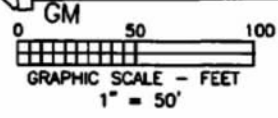


DOTHAN RD.

BROAD RIVER RD.

BROAD RIVER BP



PROJECT:  
INITIAL MONITORING - CORR ACTION  
BROAD RIVER AHOC  
4335 BROAD RIVER ROAD  
UST PERMIT #11946, CA #46916  
COLUMBIA, SOUTH CAROLINA

DESCRIPTION:  
SITE BASE MAP

FIGURE 3  
AFVR RW-3

REFERENCE:

# **ATTACHMENT D**



**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Pre-Treatment Vapor Concentrations**

1 of Page

Site Name: Broad River Amoco

County Richland

October 16-17, 2017

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate P I D : 1116 Oct 16, 2017

Well Name: MW-5 2 Inch Well

Ambient Temp. 68-89

Exhaust Stack Diameter(inches): 3

MW-6

Before  
FP: 11.48

GWL: 12.35

GWL AFTER AFVR  
GWL: 20.0

Start Time: 1000 Sun End Time:: 1000 Tues

Weather Conditions: Clear, Sunny, Hot

TOTAL FREE PRODUCT MEASURED = 0.87 ft.  
TOTAL FREE PRODUCT RECOVERED = 2.6 gal  
TOTAL FLUID RECOVERED = 70.60 gal

**Dry Standard CFM Air Flow - Qstd**

TOTAL EMISSIONS = 52.08 lbs.

Or = 8.46 gallons

Interval	Time	Vacuum, In. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °F	Temperature Constant	Qstd cfm
0	1000 Sun	28	108	167	0.02385714	0.9761	574	96	0.9496	532.09
30	1030	28	496	210	0.0300	0.9700	404	101	0.9412	368.83
60	1100	26	530	191	0.0273	0.9727	331	100	0.9429	303.57
90	1130	26	533	200	0.0286	0.9714	288	101	0.9412	263.31
120	1200	27	537	175	0.0250	0.9750	291	96	0.9496	269.44
150	1230	27	619	121	0.0173	0.9827	268	87	0.9653	254.22
180	1300	26	620	110	0.0157	0.9843	271	86	0.9670	257.96
210	1330	28	728	130	0.0186	0.9814	191	95	0.9514	178.33
240	1400	28	696	234	0.0334	0.9666	264	107	0.9312	237.62
270	1430	26	611	164	0.0234	0.9766	212	98	0.9462	195.90
300	1500	26	596	225	0.0321	0.9679	222	113	0.9215	197.99
330	1630	26	639	212	0.0303	0.9697	198	108	0.9296	178.48
360	1600	26	682	219	0.0313	0.9687	182	101	0.9412	165.94
390	1630	26	721	197	0.0281	0.9719	202	98	0.9462	185.76
420	1700	26	710	184	0.0263	0.9737	248	100	0.9429	227.66
450	1730	27	773	190	0.0271	0.9729	260	97	0.9479	239.77
480	1800	26	812	208	0.0297	0.9703	243	104	0.9362	220.73
AVERAGES		26.53	612.53	184.53	0.0264	0.9736	273.47	99.29	0.9442	251.62

**NOTES:**

- Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.
- PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack
- Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.
- Water Vapor = Pounds of water per pound of dry air as %.
- Dry Air = Calculated pound of dry air,(1 - water vapor %).
- Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.
- Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.
- Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Pre-Treatment Vapor Concentrations**

1 of Page

Site Name: Broad River Amoco

County Richland

October 16-17, 2017

UST Permit Number: 11946

Field Personnel: Terry Teata

Calibrate P I D : 1116 Oct 16, 2017

Well Name: MW-5 2 inch Well

Ambient Temp. 88-89

Exhaust Stack Diameter(inches): 3

MW-5

Before  
FP: 11.48

GWL: 12.35

GWL AFTER AFVR  
GWL: 20.0

Start Time: 1000 Sun End Time:: 1000 Tues

Weather Conditions: Clear, Sunny, Hot

TOTAL FREE PRODUCT MEASURED = 0.87 ft.  
TOTAL FREE PRODUCT RECOVERED= 2.6 gal

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dm3	Cg	PMRg (lb/hr)	PMR lbs
0	532.09	108	1	108	574.34	3.5839E-05	1.1442	0.0000
30	368.83	496	1	496	2,637.73	1.6459E-04	3.6424	1.8212
60	303.57	530	1	530	2,818.54	1.7588E-04	3.2035	1.6017
90	263.31	533	1	533	2,834.49	1.7687E-04	2.7944	1.3972
120	269.44	537	1	537	2,855.77	1.7820E-04	2.8808	1.4404
150	254.22	620	1	620	3,297.16	2.0574E-04	3.1382	1.5691
180	257.95	728	1	728	3,871.50	2.4158E-04	3.7389	1.8695
210	178.33	696	1	696	3,701.33	2.3098E-04	2.4713	1.2357
240	237.62	611	1	611	3,249.30	2.0276E-04	2.8908	1.4454
270	195.90	598	1	598	3,180.16	1.9844E-04	2.3325	1.1663
300	197.99	639	1	639	3,398.20	2.1205E-04	2.5190	1.2595
330	178.48	639	1	639	3,398.20	2.1205E-04	2.2708	1.1354
360	165.94	682	1	682	3,626.88	2.2632E-04	2.2532	1.1266
390	185.76	721	1	721	3,834.28	2.3926E-04	2.6687	1.3333
420	227.68	710	1	710	3,775.78	2.3561E-04	3.2186	1.6093
450	239.77	773	1	773	4,110.81	2.5651E-04	3.6903	1.8452
480	220.73	812	1	812	4,318.22	2.6946E-04	3.5686	1.7843
AVERAGES		613.71		613.71	3,263.69	2.0365E-04	2.8485	1.3906

TOTAL EMISSIONS 23.6401 lbs

TOTAL AMOUNT OF FLUID RECOVERED 70.60 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 2.60 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dm3.

Cg = Mass concentration of gasoline emission, lb/dcf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x106 mg-mole/24.07 dm3)

Cg = Cg:m x (62.43x10-9 lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Pre-Treatment Vapor Concentrations**

1 st Page

Site Name: Broad River Amoco

County Richland

October 16-17, 2017

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate P I D : 1115 Oct 16, 2017

Well Name: MW-5 2 Inch Well

Ambient Temp. 68-89

Exhaust Stack Diameter(inches): 3

MW-5 Before FP: 11.48

GWL: 12.35

GWL AFTER AFVR  
GWL: 20.0

Start Time: 1000 Sun End Time:: 1000 Tues

TOTAL FREE PRODUCT MEASURED = 0.87 ft.  
TOTAL FREE PRODUCT RECOVERED= 2.5 gal

Weather Conditions: Clear, Sunny, Hot

PMRg = Cg x Qstd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTHS**

Interval	Time	Vacuum of Hg in Inches			
		MW-5	RW-1	RW-4	RW-5
0	1000 Sun	28.0	0.0	0.0	0.0
30	1030	26.0	0.0	0.0	0.0
60	1100	26.0	0.0	0.0	0.0
90	1130	25.0	0.0	0.0	0.0
120	1200	25.0	0.0	0.0	0.0
150	1230	20.0	0.0	0.0	0.0
180	1300	20.0	0.0	0.0	0.0
210	1330	20.0	0.0	0.0	0.0
240	1400	18.0	0.0	0.0	0.0
270	1430	18.0	0.0	0.0	0.0
300	1500	20.0	0.0	0.0	0.0
330	1530	22.0	0.0	0.0	0.0
360	1600	22.0	0.0	0.0	0.0
390	1630	20.0	0.0	0.0	0.0
420	1700	20.0	0.0	0.0	0.0
450	1730	20.0	0.0	0.0	0.0
480	1800	22.0	0.0	0.0	0.0

Stinger Depth in ft. MW-5
12.0
12.5
13.0
13.5
14.0
14.5
15.0
15.5
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Post-Treatment Vapor Concentrations**

1 st Page

Site Name: Broad River Amoco

County Richland

October 15-17, 2017

UST Permit Number: 11946

Field Personnel: Terry Teats

Calibrate P I D : 1115 Oct 15, 2017

Well Name: MW-5 2 inch Well

Ambient Temp. 68-89

Exhaust Stack Diameter(inches): 3

MW-5 Before  
FP: 11.48 GWL: 12.36

GWL AFTER AFVR  
GWL: 20.0

Start Time: 1000 Sun End Time: 1000 Tues

Weather Conditions: Clear, Sunny, Hot

TOTAL FREE PRODUCT MEASURED = 0.87 ft.  
TOTAL FREE PRODUCT RECOVERD= 2.5 gal

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
0	532.09	0	1	0	0.00	0.0000E+00	0.0000	0.0000
30	368.83	0	1	0	0.00	0.0000E+00	0.0000	0.0000
60	303.57	0	1	0	0.00	0.0000E+00	0.0000	0.0000
90	283.31	0	1	0	0.00	0.0000E+00	0.0000	0.0000
120	269.44	0	1	0	0.00	0.0000E+00	0.0000	0.0000
150	254.22	0	1	0	0.00	0.0000E+00	0.0000	0.0000
180	257.95	0	1	0	0.00	0.0000E+00	0.0000	0.0000
210	178.33	0	1	0	0.00	0.0000E+00	0.0000	0.0000
240	237.62	0	1	0	0.00	0.0000E+00	0.0000	0.0000
270	195.90	0	1	0	0.00	0.0000E+00	0.0000	0.0000
300	197.99	0	1	0	0.00	0.0000E+00	0.0000	0.0000
330	178.48	0	1	0	0.00	0.0000E+00	0.0000	0.0000
360	165.94	0	1	0	0.00	0.0000E+00	0.0000	0.0000
390	185.76	0	1	0	0.00	0.0000E+00	0.0000	0.0000
420	227.68	0	1	0	0.00	0.0000E+00	0.0000	0.0000
450	239.77	0	1	0	0.00	0.0000E+00	0.0000	0.0000
480	220.73	0	1	0	0.00	0.0000E+00	0.0000	0.0000
AVERAGES		0.00		0.00	0.00	0.0000E+00	0.0000	0.0000

TOTAL EMISSIONS 0.0000 lbs

TOTAL AMOUNT OF FLUID RECOVERED 70.60 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 2.60 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dcst.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m<sup>3</sup> / mg-ft<sup>3</sup>)

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

October 16-17, 2017

UST Permit Number: 11948

Field Personnel:

Terry Teats Calibrate P I D : 0742 Oct 16, 2017

Calibrate P I D :0710 Oct 17, 2017

Well Name: MW-5 2 Inch Well

Ambient Temp. 68-89

Exhaust Stack Diameter(Inches): 3

MW-5

Before  
FP: 11.48

GWL: 12.35

GWL AFTER AFVR  
GWL: 20.00

Start Time: 1000 Sun End Time:: 1000 Tues

TOTAL FREE PRODUCT MEASURED = 0.87 fl.  
TOTAL FREE PRODUCT RECOVERED = 2.6 gal  
TOTAL FLUID RECOVERED - 70.6 gal

Weather Conditions: Clear, Sunny, Hot

**Dry Standard CFM Air Flow - Qstd**

TOTAL EMISSIONS = 62.06 lbs.  
Or = 8.46 gallons

Interval	Time	Vacuum, In. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °f	Temperature Constant	Qstd cfm
540	1900	25	834	192	0.02742857	0.9728	248	99	0.9445	227.82
600	2000	25	828	157	0.0224	0.9776	220	98	0.9462	203.50
660	2100	26	812	110	0.0157	0.9843	218	98	0.9496	203.77
720	2200	26	821	117	0.0167	0.9833	209	98	0.9462	194.46
780	2300	28	783	121	0.0173	0.9827	201	95	0.9514	187.92
840	2400	28	805	112	0.0160	0.9840	194	93	0.9548	182.27
1320	0800 Mon	28	626	117	0.0167	0.9833	179	78	0.9814	172.74
1380	900	26	619	162	0.0231	0.9789	118	89	0.9617	110.86
1440	1000	26	618	180	0.0257	0.9743	204	94	0.9531	189.43
1560	1200	27	640	287	0.0410	0.9590	265	109	0.9279	235.82
1680	1400	26	821	146	0.0209	0.9791	269	78	0.9814	258.49
1800	1600	28	919	151	0.0216	0.9784	273	92	0.9565	255.50
1920	1800	28	721	226	0.0323	0.9677	269	91	0.9583	249.45
2040	2000	26	930	217	0.0310	0.9690	271	93	0.9548	250.73
2160	2200	28	1046	305	0.0436	0.9584	260	100	0.9429	234.46
2280	2400	28	1086	335	0.0479	0.9521	278	106	0.9329	246.92
2760	0800 Tues	28	907	286	0.0409	0.9591	261	101	0.9412	235.61
AVERAGES		26.76	812.59	189.47	0.0271	0.9729	231.59	94.71	0.9521	214.10

**NOTES:**

Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.

Water Vapor = Pounds of water per pound of dry air as %.

Dry Air = Calculated pound of dry air,(1 - water vapor %).

Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.

Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.

Temperature Constant = 528°R / (Temp ,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

October 15-17, 2017

UST Permit Number: 11946

Field Personnel:

Terry Teate

Calibrate P I D : 0742 Oct 16, 2017

Calibrate P I D : 0710 Oct 17, 2017

Well Name: MW-5 2 Inch Well

Ambient Temp. 68-89

Exhaust Stack Diameter(Inches): 3

MW-5

Before  
FP: 11.48

GWL: 12.36

GWL AFTER AFVR  
GWL: 20.00

Start Time: 1000 Sun End Time:: 1000 Tues

TOTAL FREE PRODUCT MEASURED = 0.87 ft.  
TOTAL FREE PRODUCT RECOVERED = 2.6 gal

Weather Conditions: Clear, Sunny, Hot

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
640	227.82	834	1	834	4,435.21	2.7676E-04	3.7831	0.0000
600	203.50	828	1	828	4,403.30	2.7477E-04	3.3549	1.8775
660	203.77	812	1	812	4,318.22	2.6946E-04	3.2944	1.6472
720	194.46	821	1	821	4,366.08	2.7244E-04	3.1787	1.5894
780	187.92	783	1	783	4,163.99	2.5983E-04	2.9296	1.4848
840	182.27	625	1	625	3,323.75	2.0740E-04	2.2681	1.1341
1320	172.74	619	1	619	3,291.84	2.0541E-04	2.1289	1.0845
1380	110.86	618	1	618	3,286.52	2.0508E-04	1.3641	0.6821
1440	189.43	640	1	640	3,403.52	2.1238E-04	2.4138	1.2069
1660	235.82	821	1	821	4,366.08	2.7244E-04	3.8549	1.9275
1680	258.49	919	1	919	4,887.24	3.0496E-04	4.7299	2.3649
1800	255.50	919	1	919	4,887.24	3.0496E-04	4.6751	2.3375
1920	249.45	721	1	721	3,834.28	2.3926E-04	3.5810	1.7905
2040	250.73	930	1	930	4,945.74	3.0861E-04	4.6427	2.3213
2180	234.46	1046	1	1,046	5,562.63	3.4711E-04	4.8830	2.4415
2280	246.92	1085	1	1,085	5,770.03	3.6005E-04	5.3343	2.8672
2760	235.61	907	1	907	4,823.43	3.0098E-04	4.2549	2.1274
AVERAGES		819.29		819.29	4,357.01	2.7188E-04	3.5689	1.8732

TOTAL EMISSIONS 28.4442 lbs

TOTAL AMOUNT OF FLUID RECOVERED 70.60 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 2.60 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dcf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

October 16-17, 2017

UST Permit Number: 11946

Field Personnel:

Terry Teate Calibrate P I D : 0742 Oct 16, 2017

Calibrate P I D :0710 Oct 17, 2017

Well Name: MW-5 2 Inch Well

Ambient Temp. 68-89

Exhaust Stack Diameter(Inches): 3

MW-5

Before  
FP: 11.48

GWL: 12.35

GWL AFTER AFVR  
GWL: 20.00

Start Time: 1000 Sun End Time:: 1000 Tues

TOTAL FREE PRODUCT MEASURED = 0.87 ft.  
TOTAL FREE PRODUCT RECOVERED = 2.6 gal

Weather Conditions: Clear, Sunny, Hot

PMRg = Cg x Qatd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTHS**

Interval	Time	Vacuum of Hg in Inches			
		MW-5	RW-1	RW-4	RW-5
540	1900	20.0	0.0	0.0	0.0
600	2000	22.0	0.0	0.0	0.0
660	2100	22.0	0.0	0.0	0.0
720	2200	22.0	0.0	0.0	0.0
780	2300	20.0	0.0	0.0	0.0
840	2400	18.0	0.0	0.0	0.0
1320	0800 Mon	18.0	0.0	0.0	0.0
1380	900	22.0	0.0	0.0	0.0
1440	1000	22.0	0.0	0.0	0.0
1560	1200	22.0	0.0	0.0	0.0
1680	1400	20.0	0.0	0.0	0.0
1800	1600	20.0	0.0	0.4	0.0
1920	1800	18.0	0.0	0.8	0.4
2040	2000	18.0	0.0	1.0	0.8
2160	2200	18.0	0.0	1.0	1.2
2280	2400	20.0	0.0	1.5	1.0
2760	0800 Tues	22.0	0.0	1.0	1.0

Stinger Depth in ft.  
MW-5

15.0  
15.0  
14.0  
16.0  
18.0  
20.0  
17.0  
16.0  
15.0  
16.0  
16.0  
18.0  
18.0  
20.0  
20.0  
20.0  
18.0  
15.0

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County: Richland

October 15-17, 2017

UST Permit Number: 11946

Field Personnel:

Terry Teate

Calibrate P I D : 0742 Oct 16, 2017

Calibrate P I D :0710 Oct 17, 2017

Well Name: MW-5 2 inch Well

Ambient Temp. 68-89

Exhaust Stack Diameter(inches): 3

MW-5

Before  
FP: 11.48

GWL: 12.35

GWL AFTER AFVR  
GWL: 20.00

Start Time: 1000 Sun End Time: 1000 Tues

TOTAL FREE PRODUCT MEASURED = 0.87 ft.  
TOTAL FREE PRODUCT RECOVERED = 2.6 gal

Weather Conditions: Clear, Sunny, Hot

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
540	227.82	0	1	0	0.00	0.0000E+00	0.0000	0.0000
600	203.50	0	1	0	0.00	0.0000E+00	0.0000	0.0000
660	203.77	0	1	0	0.00	0.0000E+00	0.0000	0.0000
720	194.46	0	1	0	0.00	0.0000E+00	0.0000	0.0000
780	187.92	0	1	0	0.00	0.0000E+00	0.0000	0.0000
840	182.27	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1320	172.74	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1380	110.86	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1440	189.43	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1560	235.82	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1680	258.49	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1800	255.50	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1920	249.45	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2040	250.73	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2160	234.46	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2280	246.92	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2760	235.61	0	1	0	0.00	0.0000E+00	0.0000	0.0000
AVERAGES		0.00		0.00	0.00	0.0000E+00	0.0000	0.0000

TOTAL EMISSIONS 0.0000 lbs

TOTAL AMOUNT OF FLUID RECOVERED 70.60 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 2.60 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dcf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)



**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland  
 UST Permit Number: 11946 Field Personnel: Terry Teate Callibrate P I D : 0742 Oct 16, 2017  
 Well Name: MW-5 2 inch Well Ambient Temp. 68-89 Callibrate P I D : 0710 Oct 17, 2017  
 Exhaust Stack Diameter(inches): 3 Before FP: 11.48 GWL: 12.35 GWL AFTER AFVR GWL: 20.00  
 Start Time: 1000 Sun End Time:: 1000 Tues  
 Weather Conditions: Clear, Sunny, Hot

TOTAL FREE PRODUCT MEASURED = 0.87 ft.  
 TOTAL FREE PRODUCT RECOVERED = 2.6 gal  
 TOTAL FLUID RECOVERED - 70.6 gal  
 TOTAL EMISSIONS = 62.08 lbs.  
 Or = 8.46 gallons

**Dry Standard CFM Air Flow - Qstd**

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °F	Temperature Constant	Qstd cfm
2880	1000 Tues	28	904	311	0.04442857	0.9556	212	103	0.9378	189.99

AVERAGES 28.00 904.00 311.00 0.0444 0.9556 212.00 103.00 0.9378 189.99

**NOTES:**

- Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.
- PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.
- Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.
- Water Vapor = Pounds of water per pound of dry air as %.
- Dry Air = Calculated pound of dry air,(1 - water vapor %).
- Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.
- Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.
- Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

October 16-17, 2017

UST Permit Number: 11948

Field Personnel:

Terry Teate

Calibrate P I D : 0742 Oct 16, 2017

Calibrate P I D :0710 Oct 17, 2017

Well Name: MW-5 2 inch Well

Ambient Temp. 68-89

Exhaust Stack Diameter(inches): 3

MW-5

Before  
FP: 11.48

GWL: 12.35

GWL AFTER AFVR  
GWL: 20.00

Start Time: 1000 Sun End Time:: 1000 Tues

TOTAL FREE PRODUCT MEASURED = 0.87 ft.  
TOTAL FREE PRODUCT RECOVERED = 2.5 gal

Weather Conditions: Clear, Sunny, Hot

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
2880	189.99	904	1	904	4,807.47	2.9999E-04	3.4198	0.0000

AVERAGES                      904.00                      904.00                      4,807.47                      2.9999E-04                      3.4198                      0.0000

TOTAL EMISSIONS                      0.0000 lbs

TOTAL AMOUNT OF FLUID RECOVERED                      70.60 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED                      2.50 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dscf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m<sup>3</sup> / mg-ft<sup>3</sup>)

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

October 16-17, 2017

UST Permit Number: 11946

Field Personnel:

Terry Teate

Calibrate P I D : 0742 Oct 16, 2017

Calibrate P I D :0710 Oct 17, 2017

Well Name: MW-5 2 inch Well

Ambient Temp. 68-89

Exhaust Stack Diameter(inches): 3

MW-5

Before  
FP: 11.48

GWL: 12.36

GWL AFTER AFVR  
GWL: 20.00

Start Time: 1000 Sun End Time:: 1000 Tues

TOTAL FREE PRODUCT MEASURED = 0.87 ft.  
TOTAL FREE PRODUCT RECOVERED = 2.6 gal

Weather Conditions: Clear, Sunny, Hot

PMRg = Cg x Qstd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTHS**

Interval	Time	Vacuum of Hg in Inches			
		MW-5	RW-1	RW-4	RW-5
2880	1000 Tues	20.0	1.0	0.0	1.0

Stinger Depth in ft.  
MW-5

20.0

	BEFORE Free Product	GWL:	AFTER Free Product	GWL:
RW-1	12.18	13.92		15.60
RW-4		12.52		15.08
RW-5	11.38	11.60	14.81	16.54

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County: Richland

October 16-17, 2017

UST Permit Number: 11846

Field Personnel:

Terry Teate Calibrate P I D : 0742 Oct 16, 2017

Calibrate P I D : 0710 Oct 17, 2017

Well Name: MW-5 2 inch Well

Ambient Temp. 68-89

Exhaust Stack Diameter(inches): 3

MW-5

Before  
FP: 11.48

GWL: 12.35

GWL AFTER AFVR  
GWL: 20.00

Start Time: 1000 Sun End Time: 1000 Tues

TOTAL FREE PRODUCT MEASURED = 0.87 fl.  
TOTAL FREE PRODUCT RECOVERED = 2.5 gal

Weather Conditions: Clear, Sunny, Hot

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
2880	189.99	0	1	0	0.00	0.0000E+00	0.0000	0.0000

AVERAGES 0.00 0.00 0.00 0.00 0.0000E+00 0.0000 0.0000

TOTAL EMISSIONS 0.0000 lbs

TOTAL AMOUNT OF FLUID RECOVERED 70.60 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 2.50 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dscf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

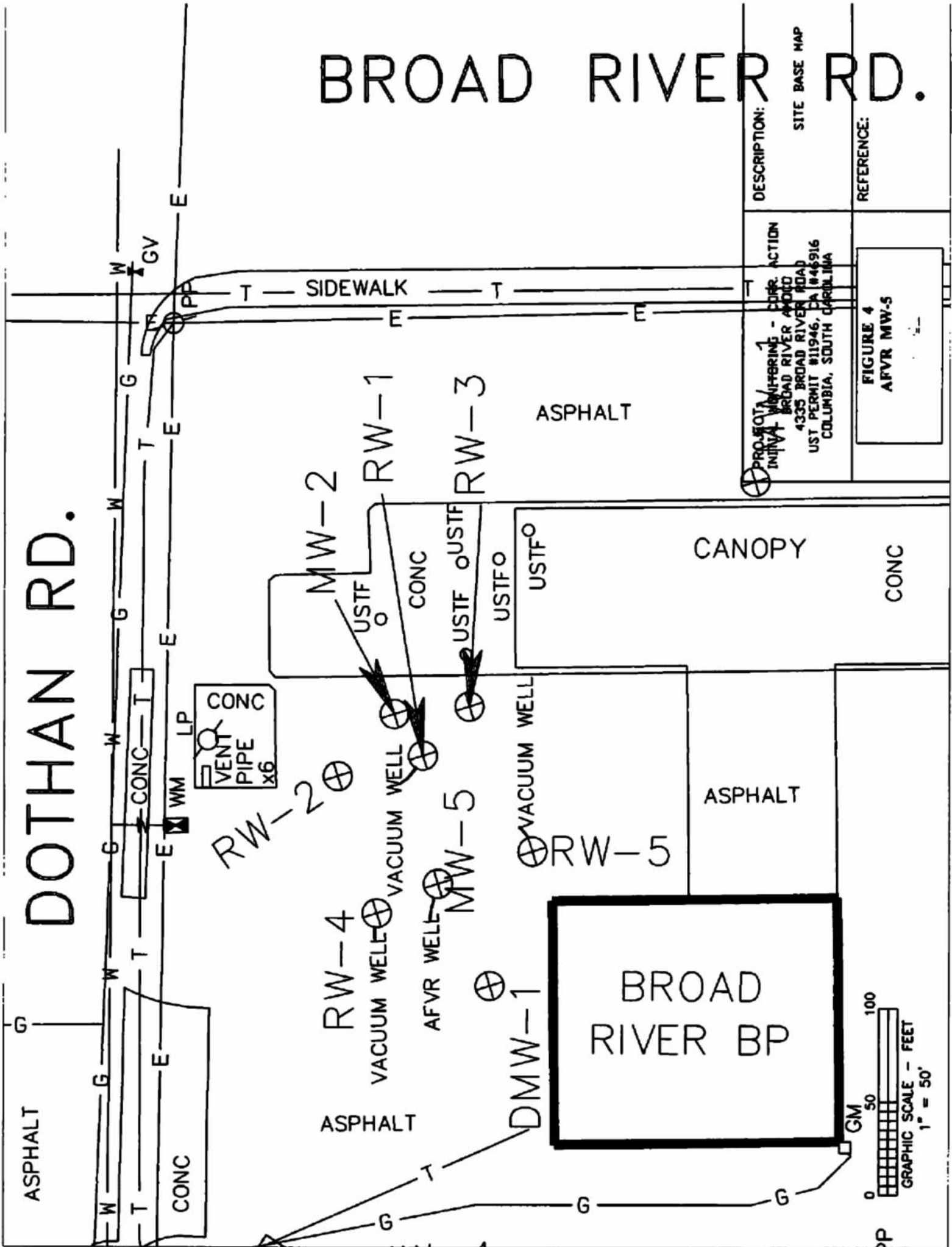
Cg = Cg:m x (62.43x10<sup>-8</sup> lb-m3 / mg-ft3)

**FIGURE 4**

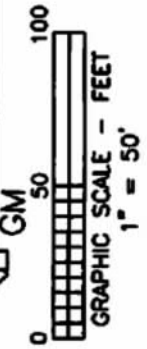
**AFVR MW-5**

DOTHAN RD.

