	---	97.95	94.10
RW-2	5-15	---	4.10	---	98.36	94.26
RW-3	5-15	---	3.81	---	98.07	94.26
RW-4	1-11	---	4.29	---	98.28	93.99
RW-5	1-11	---	3.82	---	97.76	93.94
RW-6	1-11	---	3.85	---	97.90	94.05

Notes:
- Depth to groundwater measured on July 31, 2014
- Contour Interval = 1.00 Feet
- Site Datum Based on Assumed Spot Elevation
- Groundwater elevation for MW-5 and MW-15 corrected for the presence of free phase petroleum product using a specific gravity for fuel of 0.85
- NL = Not Located
- Groundwater Contours Computer Generated using Surfer by Golden Graphics and Modified by MECI Personnel

GRAPHIC SCALE
0 50 100 150 200
1IN = 100FT

ALL LOCATIONS ARE APPROXIMATE

Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated August 03, 2012.

Potentiometric Data Site Map
(Groundwater Contour)

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO 14-4816
DATE August 27, 2014
FIGURE 5

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.		Manifest Document No. 743-1	2. Page 1 of
3. Generator's Name and Mailing Address	Purolator 105 Corporate Boulevard West Columbia, SC UST #05878		
4. Generator's Phone ( )			
5. Transporter 1 Company Name	6. US EPA ID Number	A. State Transporter's ID	
		B. Transporter 1 Phone	
7. Transporter 2 Company Name	8. US EPA ID Number	C. State Transporter's ID	
		D. Transporter 2 Phone	
9. Designated Facility Name and Site Address City of Manning Wastewater Treatment Facility PO Box 546 Manning, SC 29102	10. US EPA ID Number	E. State Facility's ID	
		F. Facility's Phone	

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			5428	GAL
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above	H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date (Month / Day / Year)
Cody Page	Cody Page	03 / 24 / 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)
Michael Rivers	Michael Rivers	

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month / Day / Year)
James Bethea	James Bethea	3 / 26 / 15

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 743-2

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator
105 Corporate Boulevard
West Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number

A. State Transporter's ID

7. Transporter 2 Company Name | 8. US EPA ID Number

B. Transporter 1 Phone

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			4726	GAL
b.				
c.				
d.				

GENERATOR

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Cody Papp | Signature | Date: Month 03 Day 25 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Michael Rivers | Signature | Date: Month 3 Day 25 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name: Mich MCR | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name: James Bethea | Signature | Date: Month 3 Day 26 Year 15

521 Latta Station

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 743-3

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator
105 Corporate Boulevard
West Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name

6. US EPA ID Number

7. Transporter 2 Company Name

8. US EPA ID Number

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

C. State Transporter's ID

D. Transporter 2 Phone

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			5918	GAL
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Cody Page — Signature: [signature] — Date: Month 03 Day 26 Year 15

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Michael Rivers — Signature: [signature] — Date: Month 3 Day 26 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Date: Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name: James Bethea — Signature: James Bethea — Date: Month 3 Day 26 Year 15

821 Liftstation

GENERATOR

TRANSPORTER

FACILITY

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 743-4

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator
105 Corporate Boulevard
West Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			5478	GAL
b.				
c.				
d.				

GENERATOR

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Date

Printed/Typed Name: Seth Hutcheson for Purolator | Signature | Month 3 | Day 27 | Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Date

Printed/Typed Name: HAL KNOPF | Signature | Month 3 | Day 27 | Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Date

Printed/Typed Name | Signature | Month | Day | Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Date

Printed/Typed Name: James Bethea | Signature: James Bethea | Month 3 | Day 27 | Year 15

Emerald, Inc.

CONSULTING AND ENGINEERING
SERVICES IN ENVIRONMENTAL AFFAIRS

2520 TAHOE DRIVE • POST OFFICE BOX 3050 • SUMTER, SOUTH CAROLINA 29151

WEBSITE:
www.emeraldinc-us.com

TELEPHONE (803) 469-5454
FAX (803) 469-5465

UST
APR 08 2015
PROGRAM

UST
75 tech
DOCKETING

April 8, 2015

Sonya Utz, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Underground Storage Tank Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, SC 29201

Aggressive Fluid Vapor Recovery Report
Purolator
West Columbia, South Carolina
Lexington County
UST Permit #05878; CA #48008
Emerald Job 14-092B

Ms. Utz,

Please find the attached Aggressive Fluid Vapor Recovery (AFVR) Report for the Purolator site. Prior to conducting this AFVR event information gathered during the site reconnaissance was presented to the SCDHEC project manager for review.

AGGRESSIVE FLUID VAPOR RECOVERY EVENT

On March 30 through April 3, 2015, Emerald, Inc. personnel performed a 96-hour AFVR event using MW-5, RW-1, RW-2 and RW-3 as extraction locations. This 96-hour AFVR event was conducted to remove free product previously detected at the subject site. Free phase petroleum product was detected in MW-5 at a thickness of 1.79 ft. prior to the event. At the conclusion of the event free phase product was not detected. In order to maximize free product and vapor recovery from monitoring well MW-5 recovery wells RW-1, RW-2 and RW-3

TABLE 1
AFVR MONITORING DATA
PUROLATOR
WEST COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #14-092B

Extraction Wells	Date	Time (hh:mm)	Differential Time (hr)	Knockout Tank Vacuum (in. Hg)	Off-Gas Concentration (PPM)	Post-Treatment Concentration (PPM)	Offgas Velocity (ft/min)	Flow Rate (CFM)	CG:M (mg/dsm^{3})	Cg (Lb/Dscf)	Removal Rate (Lbs/Hr)	Interval Removal (Lbs)
MW-5	3/30/15	8:30	Start	6	427	N/A	2,917	143.18	2,271	1.42E-04	1.22	-
RW-1[1]		9:00 ↓	0.5	6	419	N/A	3,024	148.43	2,228	1.39E-04	1.24	0.61
RW-2[2]		9:30 ↓	0.5	7	443	N/A	2,942	144.41	2,356	1.47E-04	1.27	0.63
RW-3[2]		10:00 ↓	0.5	7	482	N/A	3,003	147.40	2,563	1.60E-04	1.42	0.67
		10:30 ↓	0.5	7	472	N/A	3,050	149.71	2,510	1.57E-04	1.41	0.71
		11:00 ↓	0.5	7	499	N/A	2,919	143.28	2,654	1.66E-04	1.42	0.71
		11:30 ↓	0.5	8	363	N/A	3,012	147.84	1,930	1.21E-04	1.07	0.62
		12:00 ↓	0.5	8	327	N/A	2,998	147.16	1,739	1.09E-04	0.96	0.51
		12:30 ↓	0.5	9	307	N/A	2,964	145.49	1,633	1.02E-04	0.89	0.46
		13:00 ↓	0.5	9	316	N/A	2,957	145.14	1,680	1.05E-04	0.91	0.45
		13:30 ↓	0.5	9	296	N/A	2,916	143.13	1,574	9.83E-05	0.84	0.44
		14:00 ↓	0.5	10	263	N/A	2,896	142.15	1,399	8.73E-05	0.74	0.40
		14:30 ↓	0.5	10	179	N/A	2,798	137.34	952	5.94E-05	0.49	0.31
		15:00 ↓	0.5	10	164	N/A	2,818	138.32	872	5.44E-05	0.45	0.24
		15:30 ↓	0.5	10	118	N/A	2,841	139.45	627	3.92E-05	0.33	0.19
		16:00 ↓	0.5	10	104	N/A	2,859	140.33	553	3.45E-05	0.29	0.15
		16:30 ↓	0.5	11	111	N/A	2,884	141.56	590	3.69E-05	0.31	0.15
		17:30 ↓	1.0	11	129	N/A	2,771	136.01	686	4.28E-05	0.35	0.33
		18:30 ↓	1.0	11	134	N/A	2,814	138.13	713	4.45E-05	0.37	0.36
		19:30	1.0	11	112	N/A	2,794	137.14	596	3.72E-05	0.31	0.34
		20:30	1.0	11	140	N/A	2,863	140.53	744	4.65E-05	0.39	0.35
		21:30	1.0	11	117	N/A	2,748	134.89	622	3.88E-05	0.31	0.35
		22:30	1.0	11	109	N/A	2,816	138.22	580	3.62E-05	0.30	0.31
		23:30	1.0	11	111	N/A	2,742	134.59	590	3.69E-05	0.30	0.30
	3/31/15	0:00	0.5	11	106	N/A	2,933	143.97	564	3.52E-05	0.30	0.15
		8:00 ↑	8.0	23	492	N/A	2,293	112.55	2,616	1.63E-04	1.10	5.63
		10:00 ↑	2.0	23	687	N/A	2,247	110.29	3,653	2.28E-04	1.51	2.61
		12:00 ↓	2.0	23	> 5,000	N/A	2,308	113.29	26,589	1.66E-03	11.28	12.79
		14:00	2.0	21	127	N/A	2,274	111.62	675	4.22E-05	0.28	11.57
		16:00	2.0	23	> 5,000	N/A	2,219	108.92	26,589	1.66E-03	10.85	11.13
		18:00	2.0	24	> 5,000	N/A	2,033	99.79	26,589	1.66E-03	9.94	20.79
		20:00	2.0	22	> 5,000	N/A	2,397	117.66	26,589	1.66E-03	11.72	21.66
		22:00	2.0	21	> 5,000	N/A	2,488	122.12	26,589	1.66E-03	12.16	23.88

were utilized as extraction wells only on March 30. Monitoring well locations are presented on the attached site map provided by SCDHEC.

Table 1 presents the off-gas concentrations (using a Photoionization Detector), post treatment off-gas concentrations, off-gas velocity, and knockout tank vacuum. Table 2 presents the stinger depths, wellhead vacuum measurements, water levels measurements and magnehelic readings obtained during the event. Emerald, Inc. field personnel normally record data at thirty minute intervals for the first eight hours of the event, then at one hour intervals from hours nine through twenty four and at two hour intervals from hour twenty four until the conclusion of the event. During the hours of midnight to 8 AM event monitoring was suspended. Due to the location of the site being vacant, off-gas treatment was not utilized during this event.

According to the calculations as presented on Table 1, a total of 299.85 pounds of hydrocarbons (as vapor) and 47.95 equivalent gallons of hydrocarbons were removed during this event. Free phase petroleum product was not detected in the knockout tank. A total of 26,856 gallons of petroleum contaminated groundwater was transported to the City of Manning Wastewater Treatment Facility in Manning, SC for proper disposal. A copy of the disposal manifests for this event are included as an attachment.

If you have any questions or concerns please feel free to contact Emerald, Inc. at 803-469-5454.

Sincerely,
Emerald, Inc.

William C. McClary, P.G.
Project Manager

Ronny L. Lowder
President

Attachments

TABLE 1 Cont'd.
AFVR MONITORING DATA
PUROLATOR
WEST COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #14-092B

Extraction Wells	Date	Time (hh:mm)	Differential Time (hr)	Knockout Tank Vacuum (in. Hg)	Off-Gas Concentration (PPM)	Post-Treatment Concentration (PPM)	Offgas Velocity (ft/min)	Flow Rate (CFM)	CG:M (mg/dsm^3)	Cg (Lb/Dscf)	Removal Rate (Lbs/Hr)	Interval Removal (Lbs)
MW-5	4/1/15	0:00	2.0	20	> 5,000	N/A	2,473	121.39	26,589	1.66E-03	12.09	24.25
RW-1[1]		8:00	8.0	20	2,923	N/A	2,101	103.13	15,544	9.70E-04	6.00	72.38
RW-2[2]		10:00 ↓	2.0	21	3,044	N/A	2,091	102.64	16,187	1.01E-03	6.22	12.23
RW-3[2]		12:00 ↑	2.0	22	2,961	N/A	1,959	96.16	15,746	9.83E-04	5.67	11.89
		14:00 ↑	2.0	23	2,307	N/A	1,940	95.22	12,268	7.66E-04	4.38	10.05
		16:00 ↓	2.0	24	1,431	N/A	1,766	86.68	7,610	4.75E-04	2.47	6.85
		18:00 ↑	2.0	24	947	N/A	1,893	92.92	5,036	3.14E-04	1.75	4.22
		20:00	2.0	23	873	N/A	1,917	94.10	4,642	2.90E-04	1.64	3.39
		22:00	2.0	21	661	N/A	2,247	110.29	3,515	2.19E-04	1.45	3.09
	4/2/15	0:00	2.0	21	623	N/A	2,303	113.04	3,313	2.07E-04	1.40	2.85
		8:00 ↓	8.0	22	584	N/A	2,020	99.15	3,106	1.94E-04	1.15	10.22
		10:00 ↓	2.0	23	561	N/A	1,986	97.48	2,983	1.86E-04	1.09	2.24
		12:00 ↑	2.0	23	499	N/A	1,988	97.58	2,654	1.66E-04	0.97	2.06
		14:00 ↓	2.0	22	427	N/A	2,186	107.30	2,271	1.42E-04	0.91	1.88
		16:00 ↓	2.0	24	389	N/A	1,846	90.61	2,069	1.29E-04	0.70	1.61
		18:00 ↑	2.0	24	326	N/A	1,947	95.57	1,734	1.08E-04	0.62	1.32
		20:00	2.0	24	339	N/A	1,993	97.83	1,803	1.13E-04	0.66	1.28
		22:00	2.0	24	304	N/A	2,076	101.90	1,617	1.01E-04	0.62	1.28
	4/3/15	0:00	2.0	24	301	N/A	2,009	98.61	1,601	9.99E-05	0.59	1.21
		8:00	8.0	24	362	N/A	2,142	105.14	1,925	1.20E-04	0.76	5.40
		8:30	0.5	24	321	N/A	2,037	99.99	1,707	1.07E-04	0.64	0.35

Well Gauging Data			Before AFVR Event			After AFVR Event		
Well No.	Diameter (in)	Screened Interval (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)
MW-5	2	4-14	1.94	3.73	1.79	-	5.01	-
RW-1[1]	4	5-15	-	2.05	-	-	5.09	-
RW-2[2]	4	5-15	-	2.19	-	-	5.44	-
RW-3[2]	4	5-15	-	1.74	-	-	5.21	-

Product Thickness	
Product observed in Sight Tube?	No
Product detected in Tanker?	No

Weather Conditions		Emerald, Inc. Personnel
3/30/15	Rain, 44-72°F	S. Hutcheson
3/31/15	Sunny, 40-81°F	C. Papp
4/1/15	Sunny, 58-77°F	
4/2/15	Rain, 52-81°F	
4/3/15	Rain, 64-86°F	

Recovery / Disposal Information		
Hydrocarbons Removed (vapor):	299.85	Pounds
Hydrocarbons Removed (liquid):	0.00	Gallons
Total Hydrocarbons Removed:	47.95	Equivalent Gallons
Molecular Weight Utilized:	128	mg/mg-mole
Disposal Facility:	City of Manning Wastewater Treatment Facility	
Total Liquids Removed:	26,856	Gallons

Equations

Cg;m = PPMg*(Mg/K3)

Removal Rate = Cg * Flow Rate * 60Min/Hr

Interval Removal = $(T_1 + T_2)/2$

PPM = Part per Million (by PID)

Cg:m = mg/dsm3(mass concentration of gasoline emission)

Mg = 128 mg/mg-mole, molecular weight of gasoline

K3 = 24.07 dsm^3/1E6 mg-mole, mass to volume conversion

Cg = lb/dcsf, mass concentration of gasoline by emission

Removal Rate = lb/hr,pollutant mass removal rate of emission

Notes

↑ = Stinger raised ↓ = Stinger lowered

[1] RW-1 was utilized as an extraction well only during 3/30/15 and from 12:00 through 14:00 on 3/31/15

[2] RW-2 and RW-3 were utilized as extraction wells only on 3/30/15

TABLE 2
EVENT MONITORING DATA
PUROLATOR
WEST COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #14-092B

Date	Time (hh:mm)	Extraction Wells								Event Monitoring					
		MW-5		RW-1[1]		RW-2[2]		RW-3[2]		MW-15		RW-4		RW-6	
		Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water
3/30/15	8:30	4.0	6	5.0	4	5.0	4	5.0	4	Pre	2.14	Pre	2.43	Pre	2.05
	9:00	4.5	7	5.5	5	5.5	5	5.5	5	<1	2.31	<1	2.57	<1	2.29
	9:30	5.0	7	6.0	5	6.0	5	6.0	5	<1	2.67	<1	2.73	<1	2.83
	10:00	5.5	7	6.5	5	6.5	5	6.5	5	<1	2.89	<1	2.98	<1	3.13
	10:30	6.0	7	7.0	5	7.0	5	7.0	5	<1	2.94	<1	3.04	<1	3.03
	11:00	6.5	7	7.5	6	7.5	6	7.5	6	<1	2.92	<1	3.01	<1	2.98
	11:30	7.0	8	8.0	6	8.0	6	8.0	6	<1	2.87	<1	2.92	<1	3.09
	12:00	7.5	8	8.5	6	8.5	7	8.5	6	<1	2.98	<1	3.00	<1	3.22
	12:30	8.0	9	9.0	6	9.0	6	9.0	7	<1	3.07	<1	3.07	<1	3.39
	13:00	8.5	9	9.5	6	9.5	7	9.5	7	<1	3.13	<1	3.10	<1	3.42
	13:30	9.0	9	10.0	7	10.0	7	10.0	7	<1	3.17	<1	3.14	<1	3.43
	14:00	9.5	10	10.5	7	10.5	7	10.5	7	<1	3.18	<1	3.15	<1	3.44
	14:30	10.0	10	11.0	7	11.0	7	11.0	7	<1	3.19	<1	3.19	<1	3.45
	15:00	10.5	10	11.5	7	11.5	7	11.5	7	<1	3.20	<1	3.21	<1	3.47
	15:30	11.0	10	12.0	6	12.0	7	12.0	7	<1	3.09	<1	3.15	<1	3.30
	16:00	11.5	10	12.5	6	12.5	6	12.5	7	<1	3.10	<1	3.17	<1	3.33
	16:30	12.0	10	13.0	6	13.0	6	13.0	6	<1	3.17	<1	3.20	<1	3.37
	17:30	12.5	10	13.5	6	13.5	6	13.5	6	<1	3.29	<1	3.30	<1	3.52
	18:30	13.0	10	14.0	6	14.0	6	14.0	6	<1	3.33	<1	3.36	<1	3.59
	19:30	13.0	10	14.0	6	14.0	6	14.0	6	<1	3.35	<1	3.40	<1	3.66
	20:30	13.0	10	14.0	6	14.0	6	14.0	6	<1	3.39	<1	3.44	<1	3.71
	21:30	13.0	10	14.0	6	14.0	6	14.0	6	<1	3.43	<1	3.47	<1	3.76
	22:30	13.0	10	14.0	6	14.0	6	14.0	6	<1	3.46	<1	3.50	<1	3.81
	23:30	13.0	10	14.0	6	14.0	6	14.0	6	<1	3.48	<1	3.53	<1	3.85
3/31/15	0:00	13.0	10	14.0	6	14.0	6	14.0	6	<1	3.50	<1	3.52	<1	3.87
	8:00	10.0	21	10.0	–	–	–	–	–	<1	3.32	<1	3.41	<1	3.53
	10:00	4.0	21	10.0	–	–	–	–	–	<1	3.27	<1	3.33	<1	3.46
	12:00	5.0	21	10.0	19	–	–	–	–	<1	3.21	<1	3.26	<1	3.42
	14:00	5.0	20	10.0	18	–	–	–	–	<1	3.29	<1	3.32	<1	3.47
	16:00	5.0	19	10.0	–	–	–	–	–	<1	3.31	<1	3.36	<1	3.51
	18:00	5.0	19	10.0	–	–	–	–	–	<1	3.28	<1	3.34	<1	3.50
	20:00	5.0	17	10.0	–	–	–	–	–	<1	3.25	<1	3.31	<1	3.50
	22:00	5.0	16	10.0	–	–	–	–	–	<1	3.23	<1	3.29	<1	3.48

Notes: [1] RW-1 was utilized as an extraction well only during 3/30/15 and from 12:00 through 14:00 on 3/31/15
[2] RW-2 and RW-3 were utilized as extraction wells only on 3/30/15

TABLE 2 Cont'd.
EVENT MONITORING DATA
PUROLATOR
WEST COLUMBIA, SOUTH CAROLINA
SCDHEC SITE ID #05878
EMERALD JOB #14-092B

Date	Time (hh:mm)	Extraction Wells								Event Monitoring					
		MW-5		RW-1[1]		RW-2[2]		RW-3[2]		MW-15		RW-4		RW-6	
		Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Stinger Depth (ft.)	Wellhead Vacuum (in. Hg)	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water	Magnehelic Reading (inches of water)	Depth to Water
4/1/15	0:00	5.0	15	–	–	–	–	–	–	<1	3.23	<1	3.30	<1	3.49
	8:00	5.0	15	–	–	–	–	–	–	<1	3.56	<1	3.54	<1	3.97
	10:00	6.0	16	–	–	–	–	–	–	<1	3.62	<1	3.61	<1	4.03
	12:00	5.0	15	–	–	–	–	–	–	<1	3.74	<1	3.74	<1	4.10
	14:00	4.0	17	–	–	–	–	–	–	<1	3.63	<1	3.62	<1	3.82
	16:00	5.0	17	–	–	–	–	–	–	<1	3.60	<1	3.59	<1	3.76
	18:00	4.0	17	–	–	–	–	–	–	<1	3.66	<1	3.64	<1	3.79
	20:00	4.0	16	–	–	–	–	–	–	<1	3.70	<1	3.68	<1	3.81
	22:00	4.0	16	–	–	–	–	–	–	<1	3.81	<1	3.75	<1	3.90
4/2/15	0:00	4.0	15	–	–	–	–	–	–	<1	3.84	<1	3.70	<1	3.88
	8:00	5.0	15	–	–	–	–	–	–	<1	3.80	<1	3.76	<1	3.81
	10:00	6.0	17	–	–	–	–	–	–	<1	3.81	<1	3.79	<1	3.94
	12:00	4.0	17	–	–	–	–	–	–	<1	3.85	<1	3.84	<1	3.99
	14:00	7.0	17	–	–	–	–	–	–	<1	3.74	<1	3.76	<1	3.87
	16:00	8.0	18	–	–	–	–	–	–	<1	3.73	<1	3.74	<1	3.86
	18:00	4.0	18	–	–	–	–	–	–	<1	3.65	<1	3.67	<1	3.79
	20:00	4.0	18	–	–	–	–	–	–	<1	3.60	<1	3.63	<1	3.72
	22:00	4.0	18	–	–	–	–	–	–	<1	3.58	<1	3.65	<1	3.69
4/3/15	0:00	4.0	18	–	–	–	–	–	–	<1	3.62	<1	3.69	<1	3.70
	8:00	4.0	18	–	–	–	–	–	–	<1	3.82	<1	3.81	<1	3.88
	8:30	4.0	18	–	–	–	–	–	–	<1	3.84	<1	3.83	<1	3.87

Notes: [1] RW-1 was utilized as an extraction well only during 3/30/15 and from 12:00 through 14:00 on 3/31/15

[2] RW-2 and RW-3 were utilized as extraction wells only on 3/30/15

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 745-1

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator
105 Corporate Blvd.
West Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name — 6. US EPA ID Number

7. Transporter 2 Company Name — 8. US EPA ID Number

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number

A. State Transporter's ID
B. Transporter 1 Phone
C. State Transporter's ID
D. Transporter 2 Phone
E. State Facility's ID
F. Facility's Phone

GENERATOR

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			5262	GAL
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Cody Popp — Signature — Date: Month 03 Day 31 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Lee Stagner — Signature — Date: Month 3 Day 31 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name: James Bethea — Signature: James Bethea — Date: Month 4 Day 13 Year 15

5212-Flotation

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 745-2

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator
105 Corporate Blvd.
West Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number | A. State Transporter's ID | B. Transporter 1 Phone

7. Transporter 2 Company Name | 8. US EPA ID Number | C. State Transporter's ID | D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number | E. State Facility's ID | F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			5497	GAL
b.				
c.				
d.				

GENERATOR

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

13. Special Handling Instructions and Additional Information

14. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Cody Popp | Signature: Cody Popp | Date: Month 04 Day 02 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Lee Staggvil | Signature | Date: Month 4 Day 2 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name: James Bethea | Signature: James Bethea | Date: Month 4 Day 13 Year 15

521 Liftstation

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 745-3

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator
105 Corporate Blvd.
West Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

GENERATOR

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			5961	GAL
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Cody Popp | Signature: Cody Popp | Date: Month 04 Day 10 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Lee Stogner | Signature | Date: Month 4 Day 15 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name: James Bethea | Signature: James Bethea | Date: Month 4 Day 13 Year 15

521 Liftstation

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 745-4

2. Page 1 of

3. Generator's Name And Mailing Address
Purolator
105 Corporate Blvd.
West Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			4909	GAL
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

GENERATOR

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Seth Hutcheson / for Purolator | Signature | Date: Month 4 Day 12 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Lee Stajjar | Signature | Date: Month 4 Day 12 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name: James Bethea | Signature: James Bethea | Date: Month 4 Day 13 Year 15

521 Liftstation

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 745-5

2. Page 1 of

3. Generator's Name and Mailing Address
Purolator
105 Corporate Blvd.
West Columbia, SC UST #05878

4. Generator's Phone ( )

5. Transporter 1 Company Name

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
City of Manning
Wastewater Treatment Facility
PO Box 546
Manning, SC 29102

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. NON-HAZARDOUS PETROLEUM CONTAMINATED WATER-PROFILE #			5227	GAL
b.				
c.				
d.				

GENERATOR

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: Cody Pope | Signature | Date: Month 04 Day 03 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Lee Stagner | Signature | Date: Month 4 Day 3 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name: James Bethea | Signature: James Bethea | Date: Month 4 Day 3 Year 15

521 Lifestation

D H E C

Underground Storage Tank Management Division
Field Data Information Sheet – Monitoring Well Gauging

Site Information

Date: 5-6-15	Site ID #: 05878	Site Name: PUROLATOR
County: Lexington	Project Manager: S. Utz	Field Personnel: S. Utz, S. Briney

Well Gauging Information

Well ID:	Total Well Depth (ft.)	Screened Interval (ft.)	Depth to Free Product (ft.)	Depth to Ground water (ft.)	Free Product Thickness (ft.)	Confirmed with Bailer?	Photos Taken ?	Well Pad OK?	Bolts in Well Cover?	Water in Well Vault?
MW-5		4-14	2.76	3.23	0.47	No	No	Yes	1-3/4 Bolt	No
MW-15		3-13	–	2.69	–	No	No	Yes	No	Yes
RW-1		5-15	–	2.47	–	No	No	Yes	1	Yes
RW-2		5-15	–	2.75	–	No	No	Yes	1	Yes
RW-3		5-15	–	2.98	–	No	No	Yes	1	No
RW-4		1-11	–	3.02	–	No	No	PAD ROCKS	Yes	No
RW-5		1-11	–	2.51	–	No	No	Yes	Yes	No
RW-6		1-11	–	2.61	–	No	No	CAP BROKE PAD & GROUND	1	Yes

Notes: RW-6 Sheen on water & probe. RW-5 light sheen. MW-5 has bolt that requires a 3/4 Socket.

Signature: S Utz

U.S. DOCKETING

D H E C

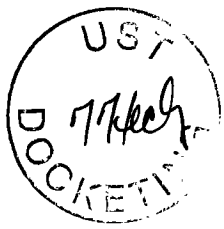
PROMOTE PROTECT PROSPER

W. Marshall Taylor Jr., Acting Director

Promoting and protecting the health of the public and the environment

BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071

MAY 2 8 2015



Re: **Site Specific Work Plan Request**
Groundwater Sampling Contract
Solicitation # IFB-5400007403, PO#4600368640

Dear Mr. Shane:

In accordance with bid solicitation # IFB-5400007403 and the UST Management Division Quality Assurance Program Plan (QAPP), Revision 2.0 it is requested that you submit a Site Specific Work Plan for each site listed below. The plans must be submitted **within 15 business days** to my attention. The project manager for each site will issue a notice to proceed once the plan has been reviewed and approved.

UST Permit	Site Name	County	# samples and requested analysis*	Project Manager
05514	Antioch Grocery	Lancaster	47-BTEXMN, DCA, Oxygenates & EDB	A. Thrash
18787	Blitchington Grocery	Orangeburg	5 - BTEXMN, DCA, Oxygenates & EDB	R. Miner
14597	Hoopers Auto Service	Anderson	3 - BTEXMN, DCA, Oxygenates	R. Miner
03198	Summers Store	Fairfield	11 - BTEXN, DCA, Oxygenates & EDB	R. Miner
16604	Pitt Stop 31	Lexington	8 - BTEXN, DCA, Oxygenates & EDB	S. Utz
14555	EZ Stop Food Stop	Lexington	32 - BTEXN, DCA, Oxygenates & EDB	S. Utz
18842	Hamrick Property	Cherokee	17 - BTEXN, DCA, Oxygenates & EDB	A. Thrash
05878	Purolator Courier Corp	Lexington	30 - BTEXN, DCA, Oxygenates & EDB	S. Utz
09355	Fort Mill Gulf	York	33 - BTEXN, DCA, Oxygenates, EDB & Lead	K. Kuhn

*The number of samples do not include trip blanks, field blanks, or field duplicate

D H E C

Underground Storage Tank Management Division
Field Data Information Sheet – Monitoring Well Gauging

Site Information

Date: 6-2-15	Site ID #: 05878	Site Name: PUROLATOR
County: Lexington	Project Manager: S. Utz	Field Personnel: S. Utz & J. Bryant

Well Gauging Information

Well ID:	Total Well Depth (ft.)	Screened Interval (ft.)	Depth to Free Product (ft.)	Depth to Ground water (ft.)	Free Product Thickness (ft.)	Confirmed with Bailer?	Photos Taken ?	Well Pad OK?	Bolts in Well Cover?	Water in Well Vault?
MW-5			3.69	4.00	0.31	No	No	Yes	1	No
MW-15			–	3.60	–	No	No	Yes	Yes	Yes

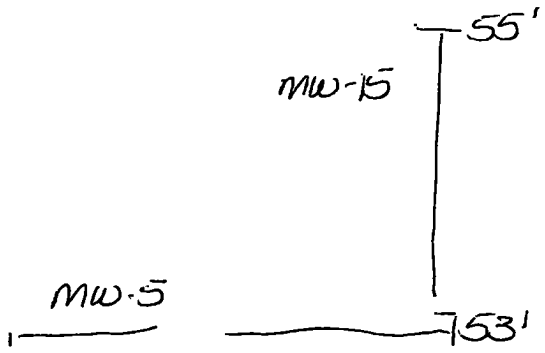
UST DOCKETING 78 tech

Notes: Measured out a 55'x55' square and asked MECI to get quotes for soil removal & dewatering.

Signature: S Utz

DHEC 0424 (10/2012)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL



55'x55'x12'

05878

ERA REAL ESTATE

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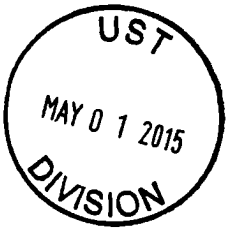


4/22/15

Mr. Milton Brazell
220 Loraine Court
West Columbia, SC 29169

Re: TMS 004599-10-008. 5.11 ac. - Property at Corporate Blvd.

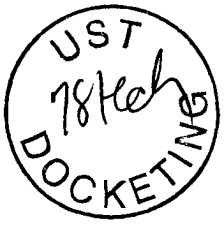
Dear Mr. Brazell:

I regret to inform you that my clients have elected not to pursue the purchase of your 5.11 acres off of Corporate Blvd. in West Columbia. They have expressed to me that their concerns over the environmental situation at this site is something they do not want to contend with. They are also concerned that if they would decide to sell the property at some future time, the value would be encumbered by the ongoing environmental contamination and the test wells remaining for an extended period.

I am sorry this did not work out. If not for the environmental problem, this property would have been absolutely perfect for their use.

Regards,

Greg Ross
Broker
ERA Wilder Realty
803 429-5349



PO Box 610 • 120 A Columbia Ave • Chapin, SC 29036
Office: (803) 345-6713 • Fax: (803) 772-9226 • Toll Free: 1-800-355-5262 • Website: www.erawilderrealty.com

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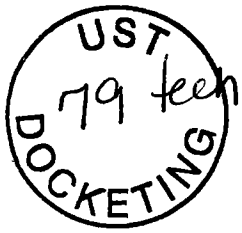
Midlands Environmental Consultants, Inc.

June 16, 2015



Mr. John Bryant, Hydrogeologist
Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: Site-Specific Work Plan
Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID Number 05878
MECI Project Number 15-5220
Certified Site Rehabilitation Contractor UCC-0009

Dear Mr. Bryant,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Site-Specific Work Plan for the referenced site.

On June 11, 2015, MECI personnel performed a site visit to the subject site to evaluate site conditions, locate monitoring wells and identify potential problems for future sampling activities.

If you have any question or comments please feel free to contact us at 803-808-2043.

Sincerely,
Midlands Environmental Consultants, Inc.

Kyle V Perry
[for] Todd D. Elder
Staff Hydrogeologist

Jeff L. Coleman
Senior Scientist

Post Office Box 854, Lexington SC 29071 • 231 Dooley Road, Lexington, SC 29073
Telephone: (803) 808-2043 • fax: (803) 808-2048

Midlands Environmental Consultants, Inc.

D H E C
PROMOTE PROTECT PROSPER

Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division

To: Ms. Sonya Utz (SCDHEC Project Manager)
From: Mr. Jeff Coleman (Contractor Project Manager)
Contractor: Midlands Environmental Consultants, Inc. UST Contractor Certification Number: 009

Facility Name: Purolator Courier Corp UST Permit #: 05878
Facility Address: 105 Corporate Boulevard, West Columbia, SC 29169
Responsible Party: Carolina Commerce Associates Phone: N/A
RP Address: N/A
Property Owner (if different): Bonita Sykes
Property Owner Address: S2935 Ponce De Leon Avenue, Decatur, GA 30030
Current Use of Property: Non-Retail Operation

Scope of Work (Please check all that apply)

☐ IGWA ☐ Tier II ☑ Groundwater Sampling ☐ GAC
☐ Tier I ☐ Monitoring Well Installation ☐ Other _____

Analyses (Please check all that apply)

Groundwater/Surface Water:

☑ BTEXNMDCA (8260B) ☐ Lead ☐ BOD ☐ Methane
☑ Oxygenates (8260B) ☐ 8 RCRA Metals ☐ Nitrate ☐ Ethanol
☑ EDB (8011) ☐ TPH ☐ Sulfate ☐ Dissolved Iron
☐ PAH (8270D) ☐ pH ☐ Other _____

Soil:

☐ BTEXN ☐ 8 RCRA Metals ☐ TPH-DRO (3550B/8015B) ☐ Grain Size
☐ PAH ☐ Oil & Grease (9071) ☐ TPH-GRO (5030B/8015B) ☐ TOC

Air:

☐ BTEXN

Sample Collection (Estimate the number of samples of each matrix that are expected to be collected.)

_____ Soil _____ Water Supply Wells _____ Air 1 Field Blank
32 Monitoring Wells 2 Surface Water 2 Duplicate 1 Trip Blank

Field Screening Methodology

Estimate number and total completed depth for each point, and include their proposed locations on the attached map.
# of shallow points proposed: _____ Estimated Footage: _____ feet per point
# of deep points proposed: _____ Estimated Footage: _____ feet per point
Field Screening Methodology: _____

Permanent Monitoring Wells

Estimate number and total completed depth for each well, and include their proposed locations on the attached map.
# of shallow wells: _____ Estimated Footage: _____ feet per point
# of deep wells: _____ Estimated Footage: _____ feet per point
# of recovery wells: _____ Estimated Footage: _____ feet per point
Monitoring Well development method (consistent with SOP): _____
Comments, if warranted:

_____
_____
_____

UST Permit #: 14555 Facility Name: EZ Stop Food Shop

Implementation Schedule (Number of calendar days from approval)
Field Work Start-Up: 6/30/2015 Field Work Completion: 7/30/2015
Report Submittal: 8/30/2015 # of Copies Provided to Property Owners: _____

Aquifer Characterization
Pump Test: ☐ Slug Test: ☐ (Check one and provide explanation below for choice)

Investigation Derived Waste Disposal
Soil: _____ Tons Purge Water: 400 Gallons
Drilling Fluids: _____ Gallons Free-Phase Product: _____ Gallons

Additional Details For This Scope of Work
For example, list wells to be sampled, wells to be abandoned/repaired, well pads/bolts/caps to replace, details of AFVR event, etc.
-During the initial site visit, eight (8) monitoring wells (MW-3, MW-6, MW-14, MW-16, MW-18 MW-21, MW-23, and MW-25) were not located. Historically, seven (7) of these wells (MW-3, MW-6, MW-14, MW-16, MW-18 MW-21, MW-23, and MW-25) have not been located, and are not shown on the provided map. One (1) monitoring well (MW-18) is thought to be buried or destroyed, and historically has not been located.
-All other wells were located and found to be in good condition.

Compliance With Annual Contractor Quality Assurance Plan (ACQAP)
Yes Laboratory as indicated in ACQAP? (Yes/No) If no, indicate laboratory information below.
Name of Laboratory: _____
SCDHEC Certification Number: _____
Name of Laboratory Director: _____

N/A Well Driller as indicated in ACQAO? (Yes/No) If no, indicate driller information below.
Name of Well Driller: _____
SCLLR Certification Number: _____

No Other variations from ACQAP. Please describe below.

Attachments
1. Attach a copy of the relevant portion of the USGS topographic map showing the site location.
2. Prepare a site base map. This map must be accurately scaled, but does not need to be surveyed. The map must include the following:
   - North Arrow
   - Location of property lines
   - Location of buildings
   - Previous soil sampling locations
   - Previous monitoring well locations
   - Proposed soil boring locations
   - Proposed monitoring well locations
   - Legend with facility name and address, UST permit number, and bar scale
   - Streets or highways (indicate names and numbers)
   - Location of all present and former ASTs and USTs
   - Location of all potential receptors
3. Assessment Component Cost Agreement, SCDHEC Form D-3664

D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health and Environmental Control

ASSESSMENT COMPONENT INVOICE
SOUTH CAROLINA
Department of Health and Environmental Control
Underground Storage Tank Management Division
State Underground Petroleum Environmental Response Bank Account
CONTRACT PO NUMBER 4600328425

Facility Name: Purolator Courier Corporation

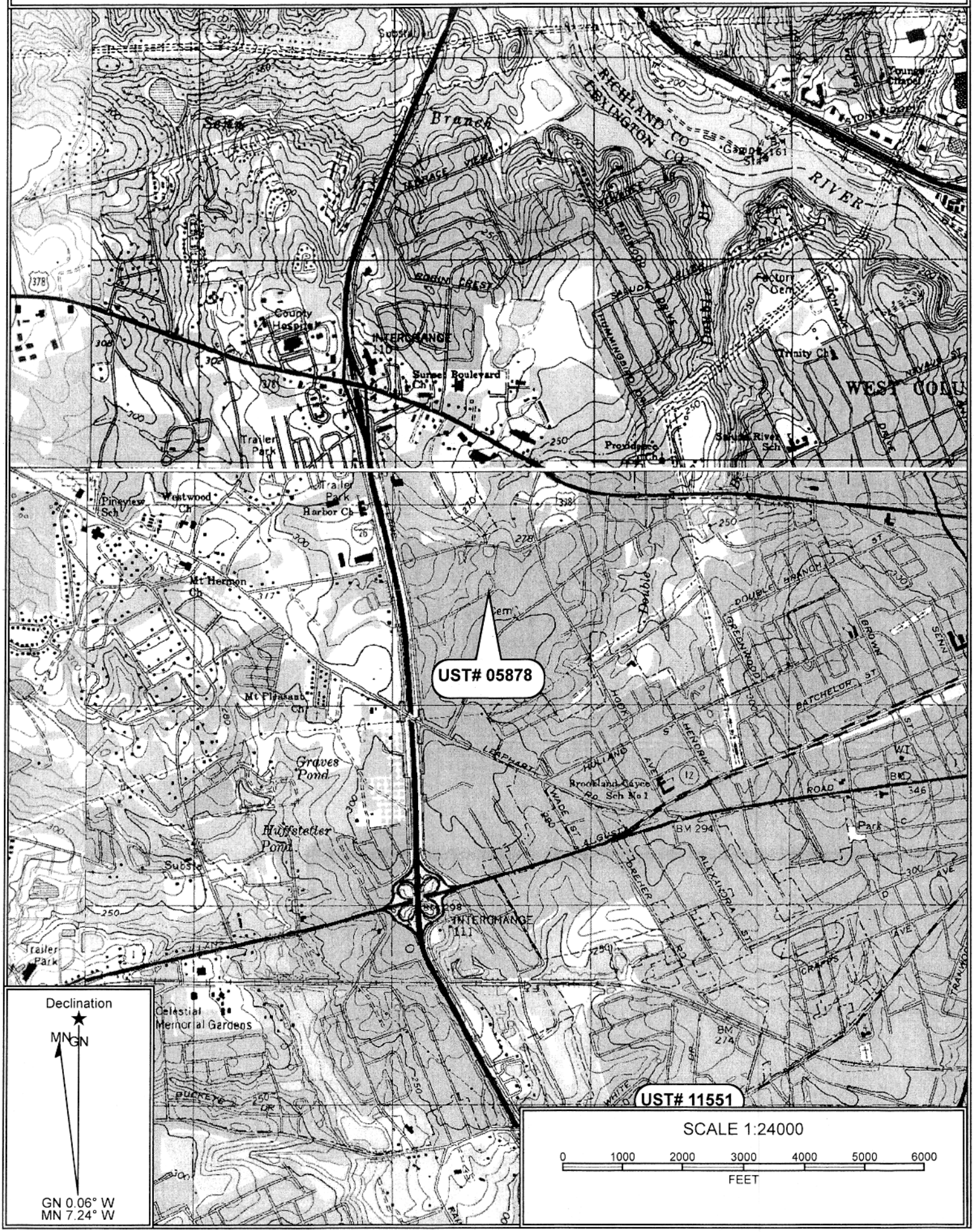
UST Permit #: 05878 **Cost Agreement #:** Proposal

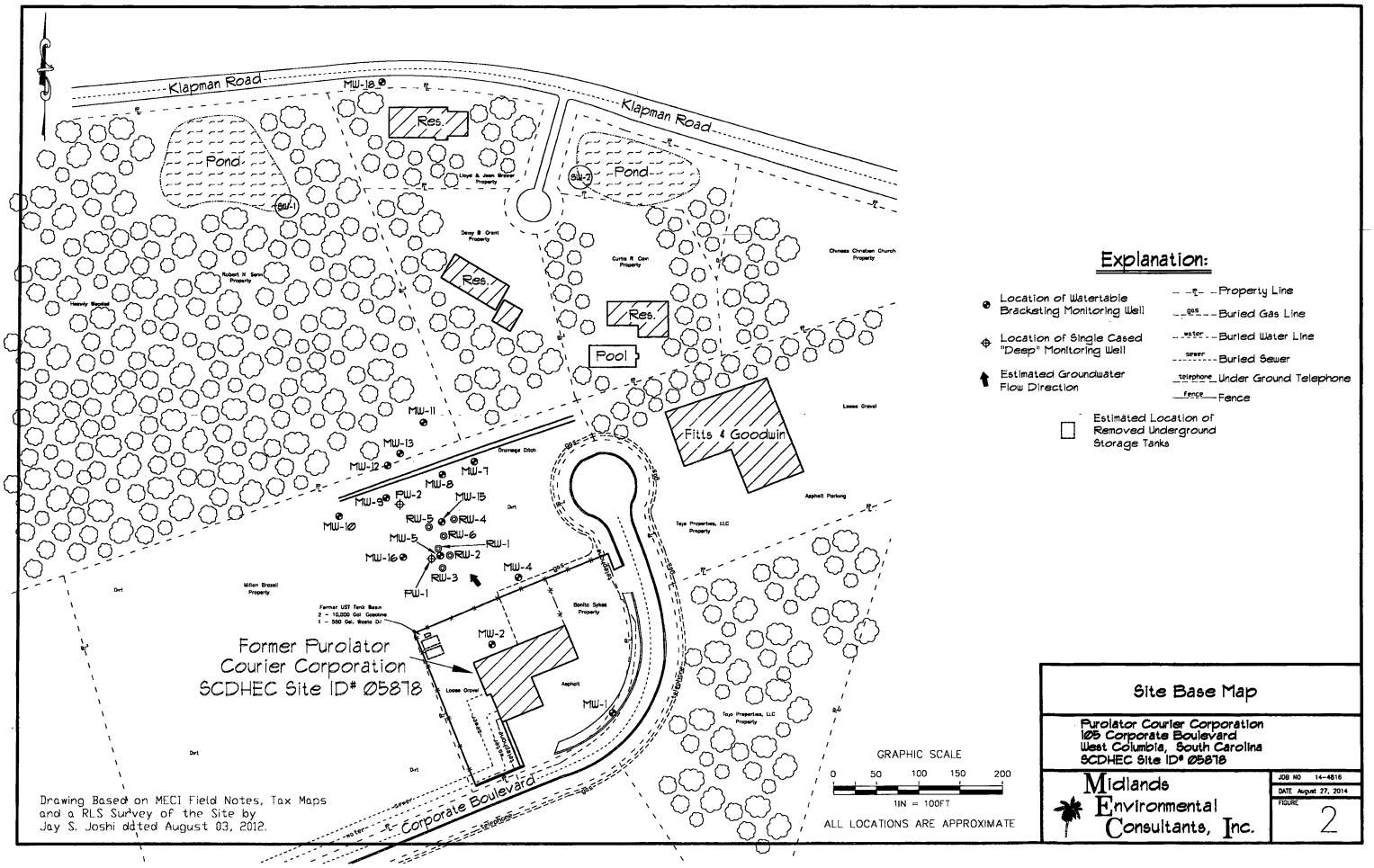
ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
1. **Plan***				
A1. Site Specific Work Plan	1	each	$0.00	$0.00
C1. QAPP Appendix B		each	$0.00	$0.00
2. A1. Receptor Survey		each	$0.00	$0.00
4. **Mob/Demob**				
B1. Personnel	2	each	$350.00	$700.00
10. **Groundwater Sample Collection / Gauge Depth to Water or Product (Each)**				
A1. Groundwater Purge	32	per well	$16.00	$512.00
B1. Air or Vapors		samples	$0.00	$0.00
C1. Water Supply	2	samples	$5.00	$10.00
D1. Groundwater No Purge		per well	$8.00	$0.00
E1. Gauge Well only		per well	$0.00	$0.00
F1. Sample Below Product		per well	$0.00	$0.00
G1. Pasive Diffusion Bag		each	$20.00	$0.00
H1. Field Blank	1	each	$10.00	$10.00
17. **Disposal* (gallons or tons)**				
AA. Disposal/Water	350	gallons	$1.00	$350.00
BB. Free Product		gallons	$0.00	$0.00
Note: Rate includes costs or rental of suitable container(s)				
23. D. Site Reconnaissance		each	$0.00	$0.00
18. **Miscellaneous (attach receipts)**				
GW Contour Map		each	$25.00	$0.00
Isopleth Map		each	$25.00	$0.00
High-Strength Well Pad Replacement		each	$75.00	$0.00
Trip Blank	1	each	$10.00	$10.00
Data Table		each	$25.00	$0.00
25. **Well Repair**				
B1. Repair 2x2 MW Pad		each	$75.00	$0.00
C1. Repair 4x4 MW Pad		each	$75.00	$0.00
D1. Replace Well Vault		each	$75.00	$0.00
E. Replace well cover		each	$25.00	$0.00
F1. Replace well cover bolts		each	$2.60	$0.00
G. Replace locking well cap & lock		each	$15.00	$0.00
K1. Replace Missing Well ID Plate		each	$10.00	$0.00
TOTAL				$1,592.00

Map Name: SOUTHWEST COLUMBIA
Print Date: 06/17/15

Scale: 1 inch = 2,000 ft.
Map Center: 033° 59' 40.42" N, 081° 06'

Horizontal Datum: NAD27





Site Base Map

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO 14-4816
DATE August 27, 2014
FIGURE 2

Midlands Environmental Consultants, Inc.

August 27, 2012

Ms. Stephanie Briney, Hydrogeologist
Corrective Action Section
Assessment and Corrective Action Division
Underground Storage Tank Program
Bureau of Land & Waste Management
South Carolina Department of Health and
Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: Report of Monitoring Well Installation, Monitoring Well Conversion, Groundwater Sampling and Chemical Analyses
Purolator Courier Corporation
105 Corporate Blvd
West Columbia, South Carolina
SCDHEC Site ID# 05878, CA # 43554
MECI Project Number 12-3929
Certified Site Rehabilitation Contractor UCC-0009

Dear Ms. Briney,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Report of Monitoring Well Installation, Monitoring Well Conversion, Groundwater Sampling and Chemical Analyses for the referenced site. This report describes assessment activities conducted at the site and results of those activities in general accordance with South Carolina Department of Health and Environmental Control (SCDHEC) guidelines, including adherence to the UST Division Programmatic Quality Assurance Program Plan (QAPP).

Midlands Environmental appreciates the opportunity to offer our professional environmental services to you on this project. Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,
Midlands Environmental Consultants, Inc.