BROAD RIVER RD.



DESCRIPTION:	SITE BASE MAP
PROJECT: <b>1</b> INITIAL WATER-PROOFING - COVER ACTION BROAD RIVER APDICO 4335 BROAD RIVER ROAD UST PERMIT #11946, CA #46916 COLUMBIA, SOUTH CAROLINA	REFERENCE:
	FIGURE 4 AFVR MW-5



# **ATTACHMENT E**

**ENVIRO-TEST SERVICES**

**48 Hour AFVR Pre-Treatment Vapor Concentrations**

1 st Page

Site Name: Broad River Amoco

County Richland

October 18-20, 2017

UST Permit Number: 11946

Field Personnel: Terry Teats

Calibrate P I D :1340 Oct 18, 2017

Well Name: RW-5 4 inch Well

Ambient Temp. 48-78 deg

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP = 21.78 GWL: 22.81

GWL AFTER AFVR  
GWL 37.0

Start Time:1400 Wed End Time::1400 Fri

Weather Conditions: Cool, Clear, Sunny

TOTAL FREE PRODUCT MEASURED = 1.03 fl.  
TOTAL FREE PRODUCT RECOVERED = 4.26 gal  
TOTAL FLUID RECOVERED = 123.37 gallons

**Dry Standard CFM Air Flow - Qstd**

TOTAL EMISSIONS = 145.46 lbs  
Or = 23.6 gallons

Interval	Time	Vacuum, In. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °F	Temperature Constant	Qstd cfm
0	1400 Wed	28	128	125	0.01785714	0.9821	411.00	89.00	0.9617	388.22
30	1430	24	619	112	0.0160	0.9840	332.00	91.00	0.9583	313.05
60	1500	24	1821	115	0.0164	0.9838	295.00	94.00	0.9531	276.54
90	1530	26	2032	122	0.0174	0.9826	273.00	90.00	0.9600	257.51
120	1600	28	2401	114	0.0163	0.9837	269.00	89.00	0.9617	254.50
150	1630	28	2786	110	0.0157	0.9843	265.00	85.00	0.9688	252.70
180	1700	28	2381	126	0.0180	0.9820	268.00	83.00	0.9724	255.91
210	1730	25	2840	117	0.0167	0.9833	241.00	82.00	0.9742	230.85
240	1800	26	2268	115	0.0164	0.9838	207.00	80.00	0.9778	199.07
270	1830	25	2120	104	0.0149	0.9851	198.00	78.00	0.9814	191.43
300	1900	25	2092	82	0.0117	0.9883	183.00	70.00	0.9962	180.17
330	1930	26	2104	73	0.0104	0.9896	157.00	66.00	1.0038	155.95
360	2000	26	2072	59	0.0084	0.9916	141.00	68.00	1.0000	139.81
390	2030	28	1344	71	0.0101	0.9899	180.00	65.00	1.0057	179.19
420	2100	28	1001	67	0.0096	0.9904	224.00	68.00	1.0000	221.86
450	2130	28	992	58	0.0083	0.9917	231.00	64.00	1.0076	230.83
480	2200	28	981	46	0.0066	0.9934	242.00	59.00	1.0173	244.58
AVERAGES		26.41	1,757.18	95.06	0.0136	0.9864	242.18	77.71	0.9824	233.66

**NOTES:**

Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.

Water Vapor = Pounds of water per pound of dry air as %.

Dry Air = Calculated pound of dry air,(1 - water vapor %).

Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.

Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.

Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant



**ENVIRO-TEST SERVICES**

**48 Hour AFVR Pre-Treatment Vapor Concentrations**

1 of Page

Site Name: Broad River Amoco

County Richland

October 18-20, 2017

UST Permit Number: 11946

Field Personnel: Terry Tests

Calibrate P I D :1340 Oct 18, 2017

Well Name RW-5 4 Inch Well

Ambient Temp. 48-78 deg

Exhaust Stack Diameter(Inches): 3

RW-5 Before  
FP = 21.78 GWL: 22.81

GWL AFTER AFVR  
GWL 37.0

Start Time:1400 Wed End Time::1400 Fri

TOTAL FREE PRODUCT MEASURED = 1.03 fl.  
TOTAL FREE PRODUCT RECOVERED = 4.26 gal

Weather Conditions: Cool, Clear, Sunny

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
0	388.22	128	1	128	680.70	4.2476E-05	0.9894	0.0000
30	313.05	519	1	519	2,760.04	1.7223E-04	3.2349	1.6175
60	276.54	2459	1	2,459	13,078.96	8.1600E-04	13.5393	6.7896
90	257.51	2555	1	2,555	13,587.49	8.4788E-04	13.1001	6.5500
120	254.50	2481	1	2,481	13,087.60	8.1667E-04	12.4703	6.2352
150	252.70	2112	1	2,112	11,231.62	7.0085E-04	10.6263	5.3132
180	255.91	2381	1	2,381	12,682.16	7.9012E-04	12.1318	6.0659
210	230.85	2592	1	2,592	13,784.26	8.6014E-04	11.9138	5.9569
240	199.07	2258	1	2,258	12,008.04	7.4930E-04	8.9500	4.4750
270	191.43	2671	1	2,671	14,204.38	8.8635E-04	10.1806	5.0903
300	180.17	2582	1	2,582	13,731.08	8.5682E-04	9.2628	4.6313
330	155.95	2111	1	2,111	11,226.30	7.0052E-04	6.5549	3.2775
360	139.81	1945	1	1,945	10,343.51	6.4544E-04	5.4144	2.7072
390	179.19	1,893	1	1,893	10,066.97	6.2818E-04	6.7539	3.3769
420	221.86	2,017	1	2,017	10,726.41	6.6933E-04	8.9097	4.4548
450	230.83	992	1	992	5,275.46	3.2919E-04	4.5593	2.2796
480	244.58	981	1	981	5,216.96	3.2554E-04	4.7772	2.3886
AVERAGES		1,921.00		1,921.00	10,215.88	6.3747E-04	8.4334	4.1876

TOTAL EMISSIONS 71.1896 lbs

TOTAL AMOUNT OF FLUID RECOVERED 123.37 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 4.26 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dcf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**48 Hour AFVR Pre-Treatment Vapor Concentrations**

1 of Page

Site Name: Broad River Amoco

County Richland

October 18-20, 2017

UST Permit Number: 11946

Field Personnel: Terry Tests

Calibrate P I D :1340 Oct 18, 2017

Well Name: RW-5 4 inch Well

Ambient Temp. 48-78 deg

Exhaust Stack Diameter(inches): 3

RW-5

Before  
FP = 21.78 GWL: 22.81

GWL AFTER AFVR  
GWL 37.0

Start Time:1400 Wed End Time::1400 Fri

TOTAL FREE PRODUCT MEASURED = 1.03 ft.  
TOTAL FREE PRODUCT RECOVERED = 4.25 gal

Weather Conditions: Cool, Clear, Sunny

PMRg = Cg x Qstd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTHS**

Interval	Time	Vacuum of Hg in inches		
		RW-5	MW-5	RW-1
0	1400 Wed	22.0	0.0	0.0
30	1430	18.0	0.0	0.0
60	1500	20.0	0.0	0.0
90	1630	20.0	0.0	0.0
120	1600	20.0	0.0	0.0
150	1630	18.0	0.0	0.0
180	1700	18.0	0.0	0.0
210	1730	16.0	0.0	0.0
240	1800	16.0	0.0	0.0
270	1830	16.0	0.0	0.0
300	1900	18.0	0.0	0.0
330	1930	18.0	0.0	0.0
360	2000	20.0	0.0	0.2
390	2030	22.0	0.0	0.2
420	2100	22.0	0.0	0.4
450	2130	20.0	0.0	0.4
480	2200	20.0	0.0	0.4

Stinger Depth in ft. RW-5
22.0
22.5
23.0
23.5
24.0
24.5
25.0
25.5
26.0
26.5
27.0
27.5
28.0
28.5
29.0
29.5
30.0

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Post-Treatment Vapor Concentraions**

Site Name: Broad River Amoco

County Richland

October 18-20, 2017

UST Permit Number: 11945

Field Personnel: Terry Teate

Calibrate P I D :1340 Oct 18, 2017

Well Name RW-5 4 Inch Well

Ambient Temp. 48-78 deg

Exhaust Stack Diameter(inches): 3

RW-5

Before  
FP = 21.78 GWL: 22.81

GWL AFTER AFVR  
GWL 37.0

Start Time:1400 Wed End Time::1400 Fri

TOTAL FREE PRODUCT MEASURED = 1.03 fl.  
TOTAL FREE PRODUCT RECOVERED = 4.25 gal

Weather Conditions: Cool, Clear, Sunny

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
0	388.22	0	1	0	0.00	0.0000E+00	0.0000	0.0000
30	313.05	0	1	0	0.00	0.0000E+00	0.0000	0.0000
60	276.54	0	1	0	0.00	0.0000E+00	0.0000	0.0000
90	257.51	0	1	0	0.00	0.0000E+00	0.0000	0.0000
120	254.50	0	1	0	0.00	0.0000E+00	0.0000	0.0000
150	252.70	0	1	0	0.00	0.0000E+00	0.0000	0.0000
180	255.91	0	1	0	0.00	0.0000E+00	0.0000	0.0000
210	230.85	0	1	0	0.00	0.0000E+00	0.0000	0.0000
240	199.07	0	1	0	0.00	0.0000E+00	0.0000	0.0000
270	191.43	0	1	0	0.00	0.0000E+00	0.0000	0.0000
300	180.17	0	1	0	0.00	0.0000E+00	0.0000	0.0000
330	155.95	0	1	0	0.00	0.0000E+00	0.0000	0.0000
360	139.81	0	1	0	0.00	0.0000E+00	0.0000	0.0000
390	179.19	0	1	0	0.00	0.0000E+00	0.0000	0.0000
420	221.86	0	1	0	0.00	0.0000E+00	0.0000	0.0000
460	230.83	0	1	0	0.00	0.0000E+00	0.0000	0.0000
480	244.58	0	1	0	0.00	0.0000E+00	0.0000	0.0000
AVERAGES		0.00		0.00	0.00	0.0000E+00	0.0000	0.0000

TOTAL EMISSIONS 0.0000 lbs

TOTAL AMOUNT OF FLUID RECOVERED 123.37 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 4.25 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dscf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**48 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland  
 UST Permit Number: 11946 Field Personnel: Terry Teate Calibrate P I D :0715 Oct 19, 2017  
 Well Name: RW-5 4 inch Well Ambient Temp. 48-78 deg  
 Exhaust Stack Diameter(inches): 3 Before RW-5 FP: 21.78 GWL: 22.81 GWL AFTER AFVR GWL: 37.78  
 Start Time:1400 Wed End Time::1400 Fri  
 Weather Conditions: Cool, Clear, Sunny

TOTAL FREE PRODUCT MEASURED = 1.03 ft.  
 TOTAL FREE PRODUCT RECOVERED = 4.25 gal  
 TOTAL FLUID RECOVERED = 123.37 gallons

**Dry Standard CFM Air Flow - Qstd** TOTAL EMISSIONS = 145.46  
 Or = 23.6 gallons

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °F	Temperature Constant	Qstd cfm
540	2300	25	970	63	0.009	0.9910	238.00	63.00	1.0096	238.11
600	2400	26	843	72	0.0103	0.9897	242.00	58.00	1.0193	244.13
1080	0800 Thurs	25	724	38	0.0054	0.9946	244.00	54.00	1.0272	249.29
1140	900	25	880	49	0.0070	0.9930	212.00	57.00	1.0213	215.00
1200	1000	26	1031	70	0.0100	0.9900	190.00	72.00	0.9925	186.69
1280	1100	28	901	74	0.0106	0.9894	196.00	73.00	0.9906	192.11
1320	1200	27	861	116	0.0166	0.9834	234.00	87.00	0.9653	222.13
1380	1300	27	1178	90	0.0129	0.9871	182.00	84.00	0.9706	174.38
1440	1400	28	833	88	0.0126	0.9874	252.00	82.00	0.9742	242.40
1580	1600	27	880	106	0.0151	0.9849	263.00	88.00	0.9635	249.56
1680	1800	26	1013	69	0.0099	0.9901	248.00	79.00	0.9796	240.54
1800	2000	28	737	42	0.0080	0.9940	259.00	62.00	1.0115	260.41
1920	2200	28	708	51	0.0073	0.9927	260.00	60.00	1.0154	262.08
2040	2400	28	721	60	0.0086	0.9914	255.00	63.00	1.0096	255.23
2520	0800 Fri	26	685	32	0.0046	0.9954	248.00	51.00	1.0333	255.08
2640	1000	28	1167	87	0.0124	0.9876	260.00	78.00	0.9814	252.00
2760	1200	27	924	81	0.0116	0.9884	258.00	80.00	0.9778	249.35
AVERAGES		26.53	878.59	69.88	0.0100	0.9900	237.71	70.06	0.9966	234.62

**NOTES:**

Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.  
 PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.  
 Water Vapor = Pounds of water per pound of dry air as %.  
 Dry Air = Calculated pound of dry air,(1 - water vapor %).  
 Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.  
 Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.  
 Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**48 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland  
 UST Permit Number: 11946 Field Personnel: Terry Teats Calibrate P I D :0715 Oct 19, 2017  
 Well Name: RW-5 4 inch Well Ambient Temp. 48-78 deg  
 Exhaust Stack Diameter(inches): 3 Before RW-5 FP: 21.78 GWL: 22.81 GWL AFTER AFVR GWL: 37.78  
 Start Time:1400 Wed End Time::1400 Fri  
 Weather Conditions: Cool, Clear, Sunny

TOTAL FREE PRODUCT MEASURED = 1.03 fl.  
 TOTAL FREE PRODUCT RECOVERED = 4.26 gal

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
540	238.11	970	1	970	5,158.46	3.2189E-04	4.5987	0.0000
600	244.13	843	1	843	4,483.07	2.7974E-04	4.0977	2.0489
1080	249.29	724	1	724	3,850.23	2.4025E-04	3.5935	1.7968
1140	215.00	880	1	880	4,679.84	2.9202E-04	3.7870	1.8835
1200	186.89	1031	1	1,031	5,482.86	3.4213E-04	3.8323	1.9161
1280	192.11	901	1	901	4,791.52	2.9899E-04	3.4463	1.7232
1320	222.13	851	1	851	4,525.62	2.8240E-04	3.7637	1.8819
1380	174.38	1178	1	1,178	6,264.60	3.9091E-04	4.0899	2.0450
1440	242.40	833	1	833	4,429.89	2.7643E-04	4.0204	2.0102
1580	249.56	880	1	860	4,573.48	2.8539E-04	4.2733	2.1367
1680	240.54	1013	1	1,013	5,387.13	3.3616E-04	4.8516	2.4258
1800	260.41	737	1	737	3,919.37	2.4457E-04	3.8212	1.9106
1920	262.08	708	1	708	3,765.14	2.3494E-04	3.6944	1.8472
2040	255.23	721	1	721	3,834.28	2.3926E-04	3.6640	1.8320
2520	255.08	895	1	595	3,164.21	1.9745E-04	3.0219	1.5109
2640	252.00	1167	1	1,167	6,206.11	3.8726E-04	5.8553	2.9276
2760	249.35	924	1	924	4,913.83	3.0662E-04	4.5873	2.2937
AVERAGES		878.59		878.59	4,672.33	2.9155E-04	4.0576	1.8935

TOTAL EMISSIONS 32.1900 lbs

TOTAL AMOUNT OF FLUID RECOVERED 123.37 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 4.26 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dscf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)  
 Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**48 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County: Richland

October 18-20, 2017

UST Permit Number: 11846

Field Personnel:

Terry Teats Calibrate P I D :0715 Oct 19, 2017

Calibrate PID: 0700 Oct 20, 2017

Well Name: RW-5 4 inch Well

Ambient Temp. 48-78 deg

Exhaust Stack Diameter(inches): 3

RW-5

Before  
FP: 21.78

GWL: 22.81

GWL AFTER AFVR  
GWL: 37.78

Start Time:1400 Wed End Time::1400 Fri

TOTAL FREE PRODUCT MEASURED = 1.03 fl.  
TOTAL FREE PRODUCT RECOVERED = 4.26 gal

Weather Conditions: Cool, Clear, Sunny

PMRg = Cg x Qstd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTHS**

Interval	Time	Vacuum of Hg in inches		
		RW-5	MW-5	RW-1
540	2300	20.0	0.0	1.0
600	2400	18.0	0.0	1.0
1080	0800 Thurs	18.0	0.0	1.8
1140	900	20.0	0.0	2.0
1200	1000	18.0	0.0	2.3
1280	1100	20.0	0.0	2.5
1320	1200	20.0	0.0	2.5
1380	1300	22.0	0.0	2.4
1440	1400	22.0	0.0	2.5
1560	1600	20.0	0.0	2.5
1680	1800	22.0	0.0	2.8
1800	2000	22.0	0.0	3.4
1920	2200	20.0	0.0	3.6
2040	2400	20.0	0.0	3.6
2520	0800 Fri	18.0	0.0	2.8
2640	1000	18.0	0.0	3.0
2760	1200	20.0	0.0	3.0

Stinger Depth in ft. RW-5
30.0
23.0
25.0
25.0
30.0
32.0
32.0
32.0
34.0
36.0
38.0
38.0
38.0
28.0
23.0
27.0
33.0
36.0

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

October 18-20, 2017

UST Permit Number: 11946

Field Personnel:

Terry Tests Calibrate P I D :0715 Oct 19, 2017

Calibrate PID: 0700 Oct 20, 2017

Well Name: RW-5 4 inch Well

Ambient Temp. 48-78 deg

Exhaust Stack Diameter(Inches): 3

RW-5

Before  
FP: 21.78

GWL: 22.81

GWL AFTER AFVR  
GWL: 37.78

Start Time:1400 Wed End Time::1400 Fri

TOTAL FREE PRODUCT MEASURED = 1.03 fl.  
TOTAL FREE PRODUCT RECOVERED = 4.26 gal

Weather Conditions: Cool, Clear, Sunny

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
540	238.11	0	1	0	0.00	0.0000E+00	0.0000	0.0000
600	244.13	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1080	249.29	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1140	215.00	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1200	186.89	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1260	192.11	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1320	222.13	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1380	174.38	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1440	242.40	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1560	249.56	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1680	240.54	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1800	260.41	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1920	262.08	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2040	255.23	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2520	255.08	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2640	252.00	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2760	249.35	0	1	0	0.00	0.0000E+00	0.0000	0.0000
AVERAGES		0.00		0.00	0.00	0.0000E+00	0.0000	0.0000

TOTAL EMISSIONS 0.0000 lbs

TOTAL AMOUNT OF FLUID RECOVERED 123.37 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 4.26 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dscf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-6</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**48 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County: Richland

October 18-20, 2017

UST Permit Number: 11946

Field Personnel:

Terry Teats Calibrate P I D :0716 Oct 19, 2017

Calibrate PID: 0700 Oct 20, 2017

Well Name: RW-5 4 inch Well

Ambient Temp. 48-78 deg

Exhaust Stack Diameter(Inches): 3

RW-5

Before  
FP: 21.78

GWL: 22.81

GWL AFTER AFVR  
GWL: 37.78

Start Time:1400 Wed End Time::1400 Fri

TOTAL FREE PRODUCT MEASURED = 1.03 fl.  
TOTAL FREE PRODUCT RECOVERED = 4.26 gal  
TOTAL FLUID RECOVERED = 123.37 gallons

Weather Conditions: Cool, Clear, Sunny

**Dry Standard CFM Air Flow - Qstd**

TOTAL EMISSIONS = 145.45  
Or = 23.6 gallons

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °F	Temperature Constant	Qstd cfm
2880	1400 Fri	25	785	120	0.01714286	0.9829	250.00	92.00	0.9565	235.03

AVERAGES                      25.00            785.00            120.00            0.0171            0.9829            250.00            92.00            0.9565            235.03

**NOTES:**

- Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.
- PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.
- Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.
- Water Vapor = Pounds of water per pound of dry air as %
- Dry Air = Calculated pound of dry air,(1 - water vapor %).
- Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.
- Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.
- Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant



**ENVIRO-TEST SERVICES**

**48 Hour AFVR Pre-Treatment Vapor Concentrations**

**Site Name:** Broad River Amoco **County**    **Richland**  
**October 18-20, 2017**  
**UST Permit Number:** 11948 **Field Personnel:** Terry Teate **Calibrate P I D :**0715 Oct 19, 2017  
**Calibrate PID:** 0700 Oct 20, 2017  
**Well Name:** RW-5 4 Inch Well **Ambient Temp.** 48-78 deg  
**Exhaust Stack Diameter(Inches):** 3 **Before** **GWL AFTER AFVR**  
**FP: 21.78** **GWL: 22.81** **GWL: 37.78**  
**Start Time:**1400 Wed **End Time::**1400 Fri  
**Weather Conditions:** Cool, Clear, Sunny **TOTAL FREE PRODUCT MEASURED = 1.03 fl.**  
**TOTAL FREE PRODUCT RECOVERED = 4.25 gal**

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
2880	235.03	970	1	970	5,158.46	3.2189E-04	4.5392	0.0000

AVERAGES                      970.00                      970.00    5,158.46    3.2189E-04    4.5392    0.0000

**TOTAL EMISSIONS                      0.0000 lbs**

**TOTAL AMOUNT OF FLUID RECOVERED                      123.37 gallons**

**ESTIMATED AMOUNT OF PRODUCT RECOVERED                      4.25 gallons**

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dscf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)  
 Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**48 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

October 18-20, 2017

UST Permit Number: 11946

Field Personnel:

Terry Teate Calibrate P I D :0715 Oct 19, 2017

Calibrate PID: 0700 Oct 20, 2017

Well Name RW-5 4 Inch Well

Ambient Temp. 48-78 deg

Exhaust Stack Diameter(inches): 3

RW-5

Before  
FP: 21.78

GWL: 22.81

GWL AFTER AFVR  
GWL: 37.78

Start Time:1400 Wed End Time::1400 Fri

TOTAL FREE PRODUCT MEASURED = 1.03 ft.  
TOTAL FREE PRODUCT RECOVERED = 4.25 gal

Weather Conditions: Cool, Clear, Sunny

PMRg = Cg x Qstd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTHS**

Interval	Time	Vacuum of Hg in Inches		
		RW-5	MW-5	RW-1
2880	1400 Fri	20.0	0.0	2.4

Stinger Depth in ft.  
RW-5  
38.5

	BEFORE Free product	GWL:	AFTER Free Product	GWL:
MW-5	11.48	12.35	13.00	13.30
RW-1	12.18	13.92		16.21

**ENVIRO-TEST SERVICES**

**48 HOUR AFVR Post-Treatment Vapor Concentrations**

**Site Name:** Broad River Amoco **County:** Richland **October 18-20, 2017**  
**UST Permit Number:** 11846 **Field Personnel:** Terry Teate **Calibrate P I D :0715 Oct 19, 2017**  
**Well Name:** RW-5 4 inch Well **Ambient Temp.:** 48-78 deg **Calibrate PID: 0700 Oct 20, 2017**  
**Exhaust Stack Diameter(inches):** 3 **Before** **GWL AFTER AFVR**  
**RW-6** **FP: 21.78** **GWL: 22.81** **GWL: 37.78**  
**Start Time:**1400 Wed **End Time:**:1400 Fri  
**Weather Conditions:** Cool, Clear, Sunny **TOTAL FREE PRODUCT MEASURED = 1.03 fl.**  
**TOTAL FREE PRODUCT RECOVERED = 4.25 gal**

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
2880	235.03	0	1	0	0.00	0.0000E+00	0.0000	0.0000

AVERAGES                      0.00                      0.00                      0.00    0.0000E+00                      0.0000                      0.0000

**TOTAL EMISSIONS                      0.0000 lbs**

**TOTAL AMOUNT OF FLUID RECOVERED                      123.37 gallons**

**ESTIMATED AMOUNT OF PRODUCT RECOVERED                      4.25 gallons**

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dscf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

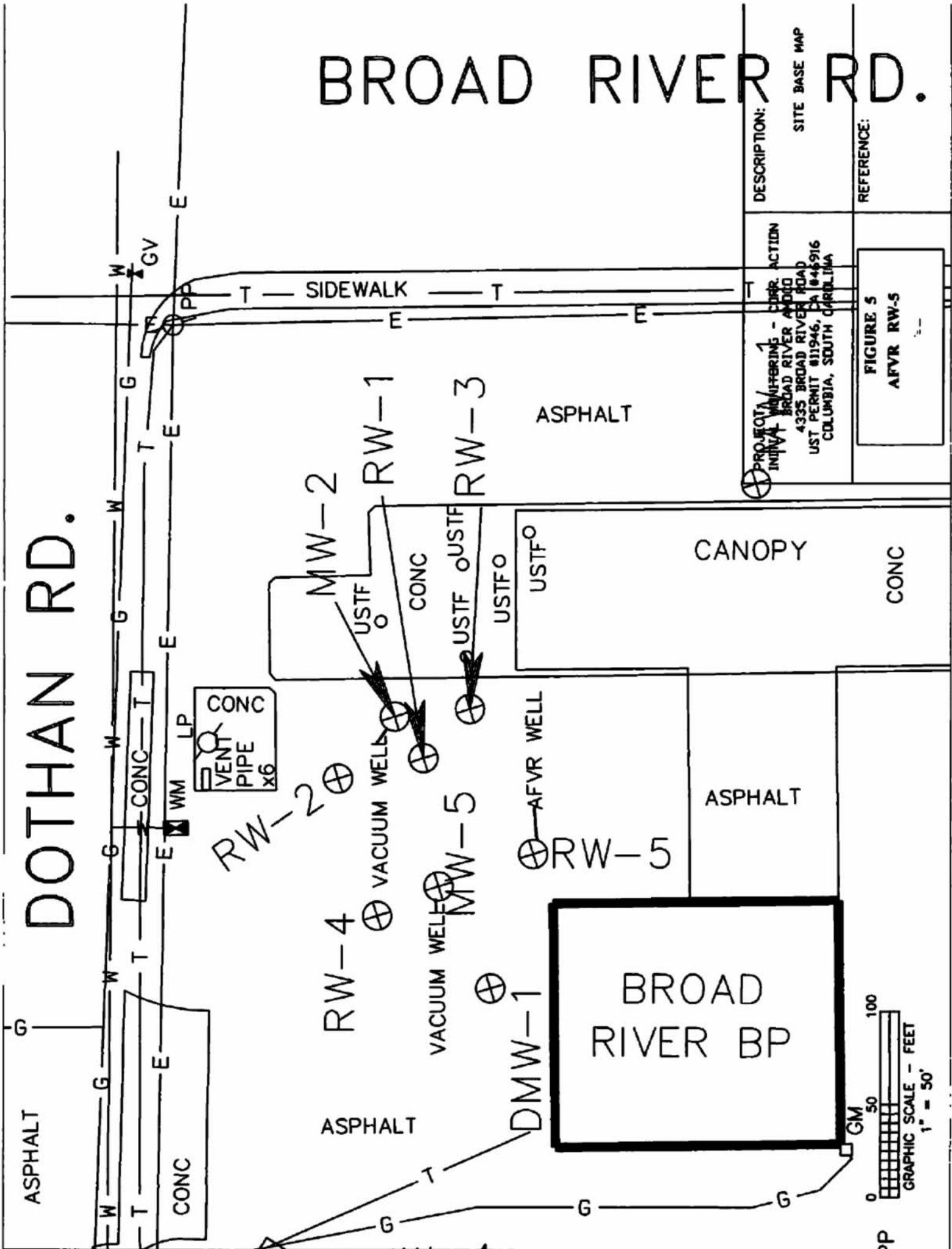
PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)  
 Cg = Cg:m x (82.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**FIGURE 5**

**AFVR RW-5**

DOTHAN RD.

BROAD RIVER RD.



DESCRIPTION:	SITE BASE MAP
PROJECT: MONITORING - CORRECTIVE ACTION INITIAL BROAD RIVER BP 4335 BROAD RIVER ROAD UST PERMIT #11946, CA #445916 COLUMBIA, SOUTH CAROLINA	REFERENCE:
	FIGURE 5 AFVR RW-5

# **ATTACHMENT F**

# Grandall

C 208915

**NON-HAZARDOUS WASTE MANIFEST**

1. Generator's US EPA ID No. Manifest Document No. 2. Page 1 of 1

3. Generator's Name and Mailing Address: **Enviro-Test Services**  
1621 Lake Murray Blvd  
Columbia SC 29312

4. Generator's Phone (803) 412-4918  
5. Transporter 1 Company Name: **Enviro-Test Services**  
6. US EPA ID Number  
A. Transporter's Phone: 803 782-5770

7. Transporter 2 Company Name  
8. US EPA ID Number  
B. Transporter's Phone

9. Designated Facility Name and Site Address: **Overhall Corporation**  
100 Rich Len Dr  
Lexington, SC 29071  
10. US EPA ID Number: 30D281864499  
C. Facility's Phone: 803 791-4300

11. Waste Shipping Name and Description	12. Containers		13. Total Quantity	14. Unit Wt./Vol.
	No.	Type		
a. Non Hazardous Waste Petroleum Contact Water	4	TT	5.6.7	G
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above: **5-AFVR's 48 hour each Broad River**  
**AMOCO DHEC#11946 Richland Co. Colo. SC**  
E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information:  
Infotrac 600-925-5053 Registrant Grandall Corp  
See Call ID: GLB0213335

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.  
Printed/Typed Name: **Terry L. Teate** Signature: *Terry L. Teate* Month Day Year: 11/10/17

17. Transporter 1 Acknowledgement of Receipt of Materials  
Printed/Typed Name: **Terry L. Teate** Signature: *Terry L. Teate* Month Day Year: 11/10/17

18. Transporter 2 Acknowledgement of Receipt of Materials  
Printed/Typed Name: **Terry L. Teate** Signature: *Terry L. Teate* Month Day Year: . . .

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of waste materials covered by this manifest except as noted in item 19.  
Printed/Typed Name: Signature: Month Day Year: 11/14/17

SITE NAME: Broad River BP

SHULTZ TANK 275 Gallon STICK MEASUREMENT Conversion from Inches to Gallons

TANK No. 1, MW-2 RW DATE 10-5-17 DHEC Permit No. 11946

Inches = Gallons	Inches = Gallons	Inches = Gallons	Inches = Gallons
0.00 = 0.00	10.00 = 70.50	20.00 = 141.00	30.00 = 211.50
.25 = 1.76	10.25 = 72.26	20.25 = 142.76	30.25 = 213.26
.50 = 3.52	10.50 = 74.02	20.50 = 144.52	30.50 = 215.02
.75 = 5.43	10.75 = 75.78	20.75 = 146.28	30.75 = 216.78
1.00 = 7.05	11.00 = 77.55	21.00 = 148.05	31.00 = 218.55
1.25 = 8.81	11.25 = 79.31	21.25 = 149.81	31.25 = 220.31
1.50 = 10.57	11.50 = 81.07	21.50 = 151.57	31.50 = 222.07
1.75 = 12.33	11.75 = 82.83 <i>RW-1</i>	21.75 = 153.33	31.75 = 223.83
2.00 = 14.10	12.00 = 84.60	22.00 = 155.10	32.00 = 225.60
2.25 = 15.86	12.25 = 86.36	22.25 = 156.86	32.25 = 227.36
2.50 = 17.62	12.50 = 88.12	22.50 = 158.62	32.50 = 229.12
2.75 = 19.38	12.75 = 89.88	22.75 = 160.38	32.75 = 230.88
3.00 = 21.09	13.00 = 91.67	23.00 = 162.15	33.00 = 232.65
3.25 = 22.91	13.25 = 93.41	23.25 = 163.91	33.25 = 234.41
3.50 = 24.67	13.50 = 95.17	23.50 = 165.67	33.50 = 236.17
3.75 = 26.43	13.75 = 96.93	23.75 = 167.43	33.75 = 237.93
4.00 = 28.20	14.00 = 98.70	24.00 = 169.20	34.00 = 239.70
4.25 = 29.96	14.25 = 100.46	24.25 = 170.96	34.25 = 241.46
4.50 = 31.72	14.50 = 102.22	24.50 = 172.72	34.50 = 243.22
4.75 = 33.48	14.75 = 103.98	24.75 = 174.48	34.75 = 244.98
5.00 = 35.25	15.00 = 105.75	25.00 = 176.25	35.00 = 246.75
5.25 = 37.01	15.25 = 107.51	25.25 = 178.01	35.25 = 248.51
5.50 = 38.77	<i>MW-2</i> 15.50 = 109.27	25.50 = 179.77	35.50 = 250.27
5.75 = 40.53	15.75 = 111.03	25.75 = 181.53	35.75 = 252.03
6.00 = 42.30	16.00 = 112.80	26.00 = 183.30	36.00 = 253.80
6.25 = 44.06	16.25 = 114.56	26.25 = 185.06	36.25 = 255.56
6.50 = 45.82	16.50 = 116.32	26.50 = 186.82	36.50 = 257.32
6.75 = 47.58	16.75 = 118.08	26.75 = 188.58	36.75 = 259.08
7.00 = 49.35	17.00 = 119.85	27.00 = 190.35	37.00 = 260.85
7.25 = 51.11	17.25 = 121.61	27.25 = 192.11	37.25 = 262.61
7.50 = 52.87	17.50 = 123.37	27.50 = 193.87	37.50 = 264.37
7.75 = 54.63	17.75 = 125.13	27.75 = 195.63	37.75 = 266.13
8.00 = 56.40	18.00 = 126.90	28.00 = 197.40	38.00 = 267.90
8.25 = 58.16	18.25 = 128.66	28.25 = 199.16	38.25 = 269.66
8.50 = 59.95	18.50 = 130.42	28.50 = 200.92	38.50 = 271.45
8.75 = 61.68	18.75 = 132.18	28.75 = 202.68	38.75 = 273.18
9.00 = 63.45	19.00 = 133.95	29.00 = 204.45	39.00 = 275.00
9.25 = 65.21	19.25 = 135.71	29.25 = 206.21	
9.50 = 68.87	19.50 = 137.40	29.50 = 207.97	
9.75 = 69.73	19.75 = 139.23	29.75 = 209.73	

Amount Measured  
262.60 gal



**SITE NAME:** Broad River BP

**SHULTZ TANK 275 Gallon STICK MEASUREMENT Conversion from Inches to Gallons**

**TANK No.** 2      **DATE** 10-14-17      **DHBC Permit No.** 11976

Inches = Gallons	Inches = Gallons	Inches = Gallons	Inches = Gallons
0.00 = 0.00	10.00 = 70.50	20.00 = 141.00	30.00 = 211.50
.25 = 1.76	10.25 = 72.26	20.25 = 142.76	30.25 = 213.26
.50 = 3.52	10.50 = 74.02	20.50 = 144.52	30.50 = 215.02
.75 = 5.43	10.75 = 75.78	20.75 = 146.28	30.75 = 216.78
1.00 = 7.05	11.00 = 77.55	21.00 = 148.05	31.00 = 218.55
1.25 = 8.81	11.25 = 79.31	21.25 = 149.81	31.25 = 220.31
1.50 = 10.57	11.50 = 81.07	21.50 = 151.57	31.50 = 222.07
1.75 = 12.33	11.75 = 82.83	21.75 = 153.33	31.75 = 223.83
2.00 = 14.10	12.00 = 84.60	22.00 = 155.10	32.00 = 225.60
2.25 = 15.86	12.25 = 86.36	22.25 = 156.86	32.25 = 227.36
2.50 = 17.62	12.50 = 88.12	22.50 = 158.62	32.50 = 229.12
2.75 = 19.38	12.75 = 89.88	22.75 = 160.38	32.75 = 230.88
3.00 = 21.09	13.00 = 91.67	23.00 = 162.15	33.00 = 232.65
3.25 = 22.91	<u>13.25 = 93.41</u>	23.25 = 163.91	33.25 = 234.41
3.50 = 24.67	13.50 = 95.17	23.50 = 165.67	33.50 = 236.17
3.75 = 26.43	13.75 = 96.93	23.75 = 167.43	33.75 = 237.93
4.00 = 28.20	14.00 = 98.70	24.00 = 169.20	34.00 = 239.70
4.25 = 29.96	14.25 = 100.46	24.25 = 170.96	34.25 = 241.46
4.50 = 31.72	14.50 = 102.22	24.50 = 172.72	34.50 = 243.22
4.75 = 33.48	14.75 = 103.98	24.75 = 174.48	34.75 = 244.98
5.00 = 35.25	15.00 = 105.75	25.00 = 176.25	35.00 = 246.75
5.25 = 37.01	15.25 = 107.51	25.25 = 178.01	35.25 = 248.51
5.50 = 38.77	15.50 = 109.27	25.50 = 179.77	35.50 = 250.27
5.75 = 40.53	15.75 = 111.03	25.75 = 181.53	35.75 = 252.03
6.00 = 42.30	16.00 = 112.80	26.00 = 183.30	36.00 = 253.80
6.25 = 44.06	16.25 = 114.56	26.25 = 185.06	36.25 = 255.56
6.50 = 45.82	16.50 = 116.32	26.50 = 186.82	36.50 = 257.32
6.75 = 47.58	16.75 = 118.08	26.75 = 188.58	36.75 = 259.08
7.00 = 49.35	17.00 = 119.85	27.00 = 190.35	37.00 = 260.85
7.25 = 51.11	17.25 = 121.61	27.25 = 192.11	37.25 = 262.61
7.50 = 52.87	17.50 = 123.37	27.50 = 193.87	37.50 = 264.37
7.75 = 54.63	17.75 = 125.13	27.75 = 195.63	37.75 = 266.13
8.00 = 56.40	18.00 = 126.90	28.00 = 197.40	38.00 = 267.90
8.25 = 58.16	18.25 = 128.66	28.25 = 199.16	38.25 = 269.66
8.50 = 59.95	18.50 = 130.42	28.50 = 200.92	38.50 = 271.45
8.75 = 61.68	18.75 = 132.18	28.75 = 202.68	38.75 = 273.18
9.00 = 63.45	19.00 = 133.95	29.00 = 204.45	39.00 = 275.00
9.25 = 65.21	19.25 = 135.71	29.25 = 206.21	
9.50 = 68.87	19.50 = 137.40	29.50 = 207.97	
9.75 = 69.73	19.75 = 139.23	29.75 = 209.73	

**Amount Measured**  
93.41 gal

SITE NAME: Broad River BP

SHULTZ TANK 275 Gallon STICK MEASUREMENT Conversion from Inches to Gallons

TANK No. 3-MW-5 DATE 10-17-17 DHEC Permit No. 11946

Inches = Gallons

0.00 = 0.00

.25 = 1.76

.50 = 3.52

.75 = 5.43

1.00 = 7.05

1.25 = 8.81

1.50 = 10.57

1.75 = 12.33

2.00 = 14.10

2.25 = 15.86

2.50 = 17.62

2.75 = 19.38

3.00 = 21.09

3.25 = 22.91

3.50 = 24.67

3.75 = 26.43

4.00 = 28.20

4.25 = 29.96

4.50 = 31.72

4.75 = 33.48

5.00 = 35.25

5.25 = 37.01

5.50 = 38.77

5.75 = 40.53

6.00 = 42.30

6.25 = 44.06

6.50 = 45.82

6.75 = 47.58

7.00 = 49.35

7.25 = 51.11

7.50 = 52.87

7.75 = 54.63

8.00 = 56.40

8.25 = 58.16

8.50 = 59.95

8.75 = 61.68

9.00 = 63.45

9.25 = 65.21

9.50 = 68.87

9.75 = 69.73

Inches = Gallons

10.00 = 70.50

10.25 = 72.26

10.50 = 74.02

10.75 = 75.78

11.00 = 77.55

11.25 = 79.31

11.50 = 81.07

11.75 = 82.83

12.00 = 84.60

12.25 = 86.36

12.50 = 88.12

12.75 = 89.88

13.00 = 91.67

13.25 = 93.41

13.50 = 95.17

13.75 = 96.93

14.00 = 98.70

14.25 = 100.46

14.50 = 102.22

14.75 = 103.98

15.00 = 105.75

15.25 = 107.51

15.50 = 109.27

15.75 = 111.03

16.00 = 112.80

16.25 = 114.56

16.50 = 116.32

16.75 = 118.08

17.00 = 119.85

17.25 = 121.61

17.50 = 123.37

17.75 = 125.13

18.00 = 126.90

18.25 = 128.66

18.50 = 130.42

18.75 = 132.18

19.00 = 133.95

19.25 = 135.71

19.50 = 137.40

19.75 = 139.23

Inches = Gallons

20.00 = 141.00

20.25 = 142.76

20.50 = 144.52

20.75 = 146.28

21.00 = 148.05

21.25 = 149.81

21.50 = 151.57

21.75 = 153.33

22.00 = 155.10

22.25 = 156.86

22.50 = 158.62

22.75 = 160.38

23.00 = 162.15

23.25 = 163.91

23.50 = 165.67

23.75 = 167.43

24.00 = 169.20

24.25 = 170.96

24.50 = 172.72

24.75 = 174.48

25.00 = 176.25

25.25 = 178.01

25.50 = 179.77

25.75 = 181.53

26.00 = 183.30

26.25 = 185.06

26.50 = 186.82

26.75 = 188.58

27.00 = 190.35

27.25 = 192.11

27.50 = 193.87

27.75 = 195.63

28.00 = 197.40

28.25 = 199.16

28.50 = 200.92

28.75 = 202.68

29.00 = 204.45

29.25 = 206.21

29.50 = 207.97

29.75 = 209.73

Inches = Gallons

30.00 = 211.50

30.25 = 213.26

30.50 = 215.02

30.75 = 216.78

31.00 = 218.55

31.25 = 220.31

31.50 = 222.07

31.75 = 223.83

32.00 = 225.60

32.25 = 227.36

32.50 = 229.12

32.75 = 230.88

33.00 = 232.65

33.25 = 234.41

33.50 = 236.17

33.75 = 237.93

34.00 = 239.70

34.25 = 241.46

34.50 = 243.22

34.75 = 244.98

35.00 = 246.75

35.25 = 248.51

35.50 = 250.27

35.75 = 252.03

36.00 = 253.80

36.25 = 255.56

36.50 = 257.32

36.75 = 259.08

37.00 = 260.85

37.25 = 262.61

37.50 = 264.37

37.75 = 266.13

38.00 = 267.90

38.25 = 269.66

38.50 = 271.45

38.75 = 273.18

39.00 = 275.00

Amount Measured

70.50 gal

SITE NAME: Broad River BP

SHULTZ TANK 275 Gallon STICK MEASUREMENT Conversion from Inches to Gallons

TANK No. 4-RW-5 DATE 10-20-17 DHEC Permit No. 11946

Inches = Gallons	Inches = Gallons	Inches = Gallons	Inches = Gallons
0.00 = 0.00	10.00 = 70.50	20.00 = 141.00	30.00 = 211.50
.25 = 1.76	10.25 = 72.26	20.25 = 142.76	30.25 = 213.26
.50 = 3.52	10.50 = 74.02	20.50 = 144.52	30.50 = 215.02
.75 = 5.43	10.75 = 75.78	20.75 = 146.28	30.75 = 216.78
1.00 = 7.05	11.00 = 77.55	21.00 = 148.05	31.00 = 218.55
1.25 = 8.81	11.25 = 79.31	21.25 = 149.81	31.25 = 220.31
1.50 = 10.57	11.50 = 81.07	21.50 = 151.57	31.50 = 222.07
1.75 = 12.33	11.75 = 82.83	21.75 = 153.33	31.75 = 223.83
2.00 = 14.10	12.00 = 84.60	22.00 = 155.10	32.00 = 225.60
2.25 = 15.86	12.25 = 86.36	22.25 = 156.86	32.25 = 227.36
2.50 = 17.62	12.50 = 88.12	22.50 = 158.62	32.50 = 229.12
2.75 = 19.38	12.75 = 89.88	22.75 = 160.38	32.75 = 230.88
3.00 = 21.09	13.00 = 91.67	23.00 = 162.15	33.00 = 232.65
3.25 = 22.91	13.25 = 93.41	23.25 = 163.91	33.25 = 234.41
3.50 = 24.67	13.50 = 95.17	23.50 = 165.67	33.50 = 236.17
3.75 = 26.43	13.75 = 96.93	23.75 = 167.43	33.75 = 237.93
4.00 = 28.20	14.00 = 98.70	24.00 = 169.20	34.00 = 239.70
4.25 = 29.96	14.25 = 100.46	24.25 = 170.96	34.25 = 241.46
4.50 = 31.72	14.50 = 102.22	24.50 = 172.72	34.50 = 243.22
4.75 = 33.48	14.75 = 103.98	24.75 = 174.48	34.75 = 244.98
5.00 = 35.25	15.00 = 105.75	25.00 = 176.25	35.00 = 246.75
5.25 = 37.01	15.25 = 107.51	25.25 = 178.01	35.25 = 248.51
5.50 = 38.77	15.50 = 109.27	25.50 = 179.77	35.50 = 250.27
5.75 = 40.53	15.75 = 111.03	25.75 = 181.53	35.75 = 252.03
6.00 = 42.30	16.00 = 112.80	26.00 = 183.30	36.00 = 253.80
6.25 = 44.06	16.25 = 114.56	26.25 = 185.06	36.25 = 255.56
6.50 = 45.82	16.50 = 116.32	26.50 = 186.82	36.50 = 257.32
6.75 = 47.58	16.75 = 118.08	26.75 = 188.58	36.75 = 259.08
7.00 = 49.35	17.00 = 119.85	27.00 = 190.35	37.00 = 260.85
7.25 = 51.11	17.25 = 121.61	27.25 = 192.11	37.25 = 262.61
7.50 = 52.87	<u>17.50 = 123.37</u>	27.50 = 193.87	37.50 = 264.37
7.75 = 54.63	17.75 = 125.13	27.75 = 195.63	37.75 = 266.13
8.00 = 56.40	18.00 = 126.90	28.00 = 197.40	38.00 = 267.90
8.25 = 58.16	18.25 = 128.66	28.25 = 199.16	38.25 = 269.66
8.50 = 59.95	18.50 = 130.42	28.50 = 200.92	38.50 = 271.45
8.75 = 61.68	18.75 = 132.18	28.75 = 202.68	38.75 = 273.18
9.00 = 63.45	19.00 = 133.95	29.00 = 204.45	39.00 = 275.00
9.25 = 65.21	19.25 = 135.71	29.25 = 206.21	
9.50 = 68.87	19.50 = 137.40	29.50 = 207.97	
9.75 = 69.73	19.75 = 139.23	29.75 = 209.73	

Amount Measured  
123.37 gal



Healthy People. Healthy Communities.

MR FREDERICK N CECCHINI  
429 PRESS LINDLER ROAD  
COLUMBIA SC 29212-8322

MAR 05 2018



Re: **Site-Specific Work Plan Request for Groundwater Sampling**  
Broad River Amoco, 4335 Broad River Road, Columbia, SC  
UST Permit # 11946  
Release reported January 4, 2011  
AFVR report received January 24, 2018  
Richland County

Dear Mr. Cecchini:

The UST Management Division of the South Carolina Department of Health and Environmental Control (DHEC) has reviewed the referenced report submitted by Enviro-Test Services, Inc. (Enviro-Test) and the next appropriate scope of work at the site is a comprehensive groundwater sampling event.

The groundwater sampling event should be conducted in accordance with your contractor's Annual Contractor Quality Assurance Plan (ACQAP), and must be conducted in compliance with all applicable regulations. Groundwater samples should be collected from all monitoring wells associated with the release and analyzed for BTEX, naphthalene, MTBE, 1,2-DCA, 8 oxygenates, and EDB. Please make sure to include duplicate samples, field blanks, and trip blanks. A copy of DHEC's Quality Assurance Program Plan for the UST Management Division is available at <http://www.scdhec.gov/Environment/LW/UST/ReleaseAssessmentClean-up/QualityAssurance/>

**Please have your contractor complete and submit the Site-Specific Work Plan and Cost Proposal within thirty (30) days of the date of this letter.** Every component may not be necessary to complete the above scope of work. The State Underground Petroleum Environmental Response Bank (SUPERB) Account allowable cost for each component is included on the Assessment Component Cost Agreement Form. **Please note that technical and financial preapproval from DHEC must be issued before work begins.**

On all correspondence regarding this site, please reference UST Permit # 11946. If you have any questions regarding this correspondence, please contact me by telephone at (803) 898-0634, by fax at (803) 898-0673, or by e-mail at [kuhnkm@dhec.sc.gov](mailto:kuhnkm@dhec.sc.gov).

Sincerely,

Kimberly M Kuhn, Hydrogeologist  
Corrective Action & Quality Assurance Section  
Underground Storage Tank Management Division  
Bureau of Land and Waste Management

cc: Enviro-Test Services, Inc., PO Box 2237, Irmo, SC 29063  
Technical File

March 7, 2018



## ENVIRO-TEST SERVICES

Mrs. Kimberly M. Kuhn, Hydrogeologist  
Corrective Action Section  
UST Program  
Bureau of Land and Waste management



RE: Installation of 7 Recovery Wells  
Broad River Amoco  
Permit # 11946; CA # 55498  
4335 Broad River Rd Columbia, SC  
Richland County

Dear Mrs. Kuhn,

On December 4<sup>th</sup> 2017 SC licensed water well contractor #1242 Terry Teate began the installation of seven 4 inch Recovery Wells as requested in the September 08, 2017 directive. See site map Figure 1, and The Well Completion reports DHEC Form 1903 are included in Attachment A. The Subsequent Survey was performed on February 20, 2018. The well data is attachment B.

On March 5, 2018 Monitor Wells MW-1, MW-2, MW-4 and MW-5 and all Recovery Wells RW-1 through RW-12 were Gauged for evidence of Free Product. The Results are included in Attachment B

The Disposal Manifest for the Drill Cuttings are included in Attachment C.

Conclusions and Recommendations. After gauging the wells there were three of them with free product present. MW-5 had 3.17 ft. RW-1 had 0.12 ft. and RW-5 had 6.78 ft. for a total of 10.07 ft. of free product. It has been 5 months since the last 48 hour AFVR event was performed on these wells. It is our recommendation to begin a 48 hour AFVR event on each of these three wells in order to remove the free product and compare the data to the previous events. This should be the next action in order to reduce the Chemicals of Concern while continuing to monitor the newly installed Recovery Wells.

Thank You, for Recognizing our commitment to continue working on this site.

This will close out Cost Agreement # 55498.

Terry L. Teate  
Project Manager  
Enviro-Test Services Inc.