Courtney M. Sanders
Staff Biologist

Bryan T. Shane, P.G.
Principal Geologist

Post Office Box 854, Lexington SC 29071 • 235-B Dooley Road, Lexington, SC 29073
Telephone: (803) 808-2043 • fax: (803) 808-2048

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APPENDIX K – DATA VERIFICATION CHECKLIST

NOTE: ITEMS LISTED WITH AN ** BESIDE IT WERE NOT NEEDED AS A PART OF THIS SCOPE OF WORK

1.0 INTRODUCTION

A. **Owner/Operator Information**

Facility Name:	Purolator Courier Corporation UST Permit #: 05878
Facility Address:	105 Corporate Blvd, West Columbia, SC 29169
Name:	Carolina Commerce Associates (Orphan)
Address:	N/A
Telephone #:	N/A

B. **Property Owner Information**

Name	Bonita M. Sykes
Tax Map #:	Lexington Co. Tax Map#: 004599-10-019
Address	2935 E. Ponce De Leon Ave., Decatur, GA 30030
Telephone #	N/A

C. **Contractor Information**

Name:	Midlands Environmental Consultants, Inc.
Certification #:	9
Address:	P. O. Box 854, Lexington, SC 29071
Telephone #:	(803) 808-2043

D. **SCDHEC Certified Well Driller**

Name:	Environmental Drilling & Probing Services, LLC.
Driller:	Tommy Bolyard
Certification #:	B 01846
Address:	17538 Greenhill Road, Charlotte, NC 28278
Telephone #:	(704) 607-7529

E. **SCDHEC Certified Laboratory**

Name:	Shealy Environmental Services, Inc.
Certification #:	32010
Address:	106 Vantage Point Drive, West Columbia, SC 29172
Telephone #:	(803) 791-9700

1.1 QAPP STATEMENT

This report conforms to the SCDHEC UST Management Division Programmatic QAPP. The Report, Tables (Table 1-Soil Analytical Data, Table 2-Field Parameters, Table 3-Groundwater Analytical Results, Table 4-Aquifer Characteristics, and Table 5-Site Conceptual Model), Figures (Figure 1-Topographic Map, Figure 2-Site Features, Figure 3-Soil CoC Site Map, Figure 4-Groundwater CoC Site Map, Figure 5-Groundwater Contour Map, and Figure 6-Geologic Cross Section) , and Appendices are presented in accordance with formatting requirements set forth in section A9 of the UST Management Division Programmatic QAPP, Revision 1, June 2011. Some or all of the tables and figures in this report were not applicable to the scope of services presented, however have been included in order to conform to the SCDHEC UST Management Division Programmatic QAPP.

1.2 PROJECT INFORMATION

The subject site (Purolator Courier Corporation) is located at 105 Corporate Blvd, West Columbia, Lexington County, South Carolina. The subject site formally maintained one 500 gallon waste oil underground storage tank (UST), and two 10,000 gallon gasoline UST's. These UST's were abandoned by removal of the ground in September of 1991. A release of petroleum product from these UST's was reported in October of 1991 and confirmed in June of 1992. Currently, the subject site is occupied by a warehouse. The subject site is currently rated a Class 2BA.

Prior to commencement of the field activities described in this document, a QAPP Contractors Addendum was completed by MECI personnel, submitted to SCDHEC and approved by the SCDHEC project manager.

The above project information is based on MECI field notes and SCDHEC files.

2.0 SURROUNDING PROPERTY USAGE

The subject site (Purolator Courier Corporation) is located at 105 Corporate Blvd, West Columbia, Lexington County, South Carolina (Figure 1). Wooded areas and residential properties border the site to the north, beyond which is Klapman Road. East of the subject site is bordered by commercial and wooded lots. South of the subject site is bordered by Corporate Boulevard, beyond which are commercial properties. Commercial properties are also located to the west of the referenced site.

3.0 FIELD EXPLORATION

Field exploration conducted at the site included:

- Removal of a free product recovery system;
- construction of three recovery wells;
- conversion of above grade finished monitoring wells to flush mount monitoring wells;
- sampling and chemical analyses of the entire monitoring well network; and
- a comprehensive survey of the subject site.

The monitoring well locations were selected based on SCDHEC project manager instructions, existing site conditions, and drilling accessibility.

3.1 FREE PRODUCT RECOVERY SYSTEM REMOVAL

On June 19, 2012, MECI personnel removed a free product recovery system, 6-55 gallon drums, and containment fencing from the subject site. During removal, 200 gallons of waste water was removed from the 6-55 gallon drums and transported to TK Tank Services, Inc. of Sumter, S.C for disposal. A disposal manifest for the removed wastewater is attached in Appendix G.

3.2 MONITORING WELL INSTALLATION

On June 19, 2012, three, four inch, single cased recovery wells were installed at the subject site. These wells were installed by Environmental Drilling and Probing Services, LLC. of Rock Hill, SC (S.C. Driller Certification: Tommy Bolyard # B 01846) using an Truck-mounted drilling rig employing 10.0-inch outer diameter hollow stem augers to construct the boreholes.

The following table presents well installation details:

Well Number	Single Cased	Double Cased	Screened Interval (ft)	Total Depth (ft)
RW-1	X		5.0-15.0	15.0
RW-2	X		5.0-15.0	15.0
RW-3	X		5.0-15.0	15.0

The soils encountered during drilling activities consisted of clayey and silty, fine to medium grained sands of the Atlantic Coastal Plain Province. The soils encountered in this area are the product of successive advances and retreats of the ocean over the past several million years. Representative portions of soil samples were screened with a Photo Ionization Detector (PID) and classified by MECI personnel. Test boring records showing soil descriptions and screening result are attached in Appendix E.

Drill cuttings were containerized and transported to Waste Management/Richland County Landfill, Elgin, SC by MECI personnel. A total of 0.86 tons was disposed of in this manner. A disposal manifest for these soils is attached at the end of this report.

Following completion of the monitoring wells, the wells were developed by purging until they were determined to be functioning properly and turbidity was reduced. These wells were developed utilizing a Whale-Mega Purger well pump. The drum of purge water was treated by MECI personnel using a granular activated carbon drum. A total of 60.0 gallons of purge/development water was disposed of in this manner. A disposal manifest for the treated purge water is presented in Appendix G.

3.3 MONITORING WELL CONVERSION

On July 14, 2012 eight (8) stick up monitoring wells (MW-4, MW-5, MW-7, MW-8, MW-9, MW-10, PW-1, and PW-2) were converted to flush mount monitoring wells at the subject site. These wells were converted by Versatile Environmental Resource Company of Lexington, SC (S.C. Driller Certification: Jason Chiorazzi # B 01790).

3.4 MONITORING WELL SAMPLING AND CHEMICAL ANALYSES

On August 3, 2012, MECI personnel collected groundwater samples from the fifteen (15) monitoring wells at the subject site. Monitoring wells MW-5 and MW-15 were gauged and determined to contain free phase petroleum product. Monitoring wells MW-4 and MW-11 were also gauged, however were unable to be sampled due to obstructions. Monitoring wells MW-3, MW-14, MW-16, MW-21, MW-23, and MW-25 were not located during the initial site visit or at the time of sampling. Monitoring wells MW-7 and MW-8 were not purged prior to sampling due to an obstruction. Sampling/purging of all monitoring wells was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. Thirteen (13) monitoring well were purged prior to sampling. Purging was completed by bailing three to five well volumes of water from the well, until pH,

conductivity, dissolved oxygen stabilized to within 10%, or until all available water was evacuated from the well, whichever occurred first. A new set of nitrile gloves were worn at each monitoring well, and at all times samples were handled. Field measurements of turbidity, pH, conductivity, dissolved oxygen, and water temperature were obtained before the well sampling process. MECI utilized YSI550A meters for DO (mg/L) and temperature readings (°C) and YSI63 meters for pH and conductivity (uS) readings. The attached Field Data Information Sheets presents the results of the field measurements obtained during sampling processes. All wells were sampled in accordance with SCDHEC's Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP, Dated June 2011) and MECI's Standard Operating Procedures (MECI SOP, Dated February 2012). Groundwater samples obtained were sent to Shealy Environmental Services, Inc. of West Columbia, SC (SCDHEC Laboratory Certification #32010) for analysis.

The following sampling matrix contains well development and requested analyses for each well:

Monitoring Well	Purge	No Purge	Gauge Well Only	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	Filtered Lead (EPA Method 6010)	Sulfate (EPA Method 375.2)	Nitrate (EPA Method 335.2)	Methane (RSK Method)	PAH's (EPA Method 8270)
				Analyte Sampled									
MW-1	X			X	X	X	X	X					
MW-2	X			X	X	X	X	X					
MW-4			X										
MW-5			X										
MW-7		X		X	X	X	X	X					
MW-8		X		X	X	X	X	X					
MW-9	X			X	X	X	X	X					
MW-10	X			X	X	X	X	X					
MW-11			X										
MW-12	X			X	X	X	X	X					
MW-13	X			X	X	X	X	X					
MW-15			X										
MW-16	X			X	X	X	X	X					
MW-18	X			X	X	X	X	X					
RW-1	X			X	X	X	X	X					
RW-2	X			X	X	X	X	X					
RW-3	X			X	X	X	X	X					
PW-1	X			X	X	X	X	X					
PW-2	X			X	X	X	X	X					
MW-1 (Dup.)**				X	X	X	X	X					
Field Blank				X	X	X	X						
Trip Blank				X		X	X						

Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dicloroethane PAH = polycyclic aromatic hydrocarbons

**** = Indicates Field Duplicate**

The results of the laboratory analyses are summarized in Table 3 & 3A and presented in Appendix B.

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 77.0 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is presented in Appendix G.

3.4 SITE SURVEY

Following the well installation, a comprehensive survey conducted by Construction Support Services, Inc. (Jay S. Joshi/PLS# 14811) dated August 2, 2012. A copy of the signed and stamped survey is attached in Appendix A. See Table 2 and Figure 5 for monitoring well elevation data.

4.0 AREA GEOLOGY AND HYDROGEOLOGY

The project site is located in the Atlantic Coastal Plain Physiographic Province. The mean elevation of the property as depicted on the local USGS quadrangle (Southwest Columbia, SC) appears to be approximately 270 feet above sea level. The soils in this province are generally interbedded silts, sands and clays that have been deposited during successive advances and retreats of the ocean over the past several million years. This interbedding can cause perched water and makes hydrogeological interpretation difficult.

In this geologic setting, the uppermost aquifer is the surficial aquifer of sands with lenses and layers of clays and silts. Water occupies the interstices between the formation particles and is in hydrostatic balance with the atmosphere at the water table surface.

Local precipitation is the source of freshwater recharge to the Coastal Plain formations. Groundwater recharge varies considerably over the region and is attributed to the differences in precipitation and to the variability in the infiltration rates.

Coastal Plain formations generally dip toward the Atlantic Ocean. Consequently, regional groundwater movement is to the southeast. On a regional scale, hydraulic gradients are relatively low.

Locally, in the surficial aquifer, groundwater discharges into streams, lakes or springs where the groundwater table intersects lows occupied by these water bodies. The apparent direction (based on hydraulic gradient) of groundwater flow from the release is to the north-northwest toward an intermittent stream associated with Double Branch Creek, a drainage feature of the Saluda River.

4.1 LOCAL SUBSURFACE CONDITIONS

Coastal plain sediments were encountered during drilling activities conducted at the site. The soils encountered in our borings generally consisted silty and clayey fine to medium grained sands. Test Boring Records, which depict the materials encountered in each boring, are located in Appendix E.

On August 3, 2012, stabilized groundwater levels were measured in the monitoring wells. Depth to groundwater ranged from 3.37 to 8.13 feet below top of casing in the wells measured. The groundwater measurements are summarized in tabular form in Table 2 and on Figure 5. Groundwater levels may fluctuate several feet with seasonal and rainfall variations and with change in the water

level of adjacent drainage features. Normally, the highest groundwater levels occur in late winter and spring. The lowest levels occur in late summer and fall.

The above descriptions provide a general summary of the subsurface conditions encountered. The attached Test Boring Records (Appendix E) contain detailed information recorded at each new monitoring well location. The Test Boring Records represent our interpretation of the field logs based on examination of the field samples. The lines designating the interfaces between various strata represent approximate boundaries, and the transition between strata may be gradational.

5.0 TEST RESULTS AND EVALUATION

The following sections discuss groundwater test results for the subject site.

5.1 GROUNDWATER ANALYTICAL RESULTS

As discussed in section 3.4, groundwater samples obtained from the monitoring well network were analyzed for dissolved phase petroleum constituents. Monitoring wells MW-5 and MW-15 were gauged a determined to contain free phase petroleum product. Monitoring well MW-5 contained 0.44 feet of petroleum product and MW-15 contained 0.43 feet of petroleum product. Samples were not collected beneath the free product layer during the subject sampling event. The analytical results indicate petroleum impact to the local groundwater with the highest dissolved concentrations detected in the area of the northwest of the former UST basin. Dissolved total BTEX concentrations were detected at levels ranging from below detection limits (BDL) to 6,852J micrograms per liter in monitoring well MW-8. Dissolved Naphthalene concentrations were detected at levels ranging from below detection limits (BDL) to 160J micrograms per liter in monitoring well RW-3. Dissolved MTBE concentrations were detected at levels ranging from below detection limits (BDL) to 63J micrograms per liter in monitoring well RW-3. The results of the laboratory analyses are summarized in Table 3 & 3A, and presented in the attached Appendix B.

6.0 ASSESSMENT SUMMARY & RECOMMENDATIONS

Based on the results of our assessment activities, it appears that impact to the surficial aquifer has occurred due to a release of petroleum hydrocarbons. The highest concentrations of dissolved phase contaminants are located northwest of the former UST basin on an adjoining property. The contaminants appear to be gasoline range constituents. Impacted groundwater appears to be moving north-northwest toward an intermittent stream associated with Double Branch Creek, a drainage feature of the Saluda River

Monitoring well MW-5 contained 0.44 feet of petroleum product and MW-15 contained 0.43 feet of petroleum product. Samples were not collected beneath the free product layer during the subject sampling event. Dissolved total BTEX concentrations were detected at levels ranging from below detection limits (BDL) to 6,852J micrograms per liter in monitoring well MW-8. Dissolved Naphthalene concentrations were detected at levels ranging from below detection limits (BDL) to 160J micrograms per liter in monitoring well RW-3. Dissolved MTBE concentrations were detected at levels ranging from below detection limits (BDL) to 63J micrograms per liter in monitoring well RW-3. The results of the laboratory analyses are summarized in Table 3 & 3A, and presented in the attached Appendix B. Analytical data is presented on Table 3 & 3A and in the attached Appendix B. Figure 4 depicts graphically the concentrations of Total BTEX in the monitoring wells which bracket the watertable at the site. Figure 4A depicts the concentrations of Oxygenates dissolved in the groundwater at the site.

Analytical results indicate the "shallow" watertable bracketing zone at the subject site is not currently defined. Current analytical data indicate Benzene concentrations above risk based screening levels (RBSL's) in MW-7 and in MW-13. It is MECI's professional opinion that further investigation is necessary to define the contaminant plume. MECI recommends installing additional monitoring wells side gradient of MW-7 and MW-16. Additionally, replacing the obstructed monitoring wells MW-4 and MW-11 and missing wells MW-3, MW-6, and MW-17 will aid in continued monitoring of the site. Following the well installation, additional groundwater sampling events should be conducted to obtain current analytical results and to insure the contaminant plume is defined. Additionally, MECI recommends a series of Aggressive Fluid Vapor Recovery (AFVR) events be conducted on MW-5, MW-15, and the newly installed recovery wells to remove free phase petroleum product and reduce dissolved CoC concentrations.

7.0 QUALIFICATIONS OF REPORT

The activities and evaluative approaches used in this assessment are consistent with those normally employed in hydrogeological assessment and waste management projects of this type. Our evaluation of site conditions has been based on our understanding of the site, project information provided to us, and data obtained in our exploration. The general subsurface conditions utilized in our evaluation have been based on interpretation of subsurface data between borings. Contents of this report are intended for the sole use of SCDHEC under mutually agreed upon terms and conditions. If other parties wish to rely on this report please contact MECI prior to their use of this information so that a mutual understanding and agreement of the terms and conditions of our services can be established.

-oOo-

TABLES

TABLE 1
SOIL ANALYTICAL RESULTS
SITE NAME
SITE LOCATION, SOUTH CAROLINA
MECI PROJECT NUMBER ##-####
SCDHEC SITE ID NUMBER

Boring Number	Sample Date	Depth (feet BGS)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Total Xylenes (µg/kg)	MTBE (µg/kg)	Naphthalene (µg/kg)

Soil Samples for chemical analysis were not obtained during this assessment. In order to conform with formatting guidelines provided by the SCDHEC UST Management Division Programmatic Quality Assurance Program Plan (QAPP), this filler table is included to provide report continuity.

Notes:

1. BGS = Below Ground Surface
2. µg/kg = micrograms per kilogram
3. "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL).
4. Soil Samples collected from discrete split samples during installation of Monitoring wells.

TABLE 2
AUGUST 3, 2012 SAMPLING EVENT
POTENTIOMETRIC DATA
PUROLATOR COURIER CORPORATION
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 12-3929
SCDHEC SITE ID NUMBER 05878

Well Number	Sample Date	Screened Interval (feet)	Depth to Product (feet)	Depth to Water (feet)	Product Thickness (feet)	Well-head Elevation	Groundwater Elevation
MW-1	8/3/2012	4-14	***	8.13	***	102.60	94.47
MW-2	8/3/2012	3-13	***	6.86	***	101.18	94.32
MW-3	8/3/2012	4-14	NL	NL	NL	NL	NL
MW-4	8/3/2012	4-14	NS	NS	NS	99.92	NS
MW-5	8/3/2012	4-14	4.75	5.19	0.44	98.47	93.65
MW-6	8/3/2012	4-14	NL	NL	NL	NL	NL
MW-7	8/3/2012	4-14	***	5.80	***	98.77	92.97
MW-8	8/3/2012	4-14	***	4.82	***	97.87	93.05
MW-9	8/3/2012	4-14	***	3.92	***	96.83	92.91
MW-10	8/3/2012	4-14	***	3.39	***	96.05	92.66
MW-11	8/3/2012	4-9	NS	NS	NS	97.02	NS
MW-12	8/3/2012	4-9	***	4.31	***	96.11	91.80
MW-13	8/3/2012	4-9	***	4.71	***	96.59	91.88
MW-14	8/3/2012	4-9	NL	NL	NL	NL	NL
MW-15	8/3/2012	3-13	4.44	4.87	0.43	97.86	93.36
MW-16	8/3/2012	3-13	***	4.13	***	97.73	93.60
MW-17	8/3/2012	3-13	NL	NL	NL	NL	NL
MW-18	8/3/2012	2-12	***	3.37	***	91.16	87.79
MW-21	8/3/2012	1-6	NL	NL	NL	NL	NL
MW-23	8/3/2012	1-6	NL	NL	NL	NL	NL
MW-25	8/3/2012	1-6	NL	NL	NL	NL	NL
PW-1	8/3/2012	16-21	***	4.94	***	98.51	93.57
PW-2	8/3/2012	21-26	***	3.91	***	97.67	93.76
RW-1	8/3/2012	5-15	***	4.39	***	97.95	93.56
RW-2	8/3/2012	5-15	***	4.68	***	98.36	93.68
RW-3	8/3/2012	5-15	***	4.30	***	98.07	93.77

Notes:

1. Elevations are referenced to an assumed site datum.
2. Groundwater depths were measured from the top of the PVC riser pipe.
3. Groundwater levels measured on 8/3/2012.
4. NL = Not Located
5. NS = Not sampled due to well obstruction
6. Groundwater elevation for MW-5 and MW-15 corrected for the presence of free phase petroleum product using a specific gravity for fuel of 0.85.

TABLE 3
PAGE 1 OF 2
GROUNDWATER ANALYTICAL RESULTS
AUGUST 3, 2012 SAMPLING EVENT
PUROLATOR COURIER CORPORATION
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 12-3929
SCDHEC ID NUMBER 05878

Well Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	MTBE (ug/l)	1,2 DCA (ug/l)	EDB (ug/l)	Total Lead (ug/l)
MW-1	8/3/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020	**43B**
MW-2	8/3/12	**360**	**21J**	**130**	**200**	**711J**	**11J**	**26**	<25	<0.019	**130B**
MW-3	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-4	8/3/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-5	8/3/12	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**
MW-6	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-7	8/3/12	**27**	**4.7J**	<5.0	**14**	**45.7J**	<5.0	**2.0J**	<5.0	<0.020	**27B**
MW-8	8/3/12	**330**	**1,400**	**22J**	**5,100**	**6,852J**	**64**	**3.3J**	**7.9J**	**0.13**	**22B**
MW-9	8/3/12	**0.20J**	**2.5J**	<5.0	<5.0	**2.70J**	<5.0	<5.0	<5.0	<0.020	**26B**
MW-10	8/3/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020	**26B**
MW-11	8/3/12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-12	8/3/12	**0.22J**	**1.7J**	<5.0	<5.0	**1.92J**	<5.0	<5.0	<5.0	<0.019	**1.7B**
MW-13	8/3/12	**5.3**	<5.0	<5.0	<5.0	**5.3**	<5.0	**0.69J**	<5.0	<0.019	**6.8B**
MW-14	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-15	8/3/12	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**	**PROD**

Notes:

1. BDL = Below Practical Quantitative Limits
2. ug/l = micrograms per liter
3. MTBE = Methyl-Tertiary-Butyl Ether
4. EDB = Ethylene Dibromide
5. 1,2 DCA = 1,2-Dichloroethane
6. "J" Values included in Total BTEX Calculations.
7. "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL).
8. NS = Not sampled due to obstruction in well
9. NL = Not Located
10. PROD = Free Phase Petroleum Product Detected

TABLE 3
PAGE 2 OF 2
GROUNDWATER ANALYTICAL RESULTS
AUGUST 3, 2012 SAMPLING EVENT
PUROLATOR COURIER CORPORATION
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 12-3929
SCDHEC ID NUMBER 05878

Well Number	Sample Date	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	MTBE (ug/l)	1,2 DCA (ug/l)	EDB (ug/l)	Total Lead (ug/l)
MW-16	8/3/12	**27**	**26**	**88**	**50**	**191**	**37**	<5.0	<5.0	<0.019	**13B**
MW-17	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-18	8/3/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020	**9.8B**
MW-21	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-23	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-25	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
PW-1	8/3/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.019	**2.4B**
PW-2	8/3/12	<20	<20	<20	<20	BDL	<20	<20	<20	<0.021	**20B**
RW-1	8/3/12	**980**	**1,900**	**150J**	**1,100**	**4,130J**	<200	**31J**	<200	**1.4**	**49B**
RW-2	8/3/12	**600**	**750**	**140**	**570**	**2,060**	**65J**	**39J**	<100	**0.25**	**1.1B**
RW-3	8/3/12	**1,400**	**2,500**	**430**	**2,100**	**6,430**	**160J**	**63J**	<250	**1.8**	**6.7B**
Grant WSW	8/3/12	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-1 Duplicate	8/3/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.019	**56B**
Field Blank	8/3/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.019	NT
Trip Blank	8/3/12	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	NT	NT

Notes:

1. BDL = Below Practical Quantitative Limits
2. ug/l = micrograms per liter
3. MTBE = Methyl-Tertiary-Butyl Ether
4. EDB = Ethylene Dibromide
5. 1,2 DCA = 1,2-Dichloroethane
6. "J" Values included in Total BTEX Calculations.
7. "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL).
8. NS = Not sampled due to obstruction in well
9. NL = Not Located
10. PROD = Free Phase Petroleum Product Detected

TABLE 3A
PAGE 1 OF 2
GROUNDWATER ANALYTICAL RESULTS (OXYGENATES)
AUGUST 3, 2012 SAMPLING EVENT
PUROLATOR COURIER CORP.
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 12-3929
SCDHEC SITE ID NUMBER 05878

Well Number	Sample Date	DIPE (µg/l)	Ethanol (µg/l)	3,3-Dimethyl-1-butanol (µg/l)	ETBE (µg/l)	TAA (µg/l)	TAME (µg/l)	TBA (µg/l)	TBF (µg/l)
MW-1	08/03/12	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-2	08/03/12	<50	<5,000	<500	<500	**68J**	<50	<500	<500
MW-3	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
MW-4	08/03/12	NS	NS	NS	NS	NS	NS	NS	NS
MW-5	08/03/12	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-6	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
MW-7	08/03/12	<10	<1,000	<100	<100	**24J**	<10	<100	<100
MW-8	08/03/12	<50	<5,000	<500	<500	**530**	<50	**47J**	<500
MW-9	08/03/12	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-10	08/03/12	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-11	08/03/12	NS	NS	NS	NS	NS	NS	NS	NS
MW-12	08/03/12	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-13	08/03/12	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-14	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
MW-15	08/03/12	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD

Notes:

1. ug/l = micrograms per liter
2. DIPE = Diisopropyl Ether
3. ETBE = Ethyl ter-butyl Ether
4. TAA = tert-Amyl Alcohol
5. TAME = tert-Amyl Methyl Ether
6. TBA = ter-Butyl Alcohol
7. TBF = tert-Butyl Formate
8. NS = Not sampled due to obstruction in well
9. "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL).
10. NL = Monitoring Well Not Located
11. PROD = Free Phase Petroleum Product Dectected (Not Sampled)

TABLE 3A
PAGE 2 OF 2
GROUNDWATER ANALYTICAL RESULTS (OXYGENATES)
AUGUST 3, 2012 SAMPLING EVENT
PUROLATOR COURIER CORP.
WEST COLUMBIA, SOUTH CAROLINA
MECI PROJECT NUMBER 12-3929
SCDHEC SITE ID NUMBER 05878

Well Number	Sample Date	DIPE (µg/l)	Ethanol (µg/l)	3,3-Dimethyl-1-butanol (µg/l)	ETBE (µg/l)	TAA (µg/l)	TAME (µg/l)	TBA (µg/l)	TBF (µg/l)
MW-16	08/03/12	<10	<1,000	<100	<100	**28J**	<10	<100	<100
MW-17	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
MW-18	08/03/12	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-21	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
MW-23	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
MW-25	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
PW-1	08/03/12	<10	<1,000	<100	<100	<100	<10	<100	<100
PW-2	08/03/12	<40	<4,000	<400	<400	<400	<40	<400	<400
RW-1	08/03/12	<400	<40,000	<4,000	<4,000	**470J**	<400	<4,000	<4,000
RW-2	08/03/12	<200	<20,000	<2,000	<2,000	**490J**	<200	<2,000	<2,000
RW-3	08/03/12	<500	<50,000	<5,000	<5,000	<5,000	<500	<5,000	<5,000
Grant WSW	08/03/12	NL	NL	NL	NL	NL	NL	NL	NL
MW-1 Duplicate	08/03/12	<10	<1,000	<100	<100	<100	<10	<100	<100
Field Blank	08/03/12	<10	<1,000	<100	<100	<100	<10	<100	<100
Trip Blank	08/03/12	<10	<1,000	<100	<100	<100	<10	<100	<100

Notes:

1. ug/l = micrograms per liter
2. DIPE = Diisopropyl Ether
3. ETBE = Ethyl ter-butyl Ether
4. TAA = tert-Amyl Alcohol
5. TAME = tert-Amyl Methyl Ether
6. TBA = ter-Butyl Alcohol
7. TBF = tert-Butyl Formate
8. NS = Not sampled due to obstruction in well
9. "J" values report concentrations above the method detection limits (MDL) and below actual reporting limit (RL).
10. NL = Monitoring Well Not Located
11. PROD = Free Phase Petroleum Product Dectected (Not Sampled)

TABLE 4 - AQUIFER CHARACTERISTICS (Page 1 of 2)

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID # _____ COUNTY _____

FACILITY NAME _____

SLUG DATA

See Appendix _____ Table _____ Figure _____ for a list of all data measurements.
(water level logs, etc.)(Complete as appropriate).
Water Level Recovery Data was measured by ORS Interface Probe .
(Hermit Data Logger, Manually with Water Level Indicator, etc.)(List Method)
Complete the following table for each well tested.
COMPLETE A SECOND SHEET IF MORE THAN FOUR WELLS ARE TESTED

Aquifer Characteristics were not obtained as part of this assessment. In order to conform with formatting guidelines provided by the SCDHEC UST Management Division Programmatic Quality Assurance Program Plan (QAPP), this filler table is included to provide report continuity.

Calculations

See Appendix _____ Table _____ Figure _____ for calculations
The method for aquifer calculations was NAVFAC
Calculated values by well were as follows:

Slug Test Conducted in Well(s) number				
Hydraulic Conductivity				cm/sec

Thickness of the aquifer used to calculate hydraulic conductivity was N/A feet.
The aquifer is _____ confined _____ semi-confined _____ water table (Check as Appropriate).
SEE SHEET 3
The estimated seepage velocity is _____ feet per year based on a hydraulic conductivity of _____ cm/sec, a hydraulic gradient of _____ ft/ft, and a porosity of _____ percent for _____ soil.

SUMMARY of SLUG TEST

TABLE 4 - AQUIFER CHARACTERISITCS (Page 2 of 2)

SOUTH CAROLINA
Department of Health and Environmental Control (DHEC)

Site Data

SITE ID # 0 COUNTY 0

FACILITY NAME 0

Hydraulic Conductivity (average)

Hydraulic Conductivity Average = _____ cm/sec
()

_____ ft./day

_____ ft./min

Groundwater Seepage Velocity

V = (Ki)/(Ne)
(ft./day)

* Enter Values in Shaded Areas Only

where:

K = Hydraulic Conductivity (ft./day)
I = Hydraulic Gradient (ft./ft.)
Ne = Effective Permeability

K = _____ ft./day
I = _____ ft./ft.
Ne = _____

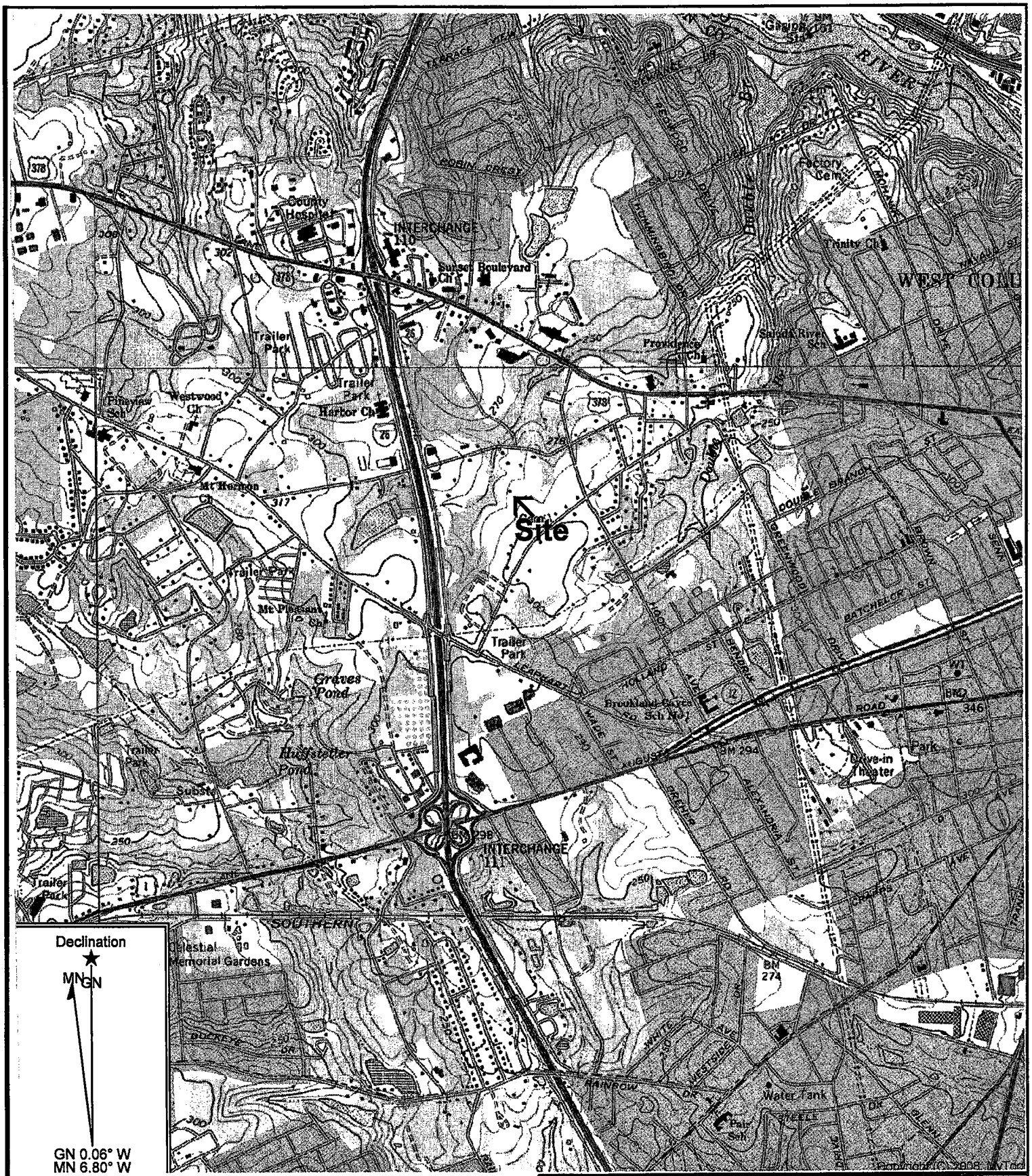
V = _____ ft./day _____ ft./year

Groundwater Seepage Velocity Calculations

TABLE 5
SITE CONCEPTUAL MODEL AND POSSIBLE EXPOSURE POINTS
(CURRENT LAND USE)

Potentially Exposed Population	Exposure Route, Medium, and Exposure Point	Pathway Selected for Evaluation?	Reason for Selection or Nonselection
Off-site Resident	Ingestion of groundwater from impacted water well Direct contact with surface soil Inhalation while showering Dermal contact while showering Inhalation of volatiles Ignition of vapors Dermal contact with surface water	A Site Conceptual Model was not required as part of this assessment. In order to conform with formatting guidelines provided by the SCDHEC UST Management Division Programmatic Quality Assurance Program Plan (QAPP), this filler table is included to provide report continuity.	
On-site Resident	Ingestion of groundwater Direct contact with surface soil Inhalation while showering Dermal contact while showering Inhalation of volatiles Ignition of vapors		
Worker	Ingestion of ground water Direct contact with surface soil Inhalation while showering Dermal contact while showering Inhalation of volatiles Ignition of vapors		
Visitor	Ingestion of ground water Direct contact with surface soil Inhalation while showering Dermal contact while showering Inhalation of volatiles Ignition of vapors Dermal contact with surface water		

FIGURES



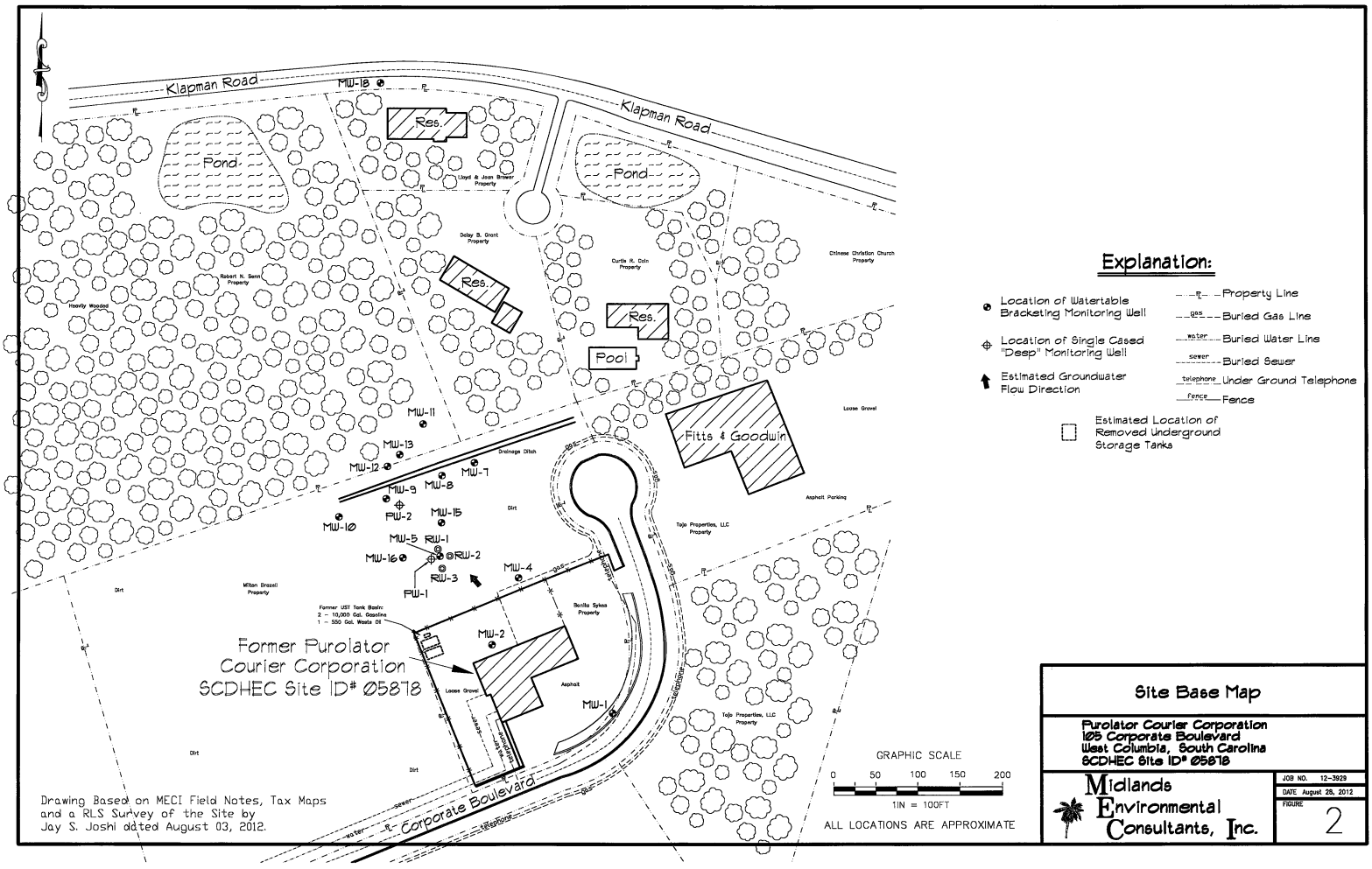
GRAPHIC SCALE

0 1000 2000 4000

1IN = 2000FT

Reference: Southwest Columbia & Irmo, South Carolina
Columbia North & Lexington, South Carolina
USGS 7.5 Min. Quad
Contour Interval – 10 Feet

Midlands Environmental Consultants, Inc.	Site Location
Purolator Courier Corporation 105 Corporate Boulevard, West Columbia, SC SCDHEC Site ID# 05878	
Figure 1	MECI 12-3929



Site Base Map

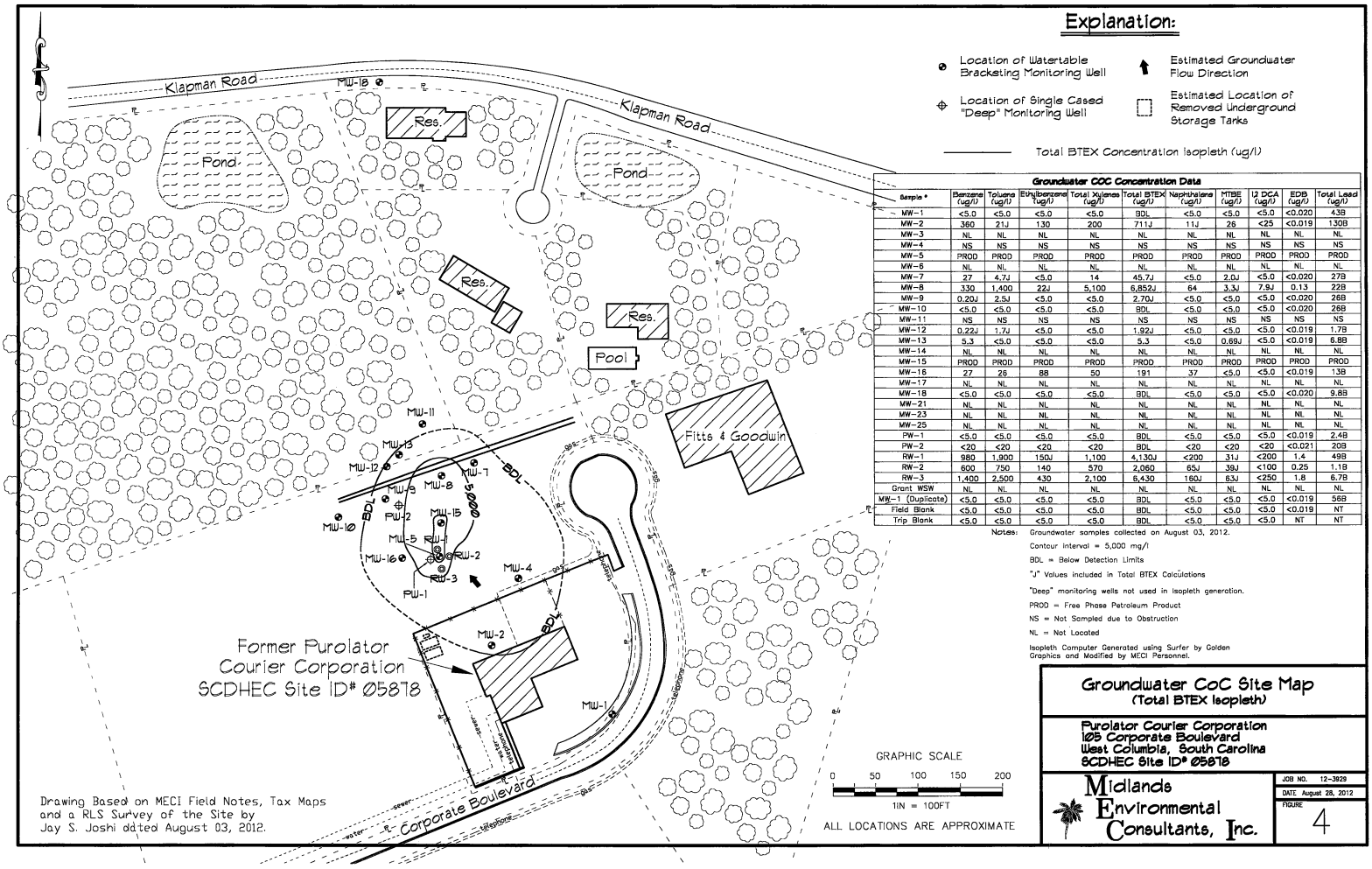
Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 12-3929
DATE August 28, 2012
FIGURE 2

Soil Samples for chemical analysis were not obtained during this assessment. In order to conform with formatting guidelines provided by the SCDHEC UST Management Division Programmatic Quality Assurance Program Plan (QAPP), this filler Figure is included to provide report continuity.

Midlands Environmental Consultants, Inc.	Soil CoC Site Map
Site Name Site Location, South Carolina SCDHEC Site ID: *****	
Figure 3	MECI **_****



Explanation:

- Location of Watertable Bracketing Monitoring Well
- Location of Single Cased "Deep" Monitoring Well
- Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storage Tanks
- Total BTEX Concentration Isopleth (ug/l)

Groundwater COC Concentration Data

Sample #	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)	Total BTEX (ug/l)	Naphthalene (ug/l)	MTBE (ug/l)	1,2 DCA (ug/l)	EDB (ug/l)	Total Lead (ug/l)
MW-1	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020	43B
MW-2	360	21J	130	200	711J	11J	26	<25	<0.019	130B
MW-3	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-5	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-6	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-7	27	4.7J	<5.0	14	45.7J	<5.0	2.0J	<5.0	<0.020	27B
MW-8	330	1,400	22J	5,100	6,852J	64	3.3J	7.9J	0.13	22B
MW-9	0.20J	2.5J	<5.0	<5.0	2.70J	<5.0	<5.0	<5.0	<0.020	26B
MW-10	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020	28B
MW-11	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-12	0.22J	1.7J	<5.0	<5.0	1.92J	<5.0	<5.0	<5.0	<0.019	1.7B
MW-13	5.3	<5.0	<5.0	<5.0	5.3	<5.0	0.69J	<5.0	<0.019	6.8B
MW-14	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-15	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-16	27	26	88	50	191	37	<5.0	<5.0	<0.019	13B
MW-17	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-18	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.020	9.8B
MW-21	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-23	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-25	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
PW-1	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.019	2.4B
PW-2	<20	<20	<20	<20	BDL	<20	<20	<20	<0.021	20B
RW-1	980	1,900	150J	1,100	4,130J	<200	31J	<200	1.4	49B
RW-2	600	750	140	570	2,060	65J	39J	<100	0.25	1.1B
RW-3	1,400	2,500	430	2,100	6,430	160J	83J	<250	1.8	6.7B
Grant WSW	NL	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-1 (Duplicate)	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.019	56B
Field Blank	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	<0.019	NT
Trip Blank	<5.0	<5.0	<5.0	<5.0	BDL	<5.0	<5.0	<5.0	NT	NT

Notes:
Groundwater samples collected on August 03, 2012.
Contour Interval = 5,000 mg/l
BDL = Below Detection Limits
"J" Values included in Total BTEX Calculations
"Deep" monitoring wells not used in Isopleth generation.
PROD = Free Phase Petroleum Product
NS = Not Sampled due to Obstruction
NL = Not Located
Isopleth Computer Generated using Surfer by Golden Graphics and Modified by MECI Personnel.

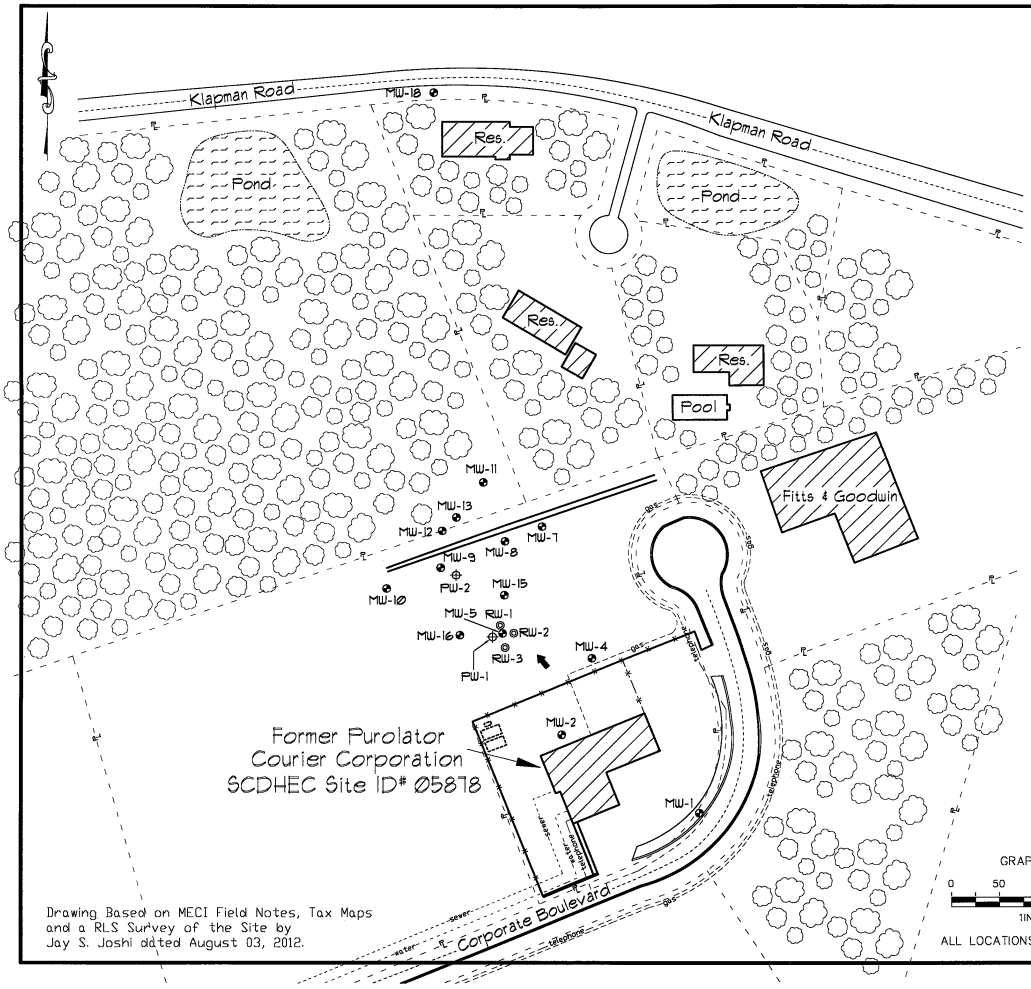
Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated August 03, 2012.