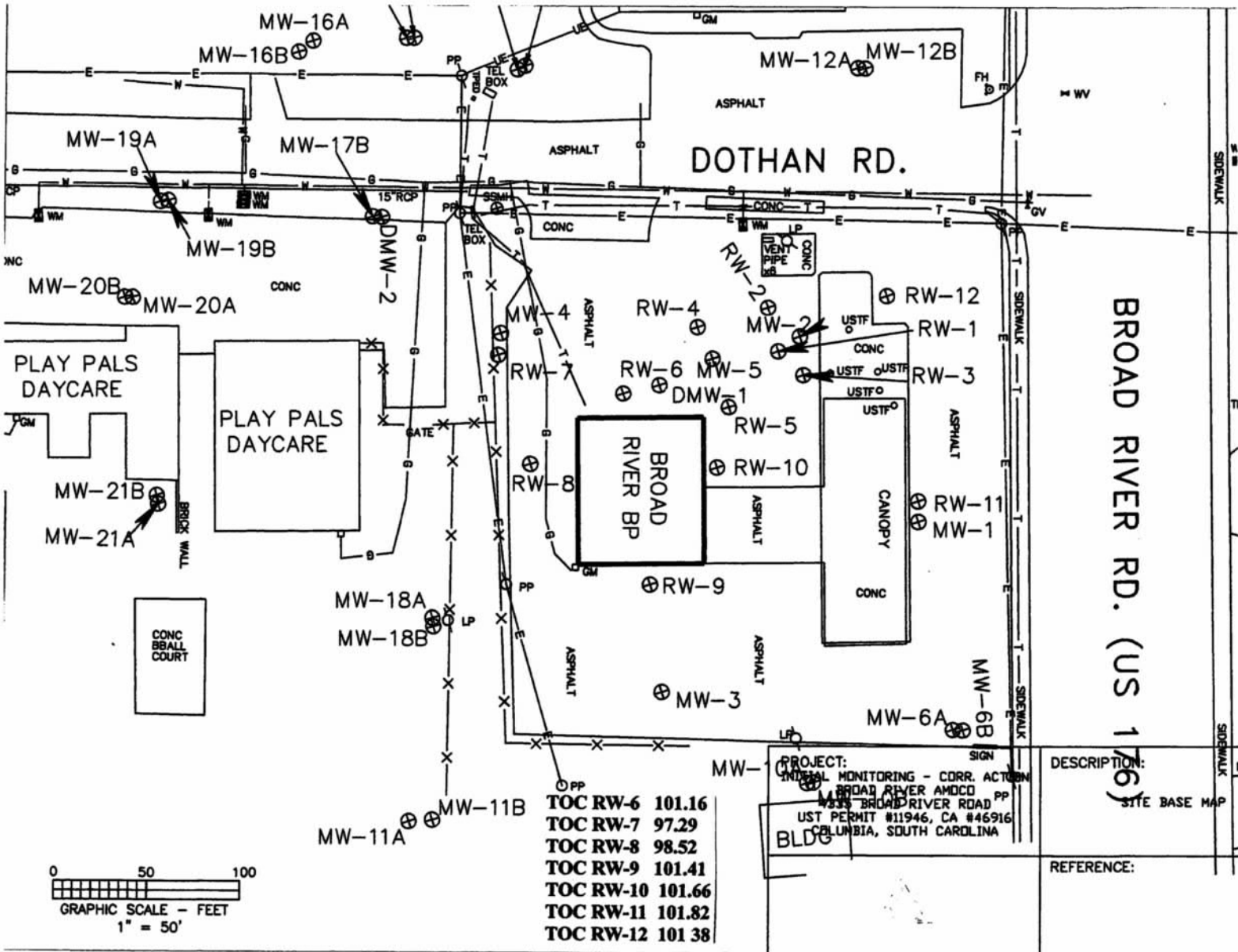
**Environmental Laboratory & Drilling**

P. O. Box 2237 Irmo, South Carolina 29063 (803) 413-4936

# **FIGURE 1**

## **Site Map**





**ATTACHMENT A**  
**DHEC Form 1903**





**Water Well Record  
Bureau of Water**  
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

**1. WELL OWNER INFORMATION:**

Name: **DHEC**  
(last) (first)  
Address: 2600 Bull Street  
City: Columbia State: SC Zip: 29201-0000  
Telephone: Work: (803) 898-3432 Home:

**2. LOCATION OF WELL:**

COUNTY: Richland

Name: Broad River Amoco  
Street Address: 4335 Broad River Road  
City: Columbia, SC Zip: 29018-9330  
Latitude: N 34.065428 Longitude: W 81.116981

**3. PUBLIC SYSTEM NAME:**

PUBLIC SYSTEM NUMBER:

Recovery Well 6 RW-6

**4. ABANDONMENT:**

Yes  No

Give Details Below

Grouted Depth: from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Fill Brn, Tn mxln cly snd	0 ft.	10 ft.
Lt ornng lt brn cly snd fxln	10 ft.	20 ft.
Lt tn vhard fxln snd	20 ft.	30 ft.
Tn moist mxln cly snd	30 ft.	35 ft.

\*Indicate Water Bearing Zones

(Use a 2nd sheet if needed)

**5. REMARKS:**

- 6. TYPE:**  Mud Rotary  Jetted  Bored  
 Dug  Air Rotary  Driven  
 Cable tool  Other

**7. PERMIT NUMBER:**

DHEC Permit # UMW-26742

**8. USE:**

- Residential  Public Supply  Process  
 Irrigation  Air Conditioning  Emergency  
 Test Well  Monitor Well  Replacement

**9. WELL DEPTH (completed)**

Date Started: 01/26/2018

35 ft.

Date Completed: 01/27/2018

**10. CASING:**  Threaded  Welded

Diam.: 4 Inch

Height: Above/Below

Type:  PVC  Galvanized

Surface \_\_\_\_\_ U ft.

Steel  Other

Weight \_\_\_\_\_ lb./ft.

\_\_\_\_\_ in. to \_\_\_\_\_ 0 ft. depth

Drive Shoes?  Yes  No

\_\_\_\_\_ in. to \_\_\_\_\_ 5 ft. depth

**11. SCREEN:**

Type: PVC Diam.: 4 Inch

Slot/Gauge: .020 Length: 30.0 ft

Set Between: 30 ft. and 5 ft. NOTE: MULTIPLE SCREENS

\_\_\_\_\_ ft. and \_\_\_\_\_ ft. USE SECOND SHEET

Sieve Analysis  Yes (please enclose)  No

**12. STATIC WATER LEVEL** 14.12 ft. below land surface after 24 hours

**13. PUMPING LEVEL** Below Land Surface.

NA 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 35 ft. to 3 ft.

Effective size No. 2 Uniformity Coefficient \_\_\_\_\_

**16. WELL GROUTED?**  Yes  No

Neat Cement  Bentonite  Bentonite/Cement  Other \_\_\_\_\_  
Depth: From 2.0 ft. to 0 ft.

**17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:** 25 ft. E direction

Type Petroleum

Well Disinfected  Yes  No Type: \_\_\_\_\_ Amount: \_\_\_\_\_

**18. PUMP:** Date installed: NA 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:** Terry L. Teate

CERT. NO.: 1242

Address: (Print)

Level: A B C D (circle one)

P.O. Box 2237 Irmo, SC 29063

Telephone No.: 803-415-4950

Fax No.:

**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: 02/22/2018

Well Driller

If D Level Driller, provide supervising driller's name:



**Water Well Record**  
**Bureau of Water**  
 2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

**1. WELL OWNER INFORMATION:**  
 Name: DHEC  
 (last) (first)  
 Address: 2600 Bull Street  
 City: Columbia State: SC Zip: 29201-0000  
 Telephone: Work: (803) 898-3432 Home:

**2. LOCATION OF WELL: COUNTY:** Richland  
 Name: Broad River Amoco  
 Street Address: 4335 Broad River Road  
 City: Columbia, SC Zip: 29018-9330  
 Latitude: N 34.065370 Longitude: W 81.117114

**3. PUBLIC SYSTEM NAME: PUBLIC SYSTEM NUMBER:**  
 Recovery Well 7 RW-7

**4. ABANDONMENT:**  Yes  No  
 Give Details Below  
 Grouted Depth: from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Fill Brn, Tn mxln cly snd	0 ft.	10 ft.
Lt org lt brn cly snd fxln	10 ft.	20 ft.
Lt tn vhard fxln snd	20 ft.	30 ft.
Tn moist mxln cly cnd	30 ft.	35 ft.
Lt Tn vfxln moist Siltstone	35 ft.	40 ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum

\*Indicate Water Bearing Zones  
 (Use a 2nd sheet if needed)

**5. REMARKS:**

**6. TYPE:**  Mud Rotary  Jetted  Bored  
 Dug  Air Rotary  Driven  
 Cable tool  Other

**7. PERMIT NUMBER:** DHEC Permit # UMW-26742

**8. USE:**  
 Residential  Public Supply  Process  
 Irrigation  Air Conditioning  Emergency  
 Test Well  Monitor Well  Replacement

**9. WELL DEPTH (completed)** \_\_\_\_\_ ft. Date Started: 01/26/2018  
 \_\_\_\_\_ ft. Date Completed: 01/27/2018

**10. CASING:**  Threaded  Welded  
 Diam.: 4 Inch  
 Type:  PVC  Galvanized  
 Steel  Other  
 \_\_\_\_\_ in. to \_\_\_\_\_ ft. depth  
 \_\_\_\_\_ in. to \_\_\_\_\_ ft. depth  
 Height: Above/Below \_\_\_\_\_ U ft.  
 Surface \_\_\_\_\_ lb./ft.  
 Weight \_\_\_\_\_ lb./ft.  
 Drive Shoes?  Yes  No

**11. SCREEN:**  
 Type: PVC Diam.: 4 Inch  
 Slot/Gauge: .020 Length: 30.0 ft  
 Set Between: 40 ft. and 10 ft. NOTE: MULTIPLE SCREENS  
 \_\_\_\_\_ ft. and \_\_\_\_\_ ft. USE SECOND SHEET  
 Sieve Analysis  Yes (please enclose)  No

**12. STATIC WATER LEVEL** 10.30 ft. below land surface after 24 hours

**13. PUMPING LEVEL** Below Land Surface.  
 NA 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 40 ft. to 8.0 ft.  
 Effective size No. 2 Uniformity Coefficient \_\_\_\_\_

**16. WELL GROUTED?**  Yes  No  
 Neat Cement  Bentonite  Bentonite/Cement  Other \_\_\_\_\_  
 Depth: From 2.0 ft. to 0 ft.

**17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:** 2 ft. W direction  
 Type Petroleum  
 Well Disinfected  Yes  No Type: \_\_\_\_\_ Amount: \_\_\_\_\_

**18. PUMP:** Date installed: NA 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:** Terry L. Teate CERT. NO.: 1242  
 Address: (Print) Level: A B C D (circle one)  
 P.O. Box 2237 Irmo, SC 29063  
 Telephone No.: 803-413-4950 Fax No.:

**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: Terry L. Teate Date: 02/22/2018  
 Well Driller

If D Level Driller, provide supervising driller's name:



**Water Well Record**  
**Bureau of Water**  
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

**1. WELL OWNER INFORMATION:**  
Name: DHEC (last) (first)  
Address: 2600 Bull Street  
City: Columbia State: SC Zip: 29201-0000  
Telephone: Work: (803) 898-3432 Home: \_\_\_\_\_

**7. PERMIT NUMBER:** DHEC Permit # UMW-26742

**2. LOCATION OF WELL:** COUNTY: Richland  
Name: Broad River Amoco  
Street Address: 4335 Broad River Road  
City: Columbia, SC Zip: 29018-9330  
Latitude: N 34.065273 Longitude: W 81.117038

**8. USE:**  
 Residential  Public Supply  Process  
 Irrigation  Air Conditioning  Emergency  
 Test Well  Monitor Well  Replacement

**9. WELL DEPTH (completed)** 32 ft. Date Started: 01/12/2018  
Date Completed: 01/14/2018

**3. PUBLIC SYSTEM NAME:** Recovery Well 8 **PUBLIC SYSTEM NUMBER:** RW-8

**4. ABANDONMENT:**  Yes  No  
Give Details Below  
Grouted Depth: from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

**10. CASING:**  Threaded  Welded  
Diam.: 4 Inch  
Type:  PVC  Galvanized  
 Steel  Other  
\_\_\_\_\_ in. to \_\_\_\_\_ 0 ft. depth  
\_\_\_\_\_ in. to \_\_\_\_\_ 2 ft. depth

Height: Above/Below \_\_\_\_\_ U ft.  
Surface \_\_\_\_\_ lb./ft.  
Weight \_\_\_\_\_ lb./ft.  
Drive Shoe?  Yes  No

**5. REMARKS:**

**11. SCREEN:**  
Type: PVC Diam.: 4 Inch  
Slot/Gauge: .020 Length: 30.0 ft  
Set Between: 32 ft. and 2 ft. NOTE: MULTIPLE SCREENS  
USE SECOND SHEET  
\_\_\_\_\_ ft. and \_\_\_\_\_ ft.  
Sieve Analysis  Yes (please enclose)  No

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Fill Brn, Tn mxln cly snd	0 ft.	10 ft.

**12. STATIC WATER LEVEL** 11.20 ft. below land surface after 24 hours

Lt orng lt brn cly snd fxln	10 ft.	20 ft.
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**13. PUMPING LEVEL** Below Land Surface.  
NA ft. after \_\_\_\_\_ hrs. Pumping \_\_\_\_\_ G.P.M.  
Pumping Test:  Yes (please enclose)  No  
Yield: \_\_\_\_\_

Lt tn vhard fxln snd	20 ft.	28 ft.
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**14. WATER QUALITY**  
Chemical Analysis  Yes  No Bacterial Analysis  Yes  No  
Please enclose lab results.

Tn moist vfxln silt stone	28 ft.	32 ft.
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**15. ARTIFICIAL FILTER (filter pack)**  Yes  No  
Installed from 32 ft. to 2 ft.  
Effective size No. 2 Uniformity Coefficient \_\_\_\_\_

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**16. WELL GROUTED?**  Yes  No  
 Neat Cement  Bentonite  Bentonite/Cement  Other \_\_\_\_\_  
Depth: From 2.0 ft. to 0 ft.

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**17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:** 25 ft. N direction  
Type Petroleum  
Well Disinfected  Yes  No Type: \_\_\_\_\_ Amount: \_\_\_\_\_

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**18. PUMP:** Date installed: NA 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

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**19. WELL DRILLER:** Terry L. Teate CERT. NO.: 1242  
Address: (Print) \_\_\_\_\_ Level: A B C D (circle one)  
P.O. Box 2237 Irmo, SC 29063  
Telephone No.: 803-413-4950 Fax No.: \_\_\_\_\_

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**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.

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Signed: Terry L. Teate Date: 02/22/2018  
Well Driller

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If D Level Driller, provide supervising driller's name:

\*Indicate Water Bearing Zones  
(Use a 2nd sheet if needed)

**6. TYPE:**  Mud Rotary  Jetted  Bored  
 Dug  Air Rotary  Driven  
 Cable tool  Other



**Water Well Record**  
**Bureau of Water**  
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

**1. WELL OWNER INFORMATION:**

Name: DHEC (last) (first)  
Address: 2600 Bull Street  
City: Columbia State: SC Zip: 29201-0000  
Telephone: Work: (803) 898-3432 Home: \_\_\_\_\_

**2. LOCATION OF WELL:**

**COUNTY:** Richland

Name: Broad River Amoco  
Street Address: 4335 Broad River Road  
City: Columbia, SC Zip: 29018-9330  
Latitude: N 34.065236 Longitude: W 81.116854

**3. PUBLIC SYSTEM NAME:**

**PUBLIC SYSTEM NUMBER:**

Recovery Well 9 RW-9

**4. ABANDONMENT:**

Yes  No

Give Details Below

Grouted Depth: from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Fill Brn, Tn mxln cly snd	0 ft.	10 ft.
Lt org lt brn cly snd fxln	10 ft.	20 ft.
Lt tn vhard fxln snd silt stone	20 ft.	30 ft.
Tn moist vxln cly snd	30 ft.	35 ft.
Lt brn Tn hd vxln sndy cly	35 ft.	40 ft.

\*Indicate Water Bearing Zones  
(Use a 2nd sheet if needed)

**5. REMARKS:**

**6. TYPE:**  Mud Rotary  Jetted  Bored  
 Dug  Air Rotary  Driven  
 Cable tool  Other

**7. PERMIT NUMBER:**

DHEC Permit # UMW-26742

**8. USE:**

Residential  Public Supply  Process  
 Irrigation  Air Conditioning  Emergency  
 Test Well  Monitor Well  Replacement

**9. WELL DEPTH (completed)**

Date Started: 12/4/2017

40 ft.

Date Completed: 12/5/2017

**10. CASING:**  Threaded  Welded

Diam.: 4 Inch

Height: Above/Below

Type:  PVC  Galvanized  
 Steel  Other

Surface \_\_\_\_\_ U ft.

\_\_\_\_\_ in. to \_\_\_\_\_ ft. depth

Weight \_\_\_\_\_ lb./ft.

\_\_\_\_\_ in. to \_\_\_\_\_ ft. depth

Drive Shoe?  Yes  No

**11. SCREEN:**

Type: PVC Diam.: 4 Inch

Slot/Gauge: .020 Length: 30.0 ft

Set Between: 40 ft. and 10 ft. **NOTE: MULTIPLE SCREENS**

\_\_\_\_\_ ft. and \_\_\_\_\_ ft. **USE SECOND SHEET**

Sieve Analysis  Yes (please enclose)  No

**12. STATIC WATER LEVEL** 15.50 ft. below land surface after 24 hours

**13. PUMPING LEVEL Below Land Surface.**

NA 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 40 ft. to 8.0 ft.

Effective size No. 2 Uniformity Coefficient \_\_\_\_\_

**16. WELL GROUTED?**  Yes  No

Neat Cement  Bentonite  Bentonite/Cement  Other \_\_\_\_\_

Depth: From 8 ft. to 0 ft.

**17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:** 100 ft. W direction

Type Petroleum

Well Disinfected  Yes  No Type: \_\_\_\_\_ Amount: \_\_\_\_\_

**18. PUMP:** Date installed: NA 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:** Terry L. Teate

**CERT. NO.:** 1242

Address: (Print)

Level: A B C D (circle one)

P.O. Box 2237 Irmo, SC 29063

Telephone No.: 803-413-4950

Fax No.: \_\_\_\_\_

**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: Terry L. Teate Date: 02/22/2018  
Well Driller

If D Level Driller, provide supervising driller's name:



**Water Well Record**  
**Bureau of Water**  
2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

**1. WELL OWNER INFORMATION:**  
Name: DHEC (last) (first)  
Address: 2600 Bull Street  
City: Columbia State: SC Zip: 29201-0000  
Telephone: Work: (803) 898-3432 Home:

**7. PERMIT NUMBER:** DHEC Permit # UMW-26742

**8. USE:**  
 Residential  Public Supply  Process  
 Irrigation  Air Conditioning  Emergency  
 Test Well  Monitor Well  Replacement

**2. LOCATION OF WELL:** COUNTY: Richland  
Name: Broad River Amoco  
Street Address: 4335 Broad River Road  
City: Columbia, SC Zip: 29018-9330  
Latitude: N 34.065396 Longitude: W 81.116852

**9. WELL DEPTH (completed)** Date Started: 02/16/2018  
40 ft. Date Completed: 02/19/2018

**10. CASING:**  Threaded  Welded  
Diam.: 4 Inch  
Type:  PVC  Galvanized  
 Steel  Other  
in. to 0 ft. depth  
in. to 10 ft. depth  
Height: Above/Below  
Surface 0 ft.  
Weight lb./ft.  
Drive Shoes?  Yes  No

**3. PUBLIC SYSTEM NAME:** PUBLIC SYSTEM NUMBER:  
Recovery Well 10 RW-10

**11. SCREEN:**  
Type: PVC Diam.: 4 Inch  
Slot/Gauge: .020 Length: 30.0 ft  
Set Between: 40 ft. and 10 ft. NOTE: MULTIPLE SCREENS  
USE SECOND SHEET  
Sieve Analysis  Yes (please enclose)  No

**4. ABANDONMENT:**  Yes  No  
Give Details Below  
Grouted Depth: from ft. to ft.

**12. STATIC WATER LEVEL** 16.12 ft. below land surface after 24 hours

**13. PUMPING LEVEL Below Land Surface.**  
NA ft. after hrs. Pumping G.P.M.  
Pumping Test:  Yes (please enclose)  No  
Yield:

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Fill Brn, Tn mxln cly snd	0 ft.	10 ft.
Lt orng brn cly snd fxln Petro odor	10 ft.	20 ft.
Lt tn vhard fxln sndy cly Tn to bedded silt and	20 ft.	30 ft.
Tn moist mxln cly snd	30 ft.	35 ft.
Lt tn vfxln hd silt stone	35 ft.	40 ft.

**14. WATER QUALITY**  
Chemical Analysis  Yes  No Bacterial Analysis  Yes  No  
Please enclose lab results.

**15. ARTIFICIAL FILTER (filter pack)**  Yes  No  
Installed from 40 ft to 8.0 ft.  
Effective size No. 2 Uniformity Coefficient

**16. WELL GROUTED?**  Yes  No  
 Neat Cement  Bentonite  Bentonite/Cement  Other  
Depth: From 8 ft. to 0 ft.

**17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:** 25 ft. W direction  
Type Petroleum  
Well Disinfected  Yes  No Type: Amount:

**18. PUMP:** Date installed: NA 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:** Terry L. Teate CERT. NO.: 1242  
Address: (Print) Level: A B C D (circle one)  
P.O. Box 2237 Irmo, SC 29063  
Telephone No.: 803-413-4950 Fax No.:

\*Indicate Water Bearing Zones  
(Use a 2nd sheet if needed)

**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.

**5. REMARKS:**

Signed: *Terry L. Teate* Date: 02/22/2018  
Well Driller

**6. TYPE:**  Mud Rotary  Jetted  Bored  
 Dug  Air Rotary  Driven  
 Cable tool  Other

If D Level Driller, provide supervising driller's name:





**Water Well Record  
Bureau of Water**

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

**1. WELL OWNER INFORMATION:**

Name: DHEC  
 (last) (first)  
 Address: 2600 Bull Street  
 City: Columbia State: SC Zip: 29201-0000  
 Telephone: Work: (803) 898-3432 Home:

**2. LOCATION OF WELL:**

**COUNTY:** Richland

Name: Broad River Amoco  
 Street Address: 4335 Broad River Road  
 City: Columbia, SC Zip: 29018-9330  
 Latitude: N 34.065438 Longitude: W 81.116625

**3. PUBLIC SYSTEM NAME:**

**PUBLIC SYSTEM NUMBER:**

Recovery Well 11 RW-11

**4. ABANDONMENT:**

Yes  No

Give Details Below

Grouted Depth: from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Fill Brn, Tn mxln cly snd	0 ft.	10 ft.
Lt ornge lt brn cly snd fxltn	10 ft.	20 ft.
Lt tn vhard fxltn snd silt stone	20 ft.	30 ft.
Tn lt brn mxln cly snd	30 ft.	35 ft.
Tn moist hd sndy cly	35 ft.	40 ft.

\*Indicate Water Bearing Zones

(Use a 2nd sheet if needed)

**5. REMARKS:**

- 6. TYPE:**  Mud Rotary  Jetted  Bored  
 Dug  Air Rotary  Driven  
 Cable tool  Other

**7. PERMIT NUMBER:**

DHEC Permit # UMW-26742

**8. USE:**

- Residential  Public Supply  Process  
 Irrigation  Air Conditioning  Emergency  
 Test Well  Monitor Well  Replacement

**9. WELL DEPTH (completed)**

Date Started: 02/16/2018

40 ft.

Date Completed: 02/19/2018

**10. CASING:**  Threaded  Welded  
 Diam.: 4 Inch

Type:  PVC  Galvanized  
 Steel  Other  
 \_\_\_\_\_ in. to \_\_\_\_\_ ft. depth  
 \_\_\_\_\_ in. to \_\_\_\_\_ ft. depth

Height: Above/Below  
 Surface \_\_\_\_\_ U ft.  
 Weight \_\_\_\_\_ lb./ft.  
 Drive Shoe?  Yes  No

**11. SCREEN:**

Type: PVC Diam.: 4 Inch  
 Slot/Gauge: .020 Length: 30.0 ft.  
 Set Between: \_\_\_\_\_ ft. and \_\_\_\_\_ ft.  
 \_\_\_\_\_ ft. and \_\_\_\_\_ ft.  
 Sieve Analysis  Yes (please enclose)  No

**NOTE: MULTIPLE SCREENS  
USE SECOND SHEET**

**12. STATIC WATER LEVEL** 16.00 ft. below land surface after 24 hours

**13. PUMPING LEVEL Below Land Surface.**

NA 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 40 ft. to 8.0 ft.  
 Effective size No. 2 Uniformity Coefficient \_\_\_\_\_

**16. WELL GROUTED?  Yes  No**

Neat Cement  Bentonite  Bentonite/Cement  Other \_\_\_\_\_  
 Depth: From 8 ft. to 0 ft.

**17. NEAREST SOURCE OF POSSIBLE CONTAMINATION: 5 ft. S direction**

Type Petroleum  
 Well Disinfected  Yes  No Type: \_\_\_\_\_ Amount: \_\_\_\_\_

**18. PUMP:** Date installed: NA 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: Terry L. Teate**

**CERT. NO.:** 1242

Address: (Print) \_\_\_\_\_ Level: A B C D (circle one)  
 P.O. Box 2237 Irmo, SC 29063

Telephone No.: 803-413-4956

Fax No.:

**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: Terry L. Teate Date: 02/22/2018  
 Well Driller

If D Level Driller, provide supervising driller's name:



## Water Well Record

### Bureau of Water

2600 Bull Street, Columbia, SC 29201-1708; (803) 898-4300

**1. WELL OWNER INFORMATION:**  
Name: DHEC (last) (first)  
Address: 2600 Bull Street  
City: Columbia State: SC Zip: 29201-0000  
Telephone: Work: (803) 898-3432 Home:

**2. LOCATION OF WELL:** COUNTY: Richland  
Name: Broad River Amoco  
Street Address: 4335 Broad River Road  
City: Columbia, SC Zip: 29018-9330  
Latitude: N 34.065586 Longitude: W 81.116724

**3. PUBLIC SYSTEM NAME:** Recovery Well 12  
**PUBLIC SYSTEM NUMBER:** RW-12

**4. ABANDONMENT:**  Yes  No  
Give Details Below  
Grouted Depth: from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

Formation Description	*Thickness of Stratum	Depth to Bottom of Stratum
Fill Brn, Tn mxln cly snd	0 ft.	10 ft.
Lt org lt brn cly snd fxln	10 ft.	20 ft.
Lt tn vhard fxln snd silt stone	20 ft.	30 ft.
Tn moist vfxln hd cly snd	30 ft.	39 ft.

\*Indicate Water Bearing Zones  
(Use a 2nd sheet if needed)

**5. REMARKS:**

**6. TYPE:**  Mud Rotary  Jetted  Bored  
 Dug  Air Rotary  Driven  
 Cable tool  Other

**7. PERMIT NUMBER:** DHEC Permit # UMW-26742

**8. USE:**  
 Residential  Public Supply  Process  
 Irrigation  Air Conditioning  Emergency  
 Test Well  Monitor Well  Replacement

**9. WELL DEPTH (completed):** \_\_\_\_\_ ft. Date Started: 02/16/2018  
Date Completed: 02/19/2018

**10. CASING:**  Threaded  Welded  
Diam.: 4 Inch  
Type:  PVC  Galvanized  
 Steel  Other  
\_\_\_\_ in. to 0 ft. depth  
\_\_\_\_ in. to 9 ft. depth  
Height: Above/Below \_\_\_\_\_ U ft.  
Surface \_\_\_\_\_ lb./ft.  
Weight \_\_\_\_\_ lb./ft.  
Drive Shoe?  Yes  No

**11. SCREEN:**  
Type: PVC Diam.: 4 Inch  
Slot/Gauge: .020 Length: 30.0 ft  
Set Between: 39 ft. and 9 ft. NOTE: MULTIPLE SCREENS  
USE SECOND SHEET  
\_\_\_\_ ft. and \_\_\_\_\_ ft.  
Sieve Analysis  Yes (please enclose)  No

**12. STATIC WATER LEVEL** 15.40 ft. below land surface after 24 hours

**13. PUMPING LEVEL Below Land Surface.**  
NA 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 39 ft. to 7 ft.  
Effective size No. 2 Uniformity Coefficient \_\_\_\_\_

**16. WELL GROUTED?**  Yes  No  
 Neat Cement  Bentonite  Bentonite/Cement  Other \_\_\_\_\_  
Depth: From 7 ft. to 0 ft.

**17. NEAREST SOURCE OF POSSIBLE CONTAMINATION:** 5 ft. S direction  
Type Petroleum  
Well Disinfected  Yes  No Type: \_\_\_\_\_ Amount: \_\_\_\_\_

**18. PUMP:** Date installed: NA 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:** Terry L. Teate CERT. NO.: 1242  
Address: (Print) Level: A B C D (circle one)  
P.O. Box 2237 Irmo, SC 29063

Telephone No.: 803-413-4950 Fax No.:

**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: Terry L. Teate Date: 02/22/2018  
Well Driller

If D Level Driller, provide supervising driller's name:

# **ATTACHMENT B**

## **Gauge Well Measurements and Subsequent Survey Data**



Broad River Amoco # 11946 GAUGE MEASUREMENTS 03/05/2018

FREE PRODUCT

GROUND WATER LEVELS

MW-5	13.25 ft.	16.42 ft. Total Free Product = 3.17 ft.
RW-1	14.52 ft.	14.64 ft. Total Free Product = 0.12 ft.
RW-5	13.60 ft.	20.38 ft. Total Free Product = 6.78 ft. Total Free Product Measured = 10.07 ft.
	GWL:	
MW-1	19.05 ft.	
MW-2	14.47 ft.	
MW-4	9.12 ft.	
RW-2	14.54 ft.	
RW-3	14.68 ft.	
RW-4	13.70 ft.	
RW-6	14.12 ft.	TOC: 101.16
RW-7	10.30 ft.	TOC: 97.29
RW-8	11.20 ft.	TOC: 98.52
RW-9	15.50 ft.	TOC: 101.41
RW-10	16.12 ft.	TOC: 101.66
RW-11	16.00 ft.	TOC: 101.82
RW-12	15.40 ft.	TOC: 101.38

**ATTACHMENT C**  
**Disposal Manifest of**  
**Drill Cuttings**

# Grandall

C 224561

Please print or type  
(Form designed for use on elite (12 - pitch) typewriter)

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No.	Manifest Document No. 52960	2. Page 1 of 1
3. Generator's Name and Mailing Address Enviro-Test Services 1621 Lake Murray Blvd Columbia, SC 29212				
4. Generator's Phone (803) 413-4936				
5. Transporter 1 Company Name Enviro-Test Services		6. US EPA ID Number		A. Transporter's Phone (803) 732-5770
7. Transporter 2 Company Name		8. US EPA ID Number		B. Transporter's Phone
9. Designated Facility Name and Site Address Crandall Corporation 100 Rich Lex Dr Lexington, SC 29072		10. US EPA ID Number SCD981864499		C. Facility's Phone (803) 791-4800
11. Waste Shipping Name and Description			12. Containers No. Type	13. Total Quantity
a. Non - Hazardous Waste, Petroleum Contaminated Soil				14. Unit Wt./Vol. T
b.				
c.				
d.				
D. Additional Descriptions for Materials Listed Above Drill Cuttings From Broad River AMOCO, Richland Co. Recovery Wells			E. Handling Codes for Wastes Listed Above	
15. Special Handling Instructions and Additional Information  Infotrac 800-535-5053 Registrant Crandall Corp Srv Call ID: GLB0252960  11a=ENW004-002-C				
16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.				
Printed/Typed Name Terry L. Teate		Signature Terry L. Teate		Month Day Year 10.21.91.8
17. Transporter 1 Acknowledgement of Receipt of Materials				
Printed/Typed Name Terry L. Teate		Signature Terry L. Teate		Month Day Year 10.21.91.8
18. Transporter 2 Acknowledgement of Receipt of Materials				
Printed/Typed Name		Signature		Month Day Year
19. Discrepancy Indication Space				
20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.				
Printed/Typed Name Bob Crooms		Signature Bob Crooms		Month Day Year 10.21.91.8

GENERATOR

TRANSPORTER

FACILITY

GENERATOR COPY

12-BLC-M5

# Crandall

C 233601

Please Print  
Form designed for use on elite (12 - pitch) typewriter

## NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No.  
52180

2. Page 1  
of 1

3. Generator's Name and Mailing Address  
Enviro-Test Services  
1621 Lake Murray Blvd  
Columbia, SC 29212

4. Generator's Phone (803) 413-4936

5. Transporter 1 Company Name  
Enviro-Test Services

6. US EPA ID Number

A. Transporter's Phone  
(803) 732-5770

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address

Crandall Corporation  
100 Rich Lex Dr  
Lexington, SC 29072

10. US EPA ID Number

3CD981864499

C. Facility's Phone

(803) 791-4800

11. Waste Shipping Name and Description

12. Containers

No. Type

13. Total  
Quantity

14. Unit  
Wt./Vol.

a. Non - Hazardous Waste, Petroleum Contaminated Soil

001

DT

1.5

T

b.

c.

d.

D. Additional Descriptions for Materials Listed Above

Drill Cuttings From Broad  
River Amoco, Rickbad Co.

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Info trac 800-835-5053 Registrant Crandall Corp  
Srv Call ID: GLB0252180

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name

Terry L. Teate

Signature

Terry L. Teate

Month Day Year

10/26/18

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Terry L. Teate

Signature

Terry L. Teate

Month Day Year

10/26/18

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

19. Discrepancy Indication Space

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

Printed/Typed Name

Jeremy Brunson

Signature

Jeremy Brunson

Month Day Year

10/26/18

GENERATOR

TRANSPORTER

FACILITY

GENERATOR COPY

12-BLC-M5



FREDERICK N CECCHINI  
429 PRESS LINDLER ROAD  
COLUMBIA SC 29212-8322

MAR 09 2018

Re: **Aggressive Fluid Vapor Recovery Directive**  
Broad River Amoco, 4335 Broad River Road, Columbia, SC  
UST Permit #11946; CA #56491  
Release reported January 4, 2011  
Aggressive Fluid Vapor Recovery Report received January 24, 2018  
Richland County

Dear Mr. Cecchini:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (DHEC) recognizes your commitment to continue work at this site utilizing Enviro-Test Services, Inc. In accordance with Section 280.64 of the South Carolina Underground Storage Tank Control Regulations, two 96-hour Aggressive Fluid and Vapor Recovery (AFVR) events may commence as outlined in this correspondence and the UST Quality Assurance Program Plan (QAPP) Revision 3.1. The first 96-hour AFVR event should be conducted on RW-5 and RW-10. The second 96-hour AFVR event should be conducted on RW-1, RW-2, and RW-3. The stingers shall be lowered at six inch intervals starting at the water table interface to a target depth near the bottom of each well. Please strive to reach the target depth within the first 8 hours. A copy of UST QAPP Version 3.1 for the Underground Storage Tank Division is available at <http://www.dhec.sc.gov/Environment/LW/UST/ReleaseAssessmentCleanup/QualityAssurance/>.

**As soon as the beginning date of the event has been scheduled, please contact Kim Kuhn at [kuhnkm@dhec.sc.gov](mailto:kuhnkm@dhec.sc.gov).**

The AFVR Report should be submitted within 90 days from the date of this correspondence. Please note that all applicable South Carolina certification requirements apply to the services and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

Mr. Cecchini  
UST#11946-Broad River Amoco  
Page 2

Cost Agreement #56491 has been approved in the amount shown on the enclosed cost agreement. Enviro-Test Services, Inc. can submit an invoice for direct billing from the State Underground Petroleum Environmental Response Bank (SUPERB) Account. If the invoice and completed report are 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.

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 is obtained from the UST Management Division. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be preapproved by DHEC for the cost to be paid. DHEC 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, DHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

DHEC grants preapproval for transportation of virgin petroleum-contaminated groundwater from the referenced site to a permitted treatment facility.

On all correspondence concerning this site, please reference UST Permit #11946. If you have any questions, please contact me at (803) 898-0636 or by e-mail at [kuhnkm@dhec.sc.gov](mailto:kuhnkm@dhec.sc.gov).

Sincerely,



Kimberly M. Kuhn, Hydrogeologist  
Corrective Action and Quality Assurance Section  
Underground Storage Tank Management Division  
Bureau of Land and Waste Management

enc: Approved Cost Agreement

cc: Enviro-Test Services, Inc, P.O. Box 2237, Irmo, SC 29063 (with enclosure)  
Technical File (with enclosure)

**Approved Cost Agreement****56491**

Facility: 11946 BROAD RIVER AMOCO

KUHNM

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
19 RPT/PROJECT MNGT & COORDINATIO		PRT REPORT PREPARATION	0.1200	\$45,534.500	5,464.14
23 EFR		A4 96 HOUR EVENT	2.0000	\$12,567.500	25,135.00
		C4 OFF GAS TREATMENT 96 HOUR	2.0000	\$780.000	1,560.00
		D SITE RECONNAISSANCE	2.0000	\$203.250	406.50
		F1 EFFLUENT DISPOSAL	40,000.0000	\$0.440	17,600.00
		G AFVR EQUIPMENT MOB	2.0000	\$391.500	783.00
25 WELL REPAIR		A1 ADDITIONAL COPIES OF REPORT	1.0000	\$50.000	50.00
<b>Total Amount</b>					<b>50,998.64</b>

June 20, 2018



## ENVIRO-TEST SERVICES

*Vacant - Debra Thomas*

Kimberly M. Kuhn, Hydrogeologist  
Corrective Action Section  
UST Program  
Bureau of Land and Waste management

RE: Two 96 Hour AFVR  
Broad River Amoco  
Permit # 11946; CA # 56491  
4335 Broad River Rd Columbia, SC  
Richland County



Dear Mrs. Kuhn,

On May 31, 2018 Enviro-Test Services personnel moved the Vac unit on site and begin the first of two 96 Hour Aggressive Fluid Vapor Recovery (AFVR) The first event included Recovery Wells RW-5 and RW-10 as requested in the March 09, 2018 directive. After gauging the wells with an Interface Probe RW-5 had 11.48 ft of free product RW-10 had none and MW-5 had 3.14 ft. A Teflon bailer was used to remove the free product from RW-5 and MW-5 well before the events started. Approximately 14.5 gallons of dark brown product was recovered. The OVA (PID) was calibrated with Zero Air then with 250 ppm of Isobutylene Span gas per factory specifications at the beginning each day . The first event started at 0900 hrs on

05-31-2018 and ended at 0900 hrs. on 06-04-2018. A total of 350.73 gallons of gas cut fluid was recovered and 109.27 pounds of vapor. The second event performed on RW-1, RW-2, & RW-3 which began 1400 hrs. 06-04-2018 and ended at 1400 hrs. on 06-08-2018. The wells were gauged with an Interface Probe and RW-1 had 0.17 tenth of product and RW-3 had 0.07 tenths for a total of 0.24 ft. of product. The total of 1.5 gallons of product was removed including MW-5. The Total fluid recovered was 382.51 gallons of gas cut water. The total vapor removed was 102.67 lbs. or 16.7 gallons.

The combine totals for the two AFVR events are 733.24 gallons of fluid. 16 gallons of free product, 211.94 pounds of Vapor or 34.4 gallons.

The AFVR Data is contained in Attachment A. Site Maps are Figure 1 & 2 and the disposal Manifest is Attachment B.

Conclusion: RW-5 and MW-5 continue to be the area of impact of the most Free product.

Recommendations: We recommend to concentrate on RW-5 and MW-5 with shorter AFVR event (48) hours

and remove any free product from RW-1 or RW-3 if it is present while performing AFVR's on RW-5 and MW-5.

Terry L. Teate  
Project Manager

**Environmental Laboratory & Drilling**

P. O. Box 2237 Irmo, South Carolina 29063 (803) 413-4936



# **ATTACHMENT A**

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

1<sup>st</sup> Page

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0750 5-31-2108

Well Name: RW-5 & RW-10, Four Inch Wells

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP: 10.84  
RW-10 FP: None

GWL: 19.05  
GWL: 14.12

GWL AFTER AFVR  
GWL: 37.04  
GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

Weather Conditions: Warm, Muggy, Scattered Showers

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
TOTAL FREE PRODUCT RECOVERED = 14.5 gal.  
TOTAL FLUID RECOVERED = 360.73 gallons

**Dry Standard CFM Air Flow - Qstd**

TOTAL EMISSIONS = 109.27 lbs.  
Or = 17.73 gal.

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °f	Temperature Constant	Qstd cfm
0	900	28	94	172	0.02457143	0.9754	807.00	63.00	1.0096	794.70
30	930	28	613	192	0.0274	0.9726	553.00	58.00	1.0193	548.21
60	1000	27	791	193	0.0276	0.9724	390.00	54.00	1.0272	389.58
90	1030	27	750	210	0.0300	0.9700	371.00	57.00	1.0213	367.53
120	1100	26	764	222	0.0317	0.9683	360.00	72.00	0.9925	345.96
150	1130	26	720	310	0.0443	0.9557	377.00	73.00	0.9906	356.92
180	1200	26	1111	423	0.0604	0.9396	341.00	87.00	0.9653	309.27
210	1230	25	1030	425	0.0607	0.9393	412.00	84.00	0.9706	375.60
240	1300	25	875	545	0.0779	0.9221	395.00	82.00	0.9742	354.84
270	1330	26	874	510	0.0729	0.9271	334.00	88.00	0.9635	298.36
300	1400	26	954	533	0.0761	0.9239	312.00	79.00	0.9796	282.36
330	1430	25	946	279	0.0399	0.9601	291.00	62.00	1.0115	282.61
360	1500	26	807	575	0.0821	0.9179	297.00	60.00	1.0154	276.80
390	1530	26	899	643	0.0919	0.9081	293.00	63.00	1.0096	268.63
420	1600	27	881	679	0.0970	0.9030	334.00	51.00	1.0333	311.64
450	1630	26	941	555	0.0793	0.9207	310.00	78.00	0.9814	280.12
480	1700	26	838	529	0.0756	0.9244	293.00	80.00	0.9778	264.84
AVERAGES		26.24	816.94	411.47	0.0588	0.9412	380.59	70.06	0.9966	359.29

**NOTES:**

- Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.
- PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack
- Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.
- Water Vapor = Pounds of water per pound of dry air as %.
- Dry Air = Calculated pound of dry air,(1 - water vapor %).
- Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.
- Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.
- Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

1<sup>st</sup> Page

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0750 5-31-2108

Well Name: RW-5 & RW-10, Four Inch Wells

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP: 10.84 GWL: 19.05  
RW-10 FP: None GWL: 14.12

GWL AFTER AFVR  
GWL: 37.04  
GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

Weather Conditions: Warm, Muggy, Scattered Showers

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
0	794.70	970	1	970	5,158.46	3.2189E-04	15.3482	0.0000
30	548.21	843	1	843	4,483.07	2.7974E-04	9.2016	4.6008
60	389.58	724	1	724	3,850.23	2.4025E-04	5.6159	2.8079
90	367.53	880	1	880	4,679.84	2.9202E-04	6.4396	3.2198
120	345.96	1031	1	1,031	5,482.86	3.4213E-04	7.1018	3.5509
150	356.92	901	1	901	4,791.52	2.9899E-04	6.4030	3.2015
180	309.27	851	1	851	4,525.62	2.8240E-04	5.2402	2.6201
210	375.60	1178	1	1,178	6,264.60	3.9091E-04	8.8097	4.4048
240	354.84	833	1	833	4,429.89	2.7643E-04	5.8852	2.9426
270	298.36	860	1	860	4,573.48	2.8539E-04	5.1089	2.5545
300	282.36	1013	1	1,013	5,387.13	3.3616E-04	5.6951	2.8475
330	282.61	737	1	737	3,919.37	2.4457E-04	4.1471	2.0735
360	276.80	708	1	708	3,765.14	2.3494E-04	3.9019	1.9510
390	268.63	721	1	721	3,834.28	2.3926E-04	3.8563	1.9282
420	311.64	695	1	595	3,164.21	1.9745E-04	3.6919	1.8459
450	280.12	1167	1	1,167	6,206.11	3.8726E-04	6.5087	3.2543
480	264.84	924	1	924	4,913.83	3.0662E-04	4.8723	2.4362
AVERAGES		878.59		878.59	4,672.33	2.9155E-04	6.3428	2.7200

TOTAL EMISSIONS 46.2396 lbs

TOTAL AMOUNT OF FLUID RECOVERED 350.73 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 14.50 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dscf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

1<sup>st</sup> Page

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0750 6-31-2108

Well Name: RW-5 & RW-10, Four Inch Wells

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP: 10.84  
RW-10 FP: None

GWL: 19.05  
GWL: 14.12

GWL AFTER AFVR  
GWL: 37.04  
GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
TOTAL FREE PRODUCT RECOVERED = 14.6 gal.

Weather Conditions: Warm, Muggy, Scattered Showers

PMRg = Cg x Qstd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTHS**

Interval	Time	Vacuum of Hg in inches				
		RW-5	RW-10	RW-1	MW-5	MW-D1
0	900	24.0	24.0	0.0	0.0	0.0
30	930	22.0	24.0	0.0	0.0	0.0
60	1000	22.0	22.0	0.0	0.0	0.0
90	1030	22.0	22.0	0.0	0.0	0.0
120	1100	20.0	22.0	0.0	2.0	0.0
150	1130	20.0	20.0	0.0	0.2	0.0
180	1200	18.0	20.0	0.0	0.8	0.0
210	1230	18.0	18.0	0.6	0.8	0.0
240	1300	20.0	18.0	0.6	0.8	0.0
270	1330	20.0	20.0	1.0	4.0	0.0
300	1400	20.0	18.0	1.6	1.6	0.8
330	1430	18.0	18.0	2.0	2.0	2.0
360	1500	18.0	18.0	2.0	2.0	3.2
390	1530	18.0	20.0	2.0	2.0	4.0
420	1600	18.0	16.0	2.0	1.8	4.0
450	1630	20.0	16.0	2.5	1.8	3.8
480	1700	16.0	16.0	2.5	2.0	4.0

Stinger Depth in ft.	
RW-5	RW-10
19.0	14.0
19.5	14.5
20.0	15.0
20.5	15.5
21.0	16.0
21.5	16.5
22.0	17.0
22.5	17.5
23.0	18.0
23.5	18.5
24.0	19.0
24.5	19.5
25.0	20.0
25.5	20.5
26.0	21.0
26.5	21.5
27.0	22.0

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland  
 UST Permit Number: 11946 Field Personnel: Terry Teate May 31-June 4, 2018  
 Well Name: RW-5 & RW-10, Four Inch Wells Ambient Temp. 74-89 Calibrate PID: 0750 5-31-2108  
 Exhaust Stack Diameter(inches): 3 Before  
 RW-5 FP: 10.84 GWL: 19.05 GWL AFTER AFVR  
 RW-10 FP: None GWL: 14.12 GWL: 37.04  
 Start Time 900 Thurs End Time: 900 Mon GWL: 37.42  
 Weather Conditions: Warm, Muggy, Scattered Showers  
 TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
 TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
0	794.70	0	1	0	0.00	0.0000E+00	0.0000	0.0000
30	548.21	0	1	0	0.00	0.0000E+00	0.0000	0.0000
60	389.58	0	1	0	0.00	0.0000E+00	0.0000	0.0000
90	367.53	0	1	0	0.00	0.0000E+00	0.0000	0.0000
120	345.96	0	1	0	0.00	0.0000E+00	0.0000	0.0000
150	356.92	0	1	0	0.00	0.0000E+00	0.0000	0.0000
180	309.27	0	1	0	0.00	0.0000E+00	0.0000	0.0000
210	375.60	0	1	0	0.00	0.0000E+00	0.0000	0.0000
240	354.84	0	1	0	0.00	0.0000E+00	0.0000	0.0000
270	298.36	0	1	0	0.00	0.0000E+00	0.0000	0.0000
300	282.36	0	1	0	0.00	0.0000E+00	0.0000	0.0000
330	282.61	0	1	0	0.00	0.0000E+00	0.0000	0.0000
360	276.80	0	1	0	0.00	0.0000E+00	0.0000	0.0000
390	268.63	0	1	0	0.00	0.0000E+00	0.0000	0.0000
420	311.64	0	1	0	0.00	0.0000E+00	0.0000	0.0000
450	280.12	0	1	0	0.00	0.0000E+00	0.0000	0.0000
480	264.84	0	1	0	0.00	0.0000E+00	0.0000	0.0000
AVERAGES		0.00		0.00	0.00	0.0000E+00	0.0000	0.0000

TOTAL EMISSIONS 0.0000 lbs

TOTAL AMOUNT OF FLUID RECOVERED 360.73 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 14.50 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dscf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)  
 Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m<sup>3</sup> / mg-ft<sup>3</sup>)

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0710 6-1-2018

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP: 10.84 GWL: 19.05  
RW-10 FP: None GWL: 14.12

GWL: AFTER AFVR  
GWL: 37.04  
GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

Weather Conditions: Warm, Muggy, Scattered Showers

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
TOTAL FREE PRODUCT RECOVERED = 14.5 gal.  
TOTAL FLUID RECOVERED = 350.73 gal

**Dry Standard CFM Air Flow - Qstd**

TOTAL EMISSIONS = 109.27 lbs.  
Or = 17.73 gal.

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor, %	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °F	Temperature Constant	Qstd cfm
540	1800	26	904	542	0.07742857	0.9226	304.00	139.00	0.8815	247.22
600	1900	26	955	511	0.0730	0.9270	290.00	132.00	0.8919	239.77
660	2000	25	872	473	0.0676	0.9324	282.00	130.00	0.8949	235.31
720	2100	25	795	340	0.0486	0.9514	268.00	138.00	0.8829	225.14
1200	2200	26	955	371	0.0530	0.9470	257.00	131.00	0.8934	217.44
1260	2300	27	795	349	0.0499	0.9501	266.00	112.00	0.9231	233.30
1320	2400	27	718	263	0.0376	0.9624	273.00	117.00	0.9151	240.43
1380	0800 Fri	25	635	340	0.0486	0.9514	279.00	121.00	0.9088	241.23
1440	900	25	523	432	0.0617	0.9383	288.00	127.00	0.8995	243.07
1560	1100	26	634	374	0.0534	0.9466	291.00	145.00	0.8727	240.39
1680	1300	25	714	414	0.0591	0.9409	282.00	130.00	0.8949	237.44
1800	1500	25	612	248	0.0354	0.9646	268.00	118.00	0.9135	236.14
1920	1700	26	609	301	0.0430	0.9570	302.00	110.00	0.9263	267.72
2040	1900	26	654	274	0.0391	0.9609	282.00	100.00	0.9429	255.48
2160	2100	25	687	244	0.0349	0.9651	294.00	98.00	0.9462	268.50
2280	2300	24	607	232	0.0331	0.9669	280.00	99.00	0.9445	255.71
2340	2400	25	631	305	0.0436	0.9564	277.00	102.00	0.9395	248.90
AVERAGES		25.53	723.53	353.71	0.0505	0.9495	281.35	120.53	0.9101	243.13

**NOTES:**

- Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.
- PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.
- Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.
- Water Vapor = Pounds of water per pound of dry air as %.
- Dry Air = Calculated pound of dry air,(1 - water vapor %).
- Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm
- Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.
- Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0710 6-1-2018

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP: 10.84 GWL: 19.05  
RW-10 FP: None GWL: 14.12

GWL: AFTER AFVR  
GWL: 37.04  
GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

Weather Conditions: Warm, Muggy, Scattered Showers

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
540	247.22	904	1	904	4,807.47	2.9999E-04	4.4497	0.0000
600	239.77	955	1	955	5,078.69	3.1691E-04	4.5591	2.2795
660	235.31	872	1	872	4,637.30	2.8937E-04	4.0855	2.0428
720	225.14	795	1	795	4,227.81	2.6382E-04	3.5636	1.7818
1200	217.44	955	1	955	5,078.69	3.1691E-04	4.1344	2.0672
1260	233.30	795	1	795	4,227.81	2.6382E-04	3.6928	1.8464
1320	240.43	718	1	718	3,818.32	2.3826E-04	3.4371	1.7186
1380	241.23	635	1	635	3,376.93	2.1072E-04	3.0500	1.5250
1440	243.07	523	1	523	2,781.31	1.7355E-04	2.5311	1.2655
1560	240.39	634	1	634	3,371.61	2.1039E-04	3.0346	1.5173
1680	237.44	714	1	714	3,797.05	2.3694E-04	3.3755	1.6877
1800	236.14	612	1	612	3,254.62	2.0309E-04	2.8775	1.4387
1920	267.72	609	1	609	3,238.66	2.0209E-04	3.2462	1.6231
2040	255.48	654	1	654	3,477.97	2.1703E-04	3.3267	1.6634
2160	268.50	687	1	687	3,653.47	2.2798E-04	3.6727	1.8363
2280	255.71	607	1	607	3,228.03	2.0143E-04	3.0904	1.5452
2340	248.90	631	1	631	3,355.66	2.0939E-04	3.1271	1.5636
AVERAGES		723.53		723.53	3,847.73	2.4010E-04	3.4855	1.6119

TOTAL EMISSIONS 27.4022 lbs

TOTAL AMOUNT OF FLUID RECOVERED 350.73 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 14.50 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dcsf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x106 mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10-9 lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0710 6-1-2018

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
 RW-5 FP: 10.84  
 RW-10 FP: None

GWL: 19.05  
 GWL: 14.12

GWL: AFTER AFVR  
 GWL: 37.04  
 GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
 TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

Weather Conditions: Warm, Muggy, Scattered Showers

PMRg = Cg x Qstd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTHS**

Interval	Time	Vacuum of Hg in inches				
		RW-5	RW-10	RW-1	MW-5	MW-D1
540	1800	16.0	17.0	2.5	2.0	4.0
600	1900	15.0	17.0	2.5	2.0	4.0
660	2000	15.0	16.0	2.4	2.0	4.2
720	2100	16.0	15.0	2.4	2.2	4.0
1200	2200	18.0	15.0	2.5	2.0	4.0
1260	2300	18.0	16.0	2.2	2.0	4.0
1320	2400	16.0	16.0	2.5	2.0	4.0
1380	0800 Fri	16.0	15.0	2.0	2.6	4.0
1440	900	14.0	14.0	2.0	2.8	4.2
1560	1100	15.0	16.0	2.0	2.6	4.0
1680	1300	16.0	16.0	1.0	2.4	3.0
1800	1500	18.0	15.0	1.6	2.2	3.0
1920	1700	22.0	20.0	2.0	2.2	2.8
2040	1900	20.0	16.0	2.0	2.0	2.5
2160	2100	20.0	18.0	2.0	2.0	3.0
2280	2300	22.0	22.0	1.8	2.0	2.8
2340	2400	18.0	18.0	1.8	2.4	2.6

Stinger Depth in ft.	
RW-5	RW-10
27.0	22.0
28.0	25.0
30.0	30.0
34.0	34.0
38.0	38.0
40.0	40.0
16.0	16.0
16.0	16.0
18.0	18.0
22.0	22.0
26.0	26.0
26.0	26.0
28.0	28.0
35.0	35.0
38.0	38.0
40.0	40.0
40.0	40.0



**ENVIRO-TEST SERVICES**

**96 Hour AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0710 6-1-2018

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP: 10.84 GWL: 19.05  
RW-10 FP: None GWL: 14.12

GWL: AFTER AFVR  
GWL: 37.04  
GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

Weather Conditions: Warm, Muggy, Scattered Showers

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
540	247.22	0	1	0	0.00	0.0000E+00	0.0000	0.0000
600	239.77	0	1	0	0.00	0.0000E+00	0.0000	0.0000
660	235.31	0	1	0	0.00	0.0000E+00	0.0000	0.0000
720	225.14	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1200	217.44	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1260	233.30	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1320	240.43	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1380	241.23	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1440	243.07	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1560	240.39	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1680	237.44	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1800	236.14	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1920	267.72	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2040	255.48	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2160	268.50	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2280	255.71	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2340	248.90	0	1	0	0.00	0.0000E+00	0.0000	0.0000
AVERAGES		0.00		0.00	0.00	0.0000E+00	0.0000	0.0000

TOTAL EMISSIONS 0.0000 lbs

TOTAL AMOUNT OF FLUID RECOVERED 350.73 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 14.50 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dcsf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0712 6-2-2018

Calibrate PID: 0650 6-3-2016

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
 RW-5 FP: 10.84 GWL: 19.05  
 RW-10 FP: None GWL: 14.12

GWL AFTER AFVR  
 GWL: 37.04  
 GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

Weather Conditions: Warm, Muggy, Scattered Showers

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
 TOTAL FREE PRODUCT RECOVERED = 14.5 gal.  
 TOTAL FLUID RECOVERED = 350.73 gallons

**Dry Standard CFM Air Flow - Qstd**

TOTAL EMISSIONS = 109.27 lbs.  
 Or = 17.73 gal.