Groundwater CoC Site Map
(Total BTEX Isopleth)

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 12-3929
DATE August 28, 2012
FIGURE 4



Explanation:

- Location of Watertable Bracketing Monitoring Well
- Location of Single Cased "Deep" Monitoring Well
- Estimated Groundwater Flow Direction
- Estimated Location of Removed Underground Storages Tanks

Groundwater COC Concentration Data - Oxygenates

Sample #	DIPE (ug/l)	Ethanol (ug/l)	3,3-Dimethyl-1-butanol (ug/l)	ETBE (ug/l)	TAA (ug/l)	TAME (ug/l)	TBA (ug/l)	TBF (ug/l)
MW-1	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-2	<50	<5,000	<500	<500	88J	<50	<500	<500
MW-3	NL	NL	NL	NL	NL	NL	NL	NL
MW-4	NS	NS	NS	NS	NS	NS	NS	NS
MW-5	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-6	NL	NL	NL	NL	NL	NL	NL	NL
MW-7	<10	<1,000	<100	<100	24J	<10	<100	<100
MW-8	<50	<5,000	<500	<500	530	<50	47J	<500
MW-9	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-10	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-11	NS	NS	NS	NS	NS	NS	NS	NS
MW-12	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-13	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-14	NL	NL	NL	NL	NL	NL	NL	NL
MW-15	PROD	PROD	PROD	PROD	PROD	PROD	PROD	PROD
MW-16	<10	<1,000	<100	<100	28J	<10	<100	<100
MW-17	NL	NL	NL	NL	NL	NL	NL	NL
MW-18	<10	<1,000	<100	<100	<100	<10	<100	<100
MW-21	NL	NL	NL	NL	NL	NL	NL	NL
MW-23	NL	NL	NL	NL	NL	NL	NL	NL
MW-25	NL	NL	NL	NL	NL	NL	NL	NL
PW-1	<10	<1,000	<100	<100	<100	<10	<100	<100
PW-2	<40	<4,000	<400	<400	<400	<40	<400	<400
RW-1	<400	<40,000	<4,000	<4,000	470J	<400	<4,000	<4,000
RW-2	<200	<20,000	<2,000	<2,000	490J	<200	<2,000	<2,000
RW-3	<500	<50,000	<5,000	<5,000	<5,000	<500	<5,000	<5,000
Grant WSW	NL	NL	NL	NL	NL	NL	NL	NL
MW-1 (Duplicate)	<10	<1,000	<100	<100	<100	<10	<100	<100
Field Blank	<10	<1,000	<100	<100	<100	<10	<100	<100
Trip Blank	<10	<1,000	<100	<100	<100	<10	<100	<100

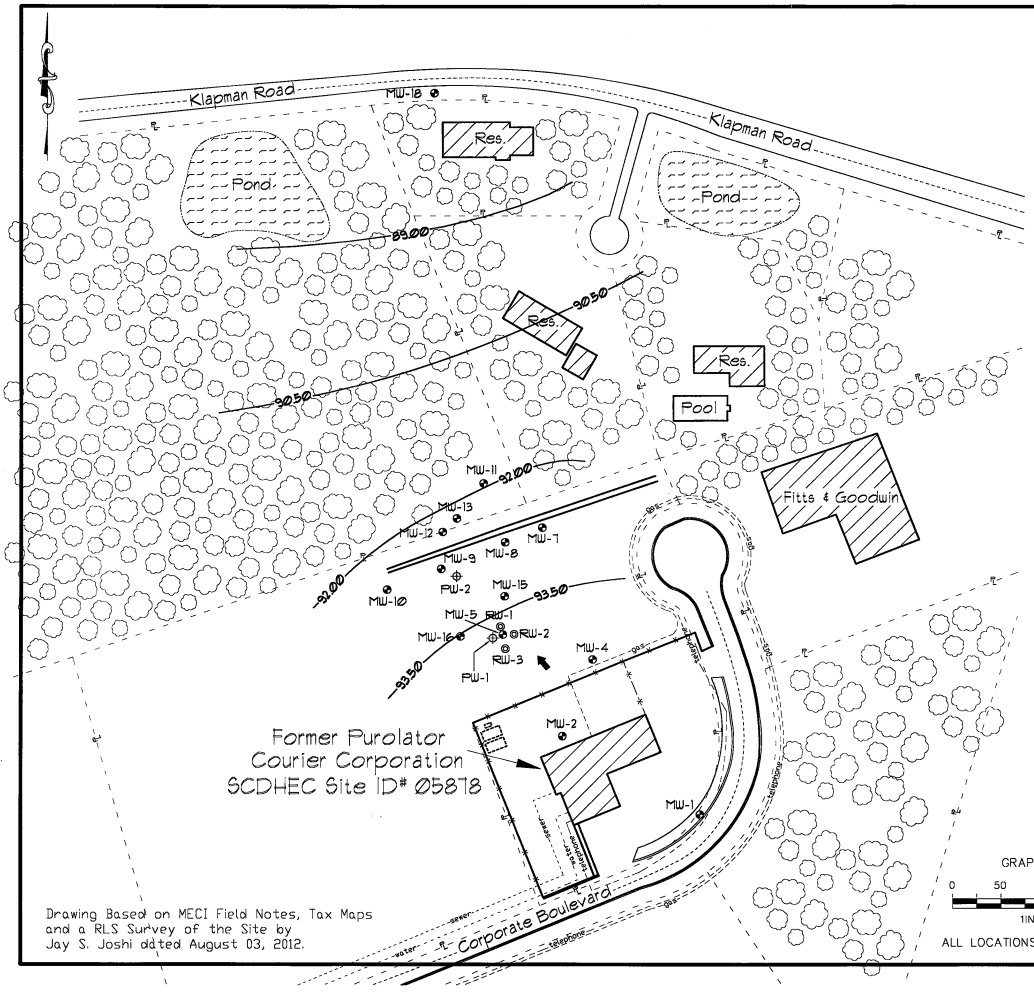
Notes: Groundwater samples collected on August 03, 2012.
DIPE = Diisopropyl Ether
ETBE = Ethyl tert-butyl Ether
TAA = tert-Amyl Alcohol
TAME = tert-Amy Methyl Ether
TBA = tert-Butyl Alcohol
TBF = tert-Butyl Formate
PROD = Free Phase Petroleum Product
NS = Not Sampled due to Obstruction
NL = Not Located

Groundwater CoC Site Map
(Oxygenates)

Purolator Courier Corporation
1105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO. 12-3929
DATE August 28, 2012
FIGURE 4A



Drawing Based on MECI Field Notes, Tax Maps and a RLS Survey of the Site by Jay S. Joshi dated August 03, 2012.

Explanation:

- Location of Watertable Bracketing Monitoring Well
- Estimated Groundwater Flow Direction
- Location of Double Cased "Deep" Monitoring Well
- Estimated Location of Removed Underground Storage Tanks
- Groundwater Elevation Contour (feet)

Potentiometric Data

Well #	Screened Interval (ft.)	Depth to Product (ft.)	Depth to Water (ft.)	Product Thickness (ft.)	Well Head Elevation	Groundwater Elevation
MW-1	4-14	----	8.13	----	102.60	94.47
MW-2	3-13	----	6.86	----	101.18	94.32
MW-3	4-14	----	NL	----	NL	NL
MW-4	4-14	----	NS	----	99.92	NS
MW-5	4-14	4.75	5.19	0.44	98.47	93.65
MW-6	4-14	----	NL	----	NL	NL
MW-7	4-14	----	5.80	----	98.77	92.97
MW-8	4-14	----	4.82	----	97.87	93.05
MW-9	4-14	----	3.92	----	96.83	92.91
MW-10	4-14	----	3.39	----	96.05	92.66
MW-11	4-9	----	NS	----	97.02	NS
MW-12	4-9	----	4.31	----	96.11	91.80
MW-13	4-9	----	4.71	----	96.59	91.88
MW-14	4-9	----	NL	----	NL	NL
MW-15	3-13	4.44	4.87	0.43	97.86	93.36
MW-16	3-13	----	4.13	----	97.73	93.60
MW-17	3-13	----	NL	----	NL	NL
MW-18	2-12	----	3.37	----	91.16	87.79
MW-21	1-6	----	NL	----	NL	NL
MW-23	1-6	----	NL	----	NL	NL
MW-25	1-6	----	NL	----	NL	NL
PW-1	16-21	----	4.94	----	98.51	93.57
PW-2	21-26	----	3.91	----	97.67	93.76
RW-1	5-15	----	4.39	----	97.95	93.56
RW-2	5-15	----	4.68	----	98.36	93.68
RW-3	5-15	----	4.30	----	98.07	93.77

Notes:
Depth to groundwater measured on August 03, 2012.
Contour Interval = 1.50 Feet
Site Datum Based on Assumed Spot Elevation.
Groundwater elevation for MW-5 and MW-15 corrected for the presence of free phase petroleum product using a specific gravity for fuel of 0.85.
NL = Not Located
NS = Not Sampled due to Obstruction in well
Groundwater Contours Computer Generated using Surfer by Golden Graphics and Modified by MECI Personnel.

Potentiometric Data Site Map
(Groundwater Contour)

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05818

Midlands Environmental Consultants, Inc.

JOB NO. 12-3929
DATE August 28, 2012
FIGURE 5

Construction of Geologic Cross Sections were not part of this assessment. In order to conform with formatting guidelines provided by the SCDHEC UST Management Division Programmatic Quality Assurance Program Plan (QAPP), this filler Figure is included to provide report continuity.

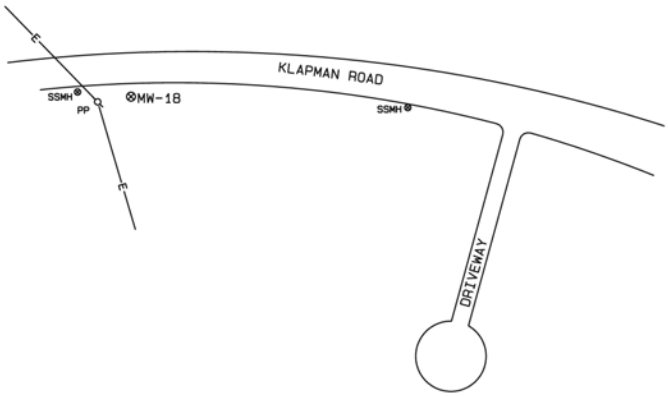
Midlands Environmental Consultants, Inc.	Geologic Cross Sections
Site Name Site Location, South Carolina SCDHEC Site ID: *****	
Figure 6	MECI **-****

APPENDIX A:

SITE SURVEY

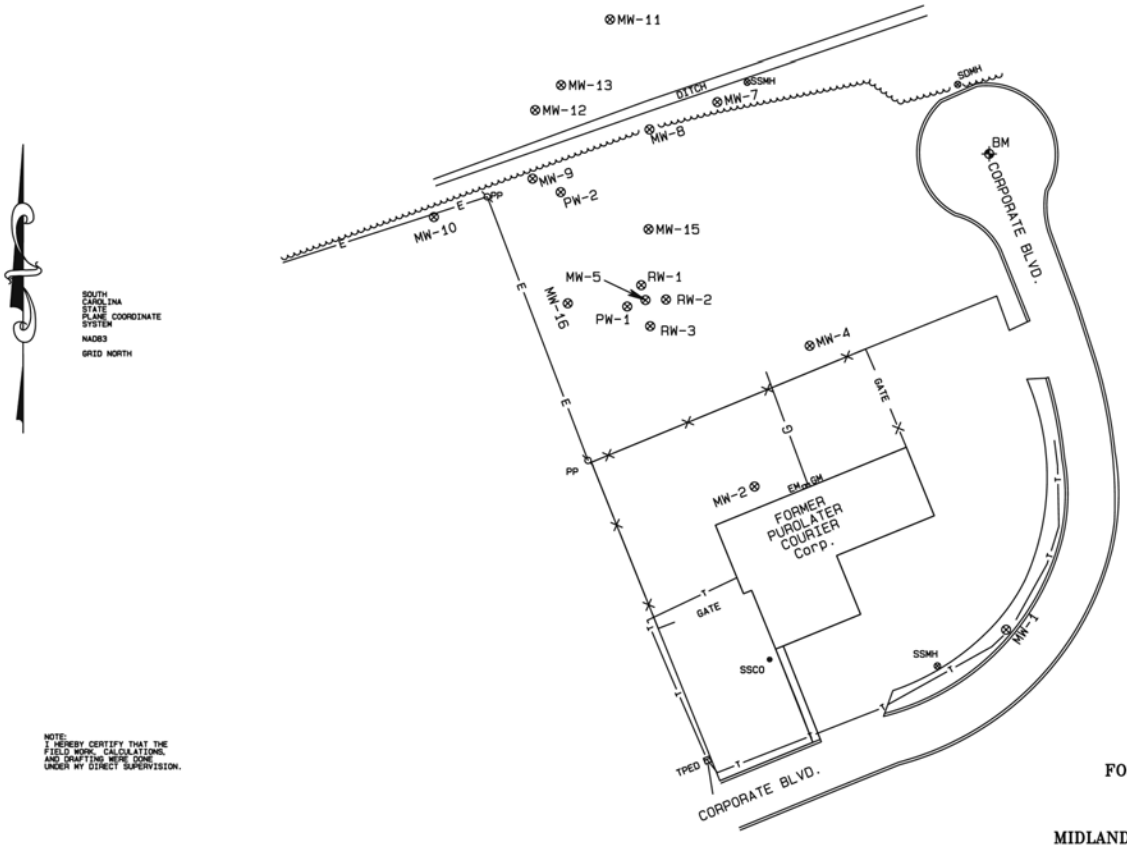
LEGEND AND ABBREVIATIONS:

- MW = MONITORING WELL
- TPED = TELEPHONE PEDESTAL
- SDMH = STORM DRAIN MAN HOLE
- SSMH = SANITARY SEWER MAN HOLE
- TMH = TELEPHONE MAN HOLE
- WM = WATER METER
- WV = WATER VALVE
- FH = FIRE HYDRANT
- FP = FLAG POLE
- PP = POWER POLE
- GM = GAS METER
- GV = GAS VALVE
- UST = UNDERGROUND STORAGE TANK
- USTF = UNDERGROUND STORAGE TANK FILL
- USTV = UNDERGROUND STORAGE TANK VENT
- CTCB = CONCRETE TOP CATCH BASIN
- SIGN = SIGN
- RCP = REINFORCED CONCRETE PIPE
- VAC/AIR = VACUUM AND AIR DISPENSER
- PHONE = PAY TELEPHONE
- FD = FUEL DISPENSER
- KTANK = KEROSENE TANK
- KDISP = KEROSENE DISPENSER
- E = OVERHEAD POWER LINE
- = WOODLINE



MONITOR WELLS		
WELL	TOL ELEV.	TOC ELEV.
MW-1	103.11	102.60
MW-2	101.57	101.18
MW-3	N/F	N/F
MW-4	100.20	99.92
MW-5	98.77	98.47
MW-6	N/F	N/F
MW-7	99.00	98.77
MW-8	98.13	97.87
MW-9	97.13	96.83
MW-10	96.23	96.05
MW-11	97.30	97.02
MW-12	96.46	96.11
MW-13	96.80	96.59
MW-14	N/F	N/F
MW-15	98.20	97.86
MW-16	97.93	97.73
MW-17	N/F	N/F
MW-18	91.34	91.16
PW-1	98.83	98.51
PW-2	97.97	97.67
RW-1	98.27	97.95
RW-2	98.63	98.36
RW-3	98.53	98.07

BENCHMARK IS A MAG NAIL IN PAVEMENT
ASSUMED ELEVATION = 100.00'



SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM
NAD83
GRID NORTH

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — CONSTRUCTION SUPPORT SERVICES No. C02425

SOUTH CAROLINA REGISTERED LAND SURVEYOR No. 14811 — JAY S. JOSHI

NOTE:
I HEREBY CERTIFY THAT THE FIELD WORK, CALCULATIONS, AND DRAFTING WERE DONE UNDER MY DIRECT SUPERVISION.

COMPREHENSIVE SITE SKETCH OF

FORMER PUROLATER COURIER Corp.

105 CORPORATE BLVD.
WEST COLUMBIA, LEXINGTON COUNTY, SC
SCDHEC SITE ID #05878
PREPARED FOR

MIDLANDS ENVIRONMENTAL CONSULTANTS, INC.

GRAPHIC SCALE 1"=50'

0 50 100 150

THIS PARCEL MAY BE SUBJECT TO EASEMENT AND/OR RIGHT-OF-WAYS NOT SHOWN. FINAL RESULTS, CONCLUSIVE OF TITLE SEARCH

NOTE:
NOT FOR THE PURPOSE OF RECORDATION AT COUNTY COURTHOUSE OR THE CONVEYANCE OF PROPERTY.

JAY S. JOSHI PLS # 14811
PO BOX 90408, COLUMBIA, SC, 29290 803-776-9909

DATE: AUGUST 2, 2012 JOB #073112P

APPENDIX B:

SAMPLING LOGS, LABORATORY DATA SHEETS, & CHAIN-OF-CUSTODY FORMS

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-1

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	8.13			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			5.87	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	0.96	gallons
3 casing volume (3 X CV)=		3	2.87	gallons

Total Volume of Water Purged Before Sampling <0.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	13:17	13:20						
pH (s.u.)	5.34	5.57						
Specific Conductivity (µmhos/cm)	113.2	104.5						
Water Temperature (°C)	27.9	27.3						
Dissolved Oxygen	4.24	4.05						
Turbidity (NTU)	>240	>240						
PID readings, if required								

Remarks: Sample Time: 13:20 **Insufficient Water to Purge**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-2

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	6.86			feet
Total Well Depth (TWD)	13			feet
Length of the water column (LWC=TWD-DGW)			6.14	feet
1 casing volume (CV=LWC X C)=	____ X	0.163	1.00	gallons
3 casing volume (3 X CV)=		3	3.00	gallons

Total Volume of Water Purged Before Sampling 1 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	13:30	13:33						
pH (s.u.)	5.59	5.55						
Specific Conductivity (µmhos/cm)	117.3	104.9						
Water Temperature (°C)	28.3	27.6						
Dissolved Oxygen	2.77	3.90						
Turbidity (NTU)	>240	>240						
PID readings, if required								

Remarks: Sample Time: 13:33 **Dry at 1.0 Gallon**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012
Field Personnel: Brian Owen, Darcie Odom
General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation
Site ID#: 05878 **Monitoring Well #** MW-7
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	5.80		feet
Total Well Depth (TWD)	14		feet
Length of the water column (LWC=TWD-DGW)		8.2	feet
1 casing volume (CV=LWC X C)= ____ X	0.163	1.34	gallons
3 casing volume (3 X CV)=	3	4.01	gallons

Total Volume of Water Purged Before Sampling <0.5 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:05							
pH (s.u.)	5.56							
Specific Conductivity (µmhos/cm)	94.4							
Water Temperature (°C)	24.3							
Dissolved Oxygen	1.23							
Turbidity (NTU)	>240							
PID readings, if required								

Remarks: Sample Time: 11:05 **Obstruction at 10 Foot. Unable to Purge.**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-8

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.82			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			9.18	feet
1 casing volume (CV=LWC X C)=	____ X	0.163	1.50	gallons
3 casing volume (3 X CV)=		3	4.49	gallons

Total Volume of Water Purged Before Sampling <0.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	10:34							
pH (s.u.)	5.75							
Specific Conductivity (µmhos/cm)	154.3							
Water Temperature (°C)	25.3							
Dissolved Oxygen	1.38							
Turbidity (NTU)	>240							
PID readings, if required								

Remarks: Sample Time: 10:34 **Obstruction in Well. Unable to Purge.**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-9

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.92			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			10.08	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.64	gallons
3 casing volume (3 X CV)=		3	4.93	gallons

Total Volume of Water Purged Before Sampling 2.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:24	11:25						
pH (s.u.)	6.58	5.76						
Specific Conductivity (µmhos/cm)	162.9	118.2						
Water Temperature (°C)	23.8	25.3						
Dissolved Oxygen	0.85	1.42						
Turbidity (NTU)	>240	<240						
PID readings, if required								

Remarks: Sample Time: 11:25 **Dry at 2.0 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-10

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.39			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			10.61	feet
1 casing volume (CV=LWC X C)=	____ X	0.163	1.73	gallons
3 casing volume (3 X CV)=		3	5.19	gallons

Total Volume of Water Purged Before Sampling 1.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:38	11:41						
pH (s.u.)	5.42	5.44						
Specific Conductivity (µmhos/cm)	55.9	44.3						
Water Temperature (°C)	26.0	23.7						
Dissolved Oxygen	1.61	3.43						
Turbidity (NTU)	>240	<240						
PID readings, if required								

Remarks: Sample Time: 11:41 **Dry at 1.5 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-12

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.31			feet
Total Well Depth (TWD)	9			feet
Length of the water column (LWC=TWD-DGW)			4.69	feet
1 casing volume (CV=LWC X C)=	____ X	0.163	0.76	gallons
3 casing volume (3 X CV)=		3	2.29	gallons

Total Volume of Water Purged Before Sampling <0.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	INS							
pH (s.u.)	INS							
Specific Conductivity (µmhos/cm)	INS							
Water Temperature (°C)	INS							
Dissolved Oxygen	INS							
Turbidity (NTU)	INS							
PID readings, if required								

Remarks: Sample Time: 12:14 **Insufficient Water to Purge**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-13

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.21			feet
Total Well Depth (TWD)	9			feet
Length of the water column (LWC=TWD-DGW)			4.79	feet
1 casing volume (CV=LWC X C)=	____ X	0.163	0.78	gallons
3 casing volume (3 X CV)=		3	2.34	gallons

Total Volume of Water Purged Before Sampling <0.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:00	12:03						
pH (s.u.)	4.89	4.82						
Specific Conductivity (µmhos/cm)	44.4	44.1						
Water Temperature (°C)	24.3	24.2						
Dissolved Oxygen	3.46	3.05						
Turbidity (NTU)	>240	>240						
PID readings, if required								

Remarks: Sample Time: 12:03 **Insufficient Water to Purge**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-16

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.13			feet
Total Well Depth (TWD)	13			feet
Length of the water column (LWC=TWD-DGW)			8.87	feet
1 casing volume (CV=LWC X C)=	____ X	0.163	1.45	gallons
3 casing volume (3 X CV)=		3	4.34	gallons

Total Volume of Water Purged Before Sampling 4.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:48	11:51						
pH (s.u.)	5.28	5.42						
Specific Conductivity (µmhos/cm)	63.9	78.1						
Water Temperature (°C)	25.1	24.8						
Dissolved Oxygen	1.68	1.44						
Turbidity (NTU)	>240	>240						
PID readings, if required								

Remarks: Sample Time: 11:51

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** MW-18

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.37			feet
Total Well Depth (TWD)	12			feet
Length of the water column (LWC=TWD-DGW)			8.63	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.41	gallons
3 casing volume (3 X CV)=		3	4.22	gallons

Total Volume of Water Purged Before Sampling 1 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:45	12:48						
pH (s.u.)	5.45	5.41						
Specific Conductivity (µmhos/cm)	76.0	72.0						
Water Temperature (°C)	26.5	26.2						
Dissolved Oxygen	1.58	1.37						
Turbidity (NTU)	>240	>240						
PID readings, if required								

Remarks: Sample Time: 12:48 **Dry at 1.0 Gallon**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** RW-1

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.39			feet
Total Well Depth (TWD)	15			feet
Length of the water column (LWC=TWD-DGW)			10.61	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	7.00	gallons
3 casing volume (3 X CV)=		3	21.01	gallons

Total Volume of Water Purged Before Sampling 21 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	9:24	9:30	9:34	9:40				
pH (s.u.)	5.88	5.64	5.61	5.53				
Specific Conductivity (µmhos/cm)	102.3	89.0	82.3	79.4				
Water Temperature (°C)	25.0	23.7	23.6	23.1				
Dissolved Oxygen	1.75	2.27	2.19	2.16				
Turbidity (NTU)	>240	>240	>240	>240				
PID readings, if required								

Remarks: Sample Time: 9:40

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** RW-2

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.68			feet
Total Well Depth (TWD)	15			feet
Length of the water column (LWC=TWD-DGW)			10.32	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	6.81	gallons
3 casing volume (3 X CV)=		3	20.43	gallons

Total Volume of Water Purged Before Sampling 20.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	9:42	9:45	9:47	9:50				
pH (s.u.)	5.36	5.44	5.48	5.44				
Specific Conductivity (µmhos/cm)	83.6	86.4	78.8	78.9				
Water Temperature (°C)	24.1	23.7	23.8	23.5				
Dissolved Oxygen	1.93	1.62	1.64	1.66				
Turbidity (NTU)	>240	>240	>240	>240				
PID readings, if required								

Remarks: Sample Time: 9:50

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** RW-3

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.30			feet
Total Well Depth (TWD)	15			feet
Length of the water column (LWC=TWD-DGW)			10.7	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	7.06	gallons
3 casing volume (3 X CV)=		3	21.19	gallons

Total Volume of Water Purged Before Sampling 21 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	9:55	9:58	10:02	10:05				
pH (s.u.)	5.70	5.40	5.38	5.36				
Specific Conductivity (µmhos/cm)	105.8	102.1	98.6	100.1				
Water Temperature (°C)	25.8	25.2	25.1	24.8				
Dissolved Oxygen	0.87	0.99	1.16	1.22				
Turbidity (NTU)	>240	>240	>240	>240				
PID readings, if required								

Remarks: Sample Time: 10:05

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** PW-1

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.94			feet
Total Well Depth (TWD)	21			feet
Length of the water column (LWC=TWD-DGW)			16.06	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	2.62	gallons
3 casing volume (3 X CV)=		3	7.85	gallons

Total Volume of Water Purged Before Sampling 2.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	10:33	10:37						
pH (s.u.)	5.69	5.26						
Specific Conductivity (µmhos/cm)	93.6	78.6						
Water Temperature (°C)	25.8	78.8						
Dissolved Oxygen	4.66	6.05						
Turbidity (NTU)	>240	>240						
PID readings, if required								

Remarks: Sample Time: 10:37 **Dry at 2.5 Gallon**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 8/3/2012

Field Personnel: Brian Owen, Darcie Odom

General Weather Conditions: Clear, Sunny

Ambient Air Temperature: 26.6 °C

Quality Assurance

pH/Conductivity Meter		**DO Meter**	
YSI 63		**YSI 550A**	
09C 101302		04L 2026AK	
10K 101895	X	08B 101895	X
07M 100905		04A 0912AI	
Calibration Buffer:	4, 7, & 10		

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corporation

Site ID#: 05878 **Monitoring Well #** PW-2

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	3.91		feet
Total Well Depth (TWD)	26		feet
Length of the water column (LWC=TWD-DGW)		22.09	feet
1 casing volume (CV=LWC X C)= _____ X	0.163	3.60	gallons
3 casing volume (3 X CV)=	3	10.80	gallons

Total Volume of Water Purged Before Sampling 2.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:14	11:18						
pH (s.u.)	6.64	6.90						
Specific Conductivity (µmhos/cm)	216.4	216.4						
Water Temperature (°C)	25.4	24.7						
Dissolved Oxygen	4.15	4.35						
Turbidity (NTU)	>240	>240						
PID readings, if required								

Remarks: Sample Time: 11:18 **Dry at 2.5 Gallon**

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

Midlands Environmental Consultants, Inc.
235 Dooley Rd
Lexington, SC 29073
Attention: Bryan Shane

Project Name: **Purolator Courier Corp.**

Project Number: **12-3929**

Lot Number: **NH03025**
Date Completed: **08/14/2012**
Date Revised: **08/17/2012**

Kelly M. Maberry
Project Manager

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The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

Case Narrative

Midlands Environmental Consultants, Inc.

Lot Number: NH03025

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Inorganic Metals
The method blank associated with samples -001 through -015 and -018 had lead detected at a concentration that was above ½ the PQL. All samples associated with this method blank have detections for lead at least ten times greater than the detection in the blank. The samples have been flagged with a "B".

EDB/DBCP
Samples -001, -003, -006 and -015 had a layer of soil in the sample vials.

Revision 08/17/12
Client was changed to Midlands Environmental Consultants.

Sample Summary

Midlands Environmental Consultants, Inc.

Lot Number: NH03025

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-1	Aqueous	08/03/2012 1319	08/03/2012
002	MW-2	Aqueous	08/03/2012 1335	08/03/2012
003	MW-7	Aqueous	08/03/2012 1105	08/03/2012
004	MW-8	Aqueous	08/03/2012 1054	08/03/2012
005	MW-9	Aqueous	08/03/2012 1125	08/03/2012
006	MW-10	Aqueous	08/03/2012 1141	08/03/2012
007	MW-12	Aqueous	08/03/2012 1214	08/03/2012
008	MW-13	Aqueous	08/03/2012 1203	08/03/2012
009	MW-16	Aqueous	08/03/2012 1154	08/03/2012
010	MW-18	Aqueous	08/03/2012 1248	08/03/2012
011	RW-1	Aqueous	08/03/2012 0940	08/03/2012
012	RW-2	Aqueous	08/03/2012 0950	08/03/2012
013	RW-3	Aqueous	08/03/2012 1005	08/03/2012
014	PW-1	Aqueous	08/03/2012 1037	08/03/2012
015	PW-2	Aqueous	08/03/2012 1118	08/03/2012
016	Field Blank	Aqueous	08/03/2012 1340	08/03/2012
017	Trip Blank	Aqueous	08/03/2012 1340	08/03/2012
018	MW-1 Duplicate	Aqueous	08/03/2012 1319	08/03/2012

(18 samples)

Executive Summary

Midlands Environmental Consultants, Inc.

Lot Number: NH03025

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-1	Aqueous	Lead	6020A	43	B	ug/L	7
002	MW-2	Aqueous	Benzene	8260B	360		ug/L	8
002	MW-2	Aqueous	Ethylbenzene	8260B	130		ug/L	8
002	MW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	26		ug/L	8
002	MW-2	Aqueous	Naphthalene	8260B	11	J	ug/L	8
002	MW-2	Aqueous	Toluene	8260B	21	J	ug/L	8
002	MW-2	Aqueous	Xylenes (total)	8260B	200		ug/L	8
002	MW-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	68	J	ug/L	8
002	MW-2	Aqueous	Lead	6020A	130	B	ug/L	9
003	MW-7	Aqueous	Benzene	8260B	27		ug/L	10
003	MW-7	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	2.0	J	ug/L	10
003	MW-7	Aqueous	Toluene	8260B	4.7	J	ug/L	10
003	MW-7	Aqueous	Xylenes (total)	8260B	14		ug/L	10
003	MW-7	Aqueous	tert-Amyl alcohol (TAA)	8260B	24	J	ug/L	10
003	MW-7	Aqueous	Lead	6020A	27	B	ug/L	11
004	MW-8	Aqueous	Benzene	8260B	330		ug/L	12
004	MW-8	Aqueous	1,2-Dichloroethane	8260B	7.9	J	ug/L	12
004	MW-8	Aqueous	Ethylbenzene	8260B	22	J	ug/L	12
004	MW-8	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	3.3	J	ug/L	12
004	MW-8	Aqueous	Naphthalene	8260B	64		ug/L	12
004	MW-8	Aqueous	Toluene	8260B	1400		ug/L	12
004	MW-8	Aqueous	Xylenes (total)	8260B	5100		ug/L	12
004	MW-8	Aqueous	tert-Amyl alcohol (TAA)	8260B	530		ug/L	12
004	MW-8	Aqueous	tert-butyl alcohol (TBA)	8260B	47	J	ug/L	12
004	MW-8	Aqueous	1,2-Dibromoethane (EDB)	8011	0.13		ug/L	13
004	MW-8	Aqueous	Lead	6020A	22	B	ug/L	13
005	MW-9	Aqueous	Benzene	8260B	0.20	J	ug/L	14
005	MW-9	Aqueous	Toluene	8260B	2.5	J	ug/L	14
005	MW-9	Aqueous	Lead	6020A	26	B	ug/L	15
006	MW-10	Aqueous	Lead	6020A	26	B	ug/L	17
007	MW-12	Aqueous	Benzene	8260B	0.22	J	ug/L	18
007	MW-12	Aqueous	Toluene	8260B	1.7	J	ug/L	18
007	MW-12	Aqueous	Lead	6020A	1.7	B	ug/L	19
008	MW-13	Aqueous	Benzene	8260B	5.3		ug/L	20
008	MW-13	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	0.69	J	ug/L	20
008	MW-13	Aqueous	Lead	6020A	6.8	B	ug/L	21
009	MW-16	Aqueous	Benzene	8260B	27		ug/L	22
009	MW-16	Aqueous	Ethylbenzene	8260B	88		ug/L	22
009	MW-16	Aqueous	Naphthalene	8260B	37		ug/L	22
009	MW-16	Aqueous	Toluene	8260B	26		ug/L	22
009	MW-16	Aqueous	Xylenes (total)	8260B	50		ug/L	22
009	MW-16	Aqueous	tert-Amyl alcohol (TAA)	8260B	28	J	ug/L	22
009	MW-16	Aqueous	Lead	6020A	13	B	ug/L	23
010	MW-18	Aqueous	Lead	6020A	9.8	B	ug/L	25
011	RW-1	Aqueous	Benzene	8260B	980		ug/L	26

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
011	RW-1	Aqueous	Ethylbenzene	8260B	150	J	ug/L	26
011	RW-1	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	31	J	ug/L	26
011	RW-1	Aqueous	Toluene	8260B	1900		ug/L	26
011	RW-1	Aqueous	Xylenes (total)	8260B	1100		ug/L	26
011	RW-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	470	J	ug/L	26
011	RW-1	Aqueous	1,2-Dibromoethane (EDB)	8011	1.4		ug/L	27
011	RW-1	Aqueous	Lead	6020A	49	B	ug/L	27
012	RW-2	Aqueous	Benzene	8260B	600		ug/L	28
012	RW-2	Aqueous	Ethylbenzene	8260B	140		ug/L	28
012	RW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	39	J	ug/L	28
012	RW-2	Aqueous	Naphthalene	8260B	65	J	ug/L	28
012	RW-2	Aqueous	Toluene	8260B	750		ug/L	28
012	RW-2	Aqueous	Xylenes (total)	8260B	570		ug/L	28
012	RW-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	490	J	ug/L	28
012	RW-2	Aqueous	1,2-Dibromoethane (EDB)	8011	0.25		ug/L	29
012	RW-2	Aqueous	Lead	6020A	1.1	B	ug/L	29
013	RW-3	Aqueous	Benzene	8260B	1400		ug/L	30
013	RW-3	Aqueous	Ethylbenzene	8260B	430		ug/L	30
013	RW-3	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	63	J	ug/L	30
013	RW-3	Aqueous	Naphthalene	8260B	160	J	ug/L	30
013	RW-3	Aqueous	Toluene	8260B	2500		ug/L	30
013	RW-3	Aqueous	Xylenes (total)	8260B	2100		ug/L	30
013	RW-3	Aqueous	1,2-Dibromoethane (EDB)	8011	1.8		ug/L	31
013	RW-3	Aqueous	Lead	6020A	6.7	B	ug/L	31
014	PW-1	Aqueous	Lead	6020A	2.4	B	ug/L	33
015	PW-2	Aqueous	Lead	6020A	20	B	ug/L	35
018	MW-1 Duplicate	Aqueous	Lead	6020A	56	B	ug/L	40

(72 detections)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-001**

Description: **MW-1** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1319**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2026	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		106	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		96	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2026	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		106	70-130
Toluene-d8		96	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0603	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-1**
Date Sampled: **08/03/2012 1319**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-001**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0603	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		132	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0500	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**43**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-002**
Description: **MW-2** Matrix: **Aqueous**
Date Sampled: **08/03/2012 1335**
Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	08/10/2012 2218	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**360**		**25**	**1.0**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		25	1.5	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**130**		**25**	**8.5**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**26**		**25**	**2.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**11**	**J**	**25**	**8.5**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**21**	**J**	**25**	**8.5**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**200**		**25**	**8.5**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		108	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		101	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	08/10/2012 2218	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		50	2.0	ug/L	1
Ethanol	64-17-5	8260B	ND		5000	170	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		500	5.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		500	1.0	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**68**	**J**	**500**	**34**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		500	34	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		101	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0624	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-2**
Date Sampled: **08/03/2012 1335**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-002**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0624	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		121	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0538	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**130**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-003**
Description: **MW-7** Matrix: **Aqueous**
Date Sampled: **08/03/2012 1105**
Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2049	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**27**		**5.0**	**0.20**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**2.0**	**J**	**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	**108-88-3**	**8260B**	**4.7**	**J**	**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**14**		**5.0**	**1.7**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		108	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2049	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**24**	**J**	**100**	**6.7**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0645	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-7**
Date Sampled: **08/03/2012 1105**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-003**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0645	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		92	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0557	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**27**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-8**
Date Sampled: **08/03/2012 1054**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-004**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	08/10/2012 2241	JJG		91165
2	5030B	8260B	40	08/14/2012 1056	AAC		91344

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**330**		**25**	**1.0**	**ug/L**	**1**
1,2-Dichloroethane	**107-06-2**	**8260B**	**7.9**	**J**	**25**	**1.5**	**ug/L**	**1**
Ethylbenzene	**100-41-4**	**8260B**	**22**	**J**	**25**	**8.5**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**3.3**	**J**	**25**	**2.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**64**		**25**	**8.5**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**1400**		**25**	**8.5**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**5100**		**200**	**68**	**ug/L**	**2**

Surrogate	Q	Run 1 % Recovery	Run 1 Acceptance Limits	Q	Run 2 % Recovery	Run 2 Acceptance Limits
1,2-Dichloroethane-d4		108	70-130		110	70-130
Bromofluorobenzene		106	70-130		94	70-130
Toluene-d8		102	70-130		109	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	08/10/2012 2241	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		50	2.0	ug/L	1
Ethanol	64-17-5	8260B	ND		5000	170	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		500	5.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		500	1.0	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**530**		**500**	**34**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	1.0	ug/L	1
tert-butyl alcohol (TBA)	**75-65-0**	**8260B**	**47**	**J**	**500**	**34**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Run 1 Acceptance Limits
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
* = Reportable result (only when report all runs)
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-8**
Date Sampled: **08/03/2012 1054**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-004**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0707	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**0.13**		**0.020**	**0.020**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		106	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0625	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**22**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-005**

Description: **MW-9** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1125**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2111	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**0.20**	**J**	**5.0**	**0.20**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	**108-88-3**	**8260B**	**2.5**	**J**	**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		107	70-130
Bromofluorobenzene		101	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2111	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		101	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0728	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-9**
Date Sampled: **08/03/2012 1125**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-005**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0728	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		94	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0635	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**26**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-006**

Description: **MW-10** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1141**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2134	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		107	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		97	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2134	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		97	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0750	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-10**
Date Sampled: **08/03/2012 1141**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-006**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0750	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		101	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0644	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**26**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-007**

Description: **MW-12** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1214**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2156	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**0.22**	**J**	**5.0**	**0.20**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	**108-88-3**	**8260B**	**1.7**	**J**	**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		107	70-130
Bromofluorobenzene		101	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2156	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		101	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0811	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-12**
Date Sampled: **08/03/2012 1214**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-007**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0811	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		99	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0653	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**1.7**	**B**	**1.0**	**0.047**	**ug/L**	1

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
* = Reportable result (only when report all runs)
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-008**

Description: **MW-13** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1203**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1828	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**5.3**		**5.0**	**0.20**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**0.69**	**J**	**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	70-130
Bromofluorobenzene		103	70-130
Toluene-d8		96	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1828	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		96	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0832	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-13**
Date Sampled: **08/03/2012 1203**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-008**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0832	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		104	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0703	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**6.8**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
* = Reportable result (only when report all runs)
H = Out of holding time
N = Recovery is out of criteria

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-16**
Date Sampled: **08/03/2012 1154**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-009**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1852	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**27**		**5.0**	**0.20**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**88**		**5.0**	**1.7**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**37**		**5.0**	**1.7**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**26**		**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**50**		**5.0**	**1.7**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	70-130
Bromofluorobenzene		103	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1852	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**28**	**J**	**100**	**6.7**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		98	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0854	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-16**
Date Sampled: **08/03/2012 1154**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-009**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0854	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		128	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0712	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**13**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-010**

Description: **MW-18** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1248**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1916	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		103	70-130
Toluene-d8		96	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1916	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		96	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0915	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-18**
Date Sampled: **08/03/2012 1248**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-010**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0915	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		84	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0722	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**9.8**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-011**

Description: **RW-1** Matrix: **Aqueous**

Date Sampled: **08/03/2012 0940**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	40	08/10/2012 2325	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**980**		**200**	**8.0**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		200	12	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**150**	**J**	**200**	**68**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**31**	**J**	**200**	**16**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		200	68	ug/L	1
Toluene	**108-88-3**	**8260B**	**1900**		**200**	**68**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**1100**		**200**	**68**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		96	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	40	08/10/2012 2325	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		400	16	ug/L	1
Ethanol	64-17-5	8260B	ND		40000	1300	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		4000	40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		4000	8.0	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**470**	**J**	**4000**	**270**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		400	8.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		4000	270	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		4000	40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		91	70-130
Toluene-d8		98	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	2	08/09/2012 1048	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **RW-1**
Date Sampled: **08/03/2012 0940**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-011**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	2	08/09/2012 1048	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**1.4**		**0.038**	**0.038**	**ug/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		125	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0731	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**49**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
* = Reportable result (only when report all runs)
H = Out of holding time
N = Recovery is out of criteria

Client: **Midlands Environmental Consultants, Inc.**
Description: **RW-2**
Date Sampled: **08/03/2012 0950**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-012**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	20	08/11/2012 1939	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**600**		**100**	**4.0**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		100	6.0	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**140**		**100**	**34**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**39**	**J**	**100**	**8.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**65**	**J**	**100**	**34**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**750**		**100**	**34**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**570**		**100**	**34**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	20	08/11/2012 1939	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		200	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		20000	660	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		2000	20	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		2000	4.0	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**490**	**J**	**2000**	**130**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		200	4.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		2000	130	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		2000	20	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1115	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-012**

Description: **RW-2** Matrix: **Aqueous**

Date Sampled: **08/03/2012 0950**

Date Received: **08/03/2012**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1115	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**0.25**		**0.019**	**0.019**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		111	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0741	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**1.1**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-013**

Description: **RW-3** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1005**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	50	08/11/2012 2003	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**1400**		**250**	**10**	**ug/L**	1
1,2-Dichloroethane	107-06-2	8260B	ND		250	15	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**430**		**250**	**85**	**ug/L**	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**63**	**J**	**250**	**20**	**ug/L**	1
Naphthalene	**91-20-3**	**8260B**	**160**	**J**	**250**	**85**	**ug/L**	1
Toluene	**108-88-3**	**8260B**	**2500**		**250**	**85**	**ug/L**	1
Xylenes (total)	**1330-20-7**	**8260B**	**2100**		**250**	**85**	**ug/L**	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	50	08/11/2012 2003	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		500	20	ug/L	1
Ethanol	64-17-5	8260B	ND		50000	1700	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		5000	50	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		5000	10	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		5000	340	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		500	10	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		5000	340	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5000	50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		105	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		98	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	2	08/09/2012 1110	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **RW-3**
Date Sampled: **08/03/2012 1005**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-013**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	2	08/09/2012 1110	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**1.8**		**0.038**	**0.038**	**ug/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		128	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0750	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**6.7**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-014**

Description: **PW-1** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1037**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 2027	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		96	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 2027	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		96	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1157	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **PW-1**
Date Sampled: **08/03/2012 1037**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-014**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1157	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		99	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0818	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**2.4**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-015**

Description: **PW-2** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1118**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	4	08/13/2012 1851	JJG		91297

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		20	0.80	ug/L	2
1,2-Dichloroethane	107-06-2	8260B	ND		20	1.2	ug/L	2
Ethylbenzene	100-41-4	8260B	ND		20	6.8	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		20	1.6	ug/L	2
Naphthalene	91-20-3	8260B	ND		20	6.8	ug/L	2
Toluene	108-88-3	8260B	ND		20	6.8	ug/L	2
Xylenes (total)	1330-20-7	8260B	ND		20	6.8	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		94	70-130
Toluene-d8		102	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	4	08/13/2012 1851	JJG		91297

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		40	1.6	ug/L	2
Ethanol	64-17-5	8260B	ND		4000	130	ug/L	2
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		400	4.0	ug/L	2
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		400	0.80	ug/L	2
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		400	27	ug/L	2
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		40	0.80	ug/L	2
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		400	27	ug/L	2
tert-Butyl formate (TBF)	762-75-4	8260B	ND		400	4.0	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		94	70-130
1,2-Dichloroethane-d4		99	70-130
Toluene-d8		102	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1219	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-015**

Description: **PW-2** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1118**

Date Received: **08/03/2012**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1219	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.021	0.021	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		82	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0828	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**20**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-016**

Description: **Field Blank** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1340**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 1942	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		101	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 1942	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		98	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1240	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Laboratory ID: **NH03025-016**
Description: **Field Blank**
Matrix: **Aqueous**
Date Sampled: **08/03/2012 1340**
Date Received: **08/03/2012**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1240	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		103	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
* = Reportable result (only when report all runs)
H = Out of holding time
N = Recovery is out of criteria

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-017**

Description: **Trip Blank** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1340**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2004	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		103	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2004	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		98	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-1 Duplicate**
Date Sampled: **08/03/2012 1319**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-018**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 2113	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 2113	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1301	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-1 Duplicate**
Date Sampled: **08/03/2012 1319**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-018**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1301	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		84	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0837	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**56**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91161-001
Batch: 91161
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/11/2012 1655
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	08/11/2012 1655
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/11/2012 1655
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	08/11/2012 1655
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/11/2012 1655
Ethanol	ND		1	1000	33	ug/L	08/11/2012 1655
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/11/2012 1655
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/11/2012 1655

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		95	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91161-002
Batch: 91161
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	880		1	88	70-130	08/11/2012 1521
tert-Amyl methyl ether (TAME)	50	50		1	99	70-130	08/11/2012 1521
tert-Butyl formate (TBF)	250	250		1	99	70-130	08/11/2012 1521
Diisopropyl ether (IPE)	50	50		1	100	70-130	08/11/2012 1521
3,3-Dimethyl-1-butanol	1000	860		1	86	70-130	08/11/2012 1521
Ethanol	5000	5000		1	100	70-130	08/11/2012 1521
Ethyl-tert-butyl ether (ETBE)	50	46		1	91	70-130	08/11/2012 1521
tert-butyl alcohol (TBA)	1000	880		1	88	70-130	08/11/2012 1521

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91161-003
Batch: 91161
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	910		1	91	3.0	70-130	20	08/11/2012 1544
tert-Amyl methyl ether (TAME)	50	52		1	104	4.2	70-130	20	08/11/2012 1544
tert-Butyl formate (TBF)	250	250		1	102	3.0	70-130	20	08/11/2012 1544
Diisopropyl ether (IPE)	50	51		1	102	2.1	70-130	20	08/11/2012 1544
3,3-Dimethyl-1-butanol	1000	900		1	90	4.9	70-130	20	08/11/2012 1544
Ethanol	5000	5000		1	100	0.67	70-130	20	08/11/2012 1544
Ethyl-tert-butyl ether (ETBE)	50	47		1	94	3.0	70-130	20	08/11/2012 1544
tert-butyl alcohol (TBA)	1000	910		1	91	3.3	70-130	20	08/11/2012 1544

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		101	70-130

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91161-001
Batch: 91161
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	0.20	ug/L	08/11/2012 1655
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	08/11/2012 1655
Ethylbenzene	ND		1	5.0	1.7	ug/L	08/11/2012 1655
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/11/2012 1655
Naphthalene	ND		1	5.0	1.7	ug/L	08/11/2012 1655
Toluene	ND		1	5.0	1.7	ug/L	08/11/2012 1655
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/11/2012 1655

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		95	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91161-002
Batch: 91161
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	48		1	97	70-130	08/11/2012 1521
1,2-Dichloroethane	50	46		1	93	70-130	08/11/2012 1521
Ethylbenzene	50	50		1	99	70-130	08/11/2012 1521
Methyl tertiary butyl ether (MTBE)	50	49		1	98	70-130	08/11/2012 1521
Naphthalene	50	43		1	87	70-130	08/11/2012 1521
Toluene	50	49		1	98	70-130	08/11/2012 1521
Xylenes (total)	100	98		1	98	70-130	08/11/2012 1521

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		100	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91161-003
Batch: 91161
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	49		1	97	0.52	70-130	20	08/11/2012 1544
1,2-Dichloroethane	50	47		1	93	0.93	70-130	20	08/11/2012 1544
Ethylbenzene	50	50		1	100	0.42	70-130	20	08/11/2012 1544
Methyl tertiary butyl ether (MTBE)	50	51		1	102	3.9	70-130	20	08/11/2012 1544
Naphthalene	50	43		1	86	1.1	70-130	20	08/11/2012 1544
Toluene	50	49		1	99	1.3	70-130	20	08/11/2012 1544
Xylenes (total)	100	98		1	98	0.46	70-130	20	08/11/2012 1544

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91165-001
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/10/2012 1843
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	08/10/2012 1843
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/10/2012 1843
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	08/10/2012 1843
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/10/2012 1843
Ethanol	ND		1	1000	33	ug/L	08/10/2012 1843
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/10/2012 1843
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/10/2012 1843

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		97	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91165-002
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	1000		1	102	70-130	08/10/2012 1713
tert-Amyl methyl ether (TAME)	50	51		1	102	70-130	08/10/2012 1713
tert-Butyl formate (TBF)	250	260		1	103	70-130	08/10/2012 1713
Diisopropyl ether (IPE)	50	54		1	107	70-130	08/10/2012 1713
3,3-Dimethyl-1-butanol	1000	1100		1	110	70-130	08/10/2012 1713
Ethanol	5000	5900		1	117	70-130	08/10/2012 1713
Ethyl-tert-butyl ether (ETBE)	50	51		1	102	70-130	08/10/2012 1713
tert-butyl alcohol (TBA)	1000	1000		1	100	70-130	08/10/2012 1713

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91165-003
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	1000		1	102	0.34	70-130	20	08/10/2012 1736
tert-Amyl methyl ether (TAME)	50	50		1	100	1.6	70-130	20	08/10/2012 1736
tert-Butyl formate (TBF)	250	260		1	103	0.36	70-130	20	08/10/2012 1736
Diisopropyl ether (IPE)	50	54		1	108	0.68	70-130	20	08/10/2012 1736
3,3-Dimethyl-1-butanol	1000	1100		1	112	1.5	70-130	20	08/10/2012 1736
Ethanol	5000	5900		1	119	1.5	70-130	20	08/10/2012 1736
Ethyl-tert-butyl ether (ETBE)	50	51		1	102	0.70	70-130	20	08/10/2012 1736
tert-butyl alcohol (TBA)	1000	1000		1	100	0.33	70-130	20	08/10/2012 1736

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		93	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS - Duplicate

Sample ID: NH03025-011DU
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Result (ug/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
Diisopropyl ether (IPE)	ND	ND		40	0.00	20	08/10/2012 2348
Ethanol	ND	ND		40	0.00	20	08/10/2012 2348
3,3-Dimethyl-1-butanol	ND	ND		40	0.00	20	08/10/2012 2348
Ethyl-tert-butyl ether (ETBE)	ND	ND		40	0.00	20	08/10/2012 2348
tert-Amyl alcohol (TAA)	470	460	J	40	2.0	20	08/10/2012 2348
tert-Amyl methyl ether (TAME)	ND	ND		40	0.00	20	08/10/2012 2348
tert-butyl alcohol (TBA)	ND	ND		40	0.00	20	08/10/2012 2348
tert-Butyl formate (TBF)	ND	ND		40	0.00	20	08/10/2012 2348