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °f	Temperature Constant	Qstd cfm
2820	0800 Sat	27	470	421	0.06014286	0.9399	403.00	128.00	0.8980	340.11
2940	1000	27	400	368	0.0526	0.9474	370.00	145.00	0.8727	305.93
3060	1200	28	664	482	0.0689	0.9311	307.00	154.00	0.8599	245.82
3180	1400	28	848	315	0.0450	0.9550	321.00	157.00	0.8558	262.34
3300	1600	27	863	550	0.0786	0.9214	317.00	154.00	0.8599	251.18
3420	1800	26	725	431	0.0616	0.9384	309.00	143.00	0.8756	253.91
3540	2000	26	772	440	0.0629	0.9371	294.00	134.00	0.8889	244.91
3660	2200	26	705	407	0.0581	0.9419	311.00	121.00	0.9088	266.20
3780	2400	27	690	394	0.0563	0.9437	290.00	128.00	0.8980	245.75
4260	0800 Sun	25	620	106	0.0151	0.9849	260.00	108.00	0.9296	238.03
4380	1000	25	627	248	0.0354	0.9646	323.00	147.00	0.8699	271.01
4500	1200	24	704	372	0.0531	0.9469	352.00	158.00	0.8544	284.76
4620	1400	24	757	316	0.0451	0.9549	390.00	154.00	0.8599	320.23
4740	1600	25	748	333	0.0476	0.9524	381.00	148.00	0.8684	315.13
4860	1800	25	686	440	0.0629	0.9371	355.00	246.00	0.7479	248.81
4980	2000	26	617	274	0.0391	0.9609	414.00	141.00	0.8785	349.48
5100	2200	25	589	286	0.0409	0.9591	364.00	138.00	0.8829	308.26
AVERAGES		25.94	675.59	363.71	0.0520	0.9480	338.88	147.29	0.8711	279.52

**NOTES:**

- Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.
- PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.
- Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack
- Water Vapor = Pounds of water per pound of dry air as %
- Dry Air = Calculated pound of dry air,(1 - water vapor %).
- Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.
- Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.
- Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0712 6-2-2018

Calibrate PID: 0650 6-3-2016

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP: 10.84 GWL: 19.05  
RW-10 FP: None GWL: 14.12

GWL AFTER AFVR  
GWL: 37.04  
GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

Weather Conditions: Warm, Muggy, Scattered Showers

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
2820	340.11	540	1	540	2,871.72	1.7920E-04	3.6568	0.0000
2940	305.93	592	1	592	3,148.26	1.9645E-04	3.6061	1.8030
3060	245.82	664	1	664	3,531.15	2.2034E-04	3.2499	1.6250
3180	262.34	848	1	848	4,509.66	2.8140E-04	4.4293	2.2147
3300	251.18	863	1	863	4,589.43	2.8638E-04	4.3160	2.1580
3420	253.91	725	1	725	3,855.55	2.4059E-04	3.6652	1.8326
3540	244.91	772	1	772	4,105.50	2.5618E-04	3.7645	1.8822
3660	266.20	705	1	705	3,749.19	2.3395E-04	3.7366	1.8683
3780	245.75	690	1	690	3,669.42	2.2897E-04	3.3762	1.6881
4260	238.03	620	1	620	3,297.16	2.0574E-04	2.9384	1.4692
4380	271.01	627	1	627	3,334.39	2.0807E-04	3.3832	1.6916
4500	284.76	704	1	704	3,743.87	2.3362E-04	3.9914	1.9957
4620	320.23	757	1	757	4,025.73	2.5121E-04	4.8267	2.4133
4740	315.13	748	1	748	3,977.86	2.4822E-04	4.6932	2.3466
4860	248.81	686	1	686	3,648.15	2.2764E-04	3.3984	1.6992
4980	349.48	617	1	617	3,281.21	2.0475E-04	4.2933	2.1466
5100	308.26	589	1	589	3,132.30	1.9546E-04	3.6151	1.8075
AVERAGES		691.00		691.00	3,674.74	2.2930E-04	3.8200	1.8025

TOTAL EMISSIONS 30.6417 lbs

TOTAL AMOUNT OF FLUID RECOVERED 350.73 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 14.50 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dcsf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0712 6-2-2018

Calibrate PID: 0650 6-3-2016

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
 RW-5 FP: 10.84 GWL: 19.05  
 RW-10 FP: None GWL: 14.12

GWL AFTER AFVR  
 GWL: 37.04  
 GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
 TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

Weather Conditions: Warm, Muggy, Scattered Showers

PMRg = Cg x Qstd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTHS**

Interval	Time	Vacuum of Hg in inches				
		RW-5	RW-10	RW-1	MW-5	MW-D1
2820	0800 Sat	16.0	17.0	1.0	3.8	2.0
2940	1000	18.0	18.0	1.0	3.0	2.0
3060	1200	16.0	17.0	1.0	3.2	2.0
3180	1400	18.0	18.0	1.2	4.0	2.0
3300	1600	16.0	16.0	1.2	4.0	2.2
3420	1800	16.0	16.0	1.0	4.2	2.2
3540	2000	16.0	16.0	1.0	4.2	2.0
3660	2200	15.0	18.0	1.0	4.0	1.8
3780	2400	16.0	16.0	1.0	4.2	2.0
4260	0800 Sun	18.0	20.0	0.0	4.0	1.0
4380	1000	16.0	18.0	0.0	4.6	1.0
4500	1200	17.0	15.0	0.0	4.0	0.8
4620	1400	16.0	16.0	0.0	4.6	0.8
4740	1600	15.0	16.0	0.5	4.8	1.0
4860	1800	16.0	15.0	0.6	5.0	1.0
4980	2000	15.0	15.0	1.0	4.8	0.8
5100	2200	18.0	18.0	0.6	4.8	1.0

Stinger Depth in ft.	
RW-5	RW-10
16.0	15.0
16.0	15.0
18.0	18.0
22.0	22.0
22.0	22.0
26.0	26.0
26.0	26.0
30.0	30.0
30.0	30.0
35.0	35.0
18.0	18.0
22.0	22.0
28.0	28.0
35.0	35.0
38.0	38.0
40.0	40.0
40.0	40.0
16.0	15.0

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0712 6-2-2018

Calibrate PID: 0650 6-3-2016

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP: 10.84 GWL: 19.05  
RW-10 FP: None GWL: 14.12

GWL AFTER AFVR  
GWL: 37.04  
GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

Weather Conditions: Warm, Muggy, Scattered Showers

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
2820	340.11	83	1	83	441.39	2.7543E-05	0.5621	0.0000
2940	305.93	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3060	245.82	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3180	262.34	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3300	251.18	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3420	253.91	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3540	244.91	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3660	266.20	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3780	245.75	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4260	238.03	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4380	271.01	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4500	284.76	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4620	320.23	9	1	9	47.86	2.9866E-06	0.0574	0.0287
4740	315.13	27	1	27	143.59	8.9598E-06	0.1694	0.0847
4860	248.81	119	1	119	632.84	3.9489E-05	0.5895	0.2948
4980	349.48	0	1	0	0.00	0.0000E+00	0.0000	0.0000
5100	308.26	0	1	0	0.00	0.0000E+00	0.0000	0.0000
AVERAGES		14.00		14.00	74.45	4.6458E-06	0.0811	0.0240

TOTAL EMISSIONS 0.4082 lbs

TOTAL AMOUNT OF FLUID RECOVERED 360.73 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 14.50 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dscf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0735 6-4-2018

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
 RW-5 FP: 10.84 GWL: 19.05  
 RW-10 FP: None GWL: 14.12

GWL AFTER AFVR  
 GWL: 37.04  
 GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

Weather Conditions: Warm, Muggy, Scattered Showers

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
 TOTAL FREE PRODUCT RECOVERED = 14.5 gal.  
 TOTAL FLUID RECOVERED = 350.73 gal.

**Dry Standard CFM Air Flow - Qstd**

TOTAL EMISSIONS = 109.27 lbs.  
 Or = 17.73 gal.

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °f	Temperature Constant	Qstd cfm
5220	2400	26	602	293	0.04185714	0.9581	347.00	135.00	0.8874	295.04
5700	0800 Mon	27	693	377	0.0539	0.9461	411.00	127.00	0.8995	349.78
5760	900	25	764	348	0.0497	0.9503	403.00	138.00	0.8829	338.14

AVERAGES 26.00 686.33 339.33 0.0485 0.9515 387.00 133.33 0.8899 327.65

**NOTES:**

- Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.
- PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.
- Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.
- Water Vapor = Pounds of water per pound of dry air as %.
- Dry Air = Calculated pound of dry air,(1 - water vapor %).
- Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.
- Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.
- Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0735 6-4-2018

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP: 10.84 GWL: 19.05  
RW-10 FP: None GWL: 14.12

GWL AFTER AFVR  
GWL: 37.04  
GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

Weather Conditions: Warm, Muggy, Scattered Showers

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
5220	295.04	602	1	602	3,201.44	1.9977E-04	3.5364	0.0000
5700	349.78	693	1	693	3,685.37	2.2997E-04	4.8263	2.4131
5760	338.14	764	1	764	4,062.95	2.5353E-04	5.1436	2.5718

AVERAGES 686.33 686.33 3,649.92 2.2776E-04 4.5021 1.6616

**TOTAL EMISSIONS 4.9849 lbs**

**TOTAL AMOUNT OF FLUID RECOVERED 350.73 gallons**

**ESTIMATED AMOUNT OF PRODUCT RECOVERED 14.50 gallons**

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dcsf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m<sup>3</sup> / mg-ft<sup>3</sup>)

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0735 6-4-2018

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
 RW-5 FP: 10.84 GWL: 19.06  
 RW-10 FP: None GWL: 14.12

GWL AFTER AFVR  
 GWL: 37.04  
 GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
 TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

Weather Conditions: Warm, Muggy, Scattered Showers

PMRg = Cg x Qstd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTHS**

Interval	Time	Vacuum of Hg in inches				
		RW-5	RW-10	RW-1	MW-5	MW-D1
5220	2400	18.0	16.0	0.0	4.6	0.2
5700	0800 Mon	16.0	15.0	0.0	4.0	0.8
5760	900	15.0	16.0	0.0	4.6	0.8

Stinger Depth in ft.	
RW-5	RW-10
16.0	16.0
40.0	40.0
40.0	40.0

	Before FP:	Before GWL:	After FP:	After GWL
RW-1	12.48	12.63	12.80	12.97
MW-5	11.30	14.42	12.10	12.90
MW-D1		13.15		13.70



**ENVIRO-TEST SERVICES**

**96 Hour AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County Richland

May 31-June 4, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0735 6-4-2018

Well Name: RW-5 & RW-10

Ambient Temp. 74-89

Exhaust Stack Diameter(inches): 3

Before  
RW-5 FP: 10.84 GWL: 19.05  
RW-10 FP: None GWL: 14.12

GWL AFTER AFVR  
GWL: 37.04  
GWL: 37.42

Start Time 900 Thurs End Time: 900 Mon

Weather Conditions: Warm, Muggy, Scattered Showers

TOTAL FREE PRODUCT MEASURED = 11.48 ft.  
TOTAL FREE PRODUCT RECOVERED = 14.5 gal.

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
5220	295.04	0	1	0	0.00	0.0000E+00	0.0000	0.0000
5700	349.78	0	1	0	0.00	0.0000E+00	0.0000	0.0000
5760	338.14	0	1	0	0.00	0.0000E+00	0.0000	0.0000

AVERAGES 0.00 0.00 0.00 0.00 0.0000E+00 0.0000 0.0000

TOTAL EMISSIONS 0.0000 lbs

TOTAL AMOUNT OF FLUID RECOVERED 350.73 gallons

ESTIMATED AMOUNT OF PRODUCT RECOVERED 14.50 gallons

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dscf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

1 at Page

Site Name: Broad River Amoco

County Richland

Date: June 4-8, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0735 6-4-2018

Well Name: RW-1, RW-2 & RW-3 Diameter = 4 inch

Ambient Temp. 76-95

Exhaust Stack Diameter(inches): 3

	Before	After
RW-1	FP: 12.80 GWL: 12.97	GWL: 39.35
RW-2	FP: None GWL: 13.04	GWL: 39.53
RW-3	FP: 13.80 GWL: 13.87	GWL: 40.80

Start Time 1400 Mon End Time: 1400Fri

TOTAL FREE PRODUCT MEASURED = 0.64 ft.  
TOTAL FREE PRODUCT RECOVERED = 1.50 gal.  
TOTAL FLUID RECOVERED = 382.51 gallons

Weather Conditions: Clear, Hot, Sunny, Muggy

**Dry Standard CFM Air Flow - Qstd**

TOTAL EMISSIONS = 102.67 lbs.  
Or = 16.7 gallons

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °f	Temperature Constant	Qstd cfm
0	1400 Mon	28	261	102	0.01457143	0.9854	527.00	95.00	0.9514	494.06
30	1430	27	641	112	0.0160	0.9840	488.00	97.00	0.9479	455.19
60	1500	26	572	118	0.0169	0.9831	502.00	101.00	0.9412	464.51
90	1530	26	712	108	0.0154	0.9846	432.00	100.00	0.9429	401.03
120	1600	25	669	161	0.0230	0.9770	388.00	110.00	0.9263	351.14
150	1630	26	611	188	0.0269	0.9731	333.00	112.00	0.9026	292.48
180	1700	26	621	197	0.0281	0.9719	358.00	116.00	0.9010	313.49
210	1730	25	593	224	0.0320	0.9680	343.00	115.00	0.8995	298.65
240	1800	28	544	282	0.0403	0.9597	316.00	117.00	0.8980	272.32
270	1830	27	572	234	0.0334	0.9666	428.00	127.00	0.8964	370.85
300	1900	26	513	217	0.0310	0.9690	354.00	128.00	0.8949	306.98
330	1930	25	491	284	0.0406	0.9594	415.00	131.00	0.8934	355.72
360	2000	25	486	265	0.0379	0.9621	430.00	128.00	0.8980	371.50
390	2030	25	569	302	0.0431	0.9569	398.00	123.00	0.9057	344.90
420	2100	26	583	280	0.0400	0.9600	387.00	126.00	0.9010	334.75
450	2130	25	677	276	0.0394	0.9606	389.00	122.00	0.9072	338.99
480	2200	25	682	155	0.0221	0.9779	404.00	125.00	0.9026	356.56
AVERAGES		25.94	576.29	206.18	0.0295	0.9705	405.41	116.06	0.9123	360.18

**NOTES:**

- Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.
- PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.
- Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.
- Water Vapor = Pounds of water per pound of dry air as %.
- Dry Air = Calculated pound of dry air,(1 - water vapor %).
- Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.
- Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.
- Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

1 st Page

Site Name: Broad River Amoco

County Richland

Date: June 4-8, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0735 6-4-2018

Well Name: RW-1, RW-2 & RW-3 Diameter = 4 inch

Ambient Temp. 76-95

		Before		After
Exhaust Stack Diameter(inches): 3	RW-1	FP: 12.80	GWL: 12.97	GWL: 39.35
	RW-2	FP: None	GWL: 13.04	GWL: 39.53
Start Time 1400 Mon End Time: 1400Fri	RW-3	FP: 13.80	GWL: 13.87	GWL: 40.80

TOTAL FREE PRODUCT MEASURED = 0.24 ft.  
TOTAL FREE PRODUCT RECOVERED = 1.50 gal.

Weather Conditions: Clear, Hot, Sunny, Muggy

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
0	494.06	261	1	261	1,388.00	8.6611E-05	2.5674	0.0000
30	455.19	641	1	641	3,408.84	2.1271E-04	5.8095	2.9047
60	464.51	572	1	572	3,041.90	1.8981E-04	5.2902	2.6451
90	401.03	712	1	712	3,786.42	2.3627E-04	5.6851	2.8426
120	351.14	669	1	669	3,557.74	2.2200E-04	4.6773	2.3387
150	292.48	611	1	611	3,249.30	2.0276E-04	3.5582	1.7791
180	313.49	621	1	621	3,302.48	2.0607E-04	3.8761	1.9381
210	298.65	593	1	593	3,153.57	1.9678E-04	3.5262	1.7631
240	272.32	544	1	544	2,892.99	1.8052E-04	2.9496	1.4748
270	370.85	572	1	572	3,041.90	1.8981E-04	4.2235	2.1118
300	306.98	513	1	513	2,728.13	1.7024E-04	3.1355	1.5678
330	355.72	491	1	491	2,611.14	1.6294E-04	3.4775	1.7388
360	371.50	486	1	486	2,584.55	1.6128E-04	3.5949	1.7974
390	344.90	569	1	569	3,025.94	1.8882E-04	3.9074	1.9537
420	334.75	583	1	583	3,100.39	1.9346E-04	3.8857	1.9429
450	338.99	677	1	677	3,600.29	2.2466E-04	4.5694	2.2847
480	356.56	682	1	682	3,626.88	2.2632E-04	4.8418	2.4209
AVERAGES		576.29		576.29	3,064.73	1.9124E-04	4.0927	1.9708

TOTAL EMISSIONS 33.5040 lbs.

TOTAL AMOUNT OF FLUID RECOVERED 382.57 gal.

ESTIMATED AMOUNT OF PRODUCT RECOVERED 1.50 gal.

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.

K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3

PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.

Cg:m = Mass concentration of gasoline emission, mg/dsm3.

Cg = Mass concentration of gasoline emission, lb/dcsf.

PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.

PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K

Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)

Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

1 st Page

Site Name: Broad River Amoco

County Richland

Date: June 4-8, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0735 6-4-2018

Well Name: RW-1, RW-2 & RW-3 Diameter = 4 inch

Ambient Temp. 76-95

Before

After

Exhaust Stack Diameter(inches): 3

RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35

RW-2 FP: None GWL: 13.04 GWL: 39.53

Start Time 1400 Mon End Time: 1400Fri

RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80

TOTAL FREE PRODUCT MEASURED = 0.24 ft.

TOTAL FREE PRODUCT RECOVERED = 1.60 gal.

Weather Conditions: Clear, Hot, Sunny, Muggy

PMRg = Cg x Qstd x 60 min/hr

PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTH MEASUREMENTS**

Interval	Time	Vacuum of Hg in inches				
		RW-1	RW-2	RW-3	MW-2	MW-5
0	1400 Mon	28	28	28	0.0	0.0
30	1430	27	26	27	0.0	0.0
60	1500	27	25	25	0.0	0.0
90	1530	24	25	25	0.0	0.0
120	1600	22	24	22	0.0	0.0
150	1630	22	22	22	0.0	0.0
180	1700	20	22	20	0.0	0.0
210	1730	20	20	20	0.0	0.0
240	1800	18	18	18	0.0	0.0
270	1830	18	16	18	0.0	0.0
300	1900	16	18	16	0.0	0.0
330	1930	18	16	16	0.0	0.0
360	2000	16	16	18	0.0	0.0
390	2030	16	15	15	0.0	0.0
420	2100	18	16	15	0.0	0.0
450	2130	16	16	16	0.0	0.0
480	2200	18	16	16	0.0	0.0

RW-4	Stinger Depth in ft.		
	RW-1	RW-2	RW-3
0.0	13.0	13.0	13.0
0.0	13.5	13.5	13.5
0.0	14.0	14.0	14.0
0.0	14.5	14.5	14.5
0.0	15.0	15.0	15.0
0.0	15.5	15.5	15.5
0.0	16.0	16.0	16.0
0.0	16.5	16.5	16.5
0.0	17.0	17.0	17.0
0.0	17.5	17.5	17.5
0.0	18.0	18.0	18.0
0.0	18.5	18.5	18.5
0.0	19.0	19.0	19.0
0.0	25.0	25.0	25.0
0.0	30.0	30.0	30.0
0.0	35.0	35.0	35.0
0.0	40.0	40.0	40.0

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland Date: June 4-8, 2018  
 UST Permit Number: 11946 Field Personnel: Terry Teate Calibrate PID: 0735 6-4-2018  
 Well Name: RW-1, RW-2 & RW-3 Diameter = 4 inch Ambient Temp. 76-95  
 Exhaust Stack Diameter(inches): 3 Before After  
 RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35  
 RW-2 FP: None GWL: 13.04 GWL: 39.53  
 RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80  
 Start Time 1400 Mon End Time: 1400Fri  
 Weather Conditions: Clear, Hot, Sunny, Muggy  
 TOTAL FREE PRODUCT MEASURED = 0.64 ft.  
 TOTAL FREE PRODUCT RECOVERED = 1.50 gal.

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
0	494.06	0	1	0	0.00	0.0000E+00	0.0000	0.0000
30	455.19	0	1	0	0.00	0.0000E+00	0.0000	0.0000
60	464.51	0	1	0	0.00	0.0000E+00	0.0000	0.0000
90	401.03	0	1	0	0.00	0.0000E+00	0.0000	0.0000
120	351.14	0	1	0	0.00	0.0000E+00	0.0000	0.0000
150	292.48	0	1	0	0.00	0.0000E+00	0.0000	0.0000
180	313.49	0	1	0	0.00	0.0000E+00	0.0000	0.0000
210	298.65	0	1	0	0.00	0.0000E+00	0.0000	0.0000
240	272.32	0	1	0	0.00	0.0000E+00	0.0000	0.0000
270	370.85	0	1	0	0.00	0.0000E+00	0.0000	0.0000
300	306.98	0	1	0	0.00	0.0000E+00	0.0000	0.0000
330	355.72	0	1	0	0.00	0.0000E+00	0.0000	0.0000
360	371.50	0	1	0	0.00	0.0000E+00	0.0000	0.0000
390	344.90	0	1	0	0.00	0.0000E+00	0.0000	0.0000
420	334.75	0	1	0	0.00	0.0000E+00	0.0000	0.0000
450	338.99	0	1	0	0.00	0.0000E+00	0.0000	0.0000
480	356.56	0	1	0	0.00	0.0000E+00	0.0000	0.0000
AVERAGES		0.00		0.00	0.00	0.0000E+00	0.0000	0.0000

TOTAL EMISSIONS 0.0000 lbs.

TOTAL AMOUNT OF FLUID RECOVERED 382.57 gal.

ESTIMATED AMOUNT OF PRODUCT RECOVERED 1.50 gal.

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dscf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x106 mg-mole/24.07 dsm3)  
 Cg = Cg:m x (62.43x10-9 lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland Date: June 4-8, 2018  
 UST Permit Number: 11946 Field Personnel: Terry Teate Calibrate PID: 0650 6-5-2018  
 Well Name: RW-1, RW-2, RW-3 Well Dia.: 4 inch Ambient Temp. 76-95 Calibrate PID: 0720 6-6-2018  
 Exhaust Stack Diameter(inches): 3 Before After  
 RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35  
 RW-2 FP: None GWL: 13.04 GWL: 39.53  
 RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80  
 Start Time 1400 Mon End Time: 1400 Fri  
 Weather Conditions: Clear, Hot, Sunny, Muggy  
 TOTAL FREE PRODUCT MEASURED = 0.64 ft  
 TOTAL FREE PRODUCT RECOVERED = 1.5 gal  
 TOTAL FLUID RECOVERED = 382.51 gal.

**Dry Standard CFM Air Flow - Qstd** TOTAL EMISSIONS = 102.67 lbs.  
 Or = 16.7 gal.

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °F	Temperature Constant	Qstd cfm
540	2300	24	581	132	0.01885714	0.9811	422.00	123.00	0.9057	374.98
600	2400	25	512	128	0.0183	0.9817	402.00	117.00	0.9151	361.13
1080	0800 Tues	25	504	219	0.0313	0.9687	438.00	119.00	0.9119	386.92
1140	900	25	401	248	0.0354	0.9646	354.00	114.00	0.9199	314.09
1200	1000	24	391	185	0.0264	0.9736	418.00	114.00	0.9199	374.34
1260	1100	24	1,539	235	0.0336	0.9664	458.00	120.00	0.9026	399.50
1320	1200	26	908	220	0.0314	0.9686	451.00	120.00	0.9010	393.59
1380	1300	26	643	305	0.0436	0.9564	374.00	130.00	0.8995	321.75
1440	1400	26	1,889	312	0.0446	0.9554	309.00	134.00	0.8980	265.10
1560	1600	25	1,827	202	0.0289	0.9711	371.00	121.00	0.8964	322.98
1680	1800	25	869	154	0.0220	0.9780	265.00	108.00	0.8949	231.94
1800	2000	26	913	207	0.0296	0.9704	307.00	135.00	0.8934	266.16
1920	2200	25	872	192	0.0274	0.9726	317.00	128.00	0.8980	276.85
2040	2400	25	868	211	0.0301	0.9699	292.00	123.00	0.9057	256.48
2520	0800 Wed	26	883	341	0.0487	0.9513	268.00	124.00	0.9041	230.50
2640	1000	26	664	567	0.0810	0.9190	260.00	148.00	0.8684	207.50
2760	1200	27	607	440	0.0629	0.9371	271.00	156.00	0.8571	217.68
AVERAGES		25.29	874.76	252.82	0.0361	0.9639	351.59	125.53	0.8995	305.97

**NOTES:**

Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.  
 PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.  
 Water Vapor = Pounds of water per pound of dry air as %.  
 Dry Air = Calculated pound of dry air,(1 - water vapor %).  
 Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.  
 Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit  
 Temperature Constant = 528°R / (Temp.,°F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland Date: June 4-8, 2018  
 UST Permit Number: 11946 Field Personnel: Terry Teate Calibrate PID: 0650 6-5-2018  
 Well Name: RW-1, RW-2, RW-3 Well Dia.: 4 inch Ambient Temp. 76-95 Calibrate PID: 0720 6-6-2018  
 Exhaust Stack Diameter(inches): 3 Before After  
 RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35  
 RW-2 FP: None GWL: 13.04 GWL: 39.53  
 RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80  
 Start Time 1400 Mon End Time: 1400 Fri  
 Weather Conditions: Clear, Hot, Sunny, Muggy  
 TOTAL FREE PRODUCT MEASURED = 0.64 ft  
 TOTAL FREE PRODUCT RECOVERED = 1.5 gal

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
540	374.98	581	1	581	3,089.76	1.9280E-04	4.3378	0.0000
600	361.13	512	1	512	2,722.82	1.6990E-04	3.6815	1.8407
1080	386.92	504	1	504	2,680.27	1.6725E-04	3.8828	1.9414
1140	314.09	401	1	401	2,132.52	1.3307E-04	2.5078	1.2539
1200	374.34	391	1	391	2,079.34	1.2975E-04	2.9143	1.4571
1260	399.50	1539	1	1,539	8,184.40	5.1071E-04	12.2415	6.1208
1320	393.59	908	1	908	4,828.74	3.0131E-04	7.1156	3.5578
1380	321.75	643	1	643	3,419.47	2.1338E-04	4.1192	2.0596
1440	265.10	1889	1	1,889	10,045.70	6.2685E-04	9.9708	4.9854
1560	322.98	1827	1	1,827	9,715.99	6.0628E-04	11.7489	5.8745
1680	231.94	869	1	869	4,621.34	2.8837E-04	4.0130	2.0065
1800	266.16	913	1	913	4,855.33	3.0297E-04	4.8384	2.4192
1920	276.85	872	1	872	4,637.30	2.8937E-04	4.8066	2.4033
2040	256.48	868	1	868	4,616.02	2.8804E-04	4.4326	2.2163
2520	230.50	883	1	883	4,695.79	2.9302E-04	4.0524	2.0262
2640	207.50	664	1	664	3,531.15	2.2034E-04	2.7433	1.3716
2760	217.68	607	1	607	3,228.03	2.0143E-04	2.6309	1.3154
AVERAGES		874.76		874.76	4,652.00	2.9028E-04	5.2963	2.5206

**TOTAL EMISSIONS 42.8498 lbs.**

**TOTAL AMOUNT OF FLUID RECOVERED 1,585.00 Gallons**

**ESTIMATED AMOUNT OF PRODUCT RECOVERED 20.00 Ounces**

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dcsf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)  
 Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)



**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland Date: June 4-8, 2018  
 UST Permit Number: 11946 Field Personnel: Terry Teate Calibrate PID: 0650 6-5-2018  
 Well Name: RW-1, RW-2, RW-3 Well Dia.: 4 inch Ambient Temp. 76-95 Calibrate PID: 0720 6-6-2018  
 Exhaust Stack Diameter(inches): 3 Before After  
 Start Time 1400 Mon End Time: 1400 Fri RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35  
 RW-2 FP: None GWL: 13.04 GWL: 39.53  
 RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80  
 Weather Conditions: Clear, Hot, Sunny, Muggy  
 PMRg = Cg x Qstd x 60 min/hr  
 PMR = PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...  
 TOTAL FREE PRODUCT MEASURED = 0.64 ft  
 TOTAL FREE PRODUCT RECOVERED = 1.5 gal

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTH MEASUREMENTS**

Interval	Time	Vacuum of Hg in inches					RW-4	Stinger Depth in ft.		
		RW-1	RW-2	RW-3	MW-2	MW-5		RW-1	RW-2	RW-3
540	2300	15	14	15	0.0	0.0	0.0	40.0	40.0	40.0
600	2400	14	15	15	0.0	0.0	0.0	20.0	20.0	20.0
1080	0800 Tues	14	15	14	0.0	0.0	0.0	16.0	16.0	16.0
1140	900	15	15	14	0.0	0.0	0.0	16.0	16.0	16.0
1200	1000	16	15	12	0.0	0.0	0.0	18.0	18.0	18.0
1260	1100	15	14	12	0.0	0.0	0.0	18.0	18.0	18.0
1320	1200	16	12	12	0.0	0.0	0.0	20.0	20.0	20.0
1380	1300	16	12	14	0.0	0.0	0.0	20.0	20.0	20.0
1440	1400	16	12	14	0.0	0.0	0.0	22.0	22.0	22.0
1560	1600	15	14	12	0.0	0.0	0.0	22.0	22.0	22.0
1680	1800	15	15	14	0.0	0.0	0.0	28.0	28.0	28.0
1800	2000	14	14	15	0.0	0.0	0.0	30.0	30.0	30.0
1920	2200	12	11	14	0.0	0.0	0.0	34.0	34.0	34.0
2040	2400	14	14	12	0.0	0.0	0.0	16.5	16.5	16.5
2520	0800 Wed	15	1400Fri	16	0.0	0.0	0.0	20.0	20.0	20.0
2640	1000	16	16	15	0.0	0.0	0.0	30.0	30.0	30.0
2760	1200	18	16	16	0.0	0.0	0.0	40.0	40.0	40.0



**ENVIRO-TEST SERVICES**

**96 Hour AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland Date: June 4-8, 2018  
 UST Permit Number: 11946 Field Personnel: Terry Teate Calibrate PID: 0650 6-5-2018  
 Well Name: RW-1, RW-2, RW-3 Well Dia.: 4 inch Ambient Temp. 76-95 Calibrate PID: 0720 6-6-2018  
 Exhaust Stack Diameter(inches): 3 Before After  
 RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35  
 RW-2 FP: None GWL: 13.04 GWL: 39.53  
 RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80  
 Start Time 1400 Mon End Time: 1400 Fri  
 Weather Conditions: Clear, Hot, Sunny, Muggy  
 TOTAL FREE PRODUCT MEASURED = 0.64 ft  
 TOTAL FREE PRODUCT RECOVERED = 1.5 gal

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
540	374.98	0	1	0	0.00	0.0000E+00	0.0000	0.0000
600	361.13	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1080	386.92	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1140	314.09	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1200	374.34	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1260	399.50	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1320	393.59	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1380	321.75	15	1	15	79.77	4.9776E-06	0.0961	0.0480
1440	265.10	167	1	167	888.11	5.5418E-05	0.8815	0.4407
1560	322.98	333	1	333	1,770.89	1.1050E-04	2.1414	1.0707
1680	231.94	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1800	266.16	0	1	0	0.00	0.0000E+00	0.0000	0.0000
1920	276.85	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2040	256.48	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2520	230.50	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2640	207.50	0	1	0	0.00	0.0000E+00	0.0000	0.0000
2760	217.68	0	1	0	0.00	0.0000E+00	0.0000	0.0000
AVERAGES		30.29		30.29	161.10	1.0053E-05	0.1835	0.0917

**TOTAL EMISSIONS 1.5595 lbs.**

**TOTAL AMOUNT OF FLUID RECOVERED 1,585.00 Gallons**

**ESTIMATED AMOUNT OF PRODUCT RECOVERED 20.00 Ounces**

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dcf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)  
 Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

**Site Name:** Broad River Amoco **County:** Richland **Date:** June 4-8, 2018  
**UST Permit Number:** 11946 **Field Personnel:** Terry Teate **Calibrate PID:** 0705 6-7-2018  
**Well Name:** RW-1, RW-2, RW-3 **Well Dia.:** 4 inch **Ambient Temp.:** 76-95 **Calibrate PID:** 0645 6-8-2018  
**Exhaust Stack Diameter(inches):** 3 **Before** **After**  
**Start Time:** 1400 Mon **End Time:** 1400 Fri **RW-1 FP:** 12.80 **GWL:** 12.97 **GWL:** 39.35  
**RW-2 FP:** None **GWL:** 13.04 **GWL:** 39.53  
**RW-3 FP:** 13.80 **GWL:** 13.87 **GWL:** 40.80  
**Weather Conditions:** Clear, Hot, Sunny, Muggy  
**TOTAL FREE PRODUCT MEASURED = 0.62 ft.**  
**TOTAL FREE PRODUCT RECOVERED = 1.50 gal.**  
**TOTAL FLUID RECOVERED = 382.51 gallons**

**Dry Standard CFM Air Flow - Qstd** **TOTAL EMISSIONS = 102.67 lbs.**  
**Or = 16.7 gallons**

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio,gpp	Water Vapor,%	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °f	Temperature Constant	Qstd cfm
2880	1400	26	551	407	0.05814286	0.9419	264.00	155.00	0.8585	213.48
3000	1600	25	513	344	0.0491	0.9509	272.00	151.00	0.8642	223.50
3120	1800	24	595	208	0.0297	0.9703	262.00	144.00	0.8742	222.23
3240	2000	22	668	222	0.0317	0.9683	265.00	141.00	0.8785	225.43
3360	2200	25	777	209	0.0299	0.9701	273.00	134.00	0.8889	235.42
3480	2400	25	691	197	0.0281	0.9719	283.00	135.00	0.9026	248.24
3960	0800 Thurs	26	927	227	0.0324	0.9676	281.00	115.00	0.9010	244.98
4080	1000	27	667	377	0.0539	0.9461	269.00	137.00	0.8995	228.93
4200	1200	27	651	512	0.0731	0.9269	283.00	152.00	0.8980	235.54
4320	1400	26	627	343	0.0490	0.9510	274.00	152.00	0.8964	233.59
4440	1600	27	454	228	0.0326	0.9674	411.00	151.00	0.8949	355.83
4560	1800	26	430	383	0.0547	0.9453	387.00	145.00	0.8934	326.83
4680	2000	26	492	364	0.0520	0.9480	344.00	141.00	0.8785	286.50
4800	2200	25	523	279	0.0399	0.9601	320.00	132.00	0.8919	274.03
4920	2400	25	545	218	0.0311	0.9689	318.00	121.00	0.9088	279.99
5400	0800 Fri	26	529	385	0.0550	0.9450	386.00	131.00	0.8934	325.89
5520	1000	25	459	436	0.0623	0.9377	408.00	149.00	0.8670	331.70
AVERAGES		25.47	594.06	314.06	0.0449	0.9551	311.76	140.35	0.8876	264.24

**NOTES:**

**Vacuum** = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.  
**PPM, measured** = Measurements taken with a OVA or TVA at the blower discharge stack.  
**Humidity Ratio** = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.  
**Water Vapor** = Pounds of water per pound of dry air as %.  
**Dry Air** = Calculated pound of dry air,(1 - water vapor %).  
**Discharge Flow Volume** = Measured air flow from 3" discharge stack in cubic feet per minute,cfm.  
**Temperature** = Temperature of the air exiting the discharge stack in deg. Fahrenheit.  
**Temperature Constant** = 528°R / (Temp.,°F + 460)

**EQUATION**

**Qstd** = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland Date: June 4-8, 2018  
 UST Permit Number: 11946 Field Personnel: Terry Teate Calibrate PID: 0705 6-7-2018  
 Well Name: RW-1, RW-2, RW-3 Well Dia.: 4 inch Ambient Temp. 76-95 Calibrate PID: 0645 6-8-2018  
 Exhaust Stack Diameter(inches): 3 Before After  
 RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35  
 RW-2 FP: None GWL: 13.04 GWL: 39.53  
 RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80  
 Start Time 1400 Mon End Time: 1400 Fri  
 Weather Conditions: Clear, Hot, Sunny, Muggy  
 TOTAL FREE PRODUCT MEASURED = 0.62 ft.  
 TOTAL FREE PRODUCT RECOVERED = 1.50 gal.

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
2880	213.48	551	1	551	2,930.22	1.8285E-04	2.3420	0.0000
3000	223.50	513	1	513	2,728.13	1.7024E-04	2.2829	1.1414
3120	222.23	595	1	595	3,164.21	1.9745E-04	2.6327	1.3163
3240	225.43	668	1	668	3,552.42	2.2167E-04	2.9983	1.4991
3360	235.42	777	1	777	4,132.09	2.5784E-04	3.6421	1.8210
3480	248.24	691	1	691	3,674.74	2.2930E-04	3.4153	1.7077
3960	244.98	927	1	927	4,929.79	3.0762E-04	4.5216	2.2608
4080	228.93	667	1	667	3,547.11	2.2134E-04	3.0403	1.5201
4200	235.54	651	1	651	3,462.02	2.1603E-04	3.0530	1.5265
4320	233.59	627	1	627	3,334.39	2.0807E-04	2.9161	1.4580
4440	355.83	454	1	454	2,414.37	1.5066E-04	3.2165	1.6082
4560	326.83	430	1	430	2,286.74	1.4269E-04	2.7982	1.3991
4680	286.50	492	1	492	2,616.46	1.6327E-04	2.8066	1.4033
4800	274.03	523	1	523	2,781.31	1.7355E-04	2.8535	1.4268
4920	279.99	545	1	545	2,898.31	1.8085E-04	3.0383	1.5191
5400	325.89	529	1	529	2,813.22	1.7555E-04	3.4325	1.7162
5520	331.70	459	1	459	2,440.96	1.5232E-04	3.0314	1.5157
AVERAGES		594.06		594.06	3,159.20	1.9713E-04	3.0601	1.4611

TOTAL EMISSIONS 24.8395 lbs.

TOTAL AMOUNT OF FLUID RECOVERED 382.51 gal.

ESTIMATED AMOUNT OF PRODUCT RECOVERED 1.50 gal.

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dcsf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)  
 Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

**Site Name:** Broad River Amoco **County:** Richland **Date:** June 4-8, 2018  
**UST Permit Number:** 11946 **Field Personnel:** Terry Teate **Calibrate PID:** 0706 6-7-2018  
**Well Name:** RW-1, RW-2, RW-3 **Well Dia.:** 4 inch **Ambient Temp.:** 76-95 **Calibrate PID:** 0645 6-8-2018  
**Exhaust Stack Diameter(inches):** 3 **Before** **After**  
**Start Time:** 1400 Mon **End Time:** 1400 Fri **RW-1 FP:** 12.80 **GWL:** 12.97 **GWL:** 39.35  
**RW-2 FP:** None **GWL:** 13.04 **GWL:** 39.53  
**RW-3 FP:** 13.80 **GWL:** 13.87 **GWL:** 40.80  
**Weather Conditions:** Clear, Hot, Sunny, Muggy  
**PMRg =** Cg x Qstd x 60 min/hr  
**PMR =** PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...  
**TOTAL FREE PRODUCT MEASURED = 0.62 ft.**  
**TOTAL FREE PRODUCT RECOVERED = 1.50 gal.**

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTH MEASUREMENTS**

Interval	Time	Vacuum of Hg in inches					RW-4	Stinger Depth in ft.		
		RW-1	RW-2	RW-3	MW-2	MW-5		RW-1	RW-2	RW-3
2880	1400	14	14	14	0.0	0.0	0.0	40.0	40.0	16.5
3000	1600	15	16	16	0.0	0.0	0.0	40.0	40.0	25.0
3120	1800	15	16	15	0.0	0.0	0.0	18.0	18.0	40.0
3240	2000	15	16	16	0.0	0.0	0.0	20.0	20.0	40.0
3360	2200	15	15	14	0.0	0.0	0.0	25.0	25.0	40.0
3480	2400	16	15	15	0.0	0.0	0.0	25.0	25.0	40.0
3960	0800 Thurs	18	16	18	0.0	0.0	0.0	35.0	35.0	35.0
4080	1000	15	16	16	0.0	0.0	0.0	35.0	35.0	35.0
4200	1200	16	15	15	0.0	0.0	0.0	38.0	38.0	38.0
4320	1400	16	16	15	0.0	0.0	0.0	38.0	38.0	38.0
4440	1600	16	16	16	0.0	0.0	0.0	40.0	40.0	40.0
4560	1800	15	16	15	0.0	0.0	0.0	40.0	40.0	40.0
4680	2000	15	15	14	0.0	0.0	0.0	26.0	26.0	26.0
4800	2200	14	15	15	0.0	0.0	0.0	18.0	18.0	18.0
4920	2400	15	16	16	0.0	0.0	0.0	16.5	16.5	16.5
5400	0800 Fri	12	14	14	0.0	0.0	0.0	24.0	24.0	24.0
5520	1000	16	15	15	0.0	0.0	0.0	30.0	30.0	30.0

**ENVIRO-TEST SERVICES**

**96 Hour AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland Date: June 4-8, 2018  
 UST Permit Number: 11946 Field Personnel: Terry Teate Calibrate PID: 0705 6-7-2018  
 Well Name: RW-1, RW-2, RW-3 Well Dia.: 4 inch Ambient Temp. 76-95 Calibrate PID: 0645 6-8-2018  
 Exhaust Stack Diameter(inches): 3 Before After  
 RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35  
 RW-2 FP: None GWL: 13.04 GWL: 39.53  
 RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80  
 Start Time 1400 Mon End Time: 1400 Fri  
 Weather Conditions: Clear, Hot, Sunny, Muggy  
 TOTAL FREE PRODUCT MEASURED = 0.62 ft.  
 TOTAL FREE PRODUCT RECOVERED = 1.50 gal.

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
2880	213.48	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3000	223.50	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3120	222.23	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3240	225.43	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3360	235.42	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3480	248.24	0	1	0	0.00	0.0000E+00	0.0000	0.0000
3960	244.98	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4080	228.93	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4200	235.54	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4320	233.59	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4440	355.83	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4560	326.83	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4680	286.50	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4800	274.03	0	1	0	0.00	0.0000E+00	0.0000	0.0000
4920	279.99	0	1	0	0.00	0.0000E+00	0.0000	0.0000
5400	325.89	93	1	93	494.57	3.0861E-05	0.6034	0.3017
5520	331.70	0	1	0	0.00	0.0000E+00	0.0000	0.0000
AVERAGES		5.47		5.47	29.09	1.8154E-06	0.0355	0.0177

TOTAL EMISSIONS 0.3017 lbs.

TOTAL AMOUNT OF FLUID RECOVERED 382.51 gal.

ESTIMATED AMOUNT OF PRODUCT RECOVERED 1.50 gal.

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dscf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x106 mg-mole/24.07 dsm3)  
 Cg = Cg:m x (62.43x10-9 lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco

County: Richland

Date: June 4-8, 2018

UST Permit Number: 11946

Field Personnel: Terry Teate

Calibrate PID: 0705 6-7-2018

Well Name: RW-1, RW-2, RW-3

Well Dia.: 4 inch Ambient Temp. 76-95  
 Before After

Calibrate PID: 0645 6-8-2018

Exhaust Stack Diameter(inches): 3

RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35  
 RW-2 FP: None GWL: 13.04 GWL: 39.53  
 RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80

Start Time 1400 Mon End Time: 1400 Fri

Weather Conditions: Clear, Hot, Sunny, Muggy

TOTAL FREE PRODUCT MEASURED = 0.64 ft.  
 TOTAL FREE PRODUCT RECOVERED = 1.50 gal.  
 TOTAL FLUID RECOVERED = 382.51 gallons

**Dry Standard CFM Air Flow - Qstd**

TOTAL EMISSIONS = 102.67 lbs.  
 Or = 17.7 gallons

Interval	Time	Vacuum, in. of Hg	PPM measured	Humidity Ratio, gpp	Water Vapor, %	Dry Air(1/100)	Discharge Flow Volume, CFM	Temperature, °f	Temperature Constant	Qstd cfm
5640	1200	25	397	335	0.04785714	0.9521	447.00	145.00	0.8727	371.44
5760	1400	26	406	327	0.0467	0.9533	441.00	146.00	0.8713	366.29

AVERAGES 25.50 401.50 331.00 0.0473 0.9527 444.00 145.50 0.8720 368.86

**NOTES:**

- Vacuum = Level of vacuum being applied as record from the vacuum truck tank, inches of Hg.
- PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.
- Humidity Ratio = Grains of moisture per pound(gpp) of dry air measured at the blower discharge stack.
- Water Vapor = Pounds of water per pound of dry air as %.
- Dry Air = Calculated pound of dry air, (1 - water vapor %).
- Discharge Flow Volume = Measured air flow from 3" discharge stack in cubic feet per minute, cfm.
- Temperature = Temperature of the air exiting the discharge stack in deg. Fahrenheit.
- Temperature Constant = 528°R / (Temp., °F + 460)

**EQUATION**

Qstd = Dry Air x Discharge Flow x Temperature Constant

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland Date: June 4-8, 2018  
 UST Permit Number: 11946 Field Personnel: Terry Teate Calibrate PID: 0705 6-7-2018  
 Well Name: RW-1, RW-2, RW-3 Well Dia.: 4 inch Ambient Temp. 76-95 Calibrate PID: 0645 6-8-2018  
 Exhaust Stack Diameter(Inches): 3 Before After  
 RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35  
 RW-2 FP: None GWL: 13.04 GWL: 39.53  
 RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80  
 Start Time 1400 Mon End Time: 1400Fri  
 Weather Conditions: Clear, Hot, Sunny, Muggy  
 TOTAL FREE PRODUCT MEASURED = 0.64 ft.  
 TOTAL FREE PRODUCT RECOVERED = 1.50 gal.

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
5640	371.44	397	1	397	2,111.25	1.3174E-04	2.9360	0.0000
5760	366.29	406	1	406	2,159.11	1.3473E-04	2.9610	1.4805

AVERAGES 401.50 401.50 2,135.18 1.3324E-04 2.9485 0.7402

**TOTAL EMISSIONS 1.4805 lbs.**

**TOTAL AMOUNT OF FLUID RECOVERED 382.51 gal.**

**ESTIMATED AMOUNT OF PRODUCT RECOVERED 1.50 gal.**

**NOTES:**

PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dcsf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)  
 Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

**ENVIRO-TEST SERVICES**

**96 HOUR AFVR Pre-Treatment Vapor Concentrations**

**Site Name:** Broad River Amoco **County:** Richland **Date:** June 4-8, 2018  
**UST Permit Number:** 11946 **Field Personnel:** Terry Teate **Calibrate PID:** 0705 6-7-2018  
**Well Name:** RW-1, RW-2, RW-3 **Well Dia.:** 4 inch **Ambient Temp.:** 76-95 **Calibrate PID:** 0645 6-8-2018  
**Exhaust Stack Diameter(inches):** 3 **Before** **After**  
**Start Time** 1400 Mon **End Time:** 1400Fri **RW-1** **FP:** 12.80 **GWL:** 12.97 **GWL:** 39.35  
**RW-2** **FP:** None **GWL:** 13.04 **GWL:** 39.53  
**RW-3** **FP:** 13.80 **GWL:** 13.87 **GWL:** 40.80  
**Weather Conditions:** Clear, Hot, Sunny, Muggy  
**PMRg =** Cg x Qstd x 60 min/hr  
**PMR =** PMRg x [(T2-T1) / 60], PMRg x [(T3-T2) / 60], ...  
**TOTAL FREE PRODUCT MEASURED = 0.64 ft.**  
**TOTAL FREE PRODUCT RECOVERED = 1.50 gal.**

**VACUUM GAUGE MEASUREMENTS**

**STINGER DEPTH MEASUREMENTS**

Interval	Time	Vacuum of Hg in inches					RW-4	Stinger Depth in ft.		
		RW-1	RW-2	RW-3	MW-2	MW-5		RW-1	RW-2	RW-3
5640	1200	16	16	15	0.0	0.0	0.0	40.0	40.0	40.0
5760	1400	15	15	15	0.0	0.0	0.0	40.0	40.0	40.0
			<b>Before</b>		<b>Before</b>		<b>After</b>	<b>After</b>		
			<b>FP:</b>		<b>GWL:</b>		<b>FP:</b>	<b>GWL:</b>		
		<b>MW-2</b>	None		12.90		None	15.62		
		<b>MW-5</b>	12.10		12.90		13.00	13.40		
		<b>RW-4</b>	None		12.38		None	13.75		



**ENVIRO-TEST SERVICES**

**96 Hour AFVR Post-Treatment Vapor Concentrations**

Site Name: Broad River Amoco County Richland Date: June 4-8, 2018  
 UST Permit Number: 11946 Field Personnel: Terry Teate Calibrate PID: 0705 6-7-2018  
 Well Name: RW-1, RW-2, RW-3 Well Dia.: 4 inch Ambient Temp. 76-95 Calibrate PID: 0645 6-8-2018  
 Exhaust Stack Diameter(inches): 3 Before After  
 RW-1 FP: 12.80 GWL: 12.97 GWL: 39.35  
 RW-2 FP: None GWL: 13.04 GWL: 39.53  
 RW-3 FP: 13.80 GWL: 13.87 GWL: 40.80  
 Start Time 1400 Mon End Time: 1400 Fri  
 Weather Conditions: Clear, Hot, Sunny, Muggy  
 TOTAL FREE PRODUCT MEASURED = 0.64 ft.  
 TOTAL FREE PRODUCT RECOVERED = 1.50 gal.

**Gasoline Emission Calculations - PMR**

Measured Interval	Qstd cfm	Measured ppm	K, Calibration gas	PPMg, ppm	Cg:m mg/dsm3	Cg	PMRg (lb/hr)	PMR lbs
5640	371.44	0	1	0	0.00	0.0000E+00	0.0000	0.0000
5760	366.29	0	1	0	0.00	0.0000E+00	0.0000	0.0000

AVERAGES 0.00 0.00 0.00 0.00 0.0000E+00 0.0000 0.0000

TOTAL EMISSIONS 0.0000 lbs.

TOTAL AMOUNT OF FLUID RECOVERED 382.51 gal.

ESTIMATED AMOUNT OF PRODUCT RECOVERED 1.50 gal.