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		91	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: NH03025-011MS
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Diisopropyl ether (IPE)	ND	2000	2200		40	111	70-130	08/11/2012 0010
Ethanol	ND	200000	140000		40	71	70-130	08/11/2012 0010
3,3-Dimethyl-1-butanol	ND	40000	33000		40	84	70-130	08/11/2012 0010
Ethyl-tert-butyl ether (ETBE)	ND	2000	2100		40	104	70-130	08/11/2012 0010
tert-Amyl alcohol (TAA)	470	40000	32000		40	79	70-130	08/11/2012 0010
tert-Amyl methyl ether (TAME)	ND	2000	2000		40	102	70-130	08/11/2012 0010
tert-butyl alcohol (TBA)	ND	40000	31000		40	78	70-130	08/11/2012 0010
tert-Butyl formate (TBF)	ND	10000	8700		40	87	70-130	08/11/2012 0010

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		100	70-130

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91165-001
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	0.20	ug/L	08/10/2012 1843
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	08/10/2012 1843
Ethylbenzene	ND		1	5.0	1.7	ug/L	08/10/2012 1843
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/10/2012 1843
Naphthalene	ND		1	5.0	1.7	ug/L	08/10/2012 1843
Toluene	ND		1	5.0	1.7	ug/L	08/10/2012 1843
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/10/2012 1843

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		97	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91165-002
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	53		1	106	70-130	08/10/2012 1713
1,2-Dichloroethane	50	46		1	93	70-130	08/10/2012 1713
Ethylbenzene	50	53		1	107	70-130	08/10/2012 1713
Methyl tertiary butyl ether (MTBE)	50	51		1	102	70-130	08/10/2012 1713
Naphthalene	50	51		1	103	70-130	08/10/2012 1713
Toluene	50	52		1	103	70-130	08/10/2012 1713
Xylenes (total)	100	110		1	106	70-130	08/10/2012 1713

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		100	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91165-003
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	53		1	105	0.47	70-130	20	08/10/2012 1736
1,2-Dichloroethane	50	47		1	93	0.76	70-130	20	08/10/2012 1736
Ethylbenzene	50	54		1	108	1.4	70-130	20	08/10/2012 1736
Methyl tertiary butyl ether (MTBE)	50	51		1	101	0.84	70-130	20	08/10/2012 1736
Naphthalene	50	53		1	106	3.3	70-130	20	08/10/2012 1736
Toluene	50	52		1	103	0.17	70-130	20	08/10/2012 1736
Xylenes (total)	100	110		1	107	0.73	70-130	20	08/10/2012 1736

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		93	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - Duplicate

Sample ID: NH03025-011DU
Batch: 91165
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Result (ug/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
Benzene	980	920		40	6.0	20	08/10/2012 2348
1,2-Dichloroethane	ND	ND		40	0.00	20	08/10/2012 2348
Ethylbenzene	150	140	J	40	8.1	20	08/10/2012 2348
Methyl tertiary butyl ether (MTBE)	31	30	J	40	4.3	20	08/10/2012 2348
Naphthalene	ND	ND		40	0.00	20	08/10/2012 2348
Toluene	1900	1800		40	5.8	20	08/10/2012 2348
Xylenes (total)	1100	1000		40	6.3	20	08/10/2012 2348

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		97	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS - MS

Sample ID: NH03025-011MS
Batch: 91165
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	980	2000	3100		40	107	70-130	08/11/2012 0010
1,2-Dichloroethane	ND	2000	2000		40	100	70-130	08/11/2012 0010
Ethylbenzene	150	2000	2400		40	112	70-130	08/11/2012 0010
Methyl tertiary butyl ether (MTBE)	31	2000	2100		40	102	70-130	08/11/2012 0010
Naphthalene	ND	2000	1900		40	92	70-130	08/11/2012 0010
Toluene	1900	2000	4000		40	107	70-130	08/11/2012 0010
Xylenes (total)	1100	4000	5500		40	110	70-130	08/11/2012 0010

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91297-001
Batch: 91297
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/13/2012 1712
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	08/13/2012 1712
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/13/2012 1712
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	08/13/2012 1712
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/13/2012 1712
Ethanol	ND		1	1000	33	ug/L	08/13/2012 1712
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/13/2012 1712
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/13/2012 1712

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		102	70-130
Toluene-d8		104	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91297-002
Batch: 91297
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	930		1	93	70-130	08/13/2012 1144
tert-Amyl methyl ether (TAME)	50	55		1	109	70-130	08/13/2012 1144
tert-Butyl formate (TBF)	250	320		1	127	70-130	08/13/2012 1144
Diisopropyl ether (IPE)	50	51		1	102	70-130	08/13/2012 1144
3,3-Dimethyl-1-butanol	1000	930		1	93	70-130	08/13/2012 1144
Ethanol	5000	5500		1	109	70-130	08/13/2012 1144
Ethyl-tert-butyl ether (ETBE)	50	53		1	105	70-130	08/13/2012 1144
tert-butyl alcohol (TBA)	1000	910		1	91	70-130	08/13/2012 1144

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		92	70-130
1,2-Dichloroethane-d4		112	70-130
Toluene-d8		107	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91297-003
Batch: 91297
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	890		1	89	4.5	70-130	20	08/13/2012 1208
tert-Amyl methyl ether (TAME)	50	54		1	108	0.76	70-130	20	08/13/2012 1208
tert-Butyl formate (TBF)	250	310		1	126	1.2	70-130	20	08/13/2012 1208
Diisopropyl ether (IPE)	50	49		1	98	3.5	70-130	20	08/13/2012 1208
3,3-Dimethyl-1-butanol	1000	900		1	90	3.1	70-130	20	08/13/2012 1208
Ethanol	5000	5100		1	102	7.0	70-130	20	08/13/2012 1208
Ethyl-tert-butyl ether (ETBE)	50	52		1	103	2.0	70-130	20	08/13/2012 1208
tert-butyl alcohol (TBA)	1000	890		1	89	2.1	70-130	20	08/13/2012 1208

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		93	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		104	70-130

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91297-001
Batch: 91297
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	0.20	ug/L	08/13/2012 1712
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	08/13/2012 1712
Ethylbenzene	ND		1	5.0	1.7	ug/L	08/13/2012 1712
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/13/2012 1712
Naphthalene	ND		1	5.0	1.7	ug/L	08/13/2012 1712
Toluene	ND		1	5.0	1.7	ug/L	08/13/2012 1712
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/13/2012 1712

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		102	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91297-002
Batch: 91297
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	52		1	104	70-130	08/13/2012 1144
1,2-Dichloroethane	50	54		1	109	70-130	08/13/2012 1144
Ethylbenzene	50	55		1	110	70-130	08/13/2012 1144
Methyl tertiary butyl ether (MTBE)	50	53		1	106	70-130	08/13/2012 1144
Naphthalene	50	54		1	107	70-130	08/13/2012 1144
Toluene	50	58		1	116	70-130	08/13/2012 1144
Xylenes (total)	100	110		1	110	70-130	08/13/2012 1144

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		92	70-130
1,2-Dichloroethane-d4		112	70-130
Toluene-d8		107	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91297-003
Batch: 91297
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	51		1	102	1.9	70-130	20	08/13/2012 1208
1,2-Dichloroethane	50	53		1	106	2.2	70-130	20	08/13/2012 1208
Ethylbenzene	50	55		1	111	1.0	70-130	20	08/13/2012 1208
Methyl tertiary butyl ether (MTBE)	50	53		1	106	0.25	70-130	20	08/13/2012 1208
Naphthalene	50	49		1	97	9.6	70-130	20	08/13/2012 1208
Toluene	50	57		1	114	1.9	70-130	20	08/13/2012 1208
Xylenes (total)	100	110		1	111	0.87	70-130	20	08/13/2012 1208

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		93	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91344-001
Batch: 91344
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/14/2012 0946

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		116	70-130
Toluene-d8		104	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91344-002
Batch: 91344
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Xylenes (total)	100	110		1	106	70-130	08/14/2012 0838

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		112	70-130
Toluene-d8		108	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MB

Sample ID: NQ90751-001 **Matrix:** Aqueous
Batch: 90751 **Prep Method:** 8011
Analytical Method: 8011 **Prep Date:** 08/06/2012 1040

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	08/08/2012 0520

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		104	57-137

EDB & DBCP by Microextraction - LCS

Sample ID: NQ90751-002 **Matrix:** Aqueous
Batch: 90751 **Prep Method:** 8011
Analytical Method: 8011 **Prep Date:** 08/06/2012 1040

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.25		1	100	60-140	08/08/2012 0541

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		103	57-137

EDB & DBCP by Microextraction - MS

Sample ID: NH03025-011MS **Matrix:** Aqueous
Batch: 90751 **Prep Method:** 8011
Analytical Method: 8011 **Prep Date:** 08/06/2012 1040

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	1.4	0.24	1.6		1	105	60-140	08/08/2012 1032

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		112	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MSD

Sample ID: NH03025-011MD
Batch: 90751
Analytical Method: 8011
Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/06/2012 1040

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,2-Dibromoethane (EDB)	1.4	0.24	1.7		1	136	4.7	60-140	20	08/08/2012 1053

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		121	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

ICP-MS - MB

Sample ID: NQ90752-001 **Matrix:** Aqueous
Batch: 90752 **Prep Method:** 3005A
Analytical Method: 6020A **Prep Date:** 08/07/2012 908

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Lead	0.054	J	1	1.0	0.047	ug/L	08/09/2012 0432

ICP-MS - LCS

Sample ID: NQ90752-002 **Matrix:** Aqueous
Batch: 90752 **Prep Method:** 3005A
Analytical Method: 6020A **Prep Date:** 08/07/2012 908

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Lead	100	100		1	103	80-120	08/09/2012 0441

ICP-MS - LCSD

Sample ID: NQ90752-003 **Matrix:** Aqueous
Batch: 90752 **Prep Method:** 3005A
Analytical Method: 6020A **Prep Date:** 08/07/2012 908

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Lead	100	100		1	101	1.7	80-120	20	08/09/2012 0451

ICP-MS - MS

Sample ID: NH03025-001MS **Matrix:** Aqueous
Batch: 90752 **Prep Method:** 3005A
Analytical Method: 6020A **Prep Date:** 08/07/2012 908

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Lead	43	100	140		1	102	70-130	08/09/2012 0510

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

ICP-MS - MSD

Sample ID: NH03025-001MD
Batch: 90752
Analytical Method: 6020A
Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/07/2012 908

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Lead	43	100	140		1	100	0.83	70-130	20	08/09/2012 0519

ICP-MS - MS

Sample ID: NH03025-002MS
Batch: 90752
Analytical Method: 6020A
Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/07/2012 908

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Lead	130	100	230		1	104	70-130	08/09/2012 0547

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

SHEALY

Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number 14591

Client: SCDHEC	Report to Contact: D. THOMA	Sampler (Printed Name): BRIAN OWEN	Quote No.
Address: 2600 Bull St.	Telephone No. / Fax No. / Email: 803-896-6041 / 803 896 6243	Waybill No.	Page 1 of 3
City: COLUMBIA State: SC Zip Code: 29201	Preservative: 1. Unpres 4. HNO3 7. NaOH 2. Na2S2O3/NaA 5. HCl 3. H2SO4 6. Na Bis		Number of Containers
Project Name: PIRCHATOR COVER CAP			Bottle (See Instructions on back)
Project Number: 05878/43554	P.O. Number: 4100008859		Preservative
			Lot No. NH03025

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	Grab/Composite	Matrix: GW	DW	WW	S	Other	Analysis	Brex/Napty/Alkal	8-oxy/VOA EPA	EDB	Total Pb	Remarks / Cooler ID
MW-1	8-3	13:19	G							X	X	X	X	ODOR
MW-2	8-3	13:35	G							X	X	X	X	ODOR
MW-4	—	—	—	—	—	—	—	—		—	—	—	—	OBSTRUCTED
MW-5	—	—	—	—	—	—	—	—		—	—	—	—	PRODUCT
MW-7	8-3	11:05	G							X	X	X	X	NO ODOR
MW-8		10:54												ODOR
MW-9		11:25												NO ODOR
MW-10	X	11:41	X							X	X	X	X	NO ODOR
MW-11	—	—	—	—	—	—	—	—		—	—	—	—	OBSTRUCTED

Turn Around Time Required (Prior lab approval required for expedited TAT): ☐ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification: ☐ Non-Hazard ☐ Hammatic ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: [signature]	8-3-12	1405	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory Received by: [signature]	8-3-12	NU5

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY: Received on Ice (Check) ☐ Yes ☐ No ☐ Not Pack — Receipt Temp. 4.8 °C — Temp. Blank ☐ Y ☐ N

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www.shealylab.com

SHEALY

Chain of Custody Record

Number 14592

Client: SCDHEC	Report to Contact: D. THOMA	Sampler (Printed Name): BRIAN OWEN	Quote No.
Address: 2000 Bull St.	Telephone No. / Fax No. / Email: 803-896-6241	Waybill No.	Page 2 of 3
City: Columbia State: SC Zip Code: 29201	Preservative: 1. Unpres 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCl 6. Na Thio. 7. NaOH		Number of Containers
Project Name: Purolumne Cracker Corp.			Bottle (See instructions on back)
Project Number: 05878 / 45554	P.O. Number: 4100098529		Preservative
			Lot No. NH03625

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	Grab / Composite	Matrix: SW	DW	WW	S	Other	Analysis	Btex, Naph, MTBE	1,2,3,4,8,0,X,Y, EDB	EDB	Total Pb	Remarks / Cooler ID
MW-12	8-3	12:14	G							X	X	X	X	No Odor
MW-13	8-3	12:03	G							X	X	X	X	No Odor
MW-15	—	—	—							—	—	—	—	Product
MW-16	8-3	11:54	G							X	X	X	X	No Odor
MW-18		12:48												No Odor
~~[illegible]~~ RW-1		9:40												Odor
RW-2		9:50												
RW-3		10:05												X
PW-1		10:37												No Odor
PW-2	X	11:18	X							X	X	X	X	No Odor

Turn Around Time Required (Prior to approval required for expedited TAT): ☐ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by / Sampler: [signature]	8-3-12	14:05	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory Received by: [signature]	8-3-12	14:05

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY: Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack — Receipt Time: 4:48 — Temp. Blank ☐ Y / ☐ N

SHEALY

Chain of Custody Record

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Number 21841

Client: SCDHEC	Report to Contact: D. Thoma	Sampler (Printed Name): Brian Owen	Quote No
Address: 2600 Bull St.	Telephone No. / Fax No. / Email: 803-896-6741	Waybill No	Page 3 of 3
City: Columbia State: SC Zip Code: 29201	Preservative: 1. Unpres 2. NaOH/ZnA 3. H2SO4 4. HNO3 5. HCl 6. Na2S2O3 7. NaOH		Number of Containers
Project Name: Purolator Courier Corp			Bottle (See Instructions on back)
Project Number: 05878/43554	P.O. Number: 4600088529		Preservative
			Lot No. NH03025

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	G Grab D=Composite	Matrix GW	DW	WW	S	Other	Analysis	Btex/Naphth, MTBE	1,2,3,4,8,OXY, EPA	EDB	Total Pb	Remarks / Cooler ID
Field Blank	8-3	1340	G							X	X	X		—
TRIP Blank		1340								X	X			—
MW-1 Duplicate	X	1319	X							X	X	X	X	ODOR

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	QC Requirements (Specify)	Possible Hazard Identification
☐ Standard ☐ Rush (Please Specify)	☐ Return to Client ☐ Disposal by Lab		☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by Sampler: [signature]	8-3-12	1405	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory Received by: [signature]	8/3/12	1405

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Check) ☐ Yes ☐ No ☐ Ice Pack — Receipt Temp. 4.8 °C — Temp. Blank ☐ Y / N

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
Document Number: [illegible]
Revision Number: [illegible]

Page 1 of 1
Replaces Date: [illegible]
Effective Date: [illegible]

Sample Receipt Checklist (SRC)

Client: SCDHEC Cooler inspected by/date: [illegible] 8/3/12 Lot #: NA03075

Means of receipt: ☐ SESI ☑ Client ☐ UPS ☐ FedEx ☐ Airborne Exp ☐ Other

Yes ☐	No ☑		1. Were custody seals present on the cooler?
Yes ☐	No ☐		2. If custody seals were present, were they intact and unbroken?

Cooler ID/temperature upon receipt 4.8 °C / °C / °C / °C
Method: ☐ Temperature Blank ☑ Against Bottles Trip Blank
Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None

If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.

Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: . (For coolers received via commercial courier, PMs are to be notified immediately.
Yes ☐	No ☐	NA ☑	4. Is the commercial courier's packing slip attached to this form?
Yes ☑	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☐	NA ☑	5a Were samples relinquished by client to commercial courier?
Yes ☑	No ☐		6. Were sample IDs listed?
Yes ☑	No ☐		7. Was collection date & time listed?
Yes ☑	No ☐		8. Were tests to be performed listed on the COC?
Yes ☑	No ☐		9. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐		10. Did all container label information (ID, date, time) agree with COC?
Yes ☑	No ☐		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		12. Was adequate sample volume available?
Yes ☑	No ☐		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		14. Were any samples containers missing?
Yes ☐	No ☑		15. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes ☑	No ☐	NA ☐	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	20. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☑	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc.) correctly transcribed from the COC into the comment section in LIMS?

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H-SO4,HNO3,HCl,NaOH) with the SR # (number)

Sample(s) _____ were received with bubbles >6 mm in diameter.

Sample(s) _____ were received with TRC >0.2 mg/L for NH3, TKN/cyanide/BNA/pest/PCB/herb.

Corrective Action taken, if necessary:

Was client notified: Yes ☐ No ☐ Did client respond: Yes ☐ No ☐

SESI employee: _____ Date of response: _____

Comments: _____

SHEALY ENVIRONMENTAL SERVICES, INC.

Report of Analysis

Midlands Environmental Consultants, Inc.
235 Dooley Rd
Lexington, SC 29073
Attention: Bryan Shane

Project Name: **Purolator Courier Corp.**

Project Number: **12-3929**

Lot Number: **NH03025**
Date Completed: **08/14/2012**
Date Revised: **08/17/2012**

Kelly M. Maberry
Project Manager

This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

The following non-paginated documents are considered part of this report: Chain of Custody Record and Sample Receipt Checklist.

Case Narrative
Midlands Environmental Consultants, Inc.
Lot Number: NH03025

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved NELAC standards, the Shealy Environmental Services, Inc. ("Shealy") Quality Assurance Management Plan (QAMP), standard operating procedures (SOPs), and Shealy policies. Any exceptions to the NELAC standards, the QAMP, SOPs or policies are qualified on the results page or discussed below.

If you have any questions regarding this report please contact the Shealy Project Manager listed on the cover page.

Inorganic Metals
The method blank associated with samples -001 through -015 and -018 had lead detected at a concentration that was above ½ the PQL. All samples associated with this method blank have detections for lead at least ten times greater than the detection in the blank. The samples have been flagged with a "B".

EDB/DBCP
Samples -001, -003, -006 and -015 had a layer of soil in the sample vials.

Revision 08/17/12
Client was changed to Midlands Environmental Consultants.

Sample Summary

Midlands Environmental Consultants, Inc.

Lot Number: NH03025

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-1	Aqueous	08/03/2012 1319	08/03/2012
002	MW-2	Aqueous	08/03/2012 1335	08/03/2012
003	MW-7	Aqueous	08/03/2012 1105	08/03/2012
004	MW-8	Aqueous	08/03/2012 1054	08/03/2012
005	MW-9	Aqueous	08/03/2012 1125	08/03/2012
006	MW-10	Aqueous	08/03/2012 1141	08/03/2012
007	MW-12	Aqueous	08/03/2012 1214	08/03/2012
008	MW-13	Aqueous	08/03/2012 1203	08/03/2012
009	MW-16	Aqueous	08/03/2012 1154	08/03/2012
010	MW-18	Aqueous	08/03/2012 1248	08/03/2012
011	RW-1	Aqueous	08/03/2012 0940	08/03/2012
012	RW-2	Aqueous	08/03/2012 0950	08/03/2012
013	RW-3	Aqueous	08/03/2012 1005	08/03/2012
014	PW-1	Aqueous	08/03/2012 1037	08/03/2012
015	PW-2	Aqueous	08/03/2012 1118	08/03/2012
016	Field Blank	Aqueous	08/03/2012 1340	08/03/2012
017	Trip Blank	Aqueous	08/03/2012 1340	08/03/2012
018	MW-1 Duplicate	Aqueous	08/03/2012 1319	08/03/2012

(18 samples)

Executive Summary

Midlands Environmental Consultants, Inc.

Lot Number: NH03025

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-1	Aqueous	Lead	6020A	43	B	ug/L	7
002	MW-2	Aqueous	Benzene	8260B	360		ug/L	8
002	MW-2	Aqueous	Ethylbenzene	8260B	130		ug/L	8
002	MW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	26		ug/L	8
002	MW-2	Aqueous	Naphthalene	8260B	11	J	ug/L	8
002	MW-2	Aqueous	Toluene	8260B	21	J	ug/L	8
002	MW-2	Aqueous	Xylenes (total)	8260B	200		ug/L	8
002	MW-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	68	J	ug/L	8
002	MW-2	Aqueous	Lead	6020A	130	B	ug/L	9
003	MW-7	Aqueous	Benzene	8260B	27		ug/L	10
003	MW-7	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	2.0	J	ug/L	10
003	MW-7	Aqueous	Toluene	8260B	4.7	J	ug/L	10
003	MW-7	Aqueous	Xylenes (total)	8260B	14		ug/L	10
003	MW-7	Aqueous	tert-Amyl alcohol (TAA)	8260B	24	J	ug/L	10
003	MW-7	Aqueous	Lead	6020A	27	B	ug/L	11
004	MW-8	Aqueous	Benzene	8260B	330		ug/L	12
004	MW-8	Aqueous	1,2-Dichloroethane	8260B	7.9	J	ug/L	12
004	MW-8	Aqueous	Ethylbenzene	8260B	22	J	ug/L	12
004	MW-8	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	3.3	J	ug/L	12
004	MW-8	Aqueous	Naphthalene	8260B	64		ug/L	12
004	MW-8	Aqueous	Toluene	8260B	1400		ug/L	12
004	MW-8	Aqueous	Xylenes (total)	8260B	5100		ug/L	12
004	MW-8	Aqueous	tert-Amyl alcohol (TAA)	8260B	530		ug/L	12
004	MW-8	Aqueous	tert-butyl alcohol (TBA)	8260B	47	J	ug/L	12
004	MW-8	Aqueous	1,2-Dibromoethane (EDB)	8011	0.13		ug/L	13
004	MW-8	Aqueous	Lead	6020A	22	B	ug/L	13
005	MW-9	Aqueous	Benzene	8260B	0.20	J	ug/L	14
005	MW-9	Aqueous	Toluene	8260B	2.5	J	ug/L	14
005	MW-9	Aqueous	Lead	6020A	26	B	ug/L	15
006	MW-10	Aqueous	Lead	6020A	26	B	ug/L	17
007	MW-12	Aqueous	Benzene	8260B	0.22	J	ug/L	18
007	MW-12	Aqueous	Toluene	8260B	1.7	J	ug/L	18
007	MW-12	Aqueous	Lead	6020A	1.7	B	ug/L	19
008	MW-13	Aqueous	Benzene	8260B	5.3		ug/L	20
008	MW-13	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	0.69	J	ug/L	20
008	MW-13	Aqueous	Lead	6020A	6.8	B	ug/L	21
009	MW-16	Aqueous	Benzene	8260B	27		ug/L	22
009	MW-16	Aqueous	Ethylbenzene	8260B	88		ug/L	22
009	MW-16	Aqueous	Naphthalene	8260B	37		ug/L	22
009	MW-16	Aqueous	Toluene	8260B	26		ug/L	22
009	MW-16	Aqueous	Xylenes (total)	8260B	50		ug/L	22
009	MW-16	Aqueous	tert-Amyl alcohol (TAA)	8260B	28	J	ug/L	22
009	MW-16	Aqueous	Lead	6020A	13	B	ug/L	23
010	MW-18	Aqueous	Lead	6020A	9.8	B	ug/L	25
011	RW-1	Aqueous	Benzene	8260B	980		ug/L	26

Executive Summary (Continued)

Lot Number: NH03025

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
011	RW-1	Aqueous	Ethylbenzene	8260B	150	J	ug/L	26
011	RW-1	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	31	J	ug/L	26
011	RW-1	Aqueous	Toluene	8260B	1900		ug/L	26
011	RW-1	Aqueous	Xylenes (total)	8260B	1100		ug/L	26
011	RW-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	470	J	ug/L	26
011	RW-1	Aqueous	1,2-Dibromoethane (EDB)	8011	1.4		ug/L	27
011	RW-1	Aqueous	Lead	6020A	49	B	ug/L	27
012	RW-2	Aqueous	Benzene	8260B	600		ug/L	28
012	RW-2	Aqueous	Ethylbenzene	8260B	140		ug/L	28
012	RW-2	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	39	J	ug/L	28
012	RW-2	Aqueous	Naphthalene	8260B	65	J	ug/L	28
012	RW-2	Aqueous	Toluene	8260B	750		ug/L	28
012	RW-2	Aqueous	Xylenes (total)	8260B	570		ug/L	28
012	RW-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	490	J	ug/L	28
012	RW-2	Aqueous	1,2-Dibromoethane (EDB)	8011	0.25		ug/L	29
012	RW-2	Aqueous	Lead	6020A	1.1	B	ug/L	29
013	RW-3	Aqueous	Benzene	8260B	1400		ug/L	30
013	RW-3	Aqueous	Ethylbenzene	8260B	430		ug/L	30
013	RW-3	Aqueous	Methyl tertiary butyl ether (MTBE)	8260B	63	J	ug/L	30
013	RW-3	Aqueous	Naphthalene	8260B	160	J	ug/L	30
013	RW-3	Aqueous	Toluene	8260B	2500		ug/L	30
013	RW-3	Aqueous	Xylenes (total)	8260B	2100		ug/L	30
013	RW-3	Aqueous	1,2-Dibromoethane (EDB)	8011	1.8		ug/L	31
013	RW-3	Aqueous	Lead	6020A	6.7	B	ug/L	31
014	PW-1	Aqueous	Lead	6020A	2.4	B	ug/L	33
015	PW-2	Aqueous	Lead	6020A	20	B	ug/L	35
018	MW-1 Duplicate	Aqueous	Lead	6020A	56	B	ug/L	40

(72 detections)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-1**
Date Sampled: **08/03/2012 1319**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-001**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2026	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		106	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		96	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2026	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		106	70-130
Toluene-d8		96	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0603	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-001**

Description: **MW-1** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1319**

Date Received: **08/03/2012**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0603	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		132	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0500	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**43**	**B**	**1.0**	**0.047**	ug/L	1

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-002**

Description: **MW-2** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1335**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	08/10/2012 2218	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**360**		**25**	**1.0**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		25	1.5	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**130**		**25**	**8.5**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**26**		**25**	**2.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**11**	**J**	**25**	**8.5**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**21**	**J**	**25**	**8.5**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**200**		**25**	**8.5**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		108	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		101	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	08/10/2012 2218	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		50	2.0	ug/L	1
Ethanol	64-17-5	8260B	ND		5000	170	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		500	5.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		500	1.0	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**68**	**J**	**500**	**34**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	1.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		500	34	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		101	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0624	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-002**

Description: **MW-2** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1335**

Date Received: **08/03/2012**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0624	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		121	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0538	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**130**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-003**

Description: **MW-7** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1105**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2049	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**27**		**5.0**	**0.20**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**2.0**	**J**	**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	**108-88-3**	**8260B**	**4.7**	**J**	**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**14**		**5.0**	**1.7**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		108	70-130
Bromofluorobenzene		98	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2049	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**24**	**J**	**100**	**6.7**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0645	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-7**
Date Sampled: **08/03/2012 1105**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-003**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0645	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		92	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0557	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**27**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-004**

Description: **MW-8** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1054**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	08/10/2012 2241	JJG		91165
2	5030B	8260B	40	08/14/2012 1056	AAC		91344

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**330**		**25**	**1.0**	**ug/L**	**1**
1,2-Dichloroethane	**107-06-2**	**8260B**	**7.9**	**J**	**25**	**1.5**	**ug/L**	**1**
Ethylbenzene	**100-41-4**	**8260B**	**22**	**J**	**25**	**8.5**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**3.3**	**J**	**25**	**2.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**64**		**25**	**8.5**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**1400**		**25**	**8.5**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**5100**		**200**	**68**	**ug/L**	**2**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		108	70-130		110	70-130
Bromofluorobenzene		106	70-130		94	70-130
Toluene-d8		102	70-130		109	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	5	08/10/2012 2241	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		50	2.0	ug/L	1
Ethanol	64-17-5	8260B	ND		5000	170	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		500	5.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		500	1.0	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**530**		**500**	**34**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	1.0	ug/L	1
tert-butyl alcohol (TBA)	**75-65-0**	**8260B**	**47**	**J**	**500**	**34**	**ug/L**	**1**
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	5.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		106	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		102	70-130

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-004**

Description: **MW-8** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1054**

Date Received: **08/03/2012**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0707	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**0.13**		**0.020**	**0.020**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		106	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0625	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**22**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-005**

Description: **MW-9** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1125**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2111	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**0.20**	**J**	**5.0**	**0.20**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	**108-88-3**	**8260B**	**2.5**	**J**	**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		107	70-130
Bromofluorobenzene		101	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2111	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		101	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0728	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-9**
Date Sampled: **08/03/2012 1125**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-005**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0728	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		94	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0635	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**26**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-006**

Description: **MW-10** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1141**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2134	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		107	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		97	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2134	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		97	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0750	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-006**

Description: **MW-10** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1141**

Date Received: **08/03/2012**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0750	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		101	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0644	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**26**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-007**

Description: **MW-12** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1214**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2156	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**0.22**	**J**	**5.0**	**0.20**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	**108-88-3**	**8260B**	**1.7**	**J**	**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		107	70-130
Bromofluorobenzene		101	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2156	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		101	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0811	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-12**
Date Sampled: **08/03/2012 1214**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-007**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0811	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		99	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0653	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**1.7**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-008**

Description: **MW-13** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1203**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1828	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**5.3**		**5.0**	**0.20**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**0.69**	**J**	**5.0**	**0.40**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	70-130
Bromofluorobenzene		103	70-130
Toluene-d8		96	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1828	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		96	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0832	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-13**
Date Sampled: **08/03/2012 1203**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-008**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0832	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		104	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0703	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**6.8**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-16**
Date Sampled: **08/03/2012 1154**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-009**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1852	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**27**		**5.0**	**0.20**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**88**		**5.0**	**1.7**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	**91-20-3**	**8260B**	**37**		**5.0**	**1.7**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**26**		**5.0**	**1.7**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**50**		**5.0**	**1.7**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	70-130
Bromofluorobenzene		103	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1852	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**28**	**J**	**100**	**6.7**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		98	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0854	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-16**
Date Sampled: **08/03/2012 1154**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-009**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0854	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		128	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0712	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**13**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-010**

Description: **MW-18** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1248**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1916	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		103	70-130
Toluene-d8		96	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 1916	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		96	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0915	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-18**
Date Sampled: **08/03/2012 1248**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-010**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 0915	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.020	0.020	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		84	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0722	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**9.8**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-011**

Description: **RW-1** Matrix: **Aqueous**

Date Sampled: **08/03/2012 0940**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	40	08/10/2012 2325	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**980**		**200**	**8.0**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		200	12	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**150**	**J**	**200**	**68**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**31**	**J**	**200**	**16**	**ug/L**	**1**
Naphthalene	91-20-3	8260B	ND		200	68	ug/L	1
Toluene	**108-88-3**	**8260B**	**1900**		**200**	**68**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**1100**		**200**	**68**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		96	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	40	08/10/2012 2325	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		400	16	ug/L	1
Ethanol	64-17-5	8260B	ND		40000	1300	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		4000	40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		4000	8.0	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**470**	**J**	**4000**	**270**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		400	8.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		4000	270	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		4000	40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		91	70-130
Toluene-d8		98	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	2	08/09/2012 1048	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **RW-1**
Date Sampled: **08/03/2012 0940**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-011**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	2	08/09/2012 1048	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**1.4**		**0.038**	**0.038**	**ug/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		125	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0731	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**49**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **RW-2**
Date Sampled: **08/03/2012 0950**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-012**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	20	08/11/2012 1939	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**600**		**100**	**4.0**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		100	6.0	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**140**		**100**	**34**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**39**	**J**	**100**	**8.0**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**65**	**J**	**100**	**34**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**750**		**100**	**34**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**570**		**100**	**34**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	20	08/11/2012 1939	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		200	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		20000	660	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		2000	20	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		2000	4.0	ug/L	1
tert-Amyl alcohol (TAA)	**75-85-4**	**8260B**	**490**	**J**	**2000**	**130**	**ug/L**	**1**
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		200	4.0	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		2000	130	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		2000	20	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1115	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
* = Reportable result (only when report all runs)
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-012**

Description: **RW-2** Matrix: **Aqueous**

Date Sampled: **08/03/2012 0950**

Date Received: **08/03/2012**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1115	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**0.25**		**0.019**	**0.019**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		111	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0741	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**1.1**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.** Laboratory ID: **NH03025-013**

Description: **RW-3** Matrix: **Aqueous**

Date Sampled: **08/03/2012 1005**

Date Received: **08/03/2012**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	50	08/11/2012 2003	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	**71-43-2**	**8260B**	**1400**		**250**	**10**	**ug/L**	**1**
1,2-Dichloroethane	107-06-2	8260B	ND		250	15	ug/L	1
Ethylbenzene	**100-41-4**	**8260B**	**430**		**250**	**85**	**ug/L**	**1**
Methyl tertiary butyl ether (MTBE)	**1634-04-4**	**8260B**	**63**	**J**	**250**	**20**	**ug/L**	**1**
Naphthalene	**91-20-3**	**8260B**	**160**	**J**	**250**	**85**	**ug/L**	**1**
Toluene	**108-88-3**	**8260B**	**2500**		**250**	**85**	**ug/L**	**1**
Xylenes (total)	**1330-20-7**	**8260B**	**2100**		**250**	**85**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		97	70-130
Bromofluorobenzene		105	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	50	08/11/2012 2003	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		500	20	ug/L	1
Ethanol	64-17-5	8260B	ND		50000	1700	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		5000	50	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		5000	10	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		5000	340	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		500	10	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		5000	340	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5000	50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		105	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		98	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	2	08/09/2012 1110	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
H = Out of holding time
ND = Not detected at or above the MDL
J = Estimated result < PQL and ≥ MDL
P = The RPD between two GC columns exceeds 40%
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **RW-3**
Date Sampled: **08/03/2012 1005**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-013**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	8011	8011	2	08/09/2012 1110	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	**106-93-4**	**8011**	**1.8**		**0.038**	**0.038**	**ug/L**	**2**

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		128	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0750	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**6.7**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **PW-1**
Date Sampled: **08/03/2012 1037**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-014**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 2027	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		104	70-130
Toluene-d8		96	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 2027	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		96	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1157	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **PW-1**
Date Sampled: **08/03/2012 1037**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-014**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1157	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		99	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0818	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**2.4**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
* = Reportable result (only when report all runs)
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria

Client: **Midlands Environmental Consultants, Inc.**
Description: **PW-2**
Date Sampled: **08/03/2012 1118**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-015**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	4	08/13/2012 1851	JJG		91297

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		20	0.80	ug/L	2
1,2-Dichloroethane	107-06-2	8260B	ND		20	1.2	ug/L	2
Ethylbenzene	100-41-4	8260B	ND		20	6.8	ug/L	2
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		20	1.6	ug/L	2
Naphthalene	91-20-3	8260B	ND		20	6.8	ug/L	2
Toluene	108-88-3	8260B	ND		20	6.8	ug/L	2
Xylenes (total)	1330-20-7	8260B	ND		20	6.8	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		99	70-130
Bromofluorobenzene		94	70-130
Toluene-d8		102	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
2	5030B	8260B	4	08/13/2012 1851	JJG		91297

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		40	1.6	ug/L	2
Ethanol	64-17-5	8260B	ND		4000	130	ug/L	2
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		400	4.0	ug/L	2
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		400	0.80	ug/L	2
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		400	27	ug/L	2
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		40	0.80	ug/L	2
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		400	27	ug/L	2
tert-Butyl formate (TBF)	762-75-4	8260B	ND		400	4.0	ug/L	2

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
Bromofluorobenzene		94	70-130
1,2-Dichloroethane-d4		99	70-130
Toluene-d8		102	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1219	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
* = Reportable result (only when report all runs)
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria

Client: **Midlands Environmental Consultants, Inc.**
Description: **PW-2**
Date Sampled: **08/03/2012 1118**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-015**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1219	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.021	0.021	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		82	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0828	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**20**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
* = Reportable result (only when report all runs)
H = Out of holding time
N = Recovery is out of criteria

Client: **Midlands Environmental Consultants, Inc.**
Description: **Field Blank**
Date Sampled: **08/03/2012 1340**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-016**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 1942	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		101	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 1942	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		98	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1240	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **Field Blank**
Date Sampled: **08/03/2012 1340**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-016**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1240	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		103	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL

E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
* = Reportable result (only when report all runs)

H = Out of holding time
N = Recovery is out of criteria

Client: **Midlands Environmental Consultants, Inc.**
Description: **Trip Blank**
Date Sampled: **08/03/2012 1340**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-017**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2004	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		103	70-130
Bromofluorobenzene		100	70-130
Toluene-d8		98	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/10/2012 2004	JJG		91165

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		100	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		98	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-1 Duplicate**
Date Sampled: **08/03/2012 1319**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-018**
Matrix: **Aqueous**

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 2113	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Benzene	71-43-2	8260B	ND		5.0	0.20	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.30	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	1.7	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1
Naphthalene	91-20-3	8260B	ND		5.0	1.7	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	1.7	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	1.7	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		102	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	08/11/2012 2113	DD		91161

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Diisopropyl ether (IPE)	108-20-3	8260B	ND		10	0.40	ug/L	1
Ethanol	64-17-5	8260B	ND		1000	33	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	1.0	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	0.20	ug/L	1
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		100	6.7	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.20	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	6.7	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		100	1.0	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		99	70-130

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1301	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

Client: **Midlands Environmental Consultants, Inc.**
Description: **MW-1 Duplicate**
Date Sampled: **08/03/2012 1319**
Date Received: **08/03/2012**

Laboratory ID: **NH03025-018**
Matrix: **Aqueous**

EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	08/08/2012 1301	AMB	08/06/2012 1040	90751

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	8011	ND		0.019	0.019	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		84	57-137

ICP-MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3005A	6020A	1	08/09/2012 0837	CDF	08/07/2012 0908	90752

Parameter	CAS Number	Analytical Method	Result	Q	PQL	MDL	Units	Run
Lead	**7439-92-1**	**6020A**	**56**	**B**	**1.0**	**0.047**	**ug/L**	**1**

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
B = Detected in the method blank
J = Estimated result < PQL and ≥ MDL
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
H = Out of holding time
N = Recovery is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"
* = Reportable result (only when report all runs)

QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91161-001
Batch: 91161
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/11/2012 1655
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	08/11/2012 1655
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/11/2012 1655
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	08/11/2012 1655
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/11/2012 1655
Ethanol	ND		1	1000	33	ug/L	08/11/2012 1655
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/11/2012 1655
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/11/2012 1655

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		95	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91161-002
Batch: 91161
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	880		1	88	70-130	08/11/2012 1521
tert-Amyl methyl ether (TAME)	50	50		1	99	70-130	08/11/2012 1521
tert-Butyl formate (TBF)	250	250		1	99	70-130	08/11/2012 1521
Diisopropyl ether (IPE)	50	50		1	100	70-130	08/11/2012 1521
3,3-Dimethyl-1-butanol	1000	860		1	86	70-130	08/11/2012 1521
Ethanol	5000	5000		1	100	70-130	08/11/2012 1521
Ethyl-tert-butyl ether (ETBE)	50	46		1	91	70-130	08/11/2012 1521
tert-butyl alcohol (TBA)	1000	880		1	88	70-130	08/11/2012 1521

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91161-003
Batch: 91161
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	910		1	91	3.0	70-130	20	08/11/2012 1544
tert-Amyl methyl ether (TAME)	50	52		1	104	4.2	70-130	20	08/11/2012 1544
tert-Butyl formate (TBF)	250	250		1	102	3.0	70-130	20	08/11/2012 1544
Diisopropyl ether (IPE)	50	51		1	102	2.1	70-130	20	08/11/2012 1544
3,3-Dimethyl-1-butanol	1000	900		1	90	4.9	70-130	20	08/11/2012 1544
Ethanol	5000	5000		1	100	0.67	70-130	20	08/11/2012 1544
Ethyl-tert-butyl ether (ETBE)	50	47		1	94	3.0	70-130	20	08/11/2012 1544
tert-butyl alcohol (TBA)	1000	910		1	91	3.3	70-130	20	08/11/2012 1544

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		101	70-130

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91161-001
Batch: 91161
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	0.20	ug/L	08/11/2012 1655
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	08/11/2012 1655
Ethylbenzene	ND		1	5.0	1.7	ug/L	08/11/2012 1655
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/11/2012 1655
Naphthalene	ND		1	5.0	1.7	ug/L	08/11/2012 1655
Toluene	ND		1	5.0	1.7	ug/L	08/11/2012 1655
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/11/2012 1655

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		95	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91161-002
Batch: 91161
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	48		1	97	70-130	08/11/2012 1521
1,2-Dichloroethane	50	46		1	93	70-130	08/11/2012 1521
Ethylbenzene	50	50		1	99	70-130	08/11/2012 1521
Methyl tertiary butyl ether (MTBE)	50	49		1	98	70-130	08/11/2012 1521
Naphthalene	50	43		1	87	70-130	08/11/2012 1521
Toluene	50	49		1	98	70-130	08/11/2012 1521
Xylenes (total)	100	98		1	98	70-130	08/11/2012 1521

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		100	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91161-003
Batch: 91161
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	49		1	97	0.52	70-130	20	08/11/2012 1544
1,2-Dichloroethane	50	47		1	93	0.93	70-130	20	08/11/2012 1544
Ethylbenzene	50	50		1	100	0.42	70-130	20	08/11/2012 1544
Methyl tertiary butyl ether (MTBE)	50	51		1	102	3.9	70-130	20	08/11/2012 1544
Naphthalene	50	43		1	86	1.1	70-130	20	08/11/2012 1544
Toluene	50	49		1	99	1.3	70-130	20	08/11/2012 1544
Xylenes (total)	100	98		1	98	0.46	70-130	20	08/11/2012 1544

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		101	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91165-001
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/10/2012 1843
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	08/10/2012 1843
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/10/2012 1843
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	08/10/2012 1843
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/10/2012 1843
Ethanol	ND		1	1000	33	ug/L	08/10/2012 1843
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/10/2012 1843
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/10/2012 1843

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		97	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91165-002
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	1000		1	102	70-130	08/10/2012 1713
tert-Amyl methyl ether (TAME)	50	51		1	102	70-130	08/10/2012 1713
tert-Butyl formate (TBF)	250	260		1	103	70-130	08/10/2012 1713
Diisopropyl ether (IPE)	50	54		1	107	70-130	08/10/2012 1713
3,3-Dimethyl-1-butanol	1000	1100		1	110	70-130	08/10/2012 1713
Ethanol	5000	5900		1	117	70-130	08/10/2012 1713
Ethyl-tert-butyl ether (ETBE)	50	51		1	102	70-130	08/10/2012 1713
tert-butyl alcohol (TBA)	1000	1000		1	100	70-130	08/10/2012 1713

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91165-003
Batch: 91165
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	1000		1	102	0.34	70-130	20	08/10/2012 1736
tert-Amyl methyl ether (TAME)	50	50		1	100	1.6	70-130	20	08/10/2012 1736
tert-Butyl formate (TBF)	250	260		1	103	0.36	70-130	20	08/10/2012 1736
Diisopropyl ether (IPE)	50	54		1	108	0.68	70-130	20	08/10/2012 1736
3,3-Dimethyl-1-butanol	1000	1100		1	112	1.5	70-130	20	08/10/2012 1736
Ethanol	5000	5900		1	119	1.5	70-130	20	08/10/2012 1736
Ethyl-tert-butyl ether (ETBE)	50	51		1	102	0.70	70-130	20	08/10/2012 1736
tert-butyl alcohol (TBA)	1000	1000		1	100	0.33	70-130	20	08/10/2012 1736

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		93	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS - Duplicate

Sample ID: NH03025-011DU
Batch: 91165
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Result (ug/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
Diisopropyl ether (IPE)	ND	ND		40	0.00	20	08/10/2012 2348
Ethanol	ND	ND		40	0.00	20	08/10/2012 2348
3,3-Dimethyl-1-butanol	ND	ND		40	0.00	20	08/10/2012 2348
Ethyl-tert-butyl ether (ETBE)	ND	ND		40	0.00	20	08/10/2012 2348
tert-Amyl alcohol (TAA)	470	460	J	40	2.0	20	08/10/2012 2348
tert-Amyl methyl ether (TAME)	ND	ND		40	0.00	20	08/10/2012 2348
tert-butyl alcohol (TBA)	ND	ND		40	0.00	20	08/10/2012 2348
tert-Butyl formate (TBF)	ND	ND		40	0.00	20	08/10/2012 2348

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		91	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: NH03025-011MS
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Diisopropyl ether (IPE)	ND	2000	2200		40	111	70-130	08/11/2012 0010
Ethanol	ND	200000	140000		40	71	70-130	08/11/2012 0010
3,3-Dimethyl-1-butanol	ND	40000	33000		40	84	70-130	08/11/2012 0010
Ethyl-tert-butyl ether (ETBE)	ND	2000	2100		40	104	70-130	08/11/2012 0010
tert-Amyl alcohol (TAA)	470	40000	32000		40	79	70-130	08/11/2012 0010
tert-Amyl methyl ether (TAME)	ND	2000	2000		40	102	70-130	08/11/2012 0010
tert-butyl alcohol (TBA)	ND	40000	31000		40	78	70-130	08/11/2012 0010
tert-Butyl formate (TBF)	ND	10000	8700		40	87	70-130	08/11/2012 0010

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		100	70-130

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91165-001
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	0.20	ug/L	08/10/2012 1843
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	08/10/2012 1843
Ethylbenzene	ND		1	5.0	1.7	ug/L	08/10/2012 1843
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/10/2012 1843
Naphthalene	ND		1	5.0	1.7	ug/L	08/10/2012 1843
Toluene	ND		1	5.0	1.7	ug/L	08/10/2012 1843
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/10/2012 1843

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		97	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91165-002
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	53		1	106	70-130	08/10/2012 1713
1,2-Dichloroethane	50	46		1	93	70-130	08/10/2012 1713
Ethylbenzene	50	53		1	107	70-130	08/10/2012 1713
Methyl tertiary butyl ether (MTBE)	50	51		1	102	70-130	08/10/2012 1713
Naphthalene	50	51		1	103	70-130	08/10/2012 1713
Toluene	50	52		1	103	70-130	08/10/2012 1713
Xylenes (total)	100	110		1	106	70-130	08/10/2012 1713

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		94	70-130
Toluene-d8		100	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91165-003
Batch: 91165
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	53		1	105	0.47	70-130	20	08/10/2012 1736
1,2-Dichloroethane	50	47		1	93	0.76	70-130	20	08/10/2012 1736
Ethylbenzene	50	54		1	108	1.4	70-130	20	08/10/2012 1736
Methyl tertiary butyl ether (MTBE)	50	51		1	101	0.84	70-130	20	08/10/2012 1736
Naphthalene	50	53		1	106	3.3	70-130	20	08/10/2012 1736
Toluene	50	52		1	103	0.17	70-130	20	08/10/2012 1736
Xylenes (total)	100	110		1	107	0.73	70-130	20	08/10/2012 1736

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		93	70-130
Toluene-d8		99	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - Duplicate

Sample ID: NH03025-011DU
Batch: 91165
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Result (ug/L)	Q	Dil	% RPD	% RPD Limit	Analysis Date
Benzene	980	920		40	6.0	20	08/10/2012 2348
1,2-Dichloroethane	ND	ND		40	0.00	20	08/10/2012 2348
Ethylbenzene	150	140	J	40	8.1	20	08/10/2012 2348
Methyl tertiary butyl ether (MTBE)	31	30	J	40	4.3	20	08/10/2012 2348
Naphthalene	ND	ND		40	0.00	20	08/10/2012 2348
Toluene	1900	1800		40	5.8	20	08/10/2012 2348
Xylenes (total)	1100	1000		40	6.3	20	08/10/2012 2348

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		91	70-130
Bromofluorobenzene		97	70-130
Toluene-d8		99	70-130

Volatile Organic Compounds by GC/MS - MS

Sample ID: NH03025-011MS
Batch: 91165
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	980	2000	3100		40	107	70-130	08/11/2012 0010
1,2-Dichloroethane	ND	2000	2000		40	100	70-130	08/11/2012 0010
Ethylbenzene	150	2000	2400		40	112	70-130	08/11/2012 0010
Methyl tertiary butyl ether (MTBE)	31	2000	2100		40	102	70-130	08/11/2012 0010
Naphthalene	ND	2000	1900		40	92	70-130	08/11/2012 0010
Toluene	1900	2000	4000		40	107	70-130	08/11/2012 0010
Xylenes (total)	1100	4000	5500		40	110	70-130	08/11/2012 0010

Surrogate	Q	% Rec	Acceptance Limit
1,2-Dichloroethane-d4		94	70-130
Bromofluorobenzene		99	70-130
Toluene-d8		100	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91297-001
Batch: 91297
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	100	6.7	ug/L	08/13/2012 1712
tert-Amyl methyl ether (TAME)	ND		1	10	0.20	ug/L	08/13/2012 1712
tert-Butyl formate (TBF)	ND		1	100	1.0	ug/L	08/13/2012 1712
Diisopropyl ether (IPE)	ND		1	10	0.40	ug/L	08/13/2012 1712
3,3-Dimethyl-1-butanol	ND		1	100	1.0	ug/L	08/13/2012 1712
Ethanol	ND		1	1000	33	ug/L	08/13/2012 1712
Ethyl-tert-butyl ether (ETBE)	ND		1	100	0.20	ug/L	08/13/2012 1712
tert-butyl alcohol (TBA)	ND		1	100	6.7	ug/L	08/13/2012 1712

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		102	70-130
Toluene-d8		104	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91297-002
Batch: 91297
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	930		1	93	70-130	08/13/2012 1144
tert-Amyl methyl ether (TAME)	50	55		1	109	70-130	08/13/2012 1144
tert-Butyl formate (TBF)	250	320		1	127	70-130	08/13/2012 1144
Diisopropyl ether (IPE)	50	51		1	102	70-130	08/13/2012 1144
3,3-Dimethyl-1-butanol	1000	930		1	93	70-130	08/13/2012 1144
Ethanol	5000	5500		1	109	70-130	08/13/2012 1144
Ethyl-tert-butyl ether (ETBE)	50	53		1	105	70-130	08/13/2012 1144
tert-butyl alcohol (TBA)	1000	910		1	91	70-130	08/13/2012 1144

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		92	70-130
1,2-Dichloroethane-d4		112	70-130
Toluene-d8		107	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91297-003
Batch: 91297
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	890		1	89	4.5	70-130	20	08/13/2012 1208
tert-Amyl methyl ether (TAME)	50	54		1	108	0.76	70-130	20	08/13/2012 1208
tert-Butyl formate (TBF)	250	310		1	126	1.2	70-130	20	08/13/2012 1208
Diisopropyl ether (IPE)	50	49		1	98	3.5	70-130	20	08/13/2012 1208
3,3-Dimethyl-1-butanol	1000	900		1	90	3.1	70-130	20	08/13/2012 1208
Ethanol	5000	5100		1	102	7.0	70-130	20	08/13/2012 1208
Ethyl-tert-butyl ether (ETBE)	50	52		1	103	2.0	70-130	20	08/13/2012 1208
tert-butyl alcohol (TBA)	1000	890		1	89	2.1	70-130	20	08/13/2012 1208

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		93	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		104	70-130

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91297-001
Batch: 91297
Analytical Method: 8260B
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Benzene	ND		1	5.0	0.20	ug/L	08/13/2012 1712
1,2-Dichloroethane	ND		1	5.0	0.30	ug/L	08/13/2012 1712
Ethylbenzene	ND		1	5.0	1.7	ug/L	08/13/2012 1712
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	08/13/2012 1712
Naphthalene	ND		1	5.0	1.7	ug/L	08/13/2012 1712
Toluene	ND		1	5.0	1.7	ug/L	08/13/2012 1712
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/13/2012 1712

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		102	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria
Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91297-002
Batch: 91297
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	50	52		1	104	70-130	08/13/2012 1144
1,2-Dichloroethane	50	54		1	109	70-130	08/13/2012 1144
Ethylbenzene	50	55		1	110	70-130	08/13/2012 1144
Methyl tertiary butyl ether (MTBE)	50	53		1	106	70-130	08/13/2012 1144
Naphthalene	50	54		1	107	70-130	08/13/2012 1144
Toluene	50	58		1	116	70-130	08/13/2012 1144
Xylenes (total)	100	110		1	110	70-130	08/13/2012 1144

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		92	70-130
1,2-Dichloroethane-d4		112	70-130
Toluene-d8		107	70-130

Volatile Organic Compounds by GC/MS - LCSD

Sample ID: NQ91297-003
Batch: 91297
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Benzene	50	51		1	102	1.9	70-130	20	08/13/2012 1208
1,2-Dichloroethane	50	53		1	106	2.2	70-130	20	08/13/2012 1208
Ethylbenzene	50	55		1	111	1.0	70-130	20	08/13/2012 1208
Methyl tertiary butyl ether (MTBE)	50	53		1	106	0.25	70-130	20	08/13/2012 1208
Naphthalene	50	49		1	97	9.6	70-130	20	08/13/2012 1208
Toluene	50	57		1	114	1.9	70-130	20	08/13/2012 1208
Xylenes (total)	100	110		1	111	0.87	70-130	20	08/13/2012 1208

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		93	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		104	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: NQ91344-001
Batch: 91344
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Xylenes (total)	ND		1	5.0	1.7	ug/L	08/14/2012 0946

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		116	70-130
Toluene-d8		104	70-130

Volatile Organic Compounds by GC/MS - LCS

Sample ID: NQ91344-002
Batch: 91344
Analytical Method: 8260B

Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Xylenes (total)	100	110		1	106	70-130	08/14/2012 0838

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		112	70-130
Toluene-d8		108	70-130

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MB

Sample ID: NQ90751-001
Batch: 90751
Analytical Method: 8011
Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/06/2012 1040

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	08/08/2012 0520

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		104	57-137

EDB & DBCP by Microextraction - LCS

Sample ID: NQ90751-002
Batch: 90751
Analytical Method: 8011
Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/06/2012 1040

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.25		1	100	60-140	08/08/2012 0541

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		103	57-137

EDB & DBCP by Microextraction - MS

Sample ID: NH03025-011MS
Batch: 90751
Analytical Method: 8011
Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/06/2012 1040

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	1.4	0.24	1.6		1	105	60-140	08/08/2012 1032

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		112	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

EDB & DBCP by Microextraction - MSD

Sample ID: NH03025-011MD
Batch: 90751
Analytical Method: 8011

Matrix: Aqueous
Prep Method: 8011
Prep Date: 08/06/2012 1040

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
1,2-Dibromoethane (EDB)	1.4	0.24	1.7		1	136	4.7	60-140	20	08/08/2012 1053

Surrogate	Q	% Rec	Acceptance Limit
1,1,1,2-Tetrachloroethane		121	57-137

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

ICP-MS - MB

Sample ID: NQ90752-001 **Matrix:** Aqueous
Batch: 90752 **Prep Method:** 3005A
Analytical Method: 6020A **Prep Date:** 08/07/2012 908

Parameter	Result	Q	Dil	PQL	MDL	Units	Analysis Date
Lead	0.054	J	1	1.0	0.047	ug/L	08/09/2012 0432

ICP-MS - LCS

Sample ID: NQ90752-002 **Matrix:** Aqueous
Batch: 90752 **Prep Method:** 3005A
Analytical Method: 6020A **Prep Date:** 08/07/2012 908

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Lead	100	100		1	103	80-120	08/09/2012 0441

ICP-MS - LCSD

Sample ID: NQ90752-003 **Matrix:** Aqueous
Batch: 90752 **Prep Method:** 3005A
Analytical Method: 6020A **Prep Date:** 08/07/2012 908

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Lead	100	100		1	101	1.7	80-120	20	08/09/2012 0451

ICP-MS - MS

Sample ID: NH03025-001MS **Matrix:** Aqueous
Batch: 90752 **Prep Method:** 3005A
Analytical Method: 6020A **Prep Date:** 08/07/2012 908

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Lead	43	100	140		1	102	70-130	08/09/2012 0510

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

ICP-MS - MSD

Sample ID: NH03025-001MD
Batch: 90752
Analytical Method: 6020A
Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/07/2012 908

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date
Lead	43	100	140		1	100	0.83	70-130	20	08/09/2012 0519

ICP-MS - MS

Sample ID: NH03025-002MS
Batch: 90752
Analytical Method: 6020A
Matrix: Aqueous
Prep Method: 3005A
Prep Date: 08/07/2012 908

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Lead	130	100	230		1	104	70-130	08/09/2012 0547

PQL = Practical quantitation limit
ND = Not detected at or above the MDL
P = The RPD between two GC columns exceeds 40%
J = Estimated result < PQL and ≥ MDL
N - Recovery is out of criteria
+ - RPD is out of criteria

Where applicable, all soil sample analysis are reported on a dry weight basis unless flagged with a "W"

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

Chain of Custody Record

Number 14591

Client: SISHEC	Report to Contact: D. Thrash	Sampler (Print & Sign): Brian Owen	Order No:
Address: Two Bull St	Telephone No. / Fax No. / Email: 803 896 4248	Waybill No:	Page: 1 of 3
City: Columbia	State: SC	Zip Code: 29201	Number of Containers:
Project Name: Pinewood Dump Site	Preservative: 1 Unpres 2 H_2SO_4 3 $NaOH/ZnA$ 4 HNO_3 5 HCl 6 Na thio. 7 MeOH		Bottle (See instructions on back):
Project Number: 05878/43254	PO Number: 4200885579		Preservative:
Sample ID / Description (Containers for each sample may be combined on one line)	Date: 8-3	Time: 1319	Grab/Composite: G
MW-1			Matrix: GW
MW-2	8-3	1335	G
MW-4	—	—	—
MW-5	—	—	—
MW-7	8-3	1105	G
MW-8		1059	
MW-9		1105	
MW-10	X	1141	X
MW-11	—	—	—

Analysis: Base Neut, Acid, BNA; Base Neut, Acid, BNA; EDB; Total Pb

Lot No.: MH09025

Remarks / Codes: CLOUDY; CLOUDY; OBSTRUCTED; PRESENT; NO ODOR; ODOR; NO ODOR; NO ODOR; OBSTRUCTED

Turn Around Time Required: Prior lab approval required for expedited TAT
1. Standard 2. Rush (Please Specify)

Sample Disposal
☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify)

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time
1. Relinquished by / Sampler	8-3-12	1405
2. Relinquished by		
3. Relinquished by		
4. Relinquished by		

	Date	Time
1. Received by		
2. Received by		
3. Received by		
4. Laboratory Received by	8 3 12	1405

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY
Received on Ice (Circle): (Y) Yes ☐ No ☐ Blue Pack
Receipt Temp: 4.8 °C
Temp. Blank: (Y) / N

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Level 1 Report v2.1

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Shealy Environmental Services, Inc.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.shealylab.com

SHEALY

Chain of Custody Record

Number 14592

Client: SCDHEC	Report to Contact: D. Tibbetts	Sampler(s) Printed Name: BRIAN OWEN	Quote No:
Address: 2600 Bull St.	Telephone No. / Fax No. / Email: 803-896-4241	Waybill No:	Page: 2 of 3
City: Columbia	State: SC	Zip Code: 29201	Number of Containers:
Project Name: Firestone/Precise Corp	Preservative: 1 Unpres 2 HNO_3 3 NaOH 4 HCl 5 H_2SO_4 6 Na Thio.		Bottle (See instructions on back): Preservative: Lot No.: NH03025
Project Number: 05817/45554	P.O. Number: 4100038529		

Sample ID / Description (Containers for each sample may be contained on one line)	Date	Time	Field Filtered & Composite	Matrix: GW	DW	WW	S	Other	Analysis: Pb (Lead) or Hg	TCLP & BOD/Ethyl	EDB	Total Pb	Remarks / Cooler ID
MW-12	8-3	1214	G						X	X	X	X	No Odor
MW-13	8-3	1203	G						X	X	X	X	No Odor
MW-15	—	—	—						—	—	—	—	Product
MW-16	8-3	1157	G						X	X	X	X	No Odor
MW-18		1248											No Odor
~~Trip Blank~~ RW-1		940											Odor
RW-2		950											
RW-3		1005											X
RW-1		1037											No Odor
RW-2	X	1118	X						X	X	X	X	No Odor

Turn Around Time Required (Prior lab approval required for expedited TAT): ☒ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☐ Disposal by Lab

QC Requirements (Specify):

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison ☐ Unknown

	Date	Time		Date	Time
1. Relinquished by Sampler: [signature]	8-3-12	1405	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory Received by: [signature]	8 3 12	1405

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on Ice (Circle): ☒ Yes ☐ No — Ice Pack — Receipt Temp: 4.8° — Temp Blank: ☐ Y / ☐ N

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SHEALY

Chain of Custody Record

Number 21841

Client: SCDHEC	Report to Contact: DTHomas	Sampler (Printed Name): Brian Owen	Quote No.
Address: 2600 Bull St.	Telephone No. / Fax No. / Email: 803-896-4241	Waybill No.	Page: 3 of 3
City: Columbia	State: SC	Zip Code: 29201	
Project Name: Pinelodge Creek Core			
Project Number: 05878/13554	P.O. Number: 4500088539		

Preservative: 1. H2SO4 4. HNO3 7. NaOH; 2. NaOH+Zn 5. HCl; 3. H2SO4 6. NaHSO4

Sample ID / Description (Containers for each sample may be combined on one line)	Date	Time	Grab	Composite	Matrix: GW	DW	WW	S	Other	Analysis: Bkg/Mgmt, Metals	1,2,DCA, 4 VOA, EDB	EDB	Temp PD	Number of Containers	Bottle (See Instructions on Back)	Preservative	Lot No.	Remarks / Cooler ID
Field Blank	9.3	1310	X							X	X	X						—
Trip Blank		1346								X	X							—
MW-1 Duplicate	X	1319	X							X	X	X	X					ODOR

Turn Around Time Required (Prior lab approval required for expedited TAT)	Sample Disposal	QC Requirements (Specify)	Possible Hazard Identification
☐ Standard ☐ Rush (Please Specify)	☐ Return to Client ☐ Disposal by Lab		☐Non-Hazard ☐Flammable ☐Skin Irritant ☐Poison ☐Unknown

	Date	Time		Date	Time
1. Relinquished by Sampler	9.3.12	1405	1. Received by		
2. Relinquished by			2. Received by		
3. Relinquished by			3. Received by		
4. Relinquished by			4. Laboratory Received by	9/3/12	1405

Note: All samples are retained for six weeks from receipt unless other arrangements are made.

LAB USE ONLY — Received on Ice (Check) ☑ Yes ☐ No ☐ Ice Pack — Receipt Temp. 4.9 °C — Temp. Blank ☐ Y / ☑ N

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Level 1 Report v2.1

SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.
Document Number: [illegible]
Revision Number: [illegible]

Page 1 of 1
Replaces Date: [illegible]
Effective Date: [illegible]

Sample Receipt Checklist (SRC)

Client: SCDHEC Cooler inspected by/date: [illegible] 8/3/12 Lot #: NH03025

Means of receipt: ☐ SESI ☑ Client ☐ UPS ☐ FedEx ☐ Airborne Exp ☐ Other

Yes ☐	No ☑	1. Were custody seals present on the cooler?
Yes ☐	No ☐	2. If custody seals were present, were they intact and unbroken?

Cooler ID/temperature upon receipt 4.8 °C / °C / °C / °C
Method: ☐ Temperature Blank ☑ Against Bottles Trip Blank
Method of coolant: ☑ Wet Ice ☐ Blue Ice ☐ Dry Ice ☐ None

If response is No (or Yes for 14, 15, 16), an explanation/resolution must be provided.

Yes ☐	No ☐	NA ☑	3. If temperature of any cooler exceeded 6.0°C, was Project Manager notified? PM notified by SRC, phone, note (circle one), other: . (For coolers received via commercial courier, PMs are to be notified immediately
Yes ☐	No ☐	NA ☑	4. Is the commercial courier's packing slip attached to this form?
Yes ☑	No ☐		5. Were proper custody procedures (relinquished/received) followed?
Yes ☐	No ☐	NA ☑	5a Were samples relinquished by client to commercial courier?
Yes ☑	No ☐		6. Were sample IDs listed?
Yes ☑	No ☐		7. Was collection date & time listed?
Yes ☑	No ☐		8. Were tests to be performed listed on the COC?
Yes ☑	No ☐		9. Did all samples arrive in the proper containers for each test?
Yes ☑	No ☐		10. Did all container label information (ID, date, time) agree with COC?
Yes ☑	No ☐		11. Did all containers arrive in good condition (unbroken, lids on, etc.)?
Yes ☑	No ☐		12. Was adequate sample volume available?
Yes ☑	No ☐		13. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
Yes ☐	No ☑		14. Were any samples containers missing?
Yes ☐	No ☑		15. Were there any excess samples not listed on COC?
Yes ☐	No ☑	NA ☐	16. Were bubbles present >"pea-size" (¼" or 6mm in diameter) in any VOA vials?
Yes ☑	No ☐	NA ☐	17. Were all metals/O&G/HEM/nutrient samples received at a pH of <2?
Yes ☐	No ☐	NA ☑	18. Were all cyanide and/or sulfide samples received at a pH >12?
Yes ☐	No ☐	NA ☑	19. Were all applicable NH3/TKN/cyanide/phenol/BNA/pest/PCB/herb (<0.2mg/L) samples free of residual chlorine?
Yes ☐	No ☐	NA ☑	20. Were collection temperatures documented on the COC for NC samples?
Yes ☐	No ☐	NA ☑	21. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc.) correctly transcribed from the COC into the comment section in LIMS?

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) _____ were received incorrectly preserved and were adjusted accordingly in sample receiving with _____ (H_2SO_4, HNO_3, HCl, NaOH) with the SR # (number)

Sample(s) _____ were received with bubbles >6 mm in diameter.

Sample(s) _____ were received with TRC >0.2 mg/L for NH3, TKN/cyanide/BNA/pest/PCB/herb.

Corrective Action taken, if necessary:

Was client notified: Yes ☐ No ☐ Did client respond: Yes ☐ No ☐

SESI employee: _____ Date of response: _____

Comments: _____

APPENDIX C:

TAX MAP

This appendix is not applicable to the scope of services presented in the subject report, however this page has been included in order to conform to the SCDHEC UST Management Division Programmatic QAPP and provide report continuity

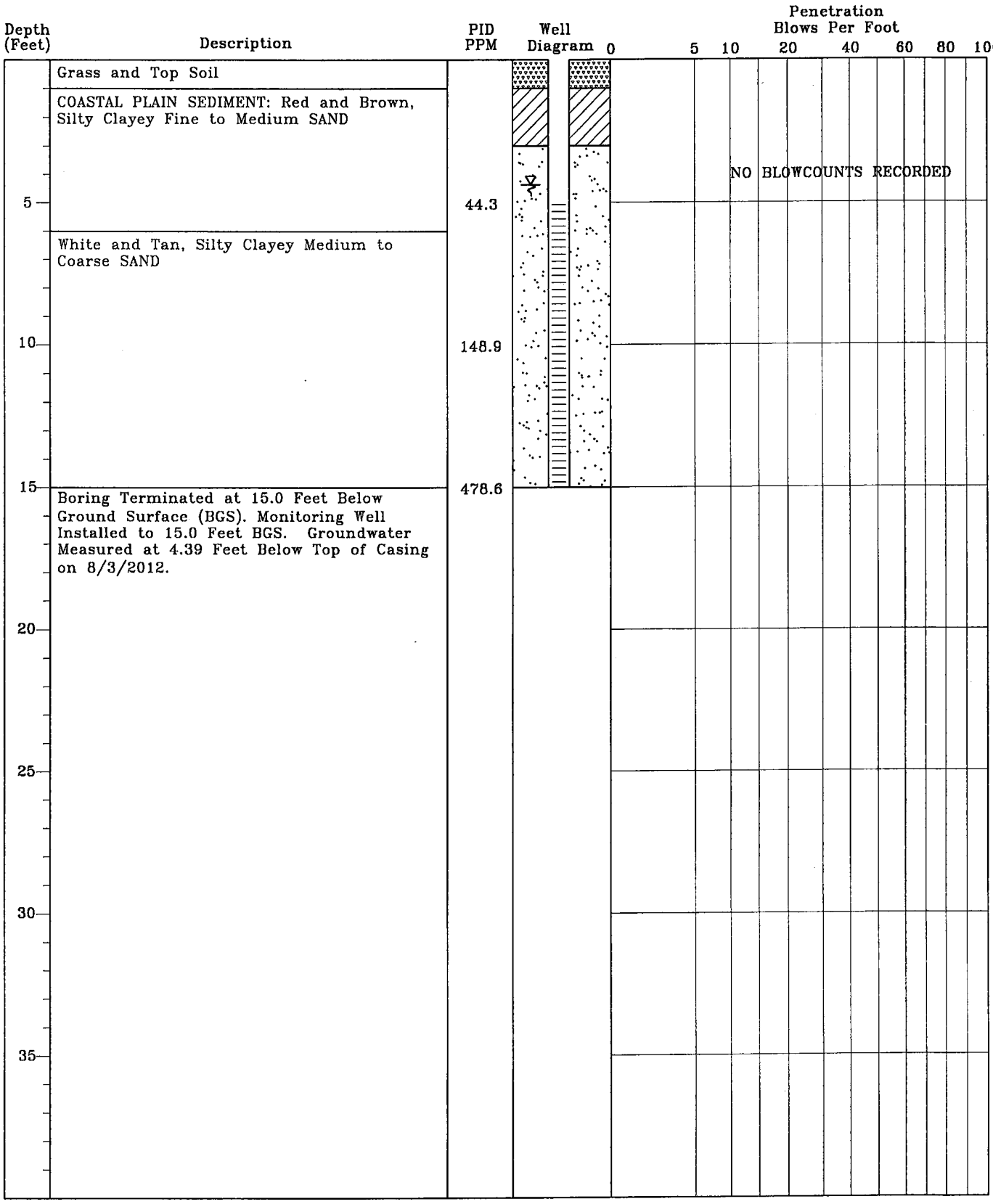
APPENDIX D:

SOIL BORING/FIELD SCREENING LOGS & 1903 FORMS

This appendix is not applicable to the scope of services presented in the subject report, however this page has been included in order to conform to the SCDHEC UST Management Division Programmatic QAPP and provide report continuity

APPENDIX E:

WELL COMPLETION LOGS & 1903 FORMS



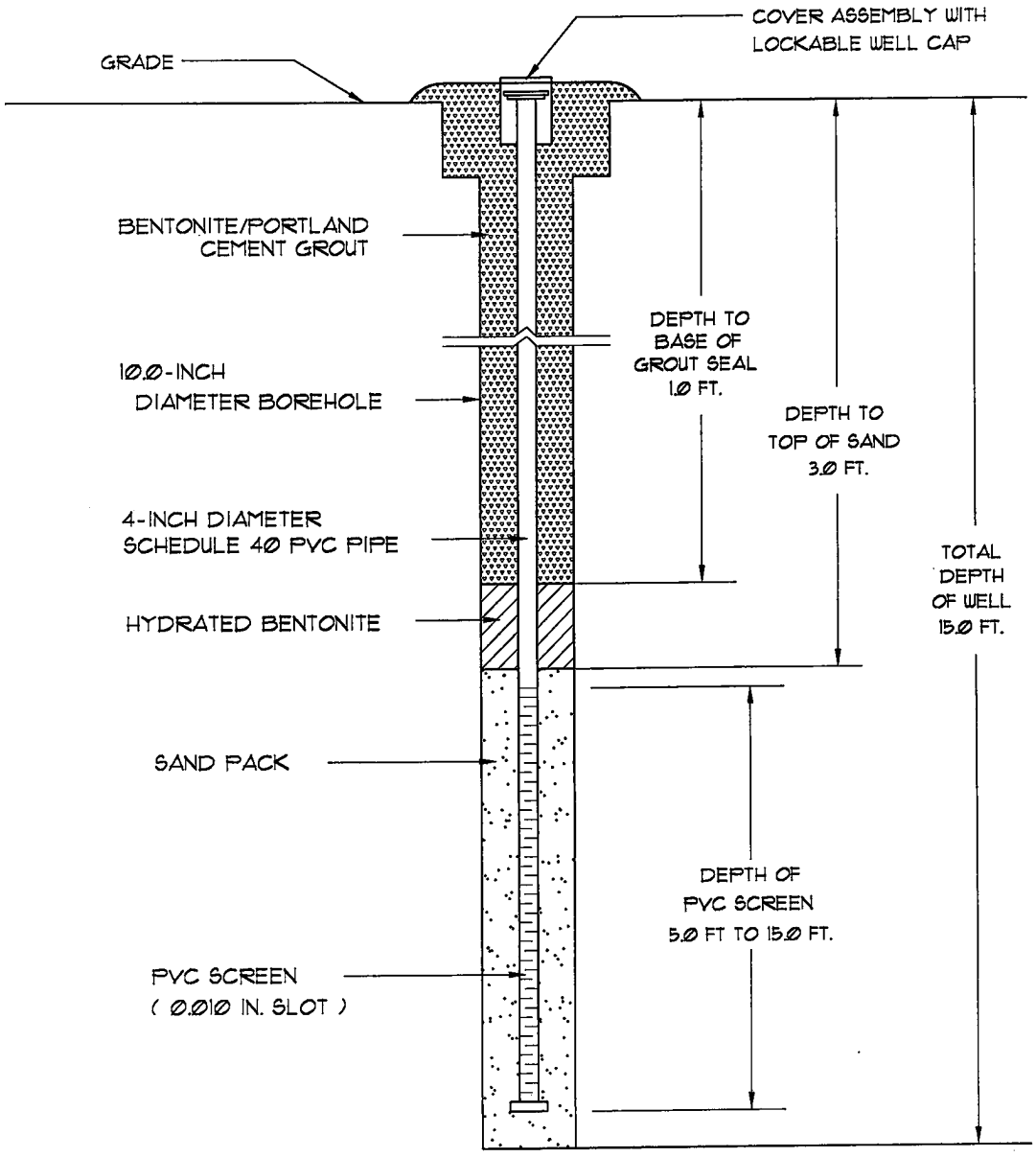
TEST BORING RECORD
Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID# 05878
MECI Project Number 12-3929

Boring Number:	RW-1 (05878)
Date Drilled:	6/19/2012
Drilled By:	Environmental Drilling & Probing Services, LLC.
Logged By:	J. Bryant

Prepared By:
Midlands Environmental Consultants, Inc.
235-B Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax: 808-2048

MONITORING WELL INSTALLATION RECORD

Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID# 05878
MECI Project Number 12-3929



Well Number:	MW-1 (05878)
Date Drilled:	6/19/2012
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller: T. Bolyard	S.C. I.D. #: B 01846
Logged By:	J. Bryant

Prepared By:
Midlands Environmental Consultants, Inc.
235-B Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax: 808-2048

Depth (Feet)	Description	PID PPM	Well Diagram
	Grass and Top Soil		
	COASTAL PLAIN SEDIMENT: Orange and Red, Silty Clayey Fine to Medium SAND		
5		ND	
	Tan and Gray, Silty Clayey Medium to Coarse SAND		
10		ND	
15		ND	
	Boring Terminated at 15.0 Feet Below Ground Surface (BGS). Monitoring Well Installed to 15.0 Feet BGS. Groundwater Measured at 4.68 Feet Below Top of Casing on 8/3/2012.		
20			
25			
30			
35			

Penetration Blows Per Foot

0 5 10 20 40 60 80 100

NO BLOWCOUNTS RECORDED

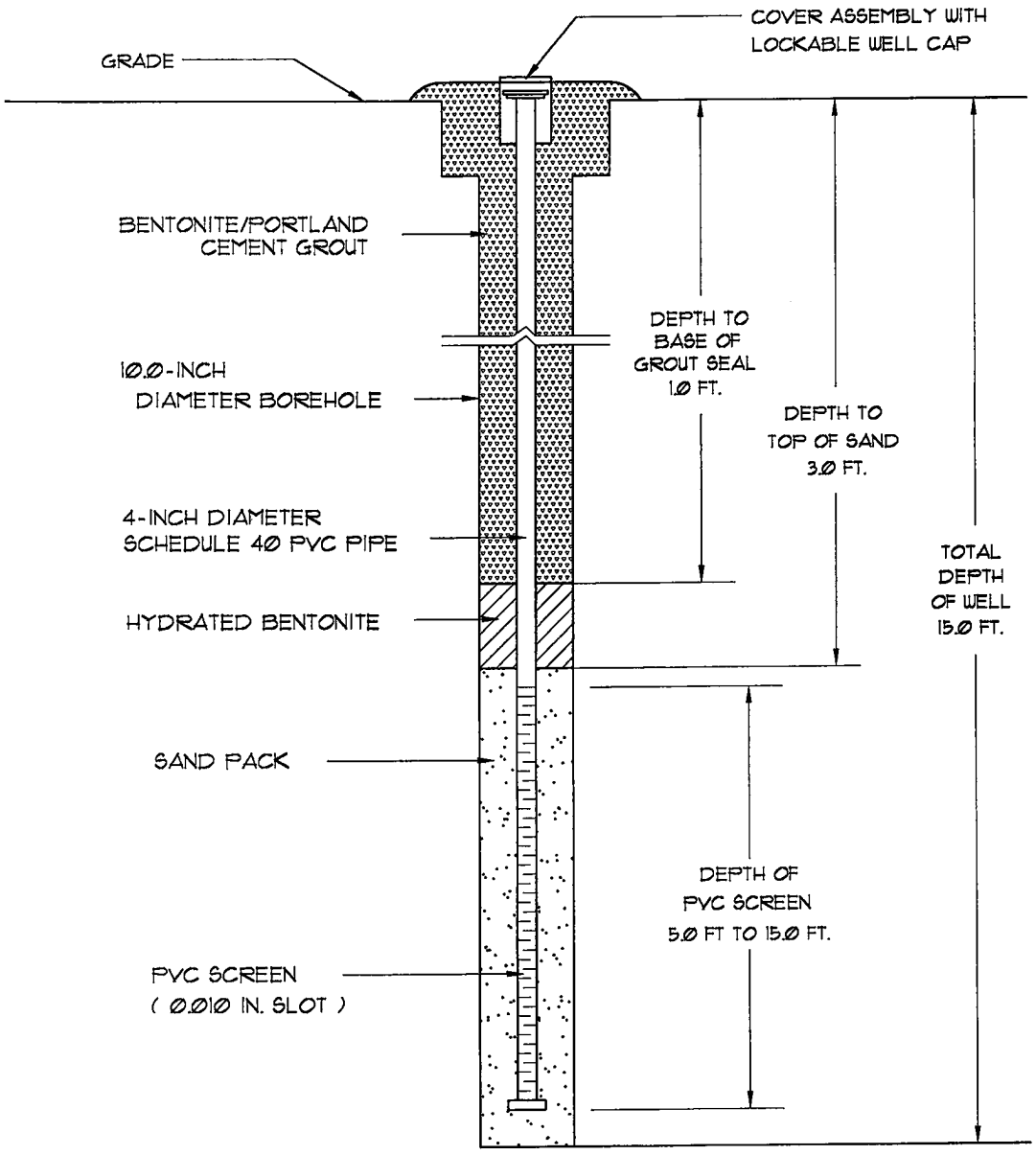
TEST BORING RECORD
Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID# 05878
MECI Project Number 12-3929

Boring Number:	RW-2 (05878)
Date Drilled:	6/19/2012
Drilled By:	Environmental Drilling & Probing Services, LLC.
Logged By:	J. Bryant

Prepared By:
Midlands Environmental Consultants, Inc.
235-B Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax: 808-2048

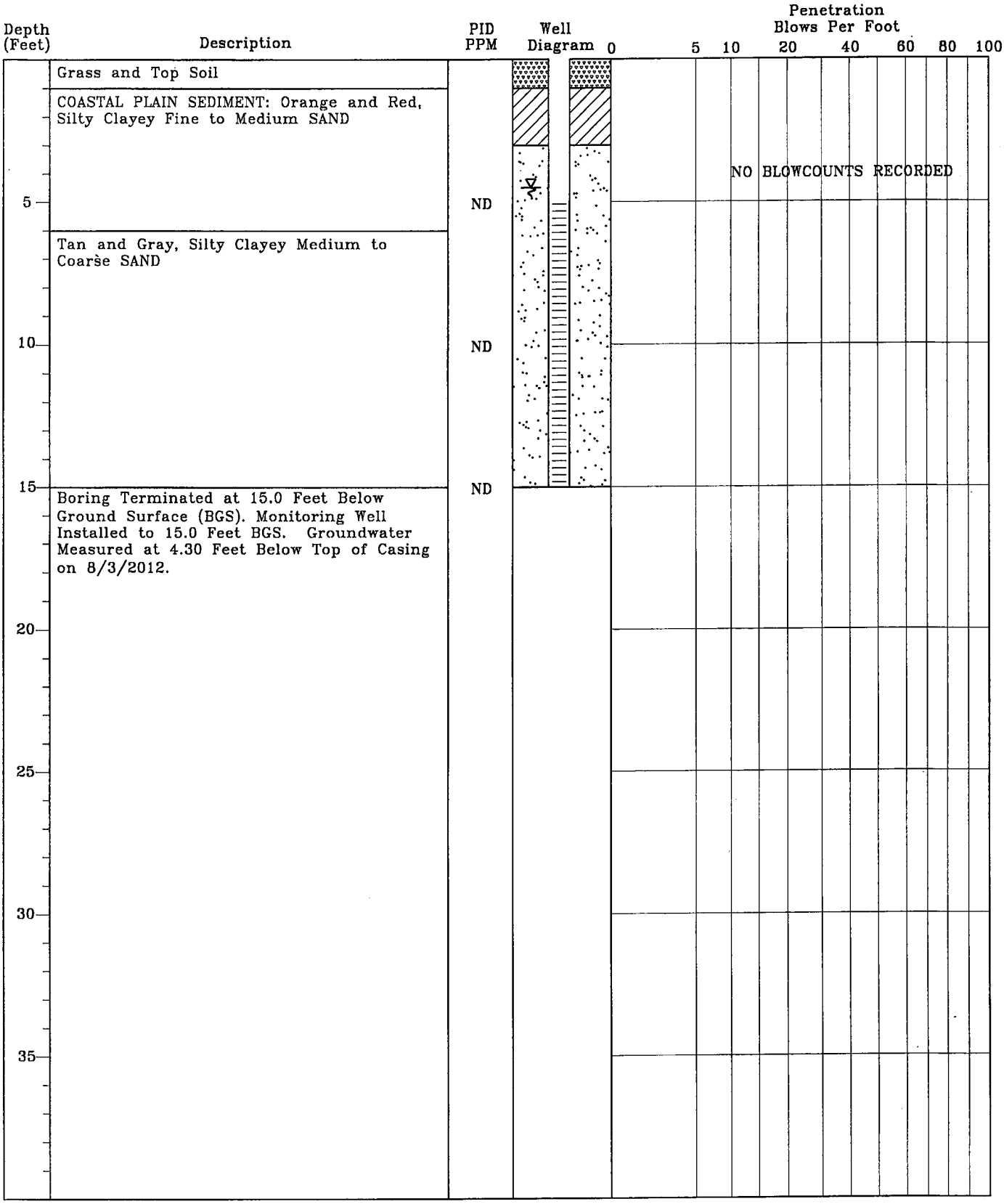
MONITORING WELL INSTALLATION RECORD

Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID# 05878
MECI Project Number 12-3929



Well Number:	MW-2 (05878)
Date Drilled:	6/19/2012
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller: T. Bolyard	S.C. I.D. #: B 01846
Logged By:	J. Bryant

Prepared By:
Midlands Environmental Consultants, Inc.
235-B Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax: 808-2048



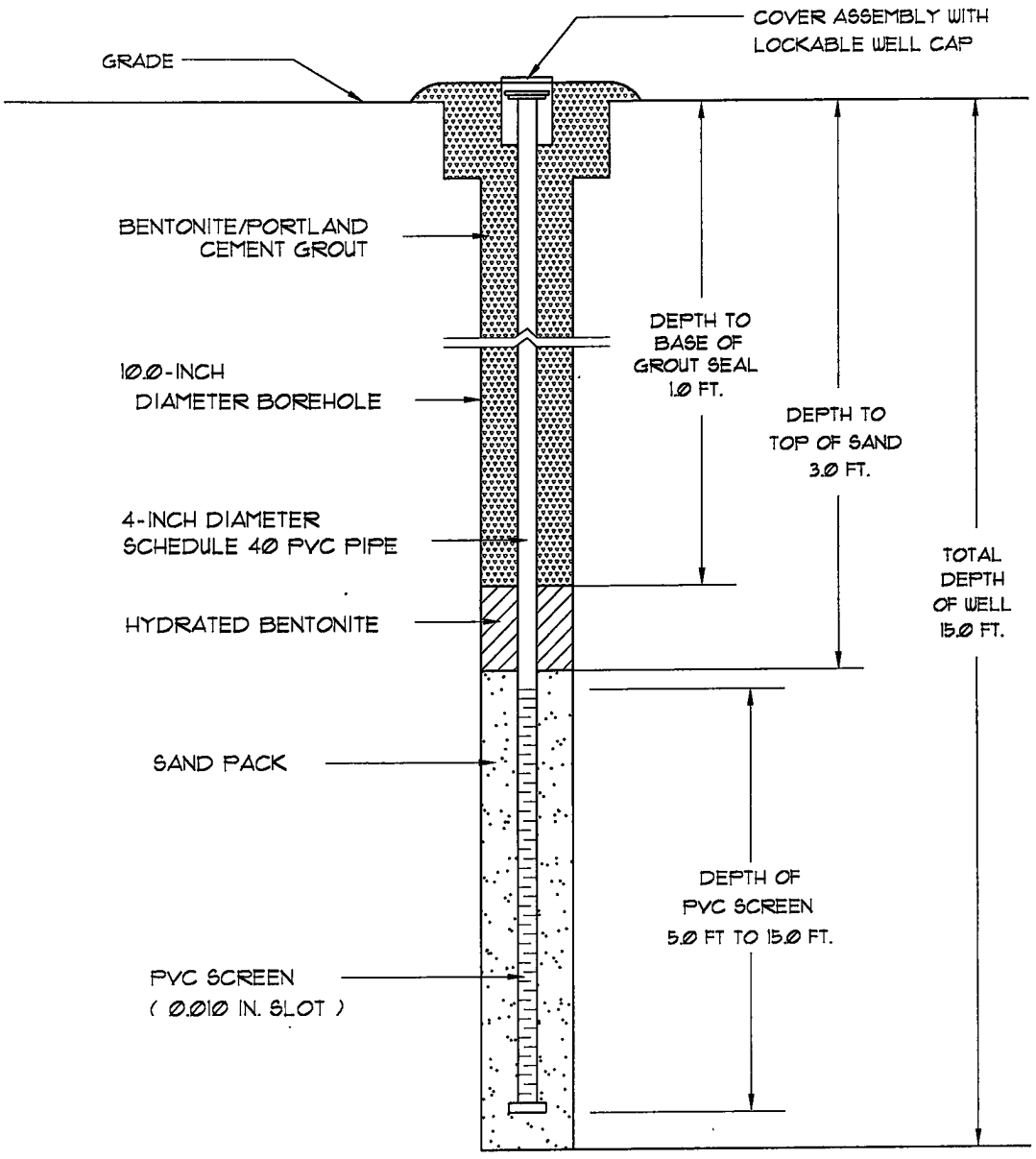
TEST BORING RECORD
Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID# 05878
MECI Project Number 12-3929

Boring Number:	RW-3 (05878)
Date Drilled:	6/19/2012
Drilled By:	Environmental Drilling & Probing Services, LLC.
Logged By:	J. Bryant

Prepared By:
Midlands Environmental Consultants, Inc.
235-B Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax: 808-2048

MONITORING WELL INSTALLATION RECORD

Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID# 05878
MECI Project Number 12-3929



Well Number:	MW-3 (05878)
Date Drilled:	6/19/2012
Drilled By:	Environmental Drilling & Probing Services, LLC.
Driller: T. Bolyard	S.C. I.D. #: B 01846
Logged By:	J. Bryant

Prepared By:
Midlands Environmental Consultants, Inc.
235-B Dooley Road
Lexington, South Carolina 29073
(803) 808-2043 fax: 808-2048

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: SCDHEC (last) (first)
Address: 2600 Bull Street
City: Columbia State: SC Zip: 29201-1708
Telephone: Work: (803) 898-4300 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: Purolator Courier Corporation
Street Address: 105 Corporate Blvd
City: West Columbia Zip: 29169-3459
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: 05878 **PUBLIC SYSTEM NUMBER:** RW-3

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Gravel/Topsoil	0.5	0.5
Orange and Red-Silty Clayey	5.5	6.0
SAND		
White and Tan- Silty Clayey SAND	9.0	15.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		
5. REMARKS: RW-3		

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other-Auger

7. PERMIT NUMBER: UWM-24622

8. USE: ☐ Residential ☐ Public Supply ☐ Process ☐ Irrigation ☐ Air Conditioning ☐ Emergency ☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 15.0 ft. Date Started: 6/19/2012 Date Completed: 6/19/2012

10. CASING: ☑ Threaded ☐ Welded
Diam.: 4"
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
4.0 in. to 5.0 ft. depth
_____ in. to _____ ft. depth
Height: Above /Below
Surface 0.0 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 4 Inch
Slot/Gauge: .010 Length: 15.0 Feet
Set Between: 5.0 ft. and 15.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 4.30 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 3.0 ft. to 15.0 ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 1.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Tommy Bolyard **CERT. NO.:** 01846
Address: (Print) 17538 Greenhill Road Charlotte. NC 28278
Level: A B C D (circle one) X
Telephone No.: 704-607-7529 Fax No.: 803-548-2233

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ (Well Driller) Date: 8/27/12

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

DHEC — PROMOTE PROTECT PROSPER

1. WELL OWNER INFORMATION:
Name: SCDHEC (last) (first)
Address: 2600 Bull Street
City: Columbia State: SC Zip: 29201-1708
Telephone: Work: (803) 898-4300 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: Purolator Courier Corporation
Street Address: 105 Corporate Blvd
City: West Columbia Zip: 29169-3459
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: 05878 **PUBLIC SYSTEM NUMBER:** RW-2

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Gravel/Topsoil	0.5	0.5
Orange and Red-Silty Clayey	5.5	6.0
SAND		
White and Tan- Silty Clayey SAND	9.0	15.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
RW-2

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other-Auger

7. PERMIT NUMBER: UWM-24622

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 15.0 ft. Date Started: 6/19/2012 Date Completed: 6/19/2012

10. CASING: ☑ Threaded ☐ Welded
Diam.: 4"
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
4.0 in. to 5.0 ft. depth
_____ in. to _____ ft. depth
Height: Above /Below
Surface 0.0 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 4 Inch
Slot/Gauge: .010 Length: 15.0 Feet
Set Between: 5.0 ft. and 15.0 ft.
_____ ft. and _____ ft.
NOTE: MULTIPLE SCREENS USE SECOND SHEET
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 4.68 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 3.0 ft. to 15.0 ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 1.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: _____ ft. _____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P._____ Volts_____ Length of drop pipe ___ ft. Capacity ___ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Tommy Bolyard **CERT. NO.:** 01846
Address: (Print) Level: A B C D (circle one) X
17538 Greenhill Road
Charlotte. NC 28278
Telephone No.: 704-607-7529 Fax No.: 803-548-2233

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ (Well Driller) Date: 8/27/12

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

D H E C
PROMOTE PROTECT PROSPER

Water Well Record
Bureau of Water
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

1. WELL OWNER INFORMATION:
Name: SCDHEC (last) (first)
Address: 2600 Bull Street
City: Columbia State: SC Zip: 29201-1708
Telephone: Work: (803) 898-4300 Home:

2. LOCATION OF WELL: **COUNTY:**
Name: Purolator Courier Corporation
Street Address: 105 Corporate Blvd
City: West Columbia Zip: 29169-3459
Latitude: Longitude:

3. PUBLIC SYSTEM NAME: 05878 **PUBLIC SYSTEM NUMBER:** RW-1

4. ABANDONMENT: ☐ Yes ☑ No
Grouted Depth: from _____ ft. to _____ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Gravel/Topsoil	0.5	0.5
Red and Brown-Silty Clayey	5.5	6.0
SAND		
White and Tan- Silty Clayey SAND	9.0	15.0
*Indicate Water Bearing Zones (Use a 2nd sheet if needed)		

5. REMARKS:
RW-1

6. TYPE: ☐ Mud Rotary ☐ Jetted ☐ Bored ☐ Dug ☐ Air Rotary ☐ Driven ☐ Cable tool ☑ Other-Auger

7. PERMIT NUMBER: UWM-24622

8. USE:
☐ Residential ☐ Public Supply ☐ Process
☐ Irrigation ☐ Air Conditioning ☐ Emergency
☐ Test Well ☑ Monitor Well ☐ Replacement

9. WELL DEPTH (completed) 15.0 ft. Date Started: 6/19/2012 Date Completed: 6/19/2012

10. CASING: ☑ Threaded ☐ Welded
Diam.: 4"
Type: ☐ PVC ☐ Galvanized ☐ Steel ☐ Other
4.0 in. to 5.0 ft. depth
_____ in. to _____ ft. depth
Height: Above /Below
Surface 0.0 ft.
Weight _____ lb./ft.
Drive Shoe? ☐ Yes ☐ No

11. SCREEN:
Type: SCH 40 PVC Diam.: 4 Inch
Slot/Gauge: .010 Length: 15.0 Feet
Set Between: 5.0 ft. and 15.0 ft. **NOTE: MULTIPLE SCREENS**
_____ ft. and _____ ft. **USE SECOND SHEET**
Sieve Analysis ☐ Yes (please enclose) ☐ No

12. STATIC WATER LEVEL 4.39 ft. below land surface after 24 hours

13. PUMPING LEVEL Below Land Surface.
_____ ft. after _____ hrs. Pumping _____ G.P.M.
Pumping Test: ☐ Yes (please enclose) ☐ No
Yield: _____

14. WATER QUALITY
Chemical Analysis ☐ Yes ☐ No Bacterial Analysis ☐ Yes ☐ No
Please enclose lab results.

15. ARTIFICIAL FILTER (filter pack) ☑ Yes ☐ No
Installed from 3.0 ft. to 15.0 ft.
Effective size _____ Uniformity Coefficient _____

16. WELL GROUTED? ☑ Yes ☐ No
☐ Neat Cement ☐ Bentonite ☑ Bentonite/Cement ☐ Other _____
Depth: From 0.0 ft. to 1.0 ft.

17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: ____ ft. ____ direction
Type _____
Well Disinfected ☐ Yes ☐ No Type: _____ Amount: _____

18. PUMP: Date installed: _____ Not installed ☐
Mfr. Name: _____ Model No.: _____
H.P. _____ Volts _____ Length of drop pipe ____ ft. Capacity ____ gpm
TYPE: ☐ Submersible ☐ Jet (shallow) ☐ Turbine ☐ Jet (deep) ☐ Reciprocating ☐ Centrifugal

19. WELL DRILLER: Tommy Bolyard **CERT. NO.:** 01846
Address: (Print) Level: A B C D (circle one)
17538 Greenhill Road X
Charlotte. NC 28278
Telephone No.: 704-607-7529 Fax No.: 803-548-2233

20. WATER WELL DRILLER'S CERTIFICATION: This well was drilled under my direction and this report is true to the best of my knowledge and belief.

Signed: _____ Date: 8/27/12
Well Driller

If D Level Driller, provide supervising driller's name:

DHEC 1903 (07/2003) **COPY 1 MAIL TO: S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL (ADDRESS ABOVE)**

APPENDIX F:

AQUIFER EVALUATION SUMMARY FORMS, DATA, GRAPHS, EQUATIONS

This appendix is not applicable to the scope of services presented in the subject report, however this page has been included in order to conform to the SCDHEC UST Management Division Programmatic QAPP and provide report continuity

APPENDIX G:

DISPOSAL MANIFEST

Midlands
Environmental
Consultants, Inc.

August 28, 2012

Re: Treatment of Purge Water
Purolator Courier Corporation
West Columbia, South Carolina
SCDHEC Site ID Number 05878
MECI Project Number 12-3929

To Whom it May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

Post Office Box 854, Lexington SC 29071 • 235-B Dooley Road, Lexington, SC 29073
Telephone: (803) 808-2043 • fax: (803) 808-2048

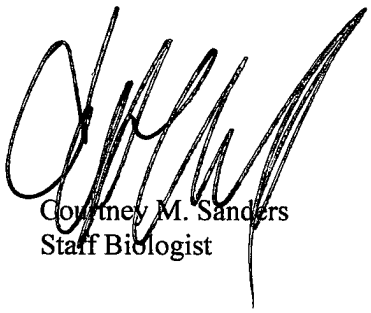
All purge waters were treated on-site using an up-flow treatment drum loaded with 30 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

- **60.0 gallons was treated on June 19, 2012 during the development of the newly installed monitoring wells.**
- **77.0 gallons were treated on August 03, 2012 during the comprehensive groundwater sampling event.**
- **A total 137.0 gallons were treated at the referenced site during the subject assessment**

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.



Courtney M. Sanders
Staff Biologist

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number 10817

5. Generator's Name and Mailing Address

MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON, SC 29073

Generator's Site Address (if different than mailing address)

Generator's Phone: 803-360-7957

6. Transporter 1 Company Name: T K TANK SERVICES,INC. — U.S. EPA ID Number:

7. Transporter 2 Company Name — U.S. EPA ID Number:

8. Designated Facility Name and Site Address

T K TANK SERVICES INC.
425 BOULEVARD RD.
SUMTER, SC

Facility's Phone: 803-418-6314 — U.S. EPA ID Number:

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1 nonhazardous petroleum contaminated water/product	1	TT	~~2500~~ 3065	gallons

SCDHEC Site	Permit Number	Gallons Produced
Green Ave. BP	13084	50
Rogers Auto	00428	50
Frank's Service Center	08936	200
Donnie's Muffler	18955	125
Garrett Hampton	19466	200
Ez Stop Food Shop	14555	100
Bay Creek	18662	175
Beaufort Patrol	01056	50
Great Falls Exxon	14469	150
Town Of Winnsboro	18662	150
Purolator Corp.	05878	200
United Oil 144	13137	140
United Oil 144	13137	100
Burrow's Service	12487	650
BB&T	19443	150
Constan	07871	50
Green Ave. BP	13084	125
Brown Brother's Gulf Service	04145	200
JC Morrow Grocery	08551	75
Tillman Johnson	08484	125

...d accurately described above by the proper shipping name, and are classified, packaged, ...national and national governmental regulations.

Month 6 Day 27 Year 2012

Port of entry/exit:

Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: STEVE GAMBLE — Signature: Steve A. Gamble — Month 6 Day 27 Year 12

Transporter 2 Printed/Typed Name — Signature — Month Day Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Tommy Keels — Signature: Tommy Keels — Month 6 Day 27 Year 12

169-BLC-O 5 11977 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

WASTE MANAGEMENT

Richland County LF
1017 Highway Church Road
Elgin, SC, 29045
Ph: (803) 788-3054

Original
Ticket# 1172795

Customer Name MIDLANDSENVIRON MIDLANDS ENVI
Ticket Date 06/20/2012
Payment Type Credit Account
Manual Ticket#
Hauling Ticket#
Route
State Waste Code
Manifest 0
Destination
PO
Profile VR2716 (SOIL FROM UST ASSESSMENT)
Generator ILS-MIDLANDSENVIRONMENTAL MIDLANDS ENVIRONMENTAL

Carrier MIDLANDSENVIRON MIDLANDS ENVIRONMENT
Vehicle Volume
Container
Driver
Check#
Billing # 0007455
Gen EPA ID

	Time	Scale	ScaleMaster		
In	06/20/2012 13:48:18	Scale1	joyce	Gross	14240 lb
Out	06/20/2012 14:06:31	Scale2	joyce	Tare	9060 lb
				Net	5180 lb
				Tons	2.59

Comments

	Product	LD%	Qty	UOM	Rate	Fee	Amount	Origin
1	SOIL-Cont. Soil -	100	2.59	Tons				32-LEXINGT
2	FUEL-Fuel Surcharg	100		%				32-LEXINGT
3	EVF-P-Standard Env	100		%				32-LEXINGT

Total Fees
Total Ticket

SIGNATURE [signature]

1/3 methenyl's 0.86 / 1/3 Purolator 0.86 / 1/3 Fmr Royal Pet. 0.86

403WM

SPECIAL WASTE MANIFEST

WASTE ID NUMBER VA2718	*Richland Landfill* 1047 Highway Church Road Elgin, SC 29045
EXPIRATION DATE November 17, 2013	Special Waste Phone: 803-744-3346 Fax: 866-904-7194
Prepared by:	Karen Truett/Carol Weldon

GENERATOR OF WASTE: Midlands Env. Consultants, Inc. - Various

CUSTOMER Midlands Env. Consultants — ACCOUNT NUMBER: 820-469

LOCATION OF WASTE: Site Address:

CITY: Lexington COUNTY: Lexington

PHONE NUM 803-808-2043 CONTACT: Bryan Shane

FAX NUMBER:

GENERATOR'S SIGNATURE [signature] DATE: 6/20/12

TRANSPORTER OF WASTE: MECI

DATE: 6/20/12 TRUCK NUMBER: 1

DRIVER'S SIGNATURE [signature]

**** TO BE COMPLETED BY RICHLAND LANDFILL******

DISPOSAL SITE: RICHLAND LANDFILL ELGIN, SC

Waste Class: Soil

DESCRIPTION OF WASTE: Soil from UST Assessment

TICKET NUMBER: 1176799

RECEIVED BY: [signature]

APPENDIX H:

LOCAL ZONING REGULATIONS

This appendix is not applicable to the scope of services presented in the subject report, however this page has been included in order to conform to the SCDHEC UST Management Division Programmatic QAPP and provide report continuity

APPENDIX I:

FATE AND TRANSPORT MODELING

This appendix is not applicable to the scope of services presented in the subject report, however this page has been included in order to conform to the SCDHEC UST Management Division Programmatic QAPP and provide report continuity

APPENDIX J:
ACCESS AGREEMENTS

Midlands Environmental Consultants, Inc.

PERMISSION TO ENTER PROPERTY

I, Milton L. Brazell, hereby certify that I am the owner of record or otherwise have the legal right to grant entry and access to the property for the purpose described below ("Owner") and do hereby grant Midlands Environmental Consultants, Inc. (MECI), and its agents, employees and subcontractors, and assigns the right to enter upon the property located off of Corporate Boulevard Lexington County Tax Map Number 004599-10-008 for the purpose of performing an environmental assessment, as requested by SCDHEC which will include the following categories of work:

- Installation of groundwater monitoring well(s);
- Measuring depth to groundwater, about once every three months;
- Collection of groundwater samples, about once every three months;
- Maintenance of the monitoring well(s).

Access to the monitoring well will be needed for a time period not likely to exceed three to five years after well installation has been completed. The property owner will be notified at least 48 hours in advance of any planned activities on the property. At any time the property owner may contact MECI if there are any questions or concerns about work performed on the property.

The Permission to Enter Property is effective upon execution of this document.

This Permission to Enter Property is granted with consideration of MECI making reasonable restoration to the property resulting from MECI activities on the property.

Consented to giving access:

Property Owner's Signature — Date: 5/7/12 — Daytime Phone#: 803-530-6272

Milton L. Brazell — Printed Name — Date: 5/7/12 — Evening Phone#: 803-796-0069

Access Denied:

Property Owners Signature — Date — Daytime Phone#

Printed Name — Date — Evening Phone#

MECI Representative — Date: 5-7-12

2358 Dooley Rd., Lexington, SC 29073 Telephone (803) 808-2043 * Fax (803) 808-2048

APPENDIX K:

DATA VERIFICATION CHECKLIST

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Are Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?	X		
3	Is name, address, & phone number of current property owner provided?	X		
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?	X		
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?	X		
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?	X		
11	Has the site-specific geology and hydrogeology been described?	X		
12	Has the primary soil type been described?	X		
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?	X		
17	Has the method of well development been detailed?	X		
18	Has justification been provided for the locations of the monitoring wells?	X		
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?	X		
20	Has the groundwater sampling methodology been detailed?	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? (Table 2 & Figure 5)	X		
22	Has the purging methodology been detailed?	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? (Appendix B)	X		
24	If free-product is present, has the thickness been provided?			X
25	Does the report include a brief discussion of the assessment done and the results?	X		
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?	X		
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)	X		
34	Has the current and historical laboratory data been provided in tabular format? (Tables 3 & 3A)	X		
35	Have the aquifer characteristics been provided and summarized on the appropriate form? (Appendix F)			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figures 3, 4)	X		
40	Has the site potentiometric map been provided? (Figure 5)	X		
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)	X		
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)	X		
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? (Appendix G)	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)	X		
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided? (Appendix K)	X		

D H E C
PROMOTE PROTECT PROSPER

Catherine E. Heigel, Director
Promoting and protecting the health of the public and the environment

BRYAN SHANE
MIDLANDS ENVIRONMENTAL CONSULTANTS
PO BOX 854
LEXINGTON SC 29071

JUL 10 2015

Re: **Notice to Proceed-Site Specific Work Plan Approval**
Groundwater Sampling Contract
Solicitation # IFB-5400007403, PO# 4600422513
Purolator Courier Corp, 105 Corporate Blvd, West Columbia, SC
UST Permit #05878; CA # 50291 (Pace CA # 50292)
Site Specific Work Plan received June 19, 2015
Lexington County

Dear Mr. Shane:

In accordance with bid solicitation #IFB-5400007403 and the UST Management Division Quality Assurance Program Plan (QAPP), the Site-Specific Work Plan has been reviewed and approved. In accordance with the approved ACQAP, a status report of the project should be provided on a weekly basis via e-mail. If any quality assurance problems arise, you must contact me within 24 hours via phone or e-mail. In addition, a discussion of the problem(s) encountered, including quality assurance problems, the actions taken, and the results must be included in the final report submitted to the UST Management Division.

MECI will perform services at the site on behalf of the site's responsible party (RP); however, payment will be made from the SUPERB Account. The site's RP has no obligation for payment for this scope of work. Please coordinate access to the facility with the property owner. The Agency grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. A copy of the disposal manifest and/or acceptance letter from the receiving facility that clearly designates the quantity received must be included with the final report. The SUPERB Account will not reimburse for transportation or treatment of soil and/or groundwater with concentrations below RBSLs.

Please note sampling should be conducted within 15 calendar days from the date of this letter. The final report is due within 3 weeks from the date the site is sampled. If the site is not sampled by the specified due date or the report is not received in the specified time period, a late fee may be imposed. The final report should contain the requirements of Section III.2.15 of the bid solicitation. The final report should be submitted to John Bryant, the contract manager.

If you have any site-specific questions, please contact me at (803) 898-0634 or via e-mail at utzst@dhec.sc.gov. If you have any contract specific questions, please contact John Bryant at (803) 898-0606 or via e-mail at bryantjc@dhec.sc.gov.

Sincerely,

Sonya T. Utz, Hydrogeologist
Assessment/Corrective Action Section
UST Management Division
Bureau of Land & Waste Management

enc: Approved Cost Agreement (both CAs)

cc: John Bryant, Corrective Action Section, UST Management Division (w/o encs.)
Trey Carter, Pace Analytical Services, 9800 Kincey Ave, Ste 100, Huntersville, NC, 28078 (w/ approved CA)
Technical Files (w/ encs.)

Approved Cost Agreement 50292

Facility: 05878 PUROLATOR COURIER CORP

UTZST

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
11 ANALYSES						
	GW GROUNDWATER	A2	BTEXNM+OXYGS+1,2-DCA+ETH-8260B	38.0000	19.00	722.00
		F1	EDB BY 8011	37.0000	18.00	666.00
				Total Amount		1,388.00

Approved Cost Agreement 50291

Facility: 05878 PUROLATOR COURIER CORP

UTZST

PO Number:

Task / Description	Categories	Item	Description	Qty / Pct	Unit Price	Amount
04 MOB/DEMOB						
		B1	PERSONNEL	2.0000	350.00	700.00
10 SAMPLE COLLECTION						
		A1	GROUNDWATER (PURGE)	32.0000	16.00	512.00
		C1	WATER SUPPLY	2.0000	5.00	10.00
		H1	FIELD BLANK	1.0000	10.00	10.00
17 DISPOSAL						
		AA	WASTEWATER	350.0000	1.00	350.00
18 MISCELLANEOUS						
			SITE RECONNAISSANCE	1.0000	0.00	0.00
			SITE SPECIFIC WORK PLAN	1.0000	0.00	0.00
			TRIP BLANK	1.0000	10.00	10.00
				Total Amount		1,592.00

UST
Sonya
JUL 3 1 2015
DIVISION

Midlands
Environmental
Consultants, Inc.

July 31, 2015

UST
DOCKETING
8/4

Mr. John C. Bryant, Hydrogeologist
Corrective Action Section
Underground Storage Tank Program
Bureau of Land and Waste Management
South Carolina Department of Health
and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Subject: Report of Groundwater Sampling
Purolator Courier Corp
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID Number 05878, CA # 50291
MECI Project Number 15-5220
Certified Site Rehabilitation Contractor UCC-0009

Dear Mr. Bryant,

Midlands Environmental Consultants Inc. (MECI) is pleased to submit the attached Report of Groundwater Sampling for the referenced site. This report describes site activities conducted at the site in general accordance with South Carolina Department of Health and Environmental Control's (SCDHEC) Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP).

PROJECT INFORMATION

The subject site (Purolator Courier Corporation) is located at 105 Corporate Blvd, West Columbia, Lexington County, South Carolina. The subject site formally maintained one 500 gallon waste oil underground storage tank (UST), and two 10,000 gallon gasoline UST's. These UST's were abandoned by removal of the ground in September of 1991. A release of petroleum product from these UST's was reported to the South Carolina Department of Health and Environmental Control (SCDHEC) in October of 1991 and subsequently confirmed in June of 1992. Currently, the subject site is occupied by a warehouse. The subject site is currently rated a Class 2BA.

The above information is based on reports and correspondence obtained from MECI field notes and SCDHEC files.

MONITORING WELL SAMPLING AND CHEMICAL ANALYSIS

On July 14, 2015, MECI personnel collected groundwater samples from seventeen (17) monitoring wells and two (2) surface water locales at the subject site. Two (2) monitoring wells (MW-5 & MW-15) were gauged and determined to contain measurable free phase petroleum product. Monitoring

well MW-2 was located behind a locked fence and access was unable to be gained to sample the well. Monitoring wells MW-16 and MW-18 were unable to be located and use of a metal detector was unsuccessful. Additionally, wells MW-3, MW-6, MW-14, MW-21, MW-23, MW-25, WSW-G and WSW-L were not depicted on the provided site map, therefore were not located.

Based on a request by SCDHEC personnel, all of the wells were to be purged prior to sampling. Seventeen (17) monitoring wells were purged prior to sampling. Purging was completed by bailing at least five well volumes of water from the well, until pH, conductivity, dissolved oxygen stabilized, or all water was evacuated from the well, whichever occurred first. Sampling/purging was completed utilizing a prepackaged, clear, disposable polyethylene bailer and nylon rope. A new set of nitrile gloves were worn at each monitoring well, and at all time samples were handled. Field measurements of pH, conductivity, dissolved oxygen, water temperature, and turbidity were obtained before well sampling process. MECI utilized YSI550A meter for DO (mg/L) and temperature readings (°C), YSI63 meters for pH and conductivity (uS) readings and a MicroTPI/TPW turbidimeter for turbidity readings (NTU). The wells were sampled in accordance with SCDHEC's Quality Assurance Program Plan for the Underground Storage Tank Management Division (QAPP Revision 2.0) and MECI's Standard Operating Procedures (MECI SOP, Dates January 2014). Groundwater samples obtained were sent to Pace Analytical Services, Inc. of Huntersville, NC (SCDHEC Laboratory Certification #99006001) for analysis.

The following sampling matrix contains well development and requested analyses for each well:

Monitoring Well	Purge	No Purge	Gauge Only	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	Sulfate (EPA Method 375.2)	Nitrate (EPA Method 335.2)	Methane (RSK Method)	PAH's (EPA Method 8270)	Ferrous Iron (Field Test)
					Analyte Sampled									
MW-1	X				X	X	X	X						
MW-2				X										
MW-3				X										
MW-4	X				X	X	X	X						
MW-5			X											
MW-6				X										
MW-7	X				X	X	X	X						
MW-8	X				X	X	X	X						
MW-9	X				X	X	X	X						
MW-10	X				X	X	X	X						
MW-11	X				X	X	X	X						
MW-12	X				X	X	X	X						
MW-13	X				X	X	X	X						
MW-14				X										
MW-15			X											
MW-16				X										
MW-18				X										
MW-21				X										

Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dicloroethane PAH = polycyclic aromatic hydrocarbons

Monitoring Well	Purge	No Purge	Gauge Only	Not Located	BTEX, Naphthalene, MTBE (EPA Method 8260-B)	EDB (EPA Method 8011)	1,2 DCA (EPA Method 8260-B)	8 Oxygenates (EPA Method 8260-B)	Total Lead (EPA Method 6010)	Sulfate (EPA Method 375.2)	Nitrate (EPA Method 335.2)	Methane (RSK Method)	PAH's (EPA Method 8270)	Ferrous Iron (Field Test)
					Analyte Sampled									
MW-23				X										
MW-25				X										
PW-1	X				X	X	X	X						
PW-2	X				X	X	X	X						
RW-1	X				X	X	X	X						
RW-2	X				X	X	X	X						
RW-3	X				X	X	X	X						
RW-4	X				X	X	X	X						
RW-5	X				X	X	X	X						
RW-6	X				X	X	X	X						
WSW-G				X										
WSW-L				X										
SW-1					X	X	X	X						
SW-2					X	X	X	X						
RW-6 Dup.					X	X	X	X						
Field Blank					X	X	X	X						
Trip Blank					X		X	X						

Notes: BTEX = benzene, toluene, ethylbenzene, & total xylenes MTBE=methyl tertiary butyl ether 1,2 DCA = 1,2 dicloroethane PAH = polycyclic aromatic hydrocarbons

Purge water produced by the purging process was treated on-site utilizing a granular activated carbon unit. A total of 104.5 gallons of purge water was disposed of in this manner. A disposal manifest for the referenced purge water is attached at the end of this report.

Please feel free to contact us at 803-808-2043 if you have any immediate questions or comments.

Sincerely,

Midlands Environmental Consultants, Inc.

Kyle V. Pudney
Project Biologist

Jeff L. Coleman
Senior Scientist

Attachments:

Contractor Checklist

Item#	Item	Yes	No	N/A
1	Is Facility Name, Permit #, and address provided?	X		
2	Is UST Owner/Operator name, address, & phone number provided?			X
3	Is name, address, & phone number of current property owner provided?			X
4	Is the DHEC Certified UST Site Rehabilitation Contractor's Name, Address, telephone number, and certification number provided?	X		
5	Is the name, address, telephone number, and certification number of the well driller that installed borings/monitoring wells provided?			X
6	Is the name, address, telephone number, and certification number of the certified laboratory(ies) performing analytical analyses provided?	X		
7	Has the facility history been summarized?	X		
8	Has the regional geology and hydrogeology been described?			X
9	Are the receptor survey results provided as required?			X
10	Has current use of the site and adjacent land been described?			X
11	Has the site-specific geology and hydrogeology been described?			X
12	Has the primary soil type been described?			X
13	Have field screening results been described?			X
14	Has a description of the soil sample collection and preservation been detailed?			X
15	Has the field screening methodology and procedure been detailed?			X
16	Has the monitoring well installation and development dates been provided?			X
17	Has the method of well development been detailed?			X
18	Has justification been provided for the locations of the monitoring wells?			X
19	Have the monitoring wells been labeled in accordance with the UST QAPP guidelines?			X
20	Has the groundwater sampling methodology been detailed? See MECI SOP	X		
21	Have the groundwater sampling dates and groundwater measurements been provided? See attached Site Activity Summary Sheet	X		
22	Has the purging methodology been detailed? See MECI SOP	X		
23	Has the volume of water purged from each well been provided along with measurements to verify that purging is complete? See attached Field Data Information Sheets	X		
24	If free-product is present, has the thickness been provided? See attached Site Activity Summary Sheets	X		
25	Does the report include a brief discussion of the assessment done and the results?			X
26	Does the report include a brief discussion of the aquifer evaluation and results?			X
27	Does the report include a brief discussion of the fate & transport models used?			X

Item#	Item	Yes	No	N/A
28	Are the site-conceptual model tables included? (Tier 1 Risk Evaluation)			X
29	Have the exposure pathways been analyzed? (Tier 2 Risk Evaluation)			X
30	Have the SSTLs for each compound and pathway been calculated? (Tier 2 Risk Evaluation)			X
31	Have recommendations for further action been provided and explained?			X
32	Has the soil analytical data for the site been provided in tabular format? (Table 1)			X
33	Has the potentiometric data for the site been provided in tabular format? (Table 2)			X
34	Has the current and historical laboratory data been provided in tabular format?			X
35	Have the aquifer characteristics been provided and summarized on the appropriate form?			X
36	Have the Site conceptual model tables been included? (Tier 1 Risk Evaluation)			X
37	Has the topographic map been provided with all required elements? (Figure 1)	X		
38	Has the site base map been provided with all required elements? (Figure 2)	X		
39	Have the CoC site maps been provided? (Figure 3 & Figure 4)			X
40	Has the site potentiometric map been provided? (Figure 5)			X
41	Have the geologic cross-sections been provided? (Figure 6)			X
42	Have maps showing the predicted migration of the CoCs through time been provided? (Tier 2 Risk Evaluation)			X
43	Has the site survey been provided and include all necessary elements? (Appendix A)			X
44	Have the sampling logs, chain of custody forms, and the analytical data package been included with all required elements? (Appendix B)	X		
45	Is the laboratory performing the analyses properly certified?	X		
46	Has the tax map been included with all necessary elements? (Appendix C)			X
47	Have the soil boring/field screening logs been provided? (Appendix D)			X
48	Have the well completion logs and SCDHEC Form 1903 been provided? (Appendix E)			X
49	Have the aquifer evaluation forms, data, graphs, equations, etc. been provided? (Appendix F)			X
50	Have the disposal manifests been provided? See attached	X		
51	Has a copy of the local zoning regulations been provided? (Appendix H)			X
52	Has all fate and transport modeling been provided? (Appendix I)			X
53	Have copies of all access agreements obtained by the contractor been provided? (Appendix J)			X
54	Has a copy of this form been attached to the final report and are explanations for any missing or incomplete data been provided?	X		

Site Activity Summary

Midlands Environmental Consultants, Inc.

UST Permit #:	05878
Facility Name:	Purolator Courier Corp.
County:	Lexington
Field Personnel:	T. Elder, P. Wylie

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Intial Dissolved Oxygen (mg/L)	# Gals. Purged	Comments
MW-1	Y	7/14/15	14:50	4-14	***	4.27	***	3.76	5.50	No Odor
MW-2	N	7/14/15	NS	3-13	***	NS	***	NS	NS	Not Sample, Well located behind locked fence
MW-3	N	7/14/15	NL	4-14	***	NL	***	NL	NL	Not Located, Not on Provided Map
MW-4	Y	7/14/15	14:42	4-14	***	4.66	***	3.46	1.25	No Odor
MW-5	N	7/14/15	PROD	4-14	3.77	3.80	0.03	PROD	PROD	Product Detected
MW-6	N	7/14/15	NL	4-14	***	NL	***	NL	NL	Not Located, Not on Provided Map
MW-7	Y	7/14/15	12:06	4-14	***	3.71	***	1.19	4.75	No Odor
MW-8	Y	7/14/15	11:55	4-14	***	3.63	***	1.16	5.00	No Odor
MW-9	Y	7/14/15	11:35	4-14	***	3.58	***	0.90	5.00	No Odor
MW-10	Y	7/14/15	11:45	4-14	***	4.02	***	1.98	5.50	No Odor
MW-11	Y	7/14/15	12:39	4-9	***	3.76	***	1.93	2.25	No Odor
MW-12	Y	7/14/15	12:28	4-9	***	3.82	***	0.91	2.75	No Odor
MW-13	Y	7/14/15	12:48	4-9	***	3.85	***	0.87	3.00	No Odor
MW-14	N	7/14/15	NL	4-9	***	NL	***	NL	NL	Not Located, Not on Provided Map
MW-15	N	7/14/15	PROD	3-13	3.30	4.05	0.75	PROD	PROD	Product Detected
									35.00	**TOTAL GALLONS PURGED**

Site Activity Summary

UST Permit #: 05878
Facility Name: Purolator Courier Corp.
County: Lexington
Field Personnel: T. Elder, P. Wylie

Midlands Environmental Consultants, Inc.

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Intial Dissolved Oxygen (mg/L)	# Gals. Purged	Comments
MW-16	N	7/14/15	NL	3-13	***	NL	***	NL	NL	Not Located, In high vegitation
MW-18	N	7/14/15	NL	2-12	***	NL	***	NL	NL	Not Located, Metal Detectot Used
MW-21	N	7/14/15	NL	1-6	***	NL	***	NL	NL	Not Located, Not on Provided Map
MW-23	N	7/14/15	NL	1-6	***	NL	***	NL	NL	Not Located, Not on Provided Map
MW-25	N	7/14/15	NL	1-6	***	NL	***	NL	NL	Not Located, Not on Provided Map
PW-1	Y	7/14/15	13:07	16-21	***	3.94	***	1.15	6.00	No Odor
PW-2	Y	7/14/15	12:19	21-26	***	2.95	***	1.10	8.25	No Odor
RW-1	Y	7/14/15	14:11	5-15	***	3.38	***	0.81	9.50	Odor
RW-2	Y	7/14/15	13:42	5-15	***	3.71	***	2.40	11.50	No Odor
RW-3	Y	7/14/15	13:22	5-15	***	3.18	***	2.11	10.00	No Odor
RW-4	Y	7/14/15	14:39	1-11	***	4.04	***	0.81	8.75	No Odor
RW-5	Y	7/14/15	14:23	1-11	***	3.46	***	2.18	6.50	No Odor
RW-6	Y	7/14/15	13:57	1-11	***	3.63	***	Sheen	9.00	Odor
WSW-G	N	7/14/15	NL	***	***	***	***	***	***	Not Located, Not on Provided Map
WSW-L	N	7/14/15	NL	***	***	***	***	***	***	Not Located, Not on Provided Map
									69.50	TOTAL GALLONS PURGED

Site Activity Summary

UST Permit #: 05878
Facility Name: Purolator Courier Corp.
County: Lexington
Field Personnel: T. Elder, P. Wylie

Midlands Environmental Consultants, Inc.

Sample ID	Sampled?	Date	Time	Screened Interval	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Intial Dissolved Oxygen (mg/L)	# Gals. Purged	Comments
SW-1	Y	7/14/15	11:00	***	***	***	***	***	***	Surface Water Sample
SW-2	Y	7/14/15	11:01	***	***	***	***	***	***	Surface Water Sample
RW-6 Dup.	Y	7/14/15	13:57	***	***	***	***	***	***	Duplicate Sample
Field Blank	Y	7/14/15	14:53	***	***	***	***	***	***	Field Blank
Trip Blank	Y	7/14/15	14:54	***	***	***	***	***	***	Trip Blank
									0.00	TOTAL GALLONS PURGED

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** MW-1

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	5.27			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			8.73	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.42	gallons
5 casing volume (5 X CV)=		5	7.11	gallons

Total Volume of Water Purged Before Sampling 5.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	14:45	14:46	14:48	14:49	14:50			
pH (s.u.)	6.50	6.58	6.63	6.71	6.74			
Specific Conductivity (µmhos/cm)	109.2	87.6	89.4	84.2	86.7			
Water Temperature (°C)	23.5	23.8	24.2	24.3	24.1			
Dissolved Oxygen	3.76	3.90	4.01	4.03	4.10			
Turbidity	47.21	53.04	68.36	90.44	101.2			

Remarks: Sample Time: 14:50 **Dry @ 5.50 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015
Field Personnel: T. Elder, P. Wylie
General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp
Site ID#: 05878 **Monitoring Well #** MW-4
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.66			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			9.34	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.52	gallons
5 casing volume (5 X CV)=		5	7.61	gallons

Total Volume of Water Purged Before Sampling 1.25 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	14:41	14:42						
pH (s.u.)	6.87	6.90						
Specific Conductivity (µmhos/cm)	120.1	116.8						
Water Temperature (°C)	22.9	23.3						
Dissolved Oxygen	3.46	3.58						
Turbidity	39.46	68.32						

Remarks: Sample Time: 14:42 **Dry @ 1.25 Gallons**
TD: 11.80' BTOC

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** MW-5

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:	***0.03***			feet
Depth to Free Product (DFP)	3.77			feet
Depth to Ground Water (DGW)	3.80			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			10.2	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.66	gallons
5 casing volume (5 X CV)=		5	8.31	gallons

Total Volume of Water Purged Before Sampling PROD gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	PROD							
pH (s.u.)	PROD							
Specific Conductivity (µmhos/cm)	PROD							
Water Temperature (°C)	PROD							
Dissolved Oxygen	PROD							
Turbidity	PROD							

Remarks: Sample Time: PROD **PROD = Product Detected**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015
Field Personnel: T. Elder, P. Wylie
General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp
Site ID#: 05878 **Monitoring Well #** MW-7
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.71			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			10.29	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.68	gallons
5 casing volume (5 X CV)=		5	8.39	gallons

Total Volume of Water Purged Before Sampling 4.75 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:01	12:03	12:05	12:06				
pH (s.u.)	6.20	6.16	6.19	6.22				
Specific Conductivity (µmhos/cm)	93.5	95.6	102.1	110.5				
Water Temperature (°C)	23.9	24.2	24.5	24.3				
Dissolved Oxygen	1.19	1.28	1.36	1.42				
Turbidity	31.62	50.98	56.24	73.28				

Remarks: Sample Time: 12:06 **Dry @ 4.75 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** MW-8

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.63			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			10.37	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.69	gallons
5 casing volume (5 X CV)=		5	8.45	gallons

Total Volume of Water Purged Before Sampling 5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:50	11:52	11:54	11:55				
pH (s.u.)	6.16	6.19	6.20	6.18				
Specific Conductivity (µmhos/cm)	89.4	98.3	119.2	128.6				
Water Temperature (°C)	23.4	23.6	23.7	23.9				
Dissolved Oxygen	1.16	1.17	1.25	1.31				
Turbidity	20.91	28.46	57.24	69.4				

Remarks: Sample Time: 11:55 **Dry @ 5.00 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** MW-9

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.58			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			10.42	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	1.70	gallons
5 casing volume (5 X CV)=		5	8.49	gallons

Total Volume of Water Purged Before Sampling 5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:30	11:32	11:34	11:35				
pH (s.u.)	6.03	6.09	6.07	6.10				
Specific Conductivity (µmhos/cm)	97.4	102.3	109.0	114.3				
Water Temperature (°C)	24.3	24.3	24.1	24.0				
Dissolved Oxygen	0.90	0.92	1.01	1.08				
Turbidity	28.91	46.21	62.00	73.41				

Remarks: Sample Time: 11:35 **Dry @ 5.00 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015
Field Personnel: T. Elder, P. Wylie
General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp
Site ID#: 05878 **Monitoring Well #** MW-10
Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.02			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			9.98	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.63	gallons
5 casing volume (5 X CV)=		5	8.13	gallons

Total Volume of Water Purged Before Sampling 5.5 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	11:40	11:41	11:43	11:45				
pH (s.u.)	6.24	6.21	6.23	6.27				
Specific Conductivity (µmhos/cm)	76.3	81.9	93.4	96.7				
Water Temperature (°C)	23.8	24.2	24.1	24.1				
Dissolved Oxygen	1.98	2.10	2.13	2.19				
Turbidity	22.47	30.91	51.70	78.93				

Remarks: Sample Time: 11:45 **Dry @ 5.50 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** MW-11

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.76			feet
Total Well Depth (TWD)	9			feet
Length of the water column (LWC=TWD-DGW)			5.24	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	0.85	gallons
5 casing volume (5 X CV)=		5	4.27	gallons

Total Volume of Water Purged Before Sampling 2.25 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:36	12:37	12:38	12:39				
pH (s.u.)	6.08	6.13	6.19	6.16				
Specific Conductivity (µmhos/cm)	117.6	110.9	103.2	107.6				
Water Temperature (°C)	23.8	23.4	23.7	23.9				
Dissolved Oxygen	1.93	2.04	2.13	2.09				
Turbidity	19.36	28.64	41.02	50.36				

Remarks: Sample Time: 12:39 **Dry @ 2.25 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** MW-12

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.82			feet
Total Well Depth (TWD)	9			feet
Length of the water column (LWC=TWD-DGW)			5.18	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	0.84	gallons
5 casing volume (5 X CV)=		5	4.22	gallons

Total Volume of Water Purged Before Sampling 2.75 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:25	12:26	12:27	12:28				
pH (s.u.)	5.91	6.09	6.14	6.17				
Specific Conductivity (µmhos/cm)	83.4	90.8	99..2	107.8				
Water Temperature (°C)	22.7	22.5	22.4	22.7				
Dissolved Oxygen	0.91	1.00	1.03	1.09				
Turbidity	13.62	29.01	47.68	63.9				

Remarks: Sample Time: 12:28 **Dry @ 2.75 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** MW-13

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.85			feet
Total Well Depth (TWD)	9			feet
Length of the water column (LWC=TWD-DGW)			5.15	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	0.84	gallons
5 casing volume (5 X CV)=		5	4.20	gallons

Total Volume of Water Purged Before Sampling 3 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:45	12:46	12:47	12:48				
pH (s.u.)	6.14	6.17	6.21	6.24				
Specific Conductivity (µmhos/cm)	95.4	99.2	106.2	114.3				
Water Temperature (°C)	23.3	23.2	23.4	23.6				
Dissolved Oxygen	0.87	0.95	1.02	1.04				
Turbidity	15.72	24.09	43.66	70.09				

Remarks: Sample Time: 12:48 **Dry @ 3.00 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** MW-15

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:	*0.75*			feet
Depth to Free Product (DFP)	3.30			feet
Depth to Ground Water (DGW)	4.05			feet
Total Well Depth (TWD)	14			feet
Length of the water column (LWC=TWD-DGW)			9.95	feet
1 casing volume (CV=LWC X C)= _____ X		0.163	1.62	gallons
5 casing volume (5 X CV)=		5	8.11	gallons

Total Volume of Water Purged Before Sampling PROD gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	PROD							
pH (s.u.)	PROD							
Specific Conductivity (µmhos/cm)	PROD							
Water Temperature (°C)	PROD							
Dissolved Oxygen	PROD							
Turbidity	PROD							

Remarks: Sample Time: PROD **PROD = Product Detected**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** PW-1

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.94			feet
Total Well Depth (TWD)	21			feet
Length of the water column (LWC=TWD-DGW)			17.06	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	2.78	gallons
5 casing volume (5 X CV)=		5	13.90	gallons

Total Volume of Water Purged Before Sampling 6 gals.
*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	13:01	13:04	13:07					
pH (s.u.)	6.31	6.36	6.40					
Specific Conductivity (µmhos/cm)	110.8	119.2	123.7					
Water Temperature (°C)	22.8	22.9	22.7					
Dissolved Oxygen	1.15	1.23	1.39					
Turbidity	18.67	336.2	58.93					

Remarks: Sample Time: 13:07 **Dry @ 6.00 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** PW-2

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 2 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	2.95			feet
Total Well Depth (TWD)	26			feet
Length of the water column (LWC=TWD-DGW)			23.05	feet
1 casing volume (CV=LWC X C)= ____ X		0.163	3.76	gallons
5 casing volume (5 X CV)=		5	18.79	gallons

Total Volume of Water Purged Before Sampling 8.25 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	12:10	12:14	12:18	12:19				
pH (s.u.)	6.11	6.08	6.13	6.11				
Specific Conductivity (µmhos/cm)	103.2	96.4	98.1	99.1				
Water Temperature (°C)	23.9	23.8	24.2	24.1				
Dissolved Oxygen	1.10	1.03	1.06	1.09				
Turbidity	12.47	19.3	38.96	73.44				

Remarks: Sample Time: 12:19 **Dry @ 8.25 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** RW-1

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:			feet
Depth to Free Product (DFP)			feet
Depth to Ground Water (DGW)	3.38		feet
Total Well Depth (TWD)	15		feet
Length of the water column (LWC=TWD-DGW)		11.62	feet
1 casing volume (CV=LWC X C)= _____ X	0.66	7.67	gallons
5 casing volume (5 X CV)=	5	38.35	gallons

Total Volume of Water Purged Before Sampling 9.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	14:02	14:07	14:11					
pH (s.u.)	6.49	6.53	6.51					
Specific Conductivity (µmhos/cm)	169.9	173.4	182.5					
Water Temperature (°C)	23.8	23.6	23.7					
Dissolved Oxygen	0.81	0.75	0.82					
Turbidity	13.48	49.2	110.90					

Remarks: Sample Time: 14:11 **Dry @ 8.25 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** RW-2

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.71			feet
Total Well Depth (TWD)	15			feet
Length of the water column (LWC=TWD-DGW)			11.29	feet
1 casing volume (CV=LWC X C)= ____ X		0.66	7.45	gallons
5 casing volume (5 X CV)=		5	37.26	gallons

Total Volume of Water Purged Before Sampling 11.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	13:30	13:38	13:42					
pH (s.u.)	6.52	6.60	6.57					
Specific Conductivity (µmhos/cm)	129.8	134.5	140.0					
Water Temperature (°C)	23.5	23.5	23.3					
Dissolved Oxygen	2.40	2.32	2.40					
Turbidity	19.83	73.91	193.60					

Remarks: Sample Time: 13:42 **Dry @ 11.50 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** RW-3

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.18			feet
Total Well Depth (TWD)	15			feet
Length of the water column (LWC=TWD-DGW)			11.82	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	7.80	gallons
5 casing volume (5 X CV)=		5	39.01	gallons

Total Volume of Water Purged Before Sampling 10 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	13:11	13:19	13:22					
pH (s.u.)	6.41	6.47	6.53					
Specific Conductivity (µmhos/cm)	136.9	158.2	164.5					
Water Temperature (°C)	23.0	23.3	23.5					
Dissolved Oxygen	2.11	1.83	1.80					
Turbidity	21.16	89.2	210.40					

Remarks: Sample Time: 13:22 **Dry @ 10.00 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** RW-4

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	4.04			feet
Total Well Depth (TWD)	11			feet
Length of the water column (LWC=TWD-DGW)			6.96	feet
1 casing volume (CV=LWC X C)= _____ X		0.66	4.59	gallons
5 casing volume (5 X CV)=		5	22.97	gallons

Total Volume of Water Purged Before Sampling 8.75 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	14:30	14:35	14:39					
pH (s.u.)	6.49	6.57	6.53					
Specific Conductivity (µmhos/cm)	186.2	190.4	193.6					
Water Temperature (°C)	23.6	23.7	23.7					
Dissolved Oxygen	0.81	0.87	0.91					
Turbidity	20.36	49.77	110.30					

Remarks: Sample Time: 14:39 **Dry @ 8.75 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** RW-5

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): $3.14 \times (D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.46			feet
Total Well Depth (TWD)	11			feet
Length of the water column (LWC=TWD-DGW)			7.54	feet
1 casing volume (CV=LWC X C)= ____ X		0.66	4.98	gallons
5 casing volume (5 X CV)=		5	24.88	gallons

Total Volume of Water Purged Before Sampling 6.5 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	14:16	14:21	14:23					
pH (s.u.)	6.29	6.36	6.39					
Specific Conductivity (µmhos/cm)	159.2	136.7	142.8					
Water Temperature (°C)	23.2	23.5	23.4					
Dissolved Oxygen	2.18	2.19	2.29					
Turbidity	24.53	36.2	78.93					

Remarks: Sample Time: 14:23 **Dry @ 6.50 Gallons**

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management Underground Storage Tank Program

Field Data Information Sheet for Groundwater Sampling

Date (mm/dd/yy): 7/14/2015

Field Personnel: T. Elder, P. Wylie

General Weather Conditions: Partly Cloudy

Ambient Air Temperature: 36.0 °C

Quality Assurance

pH Meter	YSI Model 550A	Conductivity Meter	
serial no.	02A0831	serial no.	02A0831
pH=4.0		standard	X
pH=7.0	X	standard	
pH=10.0		standard	

Chain of Custody

Relinquished by	Date/Time	Received by	Date/Time

Facility Name: Purolator Courier Corp

Site ID#: 05878 **Monitoring Well #** RW-6

Water Supply Well **Public** _____ **Private** _____

Monitoring Well Diameter (D): 4 inches

Conversion Factor (C): 3.14 x $(D/2)^2$ for a 2 inch well C=0.163
for a 4 inch well C=0.652

* Free Product Thickness:				feet
Depth to Free Product (DFP)				feet
Depth to Ground Water (DGW)	3.63			feet
Total Well Depth (TWD)	11			feet
Length of the water column (LWC=TWD-DGW)			7.37	feet
1 casing volume (CV=LWC X C)=	____ X	0.66	4.86	gallons
5 casing volume (5 X CV)=		5	24.32	gallons

Total Volume of Water Purged Before Sampling 9 gals.

*If free product is present over 1/8 inch, sampling will not be required.

Cumulative Volume Purged (gallons)	Inital	1st Vol	2nd Vol	3rd Vol	4th Vol	5th Vol	Post Sampling	
Time (military)	13:47	13:55	13:57					
pH (s.u.)	Sheen	Sheen	Sheen					
Specific Conductivity (µmhos/cm)	Sheen	Sheen	Sheen					
Water Temperature (°C)	Sheen	Sheen	Sheen					
Dissolved Oxygen	Sheen	Sheen	Sheen					
Turbidity	Sheen	Sheen	Sheen					

Remarks: Sample Time: 13:57 **Dry @ 9.00 Gallons**

Duplicate Sample Collected

Midlands Environmental Consultants, Inc.

July 31, 2015

Re: Treatment of Purge Water
Purolator Courier Corp
West Columbia, South Carolina
SCDHEC Site ID Number 05878
MECI Project Number 15-5220

To Whom It May Concern;

Midlands Environmental Consultants, Inc. is providing the following letter as certification that treatment of the referenced purge water complied with the conditions of "Proposed Conditions for Use of Portable Activated Carbon Units for the Treatment of Small Volumes of Petroleum Hydrocarbon Contaminated Groundwater", as described in the following:

Applicability:

Groundwater treated was obtained as a result development of wells and sampling.

Conditions:

1. The purge/bail water from all wells is mixed before usage of the Activated Carbon Unit.
2. No free-product was detected in any of the purge water drums.
3. Analytical results of from well sampling show average concentrations of petroleum hydrocarbon constituents less than 5000 parts per billion (ppb) Benzene and less than 20,000 ppb total BTEX.
4. The existing carbon pack will be replaced/reactivated every 5,000 gallons.
5. Record of usage is maintained by Contractor.
6. Any and all recommendations and conditions issued by the Manufacturer have been adhered to.
7. Any and all recommendations and conditions (even on a site by site basis) issued by the SCDHEC must be adhered to.

All purge waters were treated on-site using an up-flow treatment drum loaded with 30 pounds of activated carbon. Carbon will be loaded to a maximum of 3 pounds of total organic compounds or 5,000 gallons of development/purge water, whichever occurs first.

Post Office Box 854, Lexington SC 29071 • 231 Dooley Road, Lexington, SC 29073
Telephone: (803) 808-2043 • fax: (803) 808-2048

A total of 104.50 gallons were treated on July 14, 2015 at the referenced site.

Midlands Environmental also tracks cumulative organic compounds adsorbed on the activated carbon to ensure the capacity of carbon mass is not over-charged. This data is available upon request.

Should you have any questions or comments, please contact the undersigned.

Sincerely,
Midlands Environmental Consultants, Inc.

Kyle V. Pudney
Project Biologist

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www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 3

1902501

Section A Required Client Information:

Company: SCDHEC-UST
Address: 2600 Bull Street Columbia, SC 29212
Email To: bryant.jc@dhec.sc.gov
Phone: 803-898-0606 Fax: 803-898-0673
Requested Due Date/TAT:

Section B Required Project Information:

Report To: J. Bryant-UST
Copy To:
Purchase Order No.: 4600422513
Project Name: Purolator Courier Corp
Project Number: 05878

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: T. Carter
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☑ UST ☐ RCRA ☐ OTHER

Site Location STATE: SC — Lexington

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N): BTEX	Naptn	MtBE	1,2-DCA	Oxys	EDB	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-1	WT	G			7/14/15	14:50		6				6					✓	✓	✓	✓	✓	✓			No odor
2	MW-2																											Not sampled
3	MW-4	WT	G			7/14/15	14:42		6				6					✓	✓	✓	✓	✓	✓			No odor
4	MW-5																											Not sampled
5	MW-7	WT	G			7/14/15	12:06		6				6					✓	✓	✓	✓	✓	✓			No odor
6	MW-8	↓	↓			↓	11:55		↓				↓					↓	↓	↓	↓	↓	↓			No odor
7	MW-9						11:35																			No odor
8	MW-10						11:45																			No odor
9	MW-11						12:39																			No odor
10	MW-12						12:28																			No odor
11	MW-13	WT	G			7/14/15	12:48		6				6					✓	✓	✓	✓	✓	✓			No odor
12	MW-15																											Not sampled

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	[signature]	7/15/15	10:40	D Moody-Pace	07-15-15	10:40	

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Peter J. Wylie
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 07/14/15

Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 2 of 3

1902799

Section A Required Client Information:

Company: SCDHEC-UST
Address: 2600 Bull Street
Columbia, SC 29212
Email To: bryantj@dhec.sc.gov
Phone: 803-898-0606 Fax: 803-898-0673
Requested Due Date/TAT:

Section B Required Project Information:

Report To: J. Bryant-UST
Copy To:
Purchase Order No.: 4600422513
Project Name: Pinelator Laundry Corp
Project Number: 05878

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: T. Carter
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
✓ UST ☐ RCRA ☐ OTHER

Site Location STATE: SC Lexington

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: BTEX	Naptha	MtBE	1,2-DCA	Oxys	EDB	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-16																								Not sampled
2	PW-1	WT	G			7/14/15	13:07		6				6					✓	✓	✓	✓	✓	✓		No odor
3	PW-2						12:19																		No odor
4	RW-1						14:11																		Odor
5	RW-2						13:42																		No odor
6	RW-3						13:22																		No odor
7	RW-4						14:39																		No odor
8	RW-5						14:23																		Odor
9	RW-6						13:57																		Odor; sheen; dupd
10	SW-1						11:00																		No odor; LDLs
11	SW-2						11:01																		No odor; LDLs
12	RW-6 Dup	WT	G			7/14/15	13:57		6				6					✓	✓	✓	✓	✓	✓		Odor; sheen

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Peter J. Wyle	7/15/15	10:40	Moody-Pace	07/15/15	10:40	

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Peter J Wyle
SIGNATURE of SAMPLER: Peter J. Wyle
DATE Signed (MM/DD/YY): 07/14/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 3 of 3

1902800

Section A Required Client Information:

Company: SCDHEC-UST
Address: 2600 Bull Street
Columbia, SC 29212
Email To: bryantjc@dhec.sc.gov
Phone: 803-898-0606 Fax: 803-898-0673
Requested Due Date/TAT:

Section B Required Project Information:

Report To: J. Bryant - UST
Copy To:
Purchase Order No.: 4600422513
Project Name: Purdator Courier Corp
Project Number: 058781

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: T Carter
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☑ UST ☐ RCRA ☐ OTHER

Site Location STATE: SC Lexington

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	BTEX	Naptb	MtBE	1,2-DCA	Oxys	EDB	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Dup																									
2	Field blank	WT	G			7/14/15	14:53		6				6						✓	✓	✓	✓	✓	✓		
3	Trip blank	WT	G			7/14/15	14:54		6				6						✓	✓	✓	✓	✓			
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	[signature]	7/15/15	10:40	G Moody - Pace	07-15-15	10:40	
	[signature]	7/15/15	10:40				

2

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Peter J. Wylie
SIGNATURE of SAMPLER: Peter J. Wylie
DATE Signed (MM/DD/YY): 07/14/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

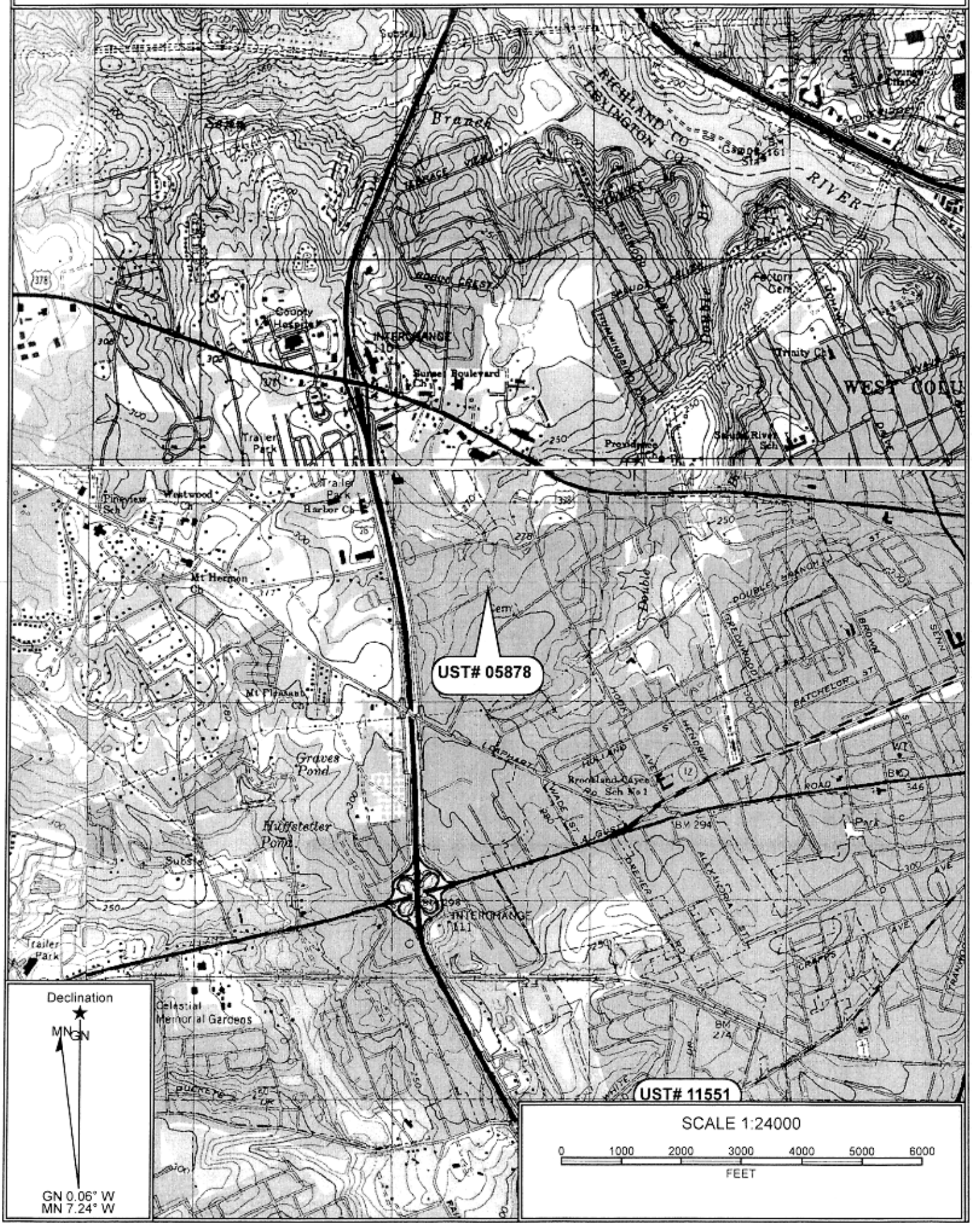
*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

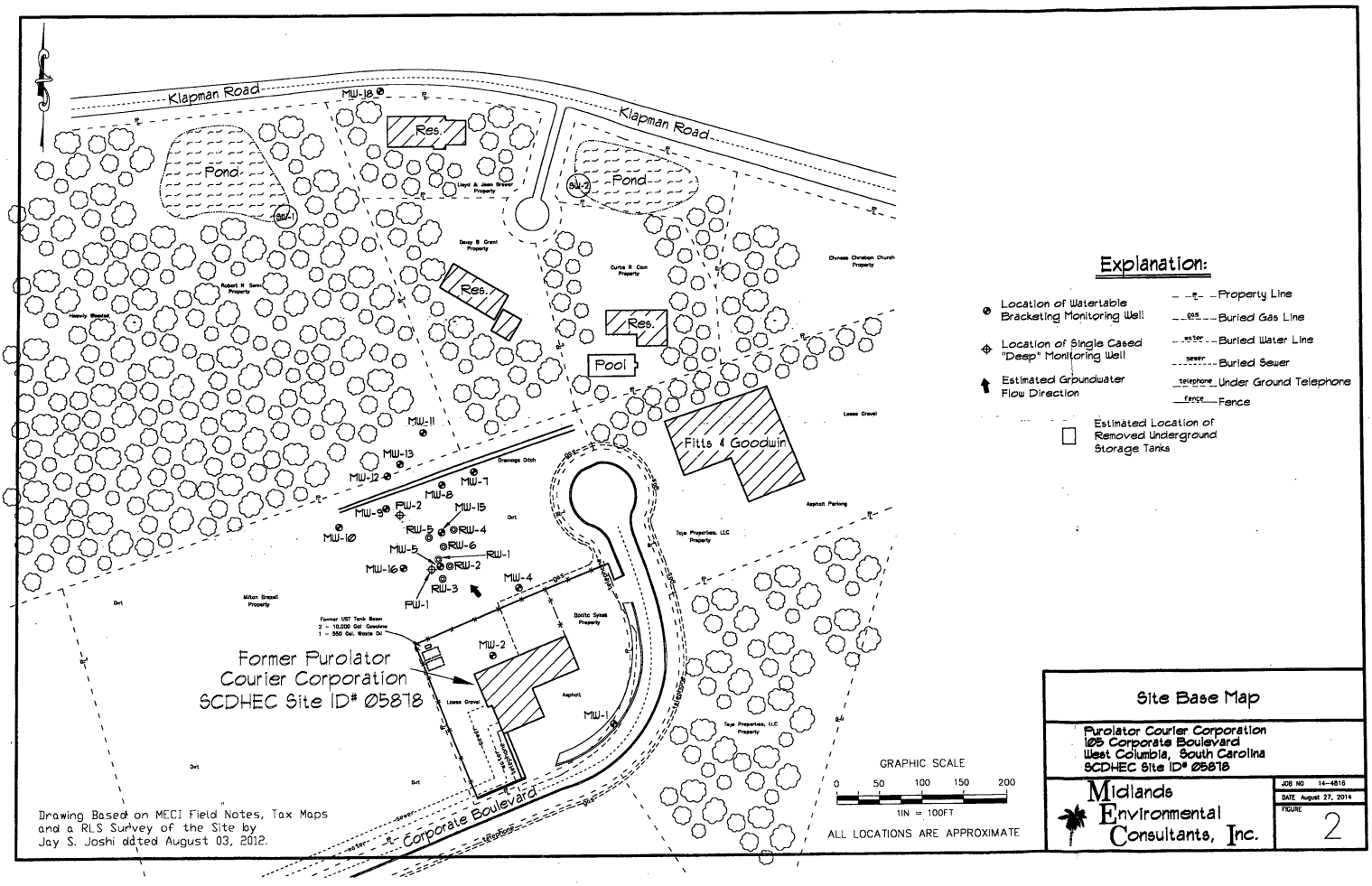
F-ALL-Q-020rev.07, 15-May-2007

Map Name: SOUTHWEST COLUMBIA
Print Date: 06/17/15

Scale: 1 inch = 2,000 ft.
Map Center: 033° 59' 40.42" N, 081° 06'

Horizontal Datum: NAD27





Site Base Map

Purolator Courier Corporation
105 Corporate Boulevard
West Columbia, South Carolina
SCDHEC Site ID# 05878

Midlands Environmental Consultants, Inc.

JOB NO 14-4816
DATE August 27, 2014
FIGURE 2

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

July 23, 2015

Mr. John Bryant
SCDHEC
UST Program
2600 Bull Street
Columbia, SC 29201

RE: Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Dear Mr. Bryant:
Enclosed are the analytical results for sample(s) received by the laboratory on July 15, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

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

Sincerely,

Trey Carter
trey.carter@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, Inc..

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www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92258887001	MW-1	Water	07/14/15 14:50	07/15/15 16:10
92258887002	MW-4	Water	07/14/15 14:42	07/15/15 16:10
92258887003	MW-7	Water	07/14/15 12:06	07/15/15 16:10
92258887004	MW-8	Water	07/14/15 11:55	07/15/15 16:10
92258887005	MW-9	Water	07/14/15 11:35	07/15/15 16:10
92258887006	MW-10	Water	07/14/15 11:45	07/15/15 16:10
92258887007	MW-11	Water	07/14/15 12:39	07/15/15 16:10
92258887008	MW-12	Water	07/14/15 12:28	07/15/15 16:10
92258887009	MW-13	Water	07/14/15 12:48	07/15/15 16:10
92258887010	PW-1	Water	07/14/15 13:07	07/15/15 16:10
92258887011	PW-2	Water	07/14/15 12:19	07/15/15 16:10
92258887012	RW-1	Water	07/14/15 14:11	07/15/15 16:10
92258887013	RW-2	Water	07/14/15 13:42	07/15/15 16:10
92258887014	RW-3	Water	07/14/15 13:22	07/15/15 16:10
92258887015	RW-4	Water	07/14/15 14:39	07/15/15 16:10
92258887016	RW-5	Water	07/14/15 14:23	07/15/15 16:10
92258887017	RW-6	Water	07/14/15 13:57	07/15/15 16:10
92258887018	SW-1	Water	07/14/15 11:00	07/15/15 16:10
92258887019	SW-2	Water	07/14/15 11:01	07/15/15 16:10
92258887020	RW-6 DUP	Water	07/14/15 13:57	07/15/15 16:10
92258887021	FIELD BLANK	Water	07/14/15 14:53	07/15/15 16:10
92258887022	TRIP BLANK	Water	07/14/15 14:54	07/15/15 16:10

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SAMPLE ANALYTE COUNT

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92258887001	MW-1	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887002	MW-4	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887003	MW-7	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887004	MW-8	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887005	MW-9	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887006	MW-10	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887007	MW-11	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887008	MW-12	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887009	MW-13	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887010	PW-1	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887011	PW-2	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887012	RW-1	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887013	RW-2	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887014	RW-3	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887015	RW-4	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887016	RW-5	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887017	RW-6	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887018	SW-1	EPA 8011	RES	2	PASI-C
		EPA 8260	GAW	20	PASI-C
92258887019	SW-2	EPA 8011	RES	2	PASI-C

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SAMPLE ANALYTE COUNT

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8260	GAW	20	PASI-C
92258887020	RW-6 DUP	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887021	FIELD BLANK	EPA 8011	RES	2	PASI-C
		EPA 8260	CCL	20	PASI-C
92258887022	TRIP BLANK	EPA 8260	CCL	20	PASI-C

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SUMMARY OF DETECTION

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92258887003	**MW-7**					
EPA 8260	Benzene	541	ug/L	25.0	07/17/15 20:40	
EPA 8260	Ethylbenzene	87.9	ug/L	25.0	07/17/15 20:40	
EPA 8260	Methyl-tert-butyl ether	40.6	ug/L	25.0	07/17/15 20:40	
EPA 8260	Naphthalene	38.3	ug/L	25.0	07/17/15 20:40	
EPA 8260	Toluene	104	ug/L	25.0	07/17/15 20:40	
EPA 8260	Xylene (Total)	157	ug/L	50.0	07/17/15 20:40	
EPA 8260	m&p-Xylene	93.8	ug/L	50.0	07/17/15 20:40	
EPA 8260	o-Xylene	63.2	ug/L	25.0	07/17/15 20:40	
92258887004	**MW-8**					
EPA 8260	Benzene	312	ug/L	20.0	07/17/15 20:57	
EPA 8260	Ethylbenzene	53.4	ug/L	20.0	07/17/15 20:57	
EPA 8260	Methyl-tert-butyl ether	21.0	ug/L	20.0	07/17/15 20:57	
EPA 8260	Naphthalene	22.8	ug/L	20.0	07/17/15 20:57	
EPA 8260	Toluene	53.3	ug/L	20.0	07/17/15 20:57	
EPA 8260	Xylene (Total)	90.7	ug/L	40.0	07/17/15 20:57	
EPA 8260	m&p-Xylene	50.7	ug/L	40.0	07/17/15 20:57	
EPA 8260	o-Xylene	40.0	ug/L	20.0	07/17/15 20:57	
92258887005	**MW-9**					
EPA 8260	Benzene	273	ug/L	12.5	07/17/15 21:14	
EPA 8260	Ethylbenzene	47.0	ug/L	12.5	07/17/15 21:14	
EPA 8260	Methyl-tert-butyl ether	18.4	ug/L	12.5	07/17/15 21:14	
EPA 8260	Naphthalene	18.9	ug/L	12.5	07/17/15 21:14	
EPA 8260	Toluene	45.5	ug/L	12.5	07/17/15 21:14	
EPA 8260	Xylene (Total)	82.3	ug/L	25.0	07/17/15 21:14	
EPA 8260	m&p-Xylene	45.4	ug/L	25.0	07/17/15 21:14	
EPA 8260	o-Xylene	36.9	ug/L	12.5	07/17/15 21:14	
92258887006	**MW-10**					
EPA 8260	Benzene	368	ug/L	20.0	07/17/15 21:31	
EPA 8260	Ethylbenzene	61.4	ug/L	20.0	07/17/15 21:31	
EPA 8260	Methyl-tert-butyl ether	22.7	ug/L	20.0	07/17/15 21:31	
EPA 8260	Naphthalene	25.3	ug/L	20.0	07/17/15 21:31	
EPA 8260	Toluene	63.5	ug/L	20.0	07/17/15 21:31	
EPA 8260	Xylene (Total)	106	ug/L	40.0	07/17/15 21:31	
EPA 8260	m&p-Xylene	60.4	ug/L	40.0	07/17/15 21:31	
EPA 8260	o-Xylene	45.3	ug/L	20.0	07/17/15 21:31	
92258887007	**MW-11**					
EPA 8260	tert-Amyl Alcohol	418J	ug/L	500	07/17/15 09:36	
EPA 8260	Benzene	492	ug/L	25.0	07/17/15 09:36	
EPA 8260	Ethylbenzene	61.9	ug/L	25.0	07/17/15 09:36	
EPA 8260	Methyl-tert-butyl ether	46.9	ug/L	25.0	07/17/15 09:36	
EPA 8260	Naphthalene	27.9	ug/L	25.0	07/17/15 09:36	
EPA 8260	Toluene	290	ug/L	25.0	07/17/15 09:36	
EPA 8260	Xylene (Total)	210	ug/L	50.0	07/17/15 09:36	
EPA 8260	m&p-Xylene	164	ug/L	50.0	07/17/15 09:36	
EPA 8260	o-Xylene	46.3	ug/L	25.0	07/17/15 09:36	

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SUMMARY OF DETECTION

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92258887008	**MW-12**					
EPA 8260	tert-Amyl Alcohol	516	ug/L	100	07/17/15 23:13	
EPA 8260	Benzene	413	ug/L	20.0	07/21/15 23:52	
EPA 8260	Diisopropyl ether	8.2	ug/L	5.0	07/17/15 23:13	
EPA 8260	Ethylbenzene	52.8	ug/L	5.0	07/17/15 23:13	
EPA 8260	Methyl-tert-butyl ether	40.8	ug/L	5.0	07/17/15 23:13	
EPA 8260	Naphthalene	19.0	ug/L	5.0	07/17/15 23:13	
EPA 8260	Toluene	196	ug/L	5.0	07/17/15 23:13	
EPA 8260	Xylene (Total)	164	ug/L	10.0	07/17/15 23:13	
EPA 8260	m&p-Xylene	124	ug/L	10.0	07/17/15 23:13	
EPA 8260	o-Xylene	40.0	ug/L	5.0	07/17/15 23:13	
92258887009	**MW-13**					
EPA 8260	tert-Amyl Alcohol	427J	ug/L	500	07/17/15 09:53	
EPA 8260	Benzene	494	ug/L	25.0	07/17/15 09:53	
EPA 8260	Ethylbenzene	60.0	ug/L	25.0	07/17/15 09:53	
EPA 8260	Methyl-tert-butyl ether	49.5	ug/L	25.0	07/17/15 09:53	
EPA 8260	Naphthalene	28.6	ug/L	25.0	07/17/15 09:53	
EPA 8260	Toluene	277	ug/L	25.0	07/17/15 09:53	
EPA 8260	Xylene (Total)	200	ug/L	50.0	07/17/15 09:53	
EPA 8260	m&p-Xylene	155	ug/L	50.0	07/17/15 09:53	
EPA 8260	o-Xylene	44.5	ug/L	25.0	07/17/15 09:53	
92258887011	**PW-2**					
EPA 8260	Methyl-tert-butyl ether	9.9	ug/L	5.0	07/17/15 10:27	
92258887012	**RW-1**					
EPA 8011	1,2-Dibromoethane (EDB)	17.2	ug/L	0.50	07/22/15 13:01	L1
EPA 8260	tert-Amyl Alcohol	4140	ug/L	2500	07/17/15 10:10	
EPA 8260	Benzene	6400	ug/L	625	07/18/15 01:12	
EPA 8260	Ethylbenzene	1040	ug/L	125	07/17/15 10:10	
EPA 8260	Methyl-tert-butyl ether	207	ug/L	125	07/17/15 10:10	
EPA 8260	Naphthalene	314	ug/L	125	07/17/15 10:10	
EPA 8260	Toluene	15200	ug/L	625	07/18/15 01:12	
EPA 8260	Xylene (Total)	5770	ug/L	250	07/17/15 10:10	
EPA 8260	m&p-Xylene	3850	ug/L	250	07/17/15 10:10	
EPA 8260	o-Xylene	1910	ug/L	125	07/17/15 10:10	
92258887013	**RW-2**					
EPA 8011	1,2-Dibromoethane (EDB)	0.034	ug/L	0.020	07/22/15 02:15	L1,M1
EPA 8260	tert-Amyl Alcohol	136	ug/L	100	07/17/15 23:30	
EPA 8260	Benzene	71.3	ug/L	5.0	07/17/15 23:30	
EPA 8260	Ethylbenzene	84.1	ug/L	5.0	07/17/15 23:30	
EPA 8260	Methyl-tert-butyl ether	4.0J	ug/L	5.0	07/17/15 23:30	
EPA 8260	Naphthalene	61.9	ug/L	5.0	07/17/15 23:30	
EPA 8260	Toluene	42.9	ug/L	5.0	07/17/15 23:30	
EPA 8260	Xylene (Total)	235	ug/L	10.0	07/17/15 23:30	
EPA 8260	m&p-Xylene	76.3	ug/L	10.0	07/17/15 23:30	
EPA 8260	o-Xylene	158	ug/L	5.0	07/17/15 23:30	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92258887014	**RW-3**					
EPA 8011	1,2-Dibromoethane (EDB)	2.0	ug/L	0.079	07/22/15 13:20	L1
EPA 8260	Benzene	949	ug/L	100	07/17/15 01:05	
EPA 8260	Ethylbenzene	151	ug/L	100	07/17/15 01:05	
EPA 8260	Methyl-tert-butyl ether	46.4J	ug/L	100	07/17/15 01:05	
EPA 8260	Naphthalene	99.0J	ug/L	100	07/17/15 01:05	
EPA 8260	Toluene	1710	ug/L	100	07/17/15 01:05	
EPA 8260	Xylene (Total)	951	ug/L	200	07/17/15 01:05	
EPA 8260	m&p-Xylene	607	ug/L	200	07/17/15 01:05	
EPA 8260	o-Xylene	344	ug/L	100	07/17/15 01:05	
92258887015	**RW-4**					
EPA 8260	Ethylbenzene	4.6J	ug/L	5.0	07/17/15 18:58	
EPA 8260	Naphthalene	11.1	ug/L	5.0	07/17/15 18:58	
EPA 8260	Toluene	3.1J	ug/L	5.0	07/17/15 18:58	
EPA 8260	Xylene (Total)	47.1	ug/L	10.0	07/17/15 18:58	
EPA 8260	m&p-Xylene	24.6	ug/L	10.0	07/17/15 18:58	
EPA 8260	o-Xylene	22.5	ug/L	5.0	07/17/15 18:58	
92258887016	**RW-5**					
EPA 8011	1,2-Dibromoethane (EDB)	0.92	ug/L	0.020	07/22/15 03:52	L1
EPA 8260	tert-Amyl Alcohol	819J	ug/L	1000	07/17/15 21:48	
EPA 8260	Benzene	951	ug/L	50.0	07/17/15 21:48	
EPA 8260	Ethylbenzene	210	ug/L	50.0	07/17/15 21:48	
EPA 8260	Methyl-tert-butyl ether	35.1J	ug/L	50.0	07/17/15 21:48	
EPA 8260	Naphthalene	95.2	ug/L	50.0	07/17/15 21:48	
EPA 8260	Toluene	1720	ug/L	50.0	07/17/15 21:48	
EPA 8260	Xylene (Total)	1020	ug/L	100	07/17/15 21:48	
EPA 8260	m&p-Xylene	613	ug/L	100	07/17/15 21:48	
EPA 8260	o-Xylene	404	ug/L	50.0	07/17/15 21:48	
92258887017	**RW-6**					
EPA 8011	1,2-Dibromoethane (EDB)	6.0	ug/L	0.20	07/22/15 13:39	L1
EPA 8260	tert-Amyl Alcohol	5660	ug/L	500	07/17/15 22:05	
EPA 8260	Benzene	3430	ug/L	625	07/21/15 23:18	
EPA 8260	tert-Butyl Alcohol	466J	ug/L	500	07/17/15 22:05	
EPA 8260	Diisopropyl ether	52.1	ug/L	25.0	07/17/15 22:05	
EPA 8260	Ethylbenzene	1330	ug/L	625	07/21/15 23:18	
EPA 8260	Methyl-tert-butyl ether	141	ug/L	25.0	07/17/15 22:05	
EPA 8260	Naphthalene	577	ug/L	25.0	07/17/15 22:05	
EPA 8260	Toluene	8990	ug/L	625	07/21/15 23:18	
EPA 8260	Xylene (Total)	8220	ug/L	1250	07/21/15 23:18	
EPA 8260	m&p-Xylene	5490	ug/L	1250	07/21/15 23:18	
EPA 8260	o-Xylene	2730	ug/L	625	07/21/15 23:18	
92258887020	**RW-6 DUP**					
EPA 8011	1,2-Dibromoethane (EDB)	8.9	ug/L	0.20	07/22/15 13:58	L1
EPA 8260	tert-Amyl Alcohol	6530	ug/L	500	07/17/15 22:22	
EPA 8260	Benzene	4040	ug/L	625	07/21/15 23:35	
EPA 8260	tert-Butyl Alcohol	531	ug/L	500	07/17/15 22:22	

REPORT OF LABORATORY ANALYSIS

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SUMMARY OF DETECTION

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92258887020	**RW-6 DUP**					
EPA 8260	Diisopropyl ether	61.9	ug/L	25.0	07/17/15 22:22	
EPA 8260	Ethylbenzene	1510	ug/L	625	07/21/15 23:35	
EPA 8260	Methyl-tert-butyl ether	156	ug/L	25.0	07/17/15 22:22	
EPA 8260	Naphthalene	628	ug/L	25.0	07/17/15 22:22	
EPA 8260	Toluene	10900	ug/L	625	07/21/15 23:35	
EPA 8260	Xylene (Total)	9830	ug/L	1250	07/21/15 23:35	
EPA 8260	m&p-Xylene	6650	ug/L	1250	07/21/15 23:35	
EPA 8260	o-Xylene	3180	ug/L	625	07/21/15 23:35	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: MW-1 **Lab ID: 92258887001** Collected: 07/14/15 14:50 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/21/15 11:25	07/21/15 21:05	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	104	%	60-140		1	07/21/15 11:25	07/21/15 21:05	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/17/15 06:28	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/17/15 06:28	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/17/15 06:28	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/17/15 06:28	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/17/15 06:28	75-65-0	M1
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/17/15 06:28	762-75-4	P5
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/17/15 06:28	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/17/15 06:28	108-20-3	
Ethanol	ND	ug/L	200	138	1		07/17/15 06:28	64-17-5	L3,M0
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/17/15 06:28	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/17/15 06:28	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/17/15 06:28	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/17/15 06:28	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/17/15 06:28	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		07/17/15 06:28	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/17/15 06:28	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/17/15 06:28	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	113	%	70-130		1		07/17/15 06:28	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	70-130		1		07/17/15 06:28	17060-07-0	
Toluene-d8 (S)	105	%	70-130		1		07/17/15 06:28	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: MW-4 **Lab ID: 92258887002** Collected: 07/14/15 14:42 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:25	07/21/15 21:24	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	105	%	60-140		1	07/21/15 11:25	07/21/15 21:24	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/17/15 06:45	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/17/15 06:45	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/17/15 06:45	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/17/15 06:45	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/17/15 06:45	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/17/15 06:45	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/17/15 06:45	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/17/15 06:45	108-20-3	
Ethanol	ND	ug/L	200	138	1		07/17/15 06:45	64-17-5	L3
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/17/15 06:45	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/17/15 06:45	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/17/15 06:45	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/17/15 06:45	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/17/15 06:45	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		07/17/15 06:45	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/17/15 06:45	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/17/15 06:45	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	112	%	70-130		1		07/17/15 06:45	460-00-4	
1,2-Dichloroethane-d4 (S)	116	%	70-130		1		07/17/15 06:45	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		07/17/15 06:45	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: MW-7 **Lab ID: 92258887003** Collected: 07/14/15 12:06 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:25	07/21/15 21:44	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	113	%	60-140		1	07/21/15 11:25	07/21/15 21:44	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	500	384	5		07/17/15 20:40	75-85-4	
tert-Amylmethyl ether	ND	ug/L	50.0	17.0	5		07/17/15 20:40	994-05-8	
Benzene	**541**	ug/L	25.0	8.5	5		07/17/15 20:40	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	500	160	5		07/17/15 20:40	624-95-3	
tert-Butyl Alcohol	ND	ug/L	500	288	5		07/17/15 20:40	75-65-0	
tert-Butyl Formate	ND	ug/L	250	36.5	5		07/17/15 20:40	762-75-4	
1,2-Dichloroethane	ND	ug/L	25.0	9.0	5		07/17/15 20:40	107-06-2	
Diisopropyl ether	ND	ug/L	25.0	8.5	5		07/17/15 20:40	108-20-3	
Ethanol	ND	ug/L	1000	689	5		07/17/15 20:40	64-17-5	
Ethylbenzene	**87.9**	ug/L	25.0	8.0	5		07/17/15 20:40	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50.0	18.0	5		07/17/15 20:40	637-92-3	
Methyl-tert-butyl ether	**40.6**	ug/L	25.0	8.5	5		07/17/15 20:40	1634-04-4	
Naphthalene	**38.3**	ug/L	25.0	10.0	5		07/17/15 20:40	91-20-3	
Toluene	**104**	ug/L	25.0	8.0	5		07/17/15 20:40	108-88-3	
Xylene (Total)	**157**	ug/L	50.0	13.5	5		07/17/15 20:40	1330-20-7	
m&p-Xylene	**93.8**	ug/L	50.0	15.5	5		07/17/15 20:40	179601-23-1	
o-Xylene	**63.2**	ug/L	25.0	8.0	5		07/17/15 20:40	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		5		07/17/15 20:40	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		5		07/17/15 20:40	17060-07-0	
Toluene-d8 (S)	101	%	70-130		5		07/17/15 20:40	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: MW-8 **Lab ID: 92258887004** Collected: 07/14/15 11:55 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:25	07/21/15 22:03	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	110	%	60-140		1	07/21/15 11:25	07/21/15 22:03	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	400	307	4		07/17/15 20:57	75-85-4	
tert-Amylmethyl ether	ND	ug/L	40.0	13.6	4		07/17/15 20:57	994-05-8	
Benzene	**312**	ug/L	20.0	6.8	4		07/17/15 20:57	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	400	128	4		07/17/15 20:57	624-95-3	
tert-Butyl Alcohol	ND	ug/L	400	231	4		07/17/15 20:57	75-65-0	
tert-Butyl Formate	ND	ug/L	200	29.2	4		07/17/15 20:57	762-75-4	
1,2-Dichloroethane	ND	ug/L	20.0	7.2	4		07/17/15 20:57	107-06-2	
Diisopropyl ether	ND	ug/L	20.0	6.8	4		07/17/15 20:57	108-20-3	
Ethanol	ND	ug/L	800	551	4		07/17/15 20:57	64-17-5	
Ethylbenzene	**53.4**	ug/L	20.0	6.4	4		07/17/15 20:57	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	40.0	14.4	4		07/17/15 20:57	637-92-3	
Methyl-tert-butyl ether	**21.0**	ug/L	20.0	6.8	4		07/17/15 20:57	1634-04-4	
Naphthalene	**22.8**	ug/L	20.0	8.0	4		07/17/15 20:57	91-20-3	
Toluene	**53.3**	ug/L	20.0	6.4	4		07/17/15 20:57	108-88-3	
Xylene (Total)	**90.7**	ug/L	40.0	10.8	4		07/17/15 20:57	1330-20-7	
m&p-Xylene	**50.7**	ug/L	40.0	12.4	4		07/17/15 20:57	179601-23-1	
o-Xylene	**40.0**	ug/L	20.0	6.4	4		07/17/15 20:57	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		4		07/17/15 20:57	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		4		07/17/15 20:57	17060-07-0	
Toluene-d8 (S)	102	%	70-130		4		07/17/15 20:57	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: MW-9 **Lab ID: 92258887005** Collected: 07/14/15 11:35 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:25	07/21/15 22:23	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	118	%	60-140		1	07/21/15 11:25	07/21/15 22:23	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	250	192	2.5		07/17/15 21:14	75-85-4	
tert-Amylmethyl ether	ND	ug/L	25.0	8.5	2.5		07/17/15 21:14	994-05-8	
Benzene	**273**	ug/L	12.5	4.2	2.5		07/17/15 21:14	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	250	80.2	2.5		07/17/15 21:14	624-95-3	
tert-Butyl Alcohol	ND	ug/L	250	144	2.5		07/17/15 21:14	75-65-0	
tert-Butyl Formate	ND	ug/L	125	18.2	2.5		07/17/15 21:14	762-75-4	
1,2-Dichloroethane	ND	ug/L	12.5	4.5	2.5		07/17/15 21:14	107-06-2	
Diisopropyl ether	ND	ug/L	12.5	4.2	2.5		07/17/15 21:14	108-20-3	
Ethanol	ND	ug/L	500	344	2.5		07/17/15 21:14	64-17-5	
Ethylbenzene	**47.0**	ug/L	12.5	4.0	2.5		07/17/15 21:14	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	25.0	9.0	2.5		07/17/15 21:14	637-92-3	
Methyl-tert-butyl ether	**18.4**	ug/L	12.5	4.2	2.5		07/17/15 21:14	1634-04-4	
Naphthalene	**18.9**	ug/L	12.5	5.0	2.5		07/17/15 21:14	91-20-3	
Toluene	**45.5**	ug/L	12.5	4.0	2.5		07/17/15 21:14	108-88-3	
Xylene (Total)	**82.3**	ug/L	25.0	6.8	2.5		07/17/15 21:14	1330-20-7	
m&p-Xylene	**45.4**	ug/L	25.0	7.8	2.5		07/17/15 21:14	179601-23-1	
o-Xylene	**36.9**	ug/L	12.5	4.0	2.5		07/17/15 21:14	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	103	%	70-130		2.5		07/17/15 21:14	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130		2.5		07/17/15 21:14	17060-07-0	
Toluene-d8 (S)	104	%	70-130		2.5		07/17/15 21:14	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: MW-10 **Lab ID: 92258887006** Collected: 07/14/15 11:45 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:26	07/21/15 22:42	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	89	%	60-140		1	07/21/15 11:26	07/21/15 22:42	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	400	307	4		07/17/15 21:31	75-85-4	
tert-Amylmethyl ether	ND	ug/L	40.0	13.6	4		07/17/15 21:31	994-05-8	
Benzene	**368**	ug/L	20.0	6.8	4		07/17/15 21:31	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	400	128	4		07/17/15 21:31	624-95-3	
tert-Butyl Alcohol	ND	ug/L	400	231	4		07/17/15 21:31	75-65-0	
tert-Butyl Formate	ND	ug/L	200	29.2	4		07/17/15 21:31	762-75-4	
1,2-Dichloroethane	ND	ug/L	20.0	7.2	4		07/17/15 21:31	107-06-2	
Diisopropyl ether	ND	ug/L	20.0	6.8	4		07/17/15 21:31	108-20-3	
Ethanol	ND	ug/L	800	551	4		07/17/15 21:31	64-17-5	
Ethylbenzene	**61.4**	ug/L	20.0	6.4	4		07/17/15 21:31	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	40.0	14.4	4		07/17/15 21:31	637-92-3	
Methyl-tert-butyl ether	**22.7**	ug/L	20.0	6.8	4		07/17/15 21:31	1634-04-4	
Naphthalene	**25.3**	ug/L	20.0	8.0	4		07/17/15 21:31	91-20-3	
Toluene	**63.5**	ug/L	20.0	6.4	4		07/17/15 21:31	108-88-3	
Xylene (Total)	**106**	ug/L	40.0	10.8	4		07/17/15 21:31	1330-20-7	
m&p-Xylene	**60.4**	ug/L	40.0	12.4	4		07/17/15 21:31	179601-23-1	
o-Xylene	**45.3**	ug/L	20.0	6.4	4		07/17/15 21:31	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		4		07/17/15 21:31	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130		4		07/17/15 21:31	17060-07-0	
Toluene-d8 (S)	103	%	70-130		4		07/17/15 21:31	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: MW-11 **Lab ID: 92258887007** Collected: 07/14/15 12:39 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:26	07/21/15 23:02	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	100	%	60-140		1	07/21/15 11:26	07/21/15 23:02	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	**418J**	ug/L	500	384	5		07/17/15 09:36	75-85-4	
tert-Amylmethyl ether	ND	ug/L	50.0	17.0	5		07/17/15 09:36	994-05-8	
Benzene	**492**	ug/L	25.0	8.5	5		07/17/15 09:36	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	500	160	5		07/17/15 09:36	624-95-3	
tert-Butyl Alcohol	ND	ug/L	500	288	5		07/17/15 09:36	75-65-0	
tert-Butyl Formate	ND	ug/L	250	36.5	5		07/17/15 09:36	762-75-4	
1,2-Dichloroethane	ND	ug/L	25.0	9.0	5		07/17/15 09:36	107-06-2	
Diisopropyl ether	ND	ug/L	25.0	8.5	5		07/17/15 09:36	108-20-3	
Ethanol	ND	ug/L	1000	689	5		07/17/15 09:36	64-17-5	L3
Ethylbenzene	**61.9**	ug/L	25.0	8.0	5		07/17/15 09:36	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50.0	18.0	5		07/17/15 09:36	637-92-3	
Methyl-tert-butyl ether	**46.9**	ug/L	25.0	8.5	5		07/17/15 09:36	1634-04-4	
Naphthalene	**27.9**	ug/L	25.0	10.0	5		07/17/15 09:36	91-20-3	
Toluene	**290**	ug/L	25.0	8.0	5		07/17/15 09:36	108-88-3	
Xylene (Total)	**210**	ug/L	50.0	13.5	5		07/17/15 09:36	1330-20-7	
m&p-Xylene	**164**	ug/L	50.0	15.5	5		07/17/15 09:36	179601-23-1	
o-Xylene	**46.3**	ug/L	25.0	8.0	5		07/17/15 09:36	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	109	%	70-130		5		07/17/15 09:36	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-130		5		07/17/15 09:36	17060-07-0	
Toluene-d8 (S)	100	%	70-130		5		07/17/15 09:36	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: MW-12 **Lab ID: 92258887008** Collected: 07/14/15 12:28 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:26	07/21/15 23:21	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	107	%	60-140		1	07/21/15 11:26	07/21/15 23:21	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	**516**	ug/L	100	76.8	1		07/17/15 23:13	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/17/15 23:13	994-05-8	
Benzene	**413**	ug/L	20.0	6.8	4		07/21/15 23:52	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/17/15 23:13	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/17/15 23:13	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/17/15 23:13	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/17/15 23:13	107-06-2	
Diisopropyl ether	**8.2**	ug/L	5.0	1.7	1		07/17/15 23:13	108-20-3	
Ethanol	ND	ug/L	200	138	1		07/17/15 23:13	64-17-5	
Ethylbenzene	**52.8**	ug/L	5.0	1.6	1		07/17/15 23:13	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/17/15 23:13	637-92-3	
Methyl-tert-butyl ether	**40.8**	ug/L	5.0	1.7	1		07/17/15 23:13	1634-04-4	
Naphthalene	**19.0**	ug/L	5.0	2.0	1		07/17/15 23:13	91-20-3	
Toluene	**196**	ug/L	5.0	1.6	1		07/17/15 23:13	108-88-3	
Xylene (Total)	**164**	ug/L	10.0	2.7	1		07/17/15 23:13	1330-20-7	
m&p-Xylene	**124**	ug/L	10.0	3.1	1		07/17/15 23:13	179601-23-1	
o-Xylene	**40.0**	ug/L	5.0	1.6	1		07/17/15 23:13	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130		1		07/17/15 23:13	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		07/17/15 23:13	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		07/17/15 23:13	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: MW-13 **Lab ID: 92258887009** Collected: 07/14/15 12:48 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/21/15 11:26	07/21/15 23:41	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	80	%	60-140		1	07/21/15 11:26	07/21/15 23:41	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	**427J**	ug/L	500	384	5		07/17/15 09:53	75-85-4	
tert-Amylmethyl ether	ND	ug/L	50.0	17.0	5		07/17/15 09:53	994-05-8	
Benzene	**494**	ug/L	25.0	8.5	5		07/17/15 09:53	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	500	160	5		07/17/15 09:53	624-95-3	
tert-Butyl Alcohol	ND	ug/L	500	288	5		07/17/15 09:53	75-65-0	
tert-Butyl Formate	ND	ug/L	250	36.5	5		07/17/15 09:53	762-75-4	
1,2-Dichloroethane	ND	ug/L	25.0	9.0	5		07/17/15 09:53	107-06-2	
Diisopropyl ether	ND	ug/L	25.0	8.5	5		07/17/15 09:53	108-20-3	
Ethanol	ND	ug/L	1000	689	5		07/17/15 09:53	64-17-5	L3
Ethylbenzene	**60.0**	ug/L	25.0	8.0	5		07/17/15 09:53	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50.0	18.0	5		07/17/15 09:53	637-92-3	
Methyl-tert-butyl ether	**49.5**	ug/L	25.0	8.5	5		07/17/15 09:53	1634-04-4	
Naphthalene	**28.6**	ug/L	25.0	10.0	5		07/17/15 09:53	91-20-3	
Toluene	**277**	ug/L	25.0	8.0	5		07/17/15 09:53	108-88-3	
Xylene (Total)	**200**	ug/L	50.0	13.5	5		07/17/15 09:53	1330-20-7	
m&p-Xylene	**155**	ug/L	50.0	15.5	5		07/17/15 09:53	179601-23-1	
o-Xylene	**44.5**	ug/L	25.0	8.0	5		07/17/15 09:53	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	112	%	70-130		5		07/17/15 09:53	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-130		5		07/17/15 09:53	17060-07-0	
Toluene-d8 (S)	105	%	70-130		5		07/17/15 09:53	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: PW-1 **Lab ID: 92258887010** Collected: 07/14/15 13:07 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.019	0.019	1	07/21/15 11:26	07/22/15 00:00	106-93-4	
Surrogates									
1-Chloro-2-bromopropane (S)	102	%	60-140		1	07/21/15 11:26	07/22/15 00:00	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/17/15 07:19	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/17/15 07:19	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/17/15 07:19	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/17/15 07:19	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/17/15 07:19	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/17/15 07:19	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/17/15 07:19	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/17/15 07:19	108-20-3	
Ethanol	ND	ug/L	200	138	1		07/17/15 07:19	64-17-5	L3
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/17/15 07:19	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/17/15 07:19	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/17/15 07:19	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/17/15 07:19	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/17/15 07:19	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		07/17/15 07:19	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/17/15 07:19	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/17/15 07:19	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	111	%	70-130		1		07/17/15 07:19	460-00-4	
1,2-Dichloroethane-d4 (S)	113	%	70-130		1		07/17/15 07:19	17060-07-0	
Toluene-d8 (S)	110	%	70-130		1		07/17/15 07:19	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: PW-2 **Lab ID: 92258887011** Collected: 07/14/15 12:19 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.021	0.021	1	07/21/15 11:27	07/22/15 01:36	106-93-4	L3
Surrogates									
1-Chloro-2-bromopropane (S)	79	%	60-140		1	07/21/15 11:27	07/22/15 01:36	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/17/15 10:27	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/17/15 10:27	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/17/15 10:27	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/17/15 10:27	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/17/15 10:27	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/17/15 10:27	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/17/15 10:27	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/17/15 10:27	108-20-3	
Ethanol	ND	ug/L	200	138	1		07/17/15 10:27	64-17-5	L3
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/17/15 10:27	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/17/15 10:27	637-92-3	
Methyl-tert-butyl ether	**9.9**	ug/L	5.0	1.7	1		07/17/15 10:27	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/17/15 10:27	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/17/15 10:27	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		07/17/15 10:27	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/17/15 10:27	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/17/15 10:27	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	105	%	70-130		1		07/17/15 10:27	460-00-4	
1,2-Dichloroethane-d4 (S)	112	%	70-130		1		07/17/15 10:27	17060-07-0	
Toluene-d8 (S)	103	%	70-130		1		07/17/15 10:27	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: RW-1 **Lab ID: 92258887012** Collected: 07/14/15 14:11 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**17.2**	ug/L	0.50	0.50	25	07/21/15 11:28	07/22/15 13:01	106-93-4	L1
Surrogates									
1-Chloro-2-bromopropane (S)	0	%	60-140		25	07/21/15 11:28	07/22/15 13:01	301-79-56	S4
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	**4140**	ug/L	2500	1920	25		07/17/15 10:10	75-85-4	
tert-Amylmethyl ether	ND	ug/L	250	85.0	25		07/17/15 10:10	994-05-8	
Benzene	**6400**	ug/L	625	212	125		07/18/15 01:12	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	2500	802	25		07/17/15 10:10	624-95-3	
tert-Butyl Alcohol	ND	ug/L	2500	1440	25		07/17/15 10:10	75-65-0	
tert-Butyl Formate	ND	ug/L	1250	182	25		07/17/15 10:10	762-75-4	
1,2-Dichloroethane	ND	ug/L	125	45.0	25		07/17/15 10:10	107-06-2	
Diisopropyl ether	ND	ug/L	125	42.5	25		07/17/15 10:10	108-20-3	
Ethanol	ND	ug/L	5000	3440	25		07/17/15 10:10	64-17-5	
Ethylbenzene	**1040**	ug/L	125	40.0	25		07/17/15 10:10	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	250	90.0	25		07/17/15 10:10	637-92-3	
Methyl-tert-butyl ether	**207**	ug/L	125	42.5	25		07/17/15 10:10	1634-04-4	
Naphthalene	**314**	ug/L	125	50.0	25		07/17/15 10:10	91-20-3	
Toluene	**15200**	ug/L	625	200	125		07/18/15 01:12	108-88-3	
Xylene (Total)	**5770**	ug/L	250	67.5	25		07/17/15 10:10	1330-20-7	
m&p-Xylene	**3850**	ug/L	250	77.5	25		07/17/15 10:10	179601-23-1	
o-Xylene	**1910**	ug/L	125	40.0	25		07/17/15 10:10	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	109	%	70-130		25		07/17/15 10:10	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		25		07/17/15 10:10	17060-07-0	
Toluene-d8 (S)	100	%	70-130		25		07/17/15 10:10	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: RW-2 **Lab ID: 92258887013** Collected: 07/14/15 13:42 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.034**	ug/L	0.020	0.020	1	07/21/15 11:28	07/22/15 02:15	106-93-4	L1,M1
Surrogates									
1-Chloro-2-bromopropane (S)	109	%	60-140		1	07/21/15 11:28	07/22/15 02:15	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	**136**	ug/L	100	76.8	1		07/17/15 23:30	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/17/15 23:30	994-05-8	
Benzene	**71.3**	ug/L	5.0	1.7	1		07/17/15 23:30	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/17/15 23:30	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/17/15 23:30	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/17/15 23:30	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/17/15 23:30	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/17/15 23:30	108-20-3	
Ethanol	ND	ug/L	200	138	1		07/17/15 23:30	64-17-5	
Ethylbenzene	**84.1**	ug/L	5.0	1.6	1		07/17/15 23:30	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/17/15 23:30	637-92-3	
Methyl-tert-butyl ether	**4.0J**	ug/L	5.0	1.7	1		07/17/15 23:30	1634-04-4	
Naphthalene	**61.9**	ug/L	5.0	2.0	1		07/17/15 23:30	91-20-3	
Toluene	**42.9**	ug/L	5.0	1.6	1		07/17/15 23:30	108-88-3	
Xylene (Total)	**235**	ug/L	10.0	2.7	1		07/17/15 23:30	1330-20-7	
m&p-Xylene	**76.3**	ug/L	10.0	3.1	1		07/17/15 23:30	179601-23-1	
o-Xylene	**158**	ug/L	5.0	1.6	1		07/17/15 23:30	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130		1		07/17/15 23:30	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		07/17/15 23:30	17060-07-0	
Toluene-d8 (S)	103	%	70-130		1		07/17/15 23:30	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: RW-3 **Lab ID: 92258887014** Collected: 07/14/15 13:22 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**2.0**	ug/L	0.079	0.079	4	07/21/15 11:28	07/22/15 13:20	106-93-4	L1
Surrogates									
1-Chloro-2-bromopropane (S)	139	%	60-140		4	07/21/15 11:28	07/22/15 13:20	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	2000	1540	20		07/17/15 01:05	75-85-4	
tert-Amylmethyl ether	ND	ug/L	200	68.0	20		07/17/15 01:05	994-05-8	
Benzene	**949**	ug/L	100	34.0	20		07/17/15 01:05	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	2000	642	20		07/17/15 01:05	624-95-3	
tert-Butyl Alcohol	ND	ug/L	2000	1150	20		07/17/15 01:05	75-65-0	
tert-Butyl Formate	ND	ug/L	1000	146	20		07/17/15 01:05	762-75-4	
1,2-Dichloroethane	ND	ug/L	100	36.0	20		07/17/15 01:05	107-06-2	
Diisopropyl ether	ND	ug/L	100	34.0	20		07/17/15 01:05	108-20-3	
Ethanol	ND	ug/L	4000	2760	20		07/17/15 01:05	64-17-5	
Ethylbenzene	**151**	ug/L	100	32.0	20		07/17/15 01:05	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	200	72.0	20		07/17/15 01:05	637-92-3	
Methyl-tert-butyl ether	**46.4J**	ug/L	100	34.0	20		07/17/15 01:05	1634-04-4	
Naphthalene	**99.0J**	ug/L	100	40.0	20		07/17/15 01:05	91-20-3	
Toluene	**1710**	ug/L	100	32.0	20		07/17/15 01:05	108-88-3	
Xylene (Total)	**951**	ug/L	200	54.0	20		07/17/15 01:05	1330-20-7	
m&p-Xylene	**607**	ug/L	200	62.0	20		07/17/15 01:05	179601-23-1	
o-Xylene	**344**	ug/L	100	32.0	20		07/17/15 01:05	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	115	%	70-130		20		07/17/15 01:05	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-130		20		07/17/15 01:05	17060-07-0	
Toluene-d8 (S)	103	%	70-130		20		07/17/15 01:05	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: RW-4 **Lab ID: 92258887015** Collected: 07/14/15 14:39 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:29	07/22/15 03:32	106-93-4	L3
Surrogates									
1-Chloro-2-bromopropane (S)	126	%	60-140		1	07/21/15 11:29	07/22/15 03:32	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/17/15 18:58	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/17/15 18:58	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/17/15 18:58	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/17/15 18:58	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/17/15 18:58	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/17/15 18:58	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/17/15 18:58	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/17/15 18:58	108-20-3	
Ethanol	ND	ug/L	200	138	1		07/17/15 18:58	64-17-5	
Ethylbenzene	**4.6J**	ug/L	5.0	1.6	1		07/17/15 18:58	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/17/15 18:58	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/17/15 18:58	1634-04-4	
Naphthalene	**11.1**	ug/L	5.0	2.0	1		07/17/15 18:58	91-20-3	
Toluene	**3.1J**	ug/L	5.0	1.6	1		07/17/15 18:58	108-88-3	
Xylene (Total)	**47.1**	ug/L	10.0	2.7	1		07/17/15 18:58	1330-20-7	
m&p-Xylene	**24.6**	ug/L	10.0	3.1	1		07/17/15 18:58	179601-23-1	
o-Xylene	**22.5**	ug/L	5.0	1.6	1		07/17/15 18:58	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		1		07/17/15 18:58	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		07/17/15 18:58	17060-07-0	
Toluene-d8 (S)	97	%	70-130		1		07/17/15 18:58	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: RW-5 **Lab ID: 92258887016** Collected: 07/14/15 14:23 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**0.92**	ug/L	0.020	0.020	1	07/21/15 11:29	07/22/15 03:52	106-93-4	L1
Surrogates									
1-Chloro-2-bromopropane (S)	113	%	60-140		1	07/21/15 11:29	07/22/15 03:52	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	**819J**	ug/L	1000	768	10		07/17/15 21:48	75-85-4	
tert-Amylmethyl ether	ND	ug/L	100	34.0	10		07/17/15 21:48	994-05-8	
Benzene	**951**	ug/L	50.0	17.0	10		07/17/15 21:48	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	1000	321	10		07/17/15 21:48	624-95-3	
tert-Butyl Alcohol	ND	ug/L	1000	577	10		07/17/15 21:48	75-65-0	
tert-Butyl Formate	ND	ug/L	500	73.0	10		07/17/15 21:48	762-75-4	
1,2-Dichloroethane	ND	ug/L	50.0	18.0	10		07/17/15 21:48	107-06-2	
Diisopropyl ether	ND	ug/L	50.0	17.0	10		07/17/15 21:48	108-20-3	
Ethanol	ND	ug/L	2000	1380	10		07/17/15 21:48	64-17-5	
Ethylbenzene	**210**	ug/L	50.0	16.0	10		07/17/15 21:48	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	100	36.0	10		07/17/15 21:48	637-92-3	
Methyl-tert-butyl ether	**35.1J**	ug/L	50.0	17.0	10		07/17/15 21:48	1634-04-4	
Naphthalene	**95.2**	ug/L	50.0	20.0	10		07/17/15 21:48	91-20-3	
Toluene	**1720**	ug/L	50.0	16.0	10		07/17/15 21:48	108-88-3	
Xylene (Total)	**1020**	ug/L	100	27.0	10		07/17/15 21:48	1330-20-7	
m&p-Xylene	**613**	ug/L	100	31.0	10		07/17/15 21:48	179601-23-1	
o-Xylene	**404**	ug/L	50.0	16.0	10		07/17/15 21:48	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		10		07/17/15 21:48	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		10		07/17/15 21:48	17060-07-0	
Toluene-d8 (S)	102	%	70-130		10		07/17/15 21:48	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: RW-6 **Lab ID: 92258887017** Collected: 07/14/15 13:57 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**6.0**	ug/L	0.20	0.20	10	07/21/15 11:29	07/22/15 13:39	106-93-4	L1
Surrogates									
1-Chloro-2-bromopropane (S)	0	%	60-140		10	07/21/15 11:29	07/22/15 13:39	301-79-56	S4
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	**5660**	ug/L	500	384	5		07/17/15 22:05	75-85-4	
tert-Amylmethyl ether	ND	ug/L	50.0	17.0	5		07/17/15 22:05	994-05-8	
Benzene	**3430**	ug/L	625	212	125		07/21/15 23:18	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	500	160	5		07/17/15 22:05	624-95-3	
tert-Butyl Alcohol	**466J**	ug/L	500	288	5		07/17/15 22:05	75-65-0	
tert-Butyl Formate	ND	ug/L	250	36.5	5		07/17/15 22:05	762-75-4	
1,2-Dichloroethane	ND	ug/L	25.0	9.0	5		07/17/15 22:05	107-06-2	
Diisopropyl ether	**52.1**	ug/L	25.0	8.5	5		07/17/15 22:05	108-20-3	
Ethanol	ND	ug/L	1000	689	5		07/17/15 22:05	64-17-5	
Ethylbenzene	**1330**	ug/L	625	200	125		07/21/15 23:18	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50.0	18.0	5		07/17/15 22:05	637-92-3	
Methyl-tert-butyl ether	**141**	ug/L	25.0	8.5	5		07/17/15 22:05	1634-04-4	
Naphthalene	**577**	ug/L	25.0	10.0	5		07/17/15 22:05	91-20-3	
Toluene	**8990**	ug/L	625	200	125		07/21/15 23:18	108-88-3	
Xylene (Total)	**8220**	ug/L	1250	338	125		07/21/15 23:18	1330-20-7	
m&p-Xylene	**5490**	ug/L	1250	388	125		07/21/15 23:18	179601-23-1	
o-Xylene	**2730**	ug/L	625	200	125		07/21/15 23:18	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		5		07/17/15 22:05	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		5		07/17/15 22:05	17060-07-0	
Toluene-d8 (S)	103	%	70-130		5		07/17/15 22:05	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: SW-1 **Lab ID: 92258887018** Collected: 07/14/15 11:00 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:29	07/22/15 04:30	106-93-4	L3
Surrogates									
1-Chloro-2-bromopropane (S)	124	%	60-140		1	07/21/15 11:29	07/22/15 04:30	301-79-56	
8260 MSV Low Level SC	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		07/17/15 00:29	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		07/17/15 00:29	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		07/17/15 00:29	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		07/17/15 00:29	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		07/17/15 00:29	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		07/17/15 00:29	762-75-4	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		07/17/15 00:29	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		07/17/15 00:29	108-20-3	
Ethanol	ND	ug/L	200	33.0	1		07/17/15 00:29	64-17-5	
Ethylbenzene	ND	ug/L	1.0	0.30	1		07/17/15 00:29	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		07/17/15 00:29	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		07/17/15 00:29	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		07/17/15 00:29	91-20-3	
Toluene	ND	ug/L	1.0	0.26	1		07/17/15 00:29	108-88-3	
Xylene (Total)	ND	ug/L	2.0	0.66	1		07/17/15 00:29	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		07/17/15 00:29	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		07/17/15 00:29	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	89	%	70-130		1		07/17/15 00:29	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		07/17/15 00:29	17060-07-0	
Toluene-d8 (S)	104	%	70-130		1		07/17/15 00:29	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: SW-2 **Lab ID: 92258887019** Collected: 07/14/15 11:01 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:29	07/22/15 04:50	106-93-4	L3
Surrogates									
1-Chloro-2-bromopropane (S)	105	%	60-140		1	07/21/15 11:29	07/22/15 04:50	301-79-56	
8260 MSV Low Level SC	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	100	50.0	1		07/17/15 01:05	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	0.10	1		07/17/15 01:05	994-05-8	
Benzene	ND	ug/L	1.0	0.25	1		07/17/15 01:05	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	50.0	1		07/17/15 01:05	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	3.6	1		07/17/15 01:05	75-65-0	M1
tert-Butyl Formate	ND	ug/L	50.0	1.9	1		07/17/15 01:05	762-75-4	M1
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		07/17/15 01:05	107-06-2	
Diisopropyl ether	ND	ug/L	1.0	0.12	1		07/17/15 01:05	108-20-3	
Ethanol	ND	ug/L	200	33.0	1		07/17/15 01:05	64-17-5	M1
Ethylbenzene	ND	ug/L	1.0	0.30	1		07/17/15 01:05	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	0.070	1		07/17/15 01:05	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.21	1		07/17/15 01:05	1634-04-4	
Naphthalene	ND	ug/L	1.0	0.24	1		07/17/15 01:05	91-20-3	
Toluene	ND	ug/L	1.0	0.26	1		07/17/15 01:05	108-88-3	
Xylene (Total)	ND	ug/L	2.0	0.66	1		07/17/15 01:05	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	0.66	1		07/17/15 01:05	179601-23-1	
o-Xylene	ND	ug/L	1.0	0.23	1		07/17/15 01:05	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	89	%	70-130		1		07/17/15 01:05	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-130		1		07/17/15 01:05	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		07/17/15 01:05	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: RW-6 DUP **Lab ID: 92258887020** Collected: 07/14/15 13:57 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	**8.9**	ug/L	0.20	0.20	10	07/21/15 11:29	07/22/15 13:58	106-93-4	L1
Surrogates									
1-Chloro-2-bromopropane (S)	0	%	60-140		10	07/21/15 11:29	07/22/15 13:58	301-79-56	S4
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	**6530**	ug/L	500	384	5		07/17/15 22:22	75-85-4	
tert-Amylmethyl ether	ND	ug/L	50.0	17.0	5		07/17/15 22:22	994-05-8	
Benzene	**4040**	ug/L	625	212	125		07/21/15 23:35	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	500	160	5		07/17/15 22:22	624-95-3	
tert-Butyl Alcohol	**531**	ug/L	500	288	5		07/17/15 22:22	75-65-0	
tert-Butyl Formate	ND	ug/L	250	36.5	5		07/17/15 22:22	762-75-4	
1,2-Dichloroethane	ND	ug/L	25.0	9.0	5		07/17/15 22:22	107-06-2	
Diisopropyl ether	**61.9**	ug/L	25.0	8.5	5		07/17/15 22:22	108-20-3	
Ethanol	ND	ug/L	1000	689	5		07/17/15 22:22	64-17-5	
Ethylbenzene	**1510**	ug/L	625	200	125		07/21/15 23:35	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	50.0	18.0	5		07/17/15 22:22	637-92-3	
Methyl-tert-butyl ether	**156**	ug/L	25.0	8.5	5		07/17/15 22:22	1634-04-4	
Naphthalene	**628**	ug/L	25.0	10.0	5		07/17/15 22:22	91-20-3	
Toluene	**10900**	ug/L	625	200	125		07/21/15 23:35	108-88-3	
Xylene (Total)	**9830**	ug/L	1250	338	125		07/21/15 23:35	1330-20-7	
m&p-Xylene	**6650**	ug/L	1250	388	125		07/21/15 23:35	179601-23-1	
o-Xylene	**3180**	ug/L	625	200	125		07/21/15 23:35	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	93	%	70-130		5		07/17/15 22:22	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		5		07/17/15 22:22	17060-07-0	
Toluene-d8 (S)	99	%	70-130		5		07/17/15 22:22	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: FIELD BLANK **Lab ID: 92258887021** Collected: 07/14/15 14:53 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8011 GCS EDB and DBCP	Analytical Method: EPA 8011 Preparation Method: EPA 8011								
1,2-Dibromoethane (EDB)	ND	ug/L	0.020	0.020	1	07/21/15 11:29	07/22/15 05:28	106-93-4	L3
Surrogates									
1-Chloro-2-bromopropane (S)	110	%	60-140		1	07/21/15 11:29	07/22/15 05:28	301-79-56	
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/17/15 05:54	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/17/15 05:54	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/17/15 05:54	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/17/15 05:54	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/17/15 05:54	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/17/15 05:54	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/17/15 05:54	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/17/15 05:54	108-20-3	
Ethanol	ND	ug/L	200	138	1		07/17/15 05:54	64-17-5	L3
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/17/15 05:54	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/17/15 05:54	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/17/15 05:54	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/17/15 05:54	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/17/15 05:54	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		07/17/15 05:54	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/17/15 05:54	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/17/15 05:54	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	117	%	70-130		1		07/17/15 05:54	460-00-4	
1,2-Dichloroethane-d4 (S)	114	%	70-130		1		07/17/15 05:54	17060-07-0	
Toluene-d8 (S)	107	%	70-130		1		07/17/15 05:54	2037-26-5	

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ANALYTICAL RESULTS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Sample: TRIP BLANK **Lab ID: 92258887022** Collected: 07/14/15 14:54 Received: 07/15/15 16:10 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 8260								
tert-Amyl Alcohol	ND	ug/L	100	76.8	1		07/17/15 06:11	75-85-4	
tert-Amylmethyl ether	ND	ug/L	10.0	3.4	1		07/17/15 06:11	994-05-8	
Benzene	ND	ug/L	5.0	1.7	1		07/17/15 06:11	71-43-2	
3,3-Dimethyl-1-Butanol	ND	ug/L	100	32.1	1		07/17/15 06:11	624-95-3	
tert-Butyl Alcohol	ND	ug/L	100	57.7	1		07/17/15 06:11	75-65-0	
tert-Butyl Formate	ND	ug/L	50.0	7.3	1		07/17/15 06:11	762-75-4	
1,2-Dichloroethane	ND	ug/L	5.0	1.8	1		07/17/15 06:11	107-06-2	
Diisopropyl ether	ND	ug/L	5.0	1.7	1		07/17/15 06:11	108-20-3	
Ethanol	ND	ug/L	200	138	1		07/17/15 06:11	64-17-5	L3
Ethylbenzene	ND	ug/L	5.0	1.6	1		07/17/15 06:11	100-41-4	
Ethyl-tert-butyl ether	ND	ug/L	10.0	3.6	1		07/17/15 06:11	637-92-3	
Methyl-tert-butyl ether	ND	ug/L	5.0	1.7	1		07/17/15 06:11	1634-04-4	
Naphthalene	ND	ug/L	5.0	2.0	1		07/17/15 06:11	91-20-3	
Toluene	ND	ug/L	5.0	1.6	1		07/17/15 06:11	108-88-3	
Xylene (Total)	ND	ug/L	10.0	2.7	1		07/17/15 06:11	1330-20-7	
m&p-Xylene	ND	ug/L	10.0	3.1	1		07/17/15 06:11	179601-23-1	
o-Xylene	ND	ug/L	5.0	1.6	1		07/17/15 06:11	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	111	%	70-130		1		07/17/15 06:11	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	70-130		1		07/17/15 06:11	17060-07-0	
Toluene-d8 (S)	107	%	70-130		1		07/17/15 06:11	2037-26-5	

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

QC Batch: MSV/32617 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level SC
Associated Lab Samples: 92258887018, 92258887019

METHOD BLANK: 1511738 Matrix: Water
Associated Lab Samples: 92258887018, 92258887019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	1.0	07/16/15 18:45	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	07/16/15 18:45	
Benzene	ug/L	ND	1.0	07/16/15 18:45	
Diisopropyl ether	ug/L	ND	1.0	07/16/15 18:45	
Ethanol	ug/L	ND	200	07/16/15 18:45	
Ethyl-tert-butyl ether	ug/L	ND	10.0	07/16/15 18:45	
Ethylbenzene	ug/L	ND	1.0	07/16/15 18:45	
m&p-Xylene	ug/L	ND	2.0	07/16/15 18:45	
Methyl-tert-butyl ether	ug/L	ND	1.0	07/16/15 18:45	
Naphthalene	ug/L	ND	1.0	07/16/15 18:45	
o-Xylene	ug/L	ND	1.0	07/16/15 18:45	
tert-Amyl Alcohol	ug/L	ND	100	07/16/15 18:45	
tert-Amylmethyl ether	ug/L	ND	10.0	07/16/15 18:45	
tert-Butyl Alcohol	ug/L	ND	100	07/16/15 18:45	
tert-Butyl Formate	ug/L	ND	50.0	07/16/15 18:45	
Toluene	ug/L	ND	1.0	07/16/15 18:45	
Xylene (Total)	ug/L	ND	2.0	07/16/15 18:45	
1,2-Dichloroethane-d4 (S)	%	99	70-130	07/16/15 18:45	
4-Bromofluorobenzene (S)	%	90	70-130	07/16/15 18:45	
Toluene-d8 (S)	%	102	70-130	07/16/15 18:45	

LABORATORY CONTROL SAMPLE: 1511739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	46.6	93	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1100	110	70-130	
Benzene	ug/L	50	51.4	103	70-130	
Diisopropyl ether	ug/L	50	53.1	106	70-130	
Ethanol	ug/L	2000	2170	108	70-130	
Ethyl-tert-butyl ether	ug/L	100	112	112	70-130	
Ethylbenzene	ug/L	50	53.9	108	70-130	
m&p-Xylene	ug/L	100	97.1	97	70-130	
Methyl-tert-butyl ether	ug/L	50	56.0	112	70-130	
Naphthalene	ug/L	50	51.3	103	70-130	
o-Xylene	ug/L	50	51.9	104	70-130	
tert-Amyl Alcohol	ug/L	1000	1170	117	70-130	
tert-Amylmethyl ether	ug/L	100	105	105	70-130	
tert-Butyl Alcohol	ug/L	500	504	101	70-130	
tert-Butyl Formate	ug/L	400	457	114	70-130	
Toluene	ug/L	50	50.8	102	70-130	

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

LABORATORY CONTROL SAMPLE: 1511739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	149	99	70-130	
1,2-Dichloroethane-d4 (S)	%			111	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			97	70-130	

MATRIX SPIKE SAMPLE: 1511741

Parameter	Units	92258887019 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	17.4	87	70-130	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	463	116	70-130	
Benzene	ug/L	ND	20	22.1	111	70-130	
Diisopropyl ether	ug/L	ND	20	21.2	106	70-130	
Ethanol	ug/L	ND	800	1050	131	70-130	M1
Ethyl-tert-butyl ether	ug/L	ND	40	44.1	110	70-130	
Ethylbenzene	ug/L	ND	20	20.5	103	70-130	
m&p-Xylene	ug/L	ND	40	40.8	102	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	21.2	106	70-130	
Naphthalene	ug/L	ND	20	19.7	98	70-130	
o-Xylene	ug/L	ND	20	20.2	101	70-130	
tert-Amyl Alcohol	ug/L	ND	400	415	104	70-130	
tert-Amylmethyl ether	ug/L	ND	40	40.2	101	70-130	
tert-Butyl Alcohol	ug/L	ND	200	322	161	70-130	M1
tert-Butyl Formate	ug/L	ND	160	ND	0	70-130	M1
Toluene	ug/L	ND	20	21.7	108	70-130	
1,2-Dichloroethane-d4 (S)	%				87	70-130	
4-Bromofluorobenzene (S)	%				103	70-130	
Toluene-d8 (S)	%				101	70-130	

SAMPLE DUPLICATE: 1511740

Parameter	Units	92258887018 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

SAMPLE DUPLICATE: 1511740

Parameter	Units	92258887018 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	100	98	1		
4-Bromofluorobenzene (S)	%	89	89	0		
Toluene-d8 (S)	%	104	103	1		

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

QC Batch: MSV/32596 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV SC
Associated Lab Samples: 92258887014

METHOD BLANK: 1511074 Matrix: Water
Associated Lab Samples: 92258887014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	07/16/15 16:03	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	07/16/15 16:03	
Benzene	ug/L	ND	5.0	07/16/15 16:03	
Diisopropyl ether	ug/L	ND	5.0	07/16/15 16:03	
Ethanol	ug/L	ND	200	07/16/15 16:03	
Ethyl-tert-butyl ether	ug/L	ND	10.0	07/16/15 16:03	
Ethylbenzene	ug/L	ND	5.0	07/16/15 16:03	
m&p-Xylene	ug/L	ND	10.0	07/16/15 16:03	
Methyl-tert-butyl ether	ug/L	ND	5.0	07/16/15 16:03	
Naphthalene	ug/L	ND	5.0	07/16/15 16:03	
o-Xylene	ug/L	ND	5.0	07/16/15 16:03	
tert-Amyl Alcohol	ug/L	ND	100	07/16/15 16:03	
tert-Amylmethyl ether	ug/L	ND	10.0	07/16/15 16:03	
tert-Butyl Alcohol	ug/L	ND	100	07/16/15 16:03	
tert-Butyl Formate	ug/L	ND	50.0	07/16/15 16:03	
Toluene	ug/L	ND	5.0	07/16/15 16:03	
Xylene (Total)	ug/L	ND	10.0	07/16/15 16:03	
1,2-Dichloroethane-d4 (S)	%	108	70-130	07/16/15 16:03	
4-Bromofluorobenzene (S)	%	109	70-130	07/16/15 16:03	
Toluene-d8 (S)	%	103	70-130	07/16/15 16:03	

LABORATORY CONTROL SAMPLE: 1511075

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	44.1	88	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	971	97	70-130	
Benzene	ug/L	50	48.3	97	70-130	
Diisopropyl ether	ug/L	50	55.5	111	70-130	
Ethanol	ug/L	2000	2460	123	70-130	
Ethyl-tert-butyl ether	ug/L	100	114	114	70-130	
Ethylbenzene	ug/L	50	44.7	89	70-130	
m&p-Xylene	ug/L	100	89.2	89	70-130	
Methyl-tert-butyl ether	ug/L	50	50.4	101	70-130	
Naphthalene	ug/L	50	38.7	77	70-130	
o-Xylene	ug/L	50	44.1	88	70-130	
tert-Amyl Alcohol	ug/L	1000	1140	114	70-130	
tert-Amylmethyl ether	ug/L	100	98.2	98	70-130	
tert-Butyl Alcohol	ug/L	500	604	121	70-130	
tert-Butyl Formate	ug/L	400	379	95	70-130	
Toluene	ug/L	50	47.1	94	70-130	

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

LABORATORY CONTROL SAMPLE: 1511075

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Xylene (Total)	ug/L	150	133	89	70-130	
1,2-Dichloroethane-d4 (S)	%			100	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE SAMPLE: 1511076

Parameter	Units	92258883004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	18.8	94	70-130	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	392	98	70-130	
Benzene	ug/L	ND	20	21.3	107	70-130	
Diisopropyl ether	ug/L	ND	20	22.6	113	70-130	
Ethanol	ug/L	ND	800	1090	128	70-130	
Ethyl-tert-butyl ether	ug/L	ND	40	45.7	114	70-130	
Ethylbenzene	ug/L	ND	20	19.1	95	70-130	
m&p-Xylene	ug/L	ND	40	38.7	97	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	21.3	104	70-130	
Naphthalene	ug/L	ND	20	17.3	87	70-130	
o-Xylene	ug/L	ND	20	18.5	92	70-130	
tert-Amyl Alcohol	ug/L	ND	400	403	101	70-130	
tert-Amylmethyl ether	ug/L	ND	40	37.9	95	70-130	
tert-Butyl Alcohol	ug/L	ND	200	297	148	70-130	M1
tert-Butyl Formate	ug/L	ND	160	89.5	56	70-130	P5
Toluene	ug/L	ND	20	20.4	102	70-130	
1,2-Dichloroethane-d4 (S)	%				103	70-130	
4-Bromofluorobenzene (S)	%				102	70-130	
Toluene-d8 (S)	%				101	70-130	

SAMPLE DUPLICATE: 1511077

Parameter	Units	92258883005 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

SAMPLE DUPLICATE: 1511077

Parameter	Units	92258883005 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	111	111	0		
4-Bromofluorobenzene (S)	%	109	115	5		
Toluene-d8 (S)	%	103	104	1		

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

QC Batch: MSV/32602 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV SC
Associated Lab Samples: 92258887001, 92258887002, 92258887007, 92258887009, 92258887010, 92258887011, 92258887012, 92258887021, 92258887022

METHOD BLANK: 1511206 Matrix: Water
Associated Lab Samples: 92258887001, 92258887002, 92258887007, 92258887009, 92258887010, 92258887011, 92258887012, 92258887021, 92258887022

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	07/17/15 04:12	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	07/17/15 04:12	
Benzene	ug/L	ND	5.0	07/17/15 04:12	
Diisopropyl ether	ug/L	ND	5.0	07/17/15 04:12	
Ethanol	ug/L	ND	200	07/17/15 04:12	
Ethyl-tert-butyl ether	ug/L	ND	10.0	07/17/15 04:12	
Ethylbenzene	ug/L	ND	5.0	07/17/15 04:12	
m&p-Xylene	ug/L	ND	10.0	07/17/15 04:12	
Methyl-tert-butyl ether	ug/L	ND	5.0	07/17/15 04:12	
Naphthalene	ug/L	ND	5.0	07/17/15 04:12	
o-Xylene	ug/L	ND	5.0	07/17/15 04:12	
tert-Amyl Alcohol	ug/L	ND	100	07/17/15 04:12	
tert-Amylmethyl ether	ug/L	ND	10.0	07/17/15 04:12	
tert-Butyl Alcohol	ug/L	ND	100	07/17/15 04:12	
tert-Butyl Formate	ug/L	ND	50.0	07/17/15 04:12	
Toluene	ug/L	ND	5.0	07/17/15 04:12	
Xylene (Total)	ug/L	ND	10.0	07/17/15 04:12	
1,2-Dichloroethane-d4 (S)	%	111	70-130	07/17/15 04:12	
4-Bromofluorobenzene (S)	%	111	70-130	07/17/15 04:12	
Toluene-d8 (S)	%	108	70-130	07/17/15 04:12	

LABORATORY CONTROL SAMPLE: 1511207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	45.9	92	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	923	92	70-130	
Benzene	ug/L	50	47.9	96	70-130	
Diisopropyl ether	ug/L	50	51.7	103	70-130	
Ethanol	ug/L	2000	2680	134	70-130	L0
Ethyl-tert-butyl ether	ug/L	100	107	107	70-130	
Ethylbenzene	ug/L	50	43.9	88	70-130	
m&p-Xylene	ug/L	100	88.4	88	70-130	
Methyl-tert-butyl ether	ug/L	50	54.2	108	70-130	
Naphthalene	ug/L	50	38.0	76	70-130	
o-Xylene	ug/L	50	42.9	86	70-130	
tert-Amyl Alcohol	ug/L	1000	1070	107	70-130	
tert-Amylmethyl ether	ug/L	100	95.3	95	70-130	
tert-Butyl Alcohol	ug/L	500	628	126	70-130	

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

LABORATORY CONTROL SAMPLE: 1511207

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
tert-Butyl Formate	ug/L	400	378	95	70-130	
Toluene	ug/L	50	46.1	92	70-130	
Xylene (Total)	ug/L	150	131	88	70-130	
1,2-Dichloroethane-d4 (S)	%			102	70-130	
4-Bromofluorobenzene (S)	%			106	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE SAMPLE: 1511208

Parameter	Units	92258887001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	19.3	97	70-130	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	392	98	70-130	
Benzene	ug/L	ND	20	20.4	102	70-130	
Diisopropyl ether	ug/L	ND	20	22.0	110	70-130	
Ethanol	ug/L	ND	800	1490	187	70-130	M0
Ethyl-tert-butyl ether	ug/L	ND	40	44.5	111	70-130	
Ethylbenzene	ug/L	ND	20	19.5	98	70-130	
m&p-Xylene	ug/L	ND	40	38.0	95	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	22.9	115	70-130	
Naphthalene	ug/L	ND	20	16.8	84	70-130	
o-Xylene	ug/L	ND	20	17.8	89	70-130	
tert-Amyl Alcohol	ug/L	ND	400	395	99	70-130	
tert-Amylmethyl ether	ug/L	ND	40	35.2	88	70-130	
tert-Butyl Alcohol	ug/L	ND	200	404	202	70-130	M1
tert-Butyl Formate	ug/L	ND	160	ND	0	70-130	P5
Toluene	ug/L	ND	20	20.4	102	70-130	
1,2-Dichloroethane-d4 (S)	%				103	70-130	
4-Bromofluorobenzene (S)	%				104	70-130	
Toluene-d8 (S)	%				102	70-130	

SAMPLE DUPLICATE: 1511209

Parameter	Units	92258887002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	

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REPORT OF LABORATORY ANALYSIS

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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

SAMPLE DUPLICATE: 1511209

Parameter	Units	92258887002 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	116	117	1		
4-Bromofluorobenzene (S)	%	112	115	2		
Toluene-d8 (S)	%	104	107	3		

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

QC Batch: MSV/32604 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV SC
Associated Lab Samples: 92258887003, 92258887004, 92258887005, 92258887006, 92258887008, 92258887013, 92258887015, 92258887016, 92258887017, 92258887020

METHOD BLANK: 1511244 Matrix: Water
Associated Lab Samples: 92258887003, 92258887004, 92258887005, 92258887006, 92258887008, 92258887013, 92258887015, 92258887016, 92258887017, 92258887020

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	ND	5.0	07/17/15 18:41	
3,3-Dimethyl-1-Butanol	ug/L	ND	100	07/17/15 18:41	
Benzene	ug/L	ND	5.0	07/17/15 18:41	
Diisopropyl ether	ug/L	ND	5.0	07/17/15 18:41	
Ethanol	ug/L	ND	200	07/17/15 18:41	
Ethyl-tert-butyl ether	ug/L	ND	10.0	07/17/15 18:41	
Ethylbenzene	ug/L	ND	5.0	07/17/15 18:41	
m&p-Xylene	ug/L	ND	10.0	07/17/15 18:41	
Methyl-tert-butyl ether	ug/L	ND	5.0	07/17/15 18:41	
Naphthalene	ug/L	ND	5.0	07/17/15 18:41	
o-Xylene	ug/L	ND	5.0	07/17/15 18:41	
tert-Amyl Alcohol	ug/L	ND	100	07/17/15 18:41	
tert-Amylmethyl ether	ug/L	ND	10.0	07/17/15 18:41	
tert-Butyl Alcohol	ug/L	ND	100	07/17/15 18:41	
tert-Butyl Formate	ug/L	ND	50.0	07/17/15 18:41	
Toluene	ug/L	ND	5.0	07/17/15 18:41	
Xylene (Total)	ug/L	ND	10.0	07/17/15 18:41	
1,2-Dichloroethane-d4 (S)	%	104	70-130	07/17/15 18:41	
4-Bromofluorobenzene (S)	%	97	70-130	07/17/15 18:41	
Toluene-d8 (S)	%	106	70-130	07/17/15 18:41	

LABORATORY CONTROL SAMPLE: 1511245

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	43.0	86	70-130	
3,3-Dimethyl-1-Butanol	ug/L	1000	1040	104	70-130	
Benzene	ug/L	50	49.9	100	70-130	
Diisopropyl ether	ug/L	50	54.2	108	70-130	
Ethanol	ug/L	2000	2220	111	70-130	
Ethyl-tert-butyl ether	ug/L	100	114	114	70-130	
Ethylbenzene	ug/L	50	48.1	96	70-130	
m&p-Xylene	ug/L	100	100	100	70-130	
Methyl-tert-butyl ether	ug/L	50	57.0	114	70-130	
Naphthalene	ug/L	50	51.3	103	70-130	
o-Xylene	ug/L	50	51.6	103	70-130	
tert-Amyl Alcohol	ug/L	1000	1020	102	70-130	
tert-Amylmethyl ether	ug/L	100	101	101	70-130	
tert-Butyl Alcohol	ug/L	500	607	121	70-130	

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(704)875-9092

QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

LABORATORY CONTROL SAMPLE: 1511245

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
tert-Butyl Formate	ug/L	400	448	112	70-130	
Toluene	ug/L	50	49.1	98	70-130	
Xylene (Total)	ug/L	150	152	101	70-130	
1,2-Dichloroethane-d4 (S)	%			95	70-130	
4-Bromofluorobenzene (S)	%			95	70-130	
Toluene-d8 (S)	%			101	70-130	

MATRIX SPIKE SAMPLE: 1511246

Parameter	Units	92258976001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	ND	20	20.2	101	70-130	
3,3-Dimethyl-1-Butanol	ug/L	ND	400	400	100	70-130	
Benzene	ug/L	ND	20	21.8	109	70-130	
Diisopropyl ether	ug/L	ND	20	23.4	117	70-130	
Ethanol	ug/L	ND	800	1460	182	70-130	M1
Ethyl-tert-butyl ether	ug/L	ND	40	46.6	116	70-130	
Ethylbenzene	ug/L	ND	20	18.7	93	70-130	
m&p-Xylene	ug/L	ND	40	37.5	94	70-130	
Methyl-tert-butyl ether	ug/L	ND	20	22.9	115	70-130	
Naphthalene	ug/L	2.0J	20	17.2	76	70-130	
o-Xylene	ug/L	ND	20	18.4	92	70-130	
tert-Amyl Alcohol	ug/L	ND	400	418	105	70-130	
tert-Amylmethyl ether	ug/L	ND	40	37.0	92	70-130	
tert-Butyl Alcohol	ug/L	ND	200	301	150	70-130	M1
tert-Butyl Formate	ug/L	ND	160	140	88	70-130	
Toluene	ug/L	ND	20	20.7	104	70-130	
1,2-Dichloroethane-d4 (S)	%				105	70-130	
4-Bromofluorobenzene (S)	%				101	70-130	
Toluene-d8 (S)	%				101	70-130	

SAMPLE DUPLICATE: 1511247

Parameter	Units	92258976004 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane	ug/L	ND	ND		30	
3,3-Dimethyl-1-Butanol	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethanol	ug/L	ND	ND		30	
Ethyl-tert-butyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

SAMPLE DUPLICATE: 1511247

Parameter	Units	92258976004 Result	Dup Result	RPD	Max RPD	Qualifiers
tert-Amyl Alcohol	ug/L	ND	ND		30	
tert-Amylmethyl ether	ug/L	ND	ND		30	
tert-Butyl Alcohol	ug/L	ND	ND		30	
tert-Butyl Formate	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	105	105	0		
4-Bromofluorobenzene (S)	%	106	105	0		pH
Toluene-d8 (S)	%	105	103	2		

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

QC Batch: OEXT/36515 Analysis Method: EPA 8011
QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
Associated Lab Samples: 92258887001, 92258887002, 92258887003, 92258887004, 92258887005, 92258887006, 92258887007, 92258887008, 92258887009, 92258887010

METHOD BLANK: 1513992 Matrix: Water
Associated Lab Samples: 92258887001, 92258887002, 92258887003, 92258887004, 92258887005, 92258887006, 92258887007, 92258887008, 92258887009, 92258887010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	07/21/15 15:54	
1-Chloro-2-bromopropane (S)	%	107	60-140	07/21/15 15:54	

LABORATORY CONTROL SAMPLE & LCSD: 1513993 1513994

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.28	0.30	0.36	106	126	60-140	18	20	
1-Chloro-2-bromopropane (S)	%				118	113	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1513995 1513996

Parameter	Units	92258883006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	ND	.28	.28	0.35	0.34	122	120	60-140	2	20	
1-Chloro-2-bromopropane (S)	%						107	105	60-140			

SAMPLE DUPLICATE: 1513997

Parameter	Units	92258883007 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	99	135	29		

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QUALITY CONTROL DATA

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

QC Batch: OEXT/36516 Analysis Method: EPA 8011
QC Batch Method: EPA 8011 Analysis Description: GCS 8011 EDB DBCP
Associated Lab Samples: 92258887011, 92258887012, 92258887013, 92258887014, 92258887015, 92258887016, 92258887017, 92258887018, 92258887019, 92258887020, 92258887021

METHOD BLANK: 1514000 Matrix: Water
Associated Lab Samples: 92258887011, 92258887012, 92258887013, 92258887014, 92258887015, 92258887016, 92258887017, 92258887018, 92258887019, 92258887020, 92258887021

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.020	07/22/15 00:38	
1-Chloro-2-bromopropane (S)	%	110	60-140	07/22/15 00:38	

LABORATORY CONTROL SAMPLE & LCSD: 1514001 1514002

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.28	0.36	0.40	128	142	60-140	11	20	L0
1-Chloro-2-bromopropane (S)	%				116	130	60-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1514003 1514004

Parameter	Units	92258887013 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromoethane (EDB)	ug/L	0.034	.29	.29	0.72	0.67	238	220	60-140	7	20	M1
1-Chloro-2-bromopropane (S)	%						124	114	60-140			

SAMPLE DUPLICATE: 1514005

Parameter	Units	92258887021 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	ND		20	
1-Chloro-2-bromopropane (S)	%	110	107	3		

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QUALIFIERS

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P5	The EPA or method required sample preservation degrades this compound, therefore acceptable recoveries may not be achieved in sample matrix spikes.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PUROLATER COUNTER CORP 05878/
Pace Project No.: 92258887

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92258887001	MW-1	EPA 8011	OEXT/36515	EPA 8011	GCSV/22020
92258887002	MW-4	EPA 8011	OEXT/36515	EPA 8011	GCSV/22020
92258887003	MW-7	EPA 8011	OEXT/36515	EPA 8011	GCSV/22020
92258887004	MW-8	EPA 8011	OEXT/36515	EPA 8011	GCSV/22020
92258887005	MW-9	EPA 8011	OEXT/36515	EPA 8011	GCSV/22020
92258887006	MW-10	EPA 8011	OEXT/36515	EPA 8011	GCSV/22020
92258887007	MW-11	EPA 8011	OEXT/36515	EPA 8011	GCSV/22020
92258887008	MW-12	EPA 8011	OEXT/36515	EPA 8011	GCSV/22020
92258887009	MW-13	EPA 8011	OEXT/36515	EPA 8011	GCSV/22020
92258887010	PW-1	EPA 8011	OEXT/36515	EPA 8011	GCSV/22020
92258887011	PW-2	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887012	RW-1	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887013	RW-2	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887014	RW-3	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887015	RW-4	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887016	RW-5	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887017	RW-6	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887018	SW-1	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887019	SW-2	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887020	RW-6 DUP	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887021	FIELD BLANK	EPA 8011	OEXT/36516	EPA 8011	GCSV/22019
92258887018	SW-1	EPA 8260	MSV/32617		
92258887019	SW-2	EPA 8260	MSV/32617		
92258887001	MW-1	EPA 8260	MSV/32602		
92258887002	MW-4	EPA 8260	MSV/32602		
92258887003	MW-7	EPA 8260	MSV/32604		
92258887004	MW-8	EPA 8260	MSV/32604		
92258887005	MW-9	EPA 8260	MSV/32604		
92258887006	MW-10	EPA 8260	MSV/32604		
92258887007	MW-11	EPA 8260	MSV/32602		
92258887008	MW-12	EPA 8260	MSV/32604		
92258887009	MW-13	EPA 8260	MSV/32602		
92258887010	PW-1	EPA 8260	MSV/32602		
92258887011	PW-2	EPA 8260	MSV/32602		
92258887012	RW-1	EPA 8260	MSV/32602		
92258887013	RW-2	EPA 8260	MSV/32604		
92258887014	RW-3	EPA 8260	MSV/32596		
92258887015	RW-4	EPA 8260	MSV/32604		
92258887016	RW-5	EPA 8260	MSV/32604		
92258887017	RW-6	EPA 8260	MSV/32604		
92258887020	RW-6 DUP	EPA 8260	MSV/32604		
92258887021	FIELD BLANK	EPA 8260	MSV/32602		
92258887022	TRIP BLANK	EPA 8260	MSV/32602		

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Pace Analytical	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: May 19, 2015 Page 1 of 2*
	Document Number: F-CHR-CS-003-rev.16	Issuing Authority: Pace Huntersville Quality Office

Client Name: SCDHE UST

* Page 2 of 2 is for Internal Use Only

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other_____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals Intact: ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Thermometer Used: IR Gun T1401 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Temp Correction Factor T1401 No Correction

Optional: Proj. Due Date: Proj. Name:

Corrected Cooler Temp.: 4.3 °C Biological Tissue is Frozen: Yes No (N/A)

Date and Initials of person examining contents: 7-15 JJ

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	6.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☑Yes ☐No ☐N/A	11.
Sample Labels match COC:	☐Yes ☐No ☐N/A	12. Rec 2 vials Trip Blank
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☑Yes ☐No ☐N/A	14.
Headspace in VOA Vials (>6mm):	☑Yes ☐No ☐N/A	15.
Trip Blank Present:	☑Yes ☐No ☐N/A	16.
Trip Blank Custody Seals Present	☑Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

SCURF Review: TC Date: 7/15/15

SRF Review: Date:

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO#: 92258887

92258887

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 3

1902501

Section A Required Client Information:

Company: SCDHEC-UST
Address: 2600 Bull Street, Columbia, SC 29212
Email To: bryantjc@dhec.sc.gov
Phone: 803-898-0606 Fax: 803-898-0673
Requested Due Date/TAT:

Section B Required Project Information:

Report To: J. Bryant-UST
Copy To:
Purchase Order No.: 4600422573
Project Name: Purolator Courier Corp
Project Number: 05878

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: T. Carter
Pace Profile #: 849-1

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☑ UST ☐ RCRA ☐ OTHER

Site Location STATE: SC Lexington

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	BTEX	Naph	MtBE	1,2-DCA	Oxys	EDB	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-1	WT	G			7/14/15	14:50		6				6						✓	✓	✓	✓	✓	✓		No odor 001
2	MW-2																									Not sampled
3	MW-4	WT	G			7/14/15	14:42		6				6						✓	✓	✓	✓	✓	✓		No odor 2
4	MW-5																									Not sampled
5	MW-7	WT	G			7/14/15	12:06		6				6						✓	✓	✓	✓	✓	✓		No odor 3
6	MW-8						11:55																			No odor 4
7	MW-9						11:35																			No odor 5
8	MW-10						11:45																			No odor 6
9	MW-11						12:39																			No odor 7
10	MW-12						12:28																			No odor 8
11	MW-13	WT	G			7/14/15	12:48		6				6						✓	✓	✓	✓	✓	✓		No odor 9
12	MW-15																									Not sampled

92258887

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[signature]	7/15/15	10:40	[signature] Moody-Pace	07-15-15	10:40				
	[signature]	07-15-15	1610	[signature] John Hu	7-15	1610	4.3	y	n	y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Peter J Wylie

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 07/14/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 3

1902799

Section A Required Client Information:
Company: SCDHEC-UST
Address: 2600 Bull Street, Columbia, SC 29212
Email To: bryantjc@dhec.sc.gov
Phone: 803-898-0606 Fax: 803-898-0673
Requested Due Date/TAT:

Section B Required Project Information:
Report To: J. Bryant UST
Copy To:
Purchase Order No.: 4600422513
Project Name: Purdue Carter Corp
Project Number: 058781

Section C Invoice Information:
Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: T. Carter
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☑ UST ☐ RCRA ☐ OTHER

Site Location STATE: SC Lexington

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	BTEX	Naptha	MtBE	1,2-DCA	Oxys	EDB	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 92258887
1	MW-16																										Not sampled
2	PW-1	WT	G			7/14/15	13:07		6				6						✓	✓	✓	✓	✓	✓			No odor
3	PW-2						12:19																				No odor
4	RW-1						14:11																				Odor
5	RW-2						13:42																				No odor
6	RW-3						13:22																				No odor
7	RW-4						14:39																				No odor
8	RW-5						14:23																				Odor
9	RW-6						13:57																				Odor; sheen; dup'd
10	SW-1						11:00																				No odor; LDLs
11	SW-2						11:01																				No odor; LDLs
12	RW-6 Dup	WT	G			7/14/15	13:57		6				6						✓	✓	✓	✓	✓	✓			Odor; sheen

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature]	7/15/15	10:40	[signature] Moody-Pace	07-15-15	10:40				
	[signature]	07-15-15	160	[signature]	7-15	16:10	4.3	Y	~	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Peter J Wylie
SIGNATURE of SAMPLER: [signature]
DATE Signed (MM/DD/YY): 07/14/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

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www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 3 of 3

1902800

Section A Required Client Information:

Company: SCDHEC-UST
Address: 7600 Bull Street
Columbia, SC 29202
Email To: bryantjc@dhec.sc.gov
Phone: 803-898-0604 Fax: 803-898-0673
Requested Due Date/TAT:

Section B Required Project Information:

Report To: J. Bryant - UST
Copy To:
Purchase Order No.: 4600422573
Project Name: Purdair Courier Corp
Project Number: 05878

Section C Invoice Information:

Attention:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: T Carter
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☑ UST ☐ RCRA ☐ OTHER

Site Location STATE: SC — Lexington

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N	BTEX	Naphth	MTBE	1,2-DCA	EDB	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Dup																									
2	Field blank	WT	G			7/14/15	14:53		6			6						✓	✓	✓	✓	✓	✓		92258887
3	Trip blank	WT	G			7/14/15	14:54		6			6						✓	✓	✓	✓	✓			
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp In °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
		7/15/15	10:40		07-15-15	10:40				
		07-15-15	1610		7.15	1610	4.3	Y	N	Y

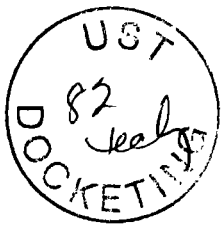
ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:
SIGNATURE of SAMPLER: DATE Signed (MM/DD/YY): 07/14/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

D H E C
PROMOTE PROTECT PROSPER
Catherine E. Heigel, Director
Promoting and protecting the health of the public and the environment



MR MILTON BRAZELL
220 LORAINE CT
WEST COLUMBIA SC 29169

JAN 2 2 2016

Re: Letter of Concern
Former Purolator Courier Corp, 105 Corporate Blvd, West Columbia, SC
UST Permit #05878
Adjacent property tax map # 004599-10-008
Lexington County

Dear Mr. Brazell:

In response to your request for information about environmental conditions and liability associated with the referenced facility and adjacent property, the following is provided.

The Underground Storage Tank (UST) Management Division (Agency) received a report on October 17, 1991 documenting petroleum chemicals of concern in the subsurface in the vicinity of the former underground storage tanks. Agency records document that three (3) USTs owned by Carolina Commerce Associates were abandoned by removal in September 1991. In response to the initial report of petroleum chemicals of concern, the UST Division directed the Carolina Commerce Associates as the party responsible for performing this activity under state and federal law, to assess the extent and severity of the contamination.

The UST Division would also like to clarify for you the financial and liability issues surrounding the petroleum chemicals of concern at this facility. The release of petroleum products from the UST is qualified to receive funding from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. This means that reasonable costs up to $1,000,000 can be paid by the SUPERB Account for site rehabilitation actions associated with this release.

Monitoring wells MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-15, MW-16, MW-17, PW-1, PW-2, RW-1, RW-2, RW-3, RW-4, RW-5 and RW-6 were installed on your property as part of the assessment investigation. Aggressive Fluid and Vapor Recovery (AFVR) events have successfully reduced Free Phase Product (FPP) thickness and Chemical of Concern (CoC) concentrations. The referenced release will proceed to corrective action in the near future. The UST owner/operator and the Agency will require access to your property during reasonable hours to perform necessary rehabilitation activities. You will be contacted before corrective action is initiated. Rehabilitation activities remain the responsibility of Carolina Commerce Associates.

The Agency is not aware of any laws or regulations that prohibit the use or development of adjacent properties where a petroleum release has occurred. However, the Agency advises against installing a water supply well for drinking, cooking, or bathing purposes until active corrective action is completed. If you should choose to install a water supply well for these purposes at this time, it is at your discretion. Any future work required by the Agency should not cause any damage to the building, disrupt deliveries, prevent access to customers, or block main access routes. To further assure you, any required activities associated with the petroleum release would be performed by a SC Certified Site Rehabilitation Contractor who maintains specific levels of insurance coverage for General and Professional Liability and Pollution/Property Damage. Such coverage is required by Section IV of the SUPERB Site Rehabilitation and Fund Access Regulations R. 61-98.

If you have any questions, please contact me at (803) 898-0634. I can also be reached by email at utzst@dhec.sc.gov.

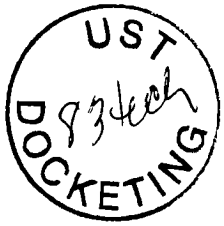
Sincerely,

Sonya T. Utz, Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

cc: Dee O'Brien, Crawford Environmental Services, 104 Corporate Blvd, Ste 412, West Columbia, SC 29169
Technical File

D H E C
PROMOTE PROTECT PROSPER

Catherine E. Heigel, Director
Promoting and protecting the health of the public and the environment



February 16, 2016

MILTON BRAZZEL
220 LORAINE CT
WEST COLUMBIA SC 29169

Re: Letter of Concern
Former Purolator Courier Corp., 105 Corporate Blvd., West Columbia, SC
UST Permit #05878
Release reported October 17, 1991
Request received February 8, 2016
Lexington County

Dear Mr. Brazzel:

You requested that this office provide you with an update on the environmental conditions at the above referenced facility.

We received a report on October 17, 1991 documenting petroleum chemicals of concern in the subsurface in the vicinity of the former underground storage tanks. Our records revealed that three underground storage tank (USTs) owned by Carolina Commerce Associates were removed September 10, 1991. In response to the initial report of petroleum chemicals of concern, Carolina Commerce Associates as the party responsible for performing this activity under state and federal law assessed the extent and severity of the contamination. A bid solicitation has been prepared for clean-up actions. The proposed clean-up actions should be completed by early summer 2016. Upon completion, the Agency anticipates that only limited monitoring activities will be needed prior to issuance of a "Conditional No Further Action in 2017.

The UST Division would also like to clarify for you the financial and liability issues surrounding the petroleum chemicals of concern at this facility. The release of petroleum products from the UST is qualified to receive funding from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. This means that reasonable costs up to $1,000,000 can be paid by the SUPERB Account for site rehabilitation actions associated with this release.

Section 80(C) of the SUPERB Act provides that a subsequent purchaser of property from which an UST has been removed is not responsible for site rehabilitation activities other than abatement actions necessary to eliminate any imminent threat to human health or the environment. This exemption applies to the extent that the release is eligible for compensation from the SUPERB Account, provided that the person allows reasonable access to the property for rehabilitation activities, and does not or has not had any familial, financial, or other interest with the person who owned or operated the UST. This applies equally to subsequent lenders or to those who would acquire this property through foreclosure in the future.

The Division is not aware of any laws or regulations that prohibit the use or development of properties where a petroleum release has occurred. Any future work required by the Agency should not cause any damage to the building, disrupt deliveries, prevent access to customers, or block main access routes. To further assure you, any required activities associated with the petroleum release would be performed by a SC Certified Site Rehabilitation Contractor who maintains specific levels of insurance coverage for General and Professional Liability and Pollution/Property Damage. Such coverage is required by Section IV of the SUPERB Site Rehabilitation and Fund Access Regulations R. 61-98.

If you have any questions, please contact me at (803) 898-0608. I can also be reached by email at minerrs@dhec.sc.gov.

Sincerely,

Read S. Miner., P.G., Hydrogeologist
Corrective Action Section
Underground Storage Tank Management Division
Bureau of Land and Waste Management

cc: Technical File

D H E C

PROMOTE PROTECT PROSPER

Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

FEB 07 2013

UST 9 Tech DOCKETING

MR RONNY LOWDER
EMERALD INC
P O BOX 3050
SUMTER SC 29151-3050

Re: AFVR
Contract #IFB-5400005023-11/8/12-EMW; PO #4600220167
Notice to proceed

Dear Mr. Lowder:

Under the terms and conditions of the referenced contract, and per the schedule submitted to the Underground Storage Tank (UST) Management Division on February 1, 2013, free-phase product (FPP) recovery using aggressive fluid vapor recovery (AFVR) has been approved for the UST facilities listed below. Emerald, Inc. may proceed upon receipt of this letter. Enclosed are packets containing necessary information to perform FPP recovery at each facility. Each facility has been assigned an individual cost agreement (CA) number, work scope, and report due date. As specified in the contract, a report and invoice must be submitted on or before the due date. The appropriate CA number and Purchase Order (PO) #4600220167 should be referenced on each invoice submitted.

UST Permit #	Facility	County	Work Scope	Cost Agreement	Due Date
02906	Strickland's Exxon	Dillon	1 24-hour event	44883	4/15/13
03754	B & H Grocery	Williamsburg	2 24-hour events	44305	4/15/13
05353	Red Hill Convenience Store	Lee	1 24-hour event	45176	4/15/13
05878	Purolator Courier Corp	Lexington	1 24-hour event	45145	4/15/13
07871	Constan	Richland	2 24-hour events	44260	4/15/13
12614	Frank's Amoco	Lexington	3 8-hour events	45125	5/1/13
03144	Ridgeway Section Shed	Fairfield	1 96-hour event	45122	5/15/13
14433	Town of Winnsboro	Fairfield	1 96-hour event	45060	5/15/13
19002	Former McCoy Oil Site	Fairfield	1 96-hour event	45133	5/15/13
00420	Cooley's Grocery	Anderson	1 96-hour event	45058	6/1/13

UST Permit #	Facility	County	Work Scope	Cost Agreement	Due Date
00479	Service Station	Anderson	1 96-hour event	45063	6/1/13
00487	Former Ford Specialist	Anderson	1 96-hour event	45053	6/1/13
06898	EP Johnson Grocery	Orangeburg	1 96-hour event	45064	6/1/13
06926	Quick Pantry 12	Orangeburg	1 96-hour event	45129	6/1/13
09012	F & T Service Center	Greenville	4 8-hour events	44097	6/1/13
09979	B & R Services	Orangeburg	1 96-hour event	45126	6/1/13
12036	Simpsonville Short Stop	Greenville	3 8-hour events	45212	6/1/13
16009	Mary Moorhead Property	Anderson	1 96-hour event	45052	6/1/13
16090	Former Ellison's Grocery	Greenville	3 8-hour events	45138	6/1/13
17195	H H Transfer and Storage	Orangeburg	1 24-hour event	45074	6/1/13
18662	Bay Creek Villas	Colleton	1 96-hour event	45086	6/1/13
18787	Blitchington's Grocery	Orangeburg	1 96-hour event	45065	6/1/13
19006	Former Orangeburg UST	Orangeburg	1 96-hour event	45175	6/1/13
19328	Phillips Rental Property	Orangeburg	1 96-hour event	45131	6/1/13
19426	Former Royal Petroleum	Richland	1 48-hour event	45227	6/1/13

The FPP recovery at each facility will be performed on behalf of the UST Owner/Operator (O/O) and payment will be made from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. The O/O has no obligation to pay for the specified work scope. Please note that Sections 44-2-110(4) and 44-2-130(B) of the SUPERB Statute state that no costs will be allowed (considered for payment) unless prior approval from the South Carolina Department of Health and Environmental Control (Agency) is obtained.

Any changes to the work scope must be pre-approved by UST Management Division in order for Emerald to seek payment. Please contact the UST Project Manager for technical and/or financial approval. Any item that is not clearly or completely addressed in the report will not be compensated by SUPERB.

The Division grants pre-approval for transportation of FPP and petroleum-contaminated groundwater from the referenced UST facility to a permitted treatment facility. The FPP and contaminated groundwater must be accepted by the approved treatment facility. There can be no spillage or leakage in transport. A copy of the disposal manifest from the receiving facility that clearly designates the quantity received must be included as an appendix to the report.

If you have any questions concerning this correspondence or need further assistance, please contact me by phone at (803) 896-6398, by fax at (803) 896-6245, or by e-mail at padgetjp@dhec.sc.gov.

Sincerely,

Joel P. Padgett, Geologist/Hydrologist
Corrective Action Section
UST Management Division
Bureau of Land and Waste Management

enc: Information packets
AFVR schedule

cc: Technical file (w/o enc)

State Lead AFVR Contract- Pending Events

Site Name	UST Permit #	Region	County	Event Duration	Due Date
Strickland's Exxon	02906	NE	Dillon	24	4/15/2013
Red Hill Convenience	05353	NE	Lee	24	4/15/2013
Constan	07871	NE	Richland	24 (2)	4/15/2013
Former Royal Petroleum	19426	NE	Richland	48	4/15/2013
B&H Grocery	03754	NE	Williamsburg	24 (2)	4/15/2013
Ridgeway Section Shed	03144	NW	Fairfield	96	5/15/2013
Town of Winnsboro	14433	NW	Fairfield	96	5/15/2013
Former McCoy Oil	19002	NW	Fairfield	96	5/15/2013
Bay Creek Villas	18662	SE	Colleton	96	6/1/2013
BP Johnson Grocery	06898	SE	Orangeburg	96	6/1/2013
Quick Pantry 12	06926	SE	Orangeburg	96	6/1/2013
B&R Services	09979	SE	Orangeburg	96	6/1/2013
H&H Transfer	17195	SE	Orangeburg	96	6/1/2013
Blitchington's Grocery	18787	SE	Orangeburg	96	6/1/2013
Former Orangeburg UST	19006	SE	Orangeburg	96	6/1/2013
Phillips Rental Property	19328	SE	Orangeburg	96	6/1/2013
					6/1/2013
Cooley's Grocery	00420	NW	Anderson	96	6/1/2013
Service Station	00479	NW	Anderson	96	6/1/2013
Former Ford Specialist	00487	NW	Anderson	96	6/1/2013
Mary Moorhead Property	16009	NW	Anderson	96	6/1/2013
F&T Service Center	09012	NW	Greenville	8 (4)	6/1/2013
Simpsonville Short Stop	12036	NW	Greenville	8 (3)	6/1/2013
Former Ellison's Grocery	16090	NW	Greenville	8 (3)	6/1/2013
Purolator Courier Corp	05878	NW	Lexington	24	4/15/2013
Frank's Amoco	12614	NW	Lexington	8 (3)	5/1/2013