**NOTES:**

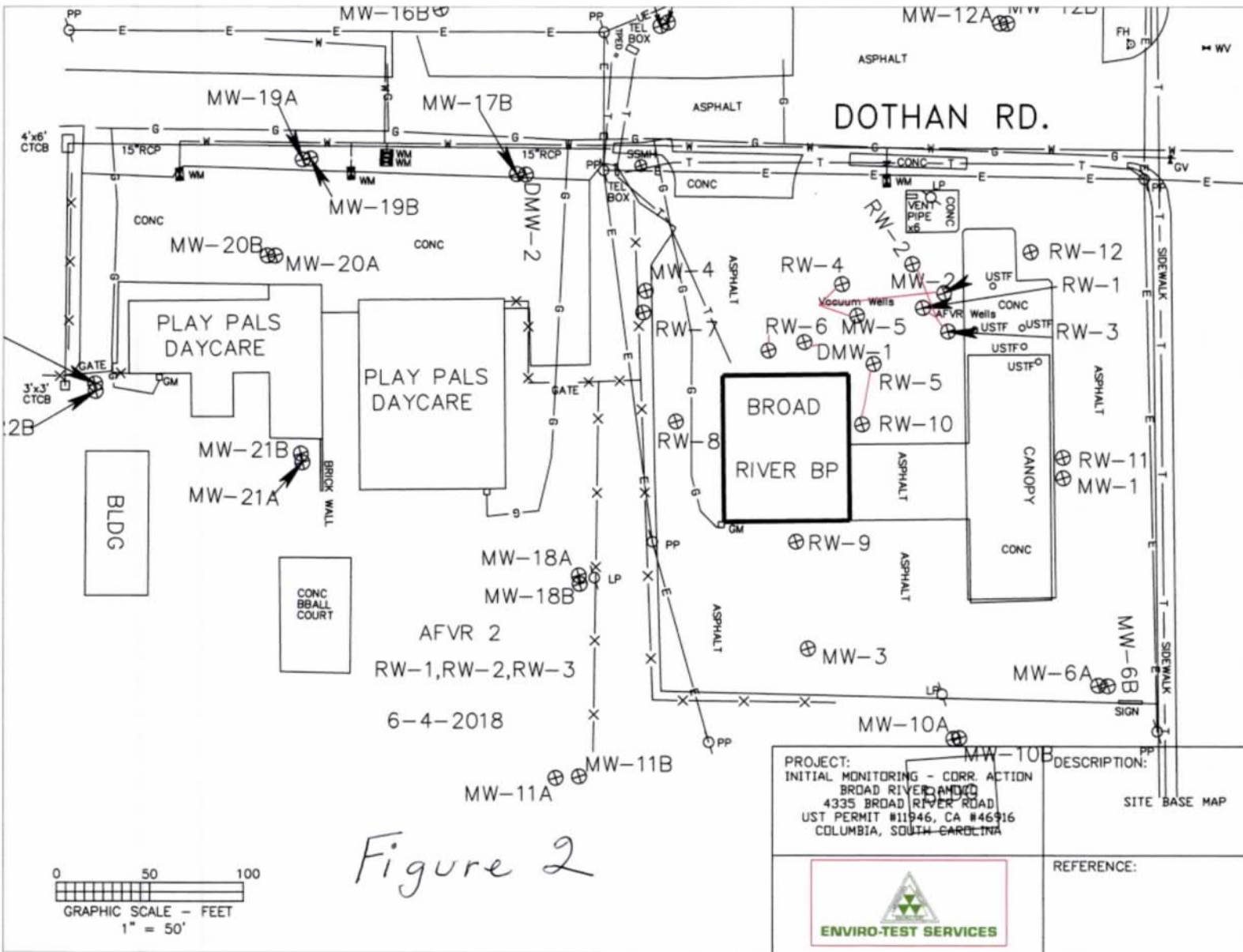
PPM, measured = Measurements taken with a OVA or TVA at the blower discharge stack.  
 K = Number of carbons in calibration gas. Methane K=1, Propane K=2, Hexane K=3  
 PPMg = Measurements taken with a OVA or TVA at the blower discharge stack.  
 Cg:m = Mass concentration of gasoline emission, mg/dsm3.  
 Cg = Mass concentration of gasoline emission, lb/dscf.  
 PMRg = Pollutant mass removal rate of gasoline emission, lb/hr.  
 PMR = Pollutant mass removal of gasoline emission over time, lbs.

**EQUATIONS:**

PPMg = Measured PPM x K  
 Cg:m = PPMg x (128 mg/mg-mole) x (1x10<sup>6</sup> mg-mole/24.07 dsm3)  
 Cg = Cg:m x (62.43x10<sup>-9</sup> lb-m3 / mg-ft3)

# **FIGURES 1 & 2**





# **ATTACHMENT B**

**SITE NAME:** Broad River Amoco

**SHULTZ TANK 275 Gallon STICK MEASUREMENT Conversion from Inches to Gallons**

**TANK No.** 1      **DATE** 6-4-18      **DHEC Permit No.** 11946

Inches = Gallons	Inches = Gallons	Inches = Gallons	Inches = Gallons
0.00 = 0.00	10.00 = 70.50	20.00 = 141.00	30.00 = 211.50
.25 = 1.76	10.25 = 72.26	20.25 = 142.76	30.25 = 213.26
.50 = 3.52	10.50 = 74.02	20.50 = 144.52	30.50 = 215.02
.75 = 5.43	10.75 = 75.78	20.75 = 146.28	30.75 = 216.78
1.00 = 7.05	11.00 = 77.55	21.00 = 148.05	31.00 = 218.55
1.25 = 8.81	11.25 = 79.31	21.25 = 149.81	31.25 = 220.31
1.50 = 10.57	11.50 = 81.07	21.50 = 151.57	31.50 = 222.07
1.75 = 12.33	11.75 = 82.83	21.75 = 153.33	31.75 = 223.83
2.00 = 14.10	12.00 = 84.60	22.00 = 155.10	32.00 = 225.60
2.25 = 15.86	12.25 = 86.36	22.25 = 156.86	32.25 = 227.36
2.50 = 17.62	12.50 = 88.12	22.50 = 158.62	32.50 = 229.12
2.75 = 19.38	12.75 = 89.88	22.75 = 160.38	32.75 = 230.88
3.00 = 21.09	13.00 = 91.67	23.00 = 162.15	33.00 = 232.65
3.25 = 22.91	13.25 = 93.41	23.25 = 163.91	33.25 = 234.41
3.50 = 24.67	13.50 = 95.17	23.50 = 165.67	33.50 = 236.17
3.75 = 26.43	13.75 = 96.93	23.75 = 167.43	33.75 = 237.93
4.00 = 28.20	14.00 = 98.70	24.00 = 169.20	34.00 = 239.70
4.25 = 29.96	14.25 = 100.46	24.25 = 170.96	34.25 = 241.46
4.50 = 31.72	14.50 = 102.22	24.50 = 172.72	34.50 = 243.22
4.75 = 33.48	14.75 = 103.98	24.75 = 174.48	34.75 = 244.98
5.00 = 35.25	15.00 = 105.75	25.00 = 176.25	35.00 = 246.75
5.25 = 37.01	15.25 = 107.51	25.25 = 178.01	35.25 = 248.51
5.50 = 38.77	15.50 = 109.27	25.50 = 179.77	35.50 = 250.27
5.75 = 40.53	15.75 = 111.03	25.75 = 181.53	35.75 = 252.03
6.00 = 42.30	16.00 = 112.80	26.00 = 183.30	36.00 = 253.80
6.25 = 44.06	16.25 = 114.56	26.25 = 185.06	36.25 = 255.56
6.50 = 45.82	16.50 = 116.32	26.50 = 186.82	36.50 = 257.32
6.75 = 47.58	16.75 = 118.08	26.75 = 188.58	36.75 = 259.08
7.00 = 49.35	17.00 = 119.85	27.00 = 190.35	37.00 = 260.85
7.25 = 51.11	17.25 = 121.61	27.25 = 192.11	37.25 = 262.61
7.50 = 52.87	17.50 = 123.37	27.50 = 193.87	37.50 = 264.37
7.75 = 54.63	<u>17.75 = 125.13</u>	27.75 = 195.63	37.75 = 266.13
8.00 = 56.40	18.00 = 126.90	28.00 = 197.40	38.00 = 267.90
8.25 = 58.16	18.25 = 128.66	28.25 = 199.16	38.25 = 269.66
8.50 = 59.95	18.50 = 130.42	28.50 = 200.92	38.50 = 271.45
8.75 = 61.68	18.75 = 132.18	28.75 = 202.68	38.75 = 273.18
9.00 = 63.45	19.00 = 133.95	29.00 = 204.45	39.00 = 275.00
9.25 = 65.21	19.25 = 135.71	29.25 = 206.21	
9.50 = 68.87	19.50 = 137.40	29.50 = 207.97	
9.75 = 69.73	19.75 = 139.23	29.75 = 209.73	

**Amount Measured**  
125.13 gal

**SITE NAME:** Broad River Amoco

**SHULTZ TANK 275 Gallon STICK MEASUREMENT Conversion from Inches to Gallons**

**TANK No.** 2

**DATE** 6-4-18

**DHBC Permit No.** 11946

Inches = Gallons	Inches = Gallons	Inches = Gallons	Inches = Gallons
0.00 = 0.00	10.00 = 70.50	20.00 = 141.00	30.00 = 211.50
.25 = 1.76	10.25 = 72.26	20.25 = 142.76	30.25 = 213.26
.50 = 3.52	10.50 = 74.02	20.50 = 144.52	30.50 = 215.02
.75 = 5.43	10.75 = 75.78	20.75 = 146.28	30.75 = 216.78
1.00 = 7.05	11.00 = 77.55	21.00 = 148.05	31.00 = 218.55
1.25 = 8.81	11.25 = 79.31	21.25 = 149.81	31.25 = 220.31
1.50 = 10.57	11.50 = 81.07	21.50 = 151.57	31.50 = 222.07
1.75 = 12.33	11.75 = 82.83	21.75 = 153.33	31.75 = 223.83
2.00 = 14.10	12.00 = 84.60	22.00 = 155.10	<b>32.00 = 225.60</b>
2.25 = 15.86	12.25 = 86.36	22.25 = 156.86	<del>32.25 = 227.36</del>
2.50 = 17.62	12.50 = 88.12	22.50 = 158.62	32.50 = 229.12
2.75 = 19.38	12.75 = 89.88	22.75 = 160.38	32.75 = 230.88
3.00 = 21.09	13.00 = 91.67	23.00 = 162.15	33.00 = 232.65
3.25 = 22.91	13.25 = 93.41	23.25 = 163.91	33.25 = 234.41
3.50 = 24.67	13.50 = 95.17	23.50 = 165.67	33.50 = 236.17
3.75 = 26.43	13.75 = 96.93	23.75 = 167.43	33.75 = 237.93
4.00 = 28.20	14.00 = 98.70	24.00 = 169.20	34.00 = 239.70
4.25 = 29.96	14.25 = 100.46	24.25 = 170.96	34.25 = 241.46
4.50 = 31.72	14.50 = 102.22	24.50 = 172.72	34.50 = 243.22
4.75 = 33.48	14.75 = 103.98	24.75 = 174.48	34.75 = 244.98
5.00 = 35.25	15.00 = 105.75	25.00 = 176.25	35.00 = 246.75
5.25 = 37.01	15.25 = 107.51	25.25 = 178.01	35.25 = 248.51
5.50 = 38.77	15.50 = 109.27	25.50 = 179.77	35.50 = 250.27
5.75 = 40.53	15.75 = 111.03	25.75 = 181.53	35.75 = 252.03
6.00 = 42.30	16.00 = 112.80	26.00 = 183.30	36.00 = 253.80
6.25 = 44.06	16.25 = 114.56	26.25 = 185.06	36.25 = 255.56
6.50 = 45.82	16.50 = 116.32	26.50 = 186.82	36.50 = 257.32
6.75 = 47.58	16.75 = 118.08	26.75 = 188.58	36.75 = 259.08
7.00 = 49.35	17.00 = 119.85	27.00 = 190.35	37.00 = 260.85
7.25 = 51.11	17.25 = 121.61	27.25 = 192.11	37.25 = 262.61
7.50 = 52.87	17.50 = 123.37	27.50 = 193.87	37.50 = 264.37
7.75 = 54.63	17.75 = 125.13	27.75 = 195.63	37.75 = 266.13
8.00 = 56.40	18.00 = 126.90	28.00 = 197.40	38.00 = 267.90
8.25 = 58.16	18.25 = 128.66	28.25 = 199.16	38.25 = 269.66
8.50 = 59.95	18.50 = 130.42	28.50 = 200.92	38.50 = 271.45
8.75 = 61.68	18.75 = 132.18	28.75 = 202.68	38.75 = 273.18
9.00 = 63.45	19.00 = 133.95	29.00 = 204.45	39.00 = 275.00
9.25 = 65.21	19.25 = 135.71	29.25 = 206.21	
9.50 = 68.87	19.50 = 137.40	29.50 = 207.97	
9.75 = 69.73	19.75 = 139.23	29.75 = 209.73	

**Amount Measured**  
225.60




## NON-HAZARDOUS SPECIAL WASTE

### I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number 060418-1		c. Page 1 of 1		
d. Generator's Name and Location: Enviro-Test PO Box 2237 Irmo, SC 29063 f. Phone: 803-413-4936			e. Generator's Mailing Address: Enviro-Test PO Box 2237 Irmo, SC 29063 g. Phone: 803-413-4936			
If owner of the generating facility differs from the generator, provide:						
h. Owner's Name:			i. Owner's Phone No.:			
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	Type	n. Total Quantity	o. Unit Wt/Vol
147644	06/01/2020	Contact Water		Tote	350.73	Gallons
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.						
Terry L. Teate				June 4, 2018		
p. Generator Authorized Agent Name (Print)		q. Signature		r. Date		

### II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: Hydrotime Environmental 2420 Shop Rd Columbia, SC 29201		
Garrison Helms		
c. Driver Name (Print)	d. Signature	e. Date

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address: Hydrotime Environmental, LLC 2420 Shop Rd Columbia, SC 29201 b. Phone: 803-233-5491		c. US EPA Number	d. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
Kathy Heron			
e. Name of Authorized Agent (Print)	f. Signature	g. Date	

AFVR

Broad River Amoco  
4335 Broad River Road  
Columbia, SC  
  
DHEC Site #11946

1<sup>st</sup> 96 Hour AFVR on  
RW-5 and RW-10



**SITE NAME:** Broad River Amoco

**SHULTZ TANK 275 Gallon STICK MEASUREMENT Conversion from Inches to Gallons**

**TANK No.** 3

**DATE** 6-8-18

**DHBC Permit No.** 11946

Inches = Gallons	Inches = Gallons	Inches = Gallons	Inches = Gallons
0.00 = 0.00	10.00 = 70.50	20.00 = 141.00	30.00 = 211.50
.25 = 1.76	10.25 = 72.26	20.25 = 142.76	30.25 = 213.26
.50 = 3.52	10.50 = 74.02	20.50 = 144.52	30.50 = 215.02
.75 = 5.43	10.75 = 75.78	20.75 = 146.28	30.75 = 216.78
1.00 = 7.05	11.00 = 77.55	21.00 = 148.05	31.00 = 218.55
1.25 = 8.81	11.25 = 79.31	21.25 = 149.81	31.25 = 220.31
1.50 = 10.57	11.50 = 81.07	21.50 = 151.57	31.50 = 222.07
1.75 = 12.33	11.75 = 82.83	21.75 = 153.33	31.75 = 223.83
2.00 = 14.10	12.00 = 84.60	22.00 = 155.10	32.00 = 225.60
2.25 = 15.86	12.25 = 86.36	22.25 = 156.86	32.25 = 227.36
2.50 = 17.62	12.50 = 88.12	22.50 = 158.62	32.50 = 229.12
2.75 = 19.38	12.75 = 89.88	22.75 = 160.38	32.75 = 230.88
3.00 = 21.09	13.00 = 91.67	23.00 = 162.15	33.00 = 232.65
3.25 = 22.91	13.25 = 93.41	23.25 = 163.91	33.25 = 234.41
3.50 = 24.67	13.50 = 95.17	23.50 = 165.67	33.50 = 236.17
3.75 = 26.43	13.75 = 96.93	23.75 = 167.43	33.75 = 237.93
4.00 = 28.20	14.00 = 98.70	24.00 = 169.20	34.00 = 239.70
4.25 = 29.96	14.25 = 100.46	24.25 = 170.96	34.25 = 241.46
4.50 = 31.72	14.50 = 102.22	24.50 = 172.72	34.50 = 243.22
4.75 = 33.48	14.75 = 103.98	24.75 = 174.48	34.75 = 244.98
5.00 = 35.25	15.00 = 105.75	25.00 = 176.25	35.00 = 246.75
5.25 = 37.01	15.25 = 107.51	25.25 = 178.01	35.25 = 248.51
5.50 = 38.77	15.50 = 109.27	25.50 = 179.77	35.50 = 250.27
5.75 = 40.53	15.75 = 111.03	25.75 = 181.53	35.75 = 252.03
6.00 = 42.30	16.00 = 112.80	26.00 = 183.30	36.00 = 253.80
6.25 = 44.06	16.25 = 114.56	26.25 = 185.06	36.25 = 255.56
6.50 = 45.82	16.50 = 116.32	26.50 = 186.82	36.50 = 257.32
6.75 = 47.58	16.75 = 118.08	26.75 = 188.58	36.75 = 259.08
7.00 = 49.35	17.00 = 119.85	27.00 = 190.35	37.00 = 260.85
7.25 = 51.11	17.25 = 121.61	27.25 = 192.11	37.25 = 262.61
7.50 = 52.87	17.50 = 123.37	27.50 = 193.87	37.50 = 264.37
7.75 = 54.63	17.75 = 125.13	27.75 = 195.63	37.75 = 266.13
8.00 = 56.40	18.00 = 126.90	28.00 = 197.40	38.00 = 267.90
8.25 = 58.16	18.25 = 128.66	28.25 = 199.16	38.25 = 269.66
8.50 = 59.95	18.50 = 130.42	28.50 = 200.92	38.50 = 271.45
8.75 = 61.68	18.75 = 132.18	28.75 = 202.68	38.75 = 273.18
9.00 = 63.45	19.00 = 133.95	29.00 = 204.45	39.00 = 275.00
9.25 = 65.21	19.25 = 135.71	29.25 = 206.21	
9.50 = 68.87	19.50 = 137.40	29.50 = 207.97	
9.75 = 69.73	19.75 = 139.23	29.75 = 209.73	

**Amount Measured**  
275gal

**SITE NAME:** Broad River Amoco

**SHULTZ TANK 275 Gallon STICK MEASUREMENT Conversion from Inches to Gallons**

**TANK No.** 4      **DATE** 6-8-78      **DHEC Permit No.** 1146

Inches = Gallons	Inches = Gallons	Inches = Gallons	Inches = Gallons
0.00 = 0.00	10.00 = 70.50	20.00 = 141.00	30.00 = 211.50
.25 = 1.76	10.25 = 72.26	20.25 = 142.76	30.25 = 213.26
.50 = 3.52	10.50 = 74.02	20.50 = 144.52	30.50 = 215.02
.75 = 5.43	10.75 = 75.78	20.75 = 146.28	30.75 = 216.78
1.00 = 7.05	11.00 = 77.55	21.00 = 148.05	31.00 = 218.55
1.25 = 8.81	11.25 = 79.31	21.25 = 149.81	31.25 = 220.31
1.50 = 10.57	11.50 = 81.07	21.50 = 151.57	31.50 = 222.07
1.75 = 12.33	11.75 = 82.83	21.75 = 153.33	31.75 = 223.83
2.00 = 14.10	12.00 = 84.60	22.00 = 155.10	32.00 = 225.60
2.25 = 15.86	12.25 = 86.36	22.25 = 156.86	32.25 = 227.36
2.50 = 17.62	12.50 = 88.12	22.50 = 158.62	32.50 = 229.12
2.75 = 19.38	12.75 = 89.88	22.75 = 160.38	32.75 = 230.88
3.00 = 21.09	13.00 = 91.67	23.00 = 162.15	33.00 = 232.65
3.25 = 22.91	13.25 = 93.41	23.25 = 163.91	33.25 = 234.41
3.50 = 24.67	13.50 = 95.17	23.50 = 165.67	33.50 = 236.17
3.75 = 26.43	13.75 = 96.93	23.75 = 167.43	33.75 = 237.93
4.00 = 28.20	14.00 = 98.70	24.00 = 169.20	34.00 = 239.70
4.25 = 29.96	14.25 = 100.46	24.25 = 170.96	34.25 = 241.46
4.50 = 31.72	14.50 = 102.22	24.50 = 172.72	34.50 = 243.22
4.75 = 33.48	14.75 = 103.98	24.75 = 174.48	34.75 = 244.98
5.00 = 35.25	15.00 = 105.75	25.00 = 176.25	35.00 = 246.75
5.25 = 37.01	15.25 = 107.51	25.25 = 178.01	35.25 = 248.51
5.50 = 38.77	15.50 = 109.27	25.50 = 179.77	35.50 = 250.27
5.75 = 40.53	15.75 = 111.03	25.75 = 181.53	35.75 = 252.03
6.00 = 42.30	16.00 = 112.80	26.00 = 183.30	36.00 = 253.80
6.25 = 44.06	16.25 = 114.56	26.25 = 185.06	36.25 = 255.56
6.50 = 45.82	16.50 = 116.32	26.50 = 186.82	36.50 = 257.32
6.75 = 47.58	16.75 = 118.08	26.75 = 188.58	36.75 = 259.08
7.00 = 49.35	17.00 = 119.85	27.00 = 190.35	37.00 = 260.85
7.25 = 51.11	17.25 = 121.61	27.25 = 192.11	37.25 = 262.61
7.50 = 52.87	17.50 = 123.37	27.50 = 193.87	37.50 = 264.37
7.75 = 54.63	17.75 = 125.13	27.75 = 195.63	37.75 = 266.13
8.00 = 56.40	18.00 = 126.90	28.00 = 197.40	38.00 = 267.90
8.25 = 58.16	18.25 = 128.66	28.25 = 199.16	38.25 = 269.66
8.50 = 59.95	18.50 = 130.42	28.50 = 200.92	38.50 = 271.45
8.75 = 61.68	18.75 = 132.18	28.75 = 202.68	38.75 = 273.18
9.00 = 63.45	19.00 = 133.95	29.00 = 204.45	39.00 = 275.00
9.25 = 65.21	19.25 = 135.71	29.25 = 206.21	
9.50 = 68.87	19.50 = 137.40	29.50 = 207.97	
9.75 = 69.73	19.75 = 139.23	29.75 = 209.73	

**Amount Measured**  
107.51 gal

## NON-HAZARDOUS SPECIAL WASTE

### I. GENERATOR (Generator completes Ia-r)

a. Generator's US EPA ID Number		b. Manifest Document Number 060818-1		c. Page 1 of 1		
d. Generator's Name and Location: Enviro-Test Services PO Box 2237 Irmo, SC 29063 f. Phone: 803-413-4936			e. Generator's Mailing Address: Enviro-Test Services PO Box 2237 Irmo, SC 29063 g. Phone: 803-413-4936			
If owner of the generating facility differs from the generator, provide:						
h. Owner's Name:			i. Owner's Phone No.:			
j. Waste Profile #	k. Exp. Date	l. Waste Shipping Name and Description	m. Containers No.	m. Containers Type	n. Total Quantity	o. Unit Wt/Vol
147644	06/01/2020	Contact Water		Totes	382.51	Gallons
GENERATOR'S CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR 261 or any applicable state law, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations; AND, if this waste is a treatment residue of a previously restricted hazardous waste subject to the Land Disposal Restrictions. I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR 268 and is no longer a hazardous waste as defined by 40 CFR 261.						
Terry L. Teate		<i>Terry L. Teate</i>		June 8, 2018		
p. Generator Authorized Agent Name (Print)		q. Signature		r. Date		

### II. TRANSPORTER (Generator completes IIa-b and Transporter completes IIc-e)

a. Transporter's Name and Address: Enviro-Test PO Box 2237 Irmo, SC 29063		
c. Driver Name (Print)		
d. Signature <i>[Signature]</i>		e. Date

### III. DESTINATION (Generator complete IIIa-c and Destination Site completes III d-g)

a. Disposal Facility and Site Address: Hydrotime Environmental, LLC 2420 Shop Rd Columbia, SC 29201 b. Phone: 803-233-5491		c. US EPA Number	d. Discrepancy Indication Space:
I hereby certify that the above named material has been accepted and to the best of my knowledge the foregoing is true and accurate.			
Kathy Heron		<i>Kathy Heron</i>	
e. Name of Authorized Agent (Print)		f. Signature	
		g. Date 4/8/2018	

AFVR

Broad River Amoco  
4335 Broad River Road  
Columbia, SC

DHEC Site #11946

2<sup>nd</sup> 96 Hour AFVR on  
RW-1, RW-2, RW-3



Site-Specific Work Plan for Approved ACQAP
Underground Storage Tank Management Division

UST
AUG 08 2018
PROGRAM

To: Kimberly Kuhn (SCDHEC Project Manager)
From: Terry Teate (Contractor Project Manager)
Contractor: Enviro-Test Services, Inc. UST Contractor Certification Number: 14

Cardyn Moore

Facility Name: Broad River Amoco UST Permit #: 11946
Facility Address: 4335 Broad River Rd.; Columbia, SC
Responsible Party: Frederick N. Cecchini Phone:
RP Address: 429 Press Lindler Rd.; Columbia, SC 29212-8322
Property Owner (if different):
Property Owner Address:
Current Use of Property: gas station

UST
DO NOT
CHECK

Scope of Work (Please check all that apply)
IGWA Tier I Tier II Groundwater Sampling GAC
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
Drinking Water Supply Wells:
BTEXNMDCA (524.2) Mercury (200.8 245.1 or 245.2) EDB (504.1)
Oxygenates & Ethanol (8260B) RCRA Metals (200.8)
Soil:
BTEXNM Lead 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 3 Field Blank
49 Monitoring Wells Surface Water 3 Duplicate 2 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
Comments, if warranted:

UST Permit #: 11946 Facility Name: Broad River Amoco

**Implementation Schedule** (Number of calendar days from approval)

Field Work Start-Up: 30 Field Work Completion: 33  
Report Submittal: 60 # of Copies Provided to Property Owners: 1

**Aquifer Characterization**

Pump Test:  Slug Test:  (Check one and provide explanation below for choice)

**Investigation Derived Waste Disposal**

Soil: \_\_\_\_\_ Tons Purge Water: 60 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/repared, well pads/bolts/caps to replace, details of AFVR event, etc.

MW-1 through -5, -6A, -6B, -7A, -8A, -8B, -9A, -9B, -10A, -10B, -11A, -11B, -12A, -12B, -13A, -13B, -14A, -14B, -15A, -15B, -17B,  
-18A, -18B, -19A, -19B, -20A, -20B, -21A, -21B, -22B, RW-1 through RW-12, DMW-1 through DMW-3

**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: \_\_\_\_\_

\_\_\_\_ Well Driller as indicated in ACQAP? (Yes/No) If no, indicate driller information below.

Name of Well Driller: \_\_\_\_\_  
SCLLR Certification Number: \_\_\_\_\_

\_\_\_\_ Other variations from ACQAP. Please describe below.

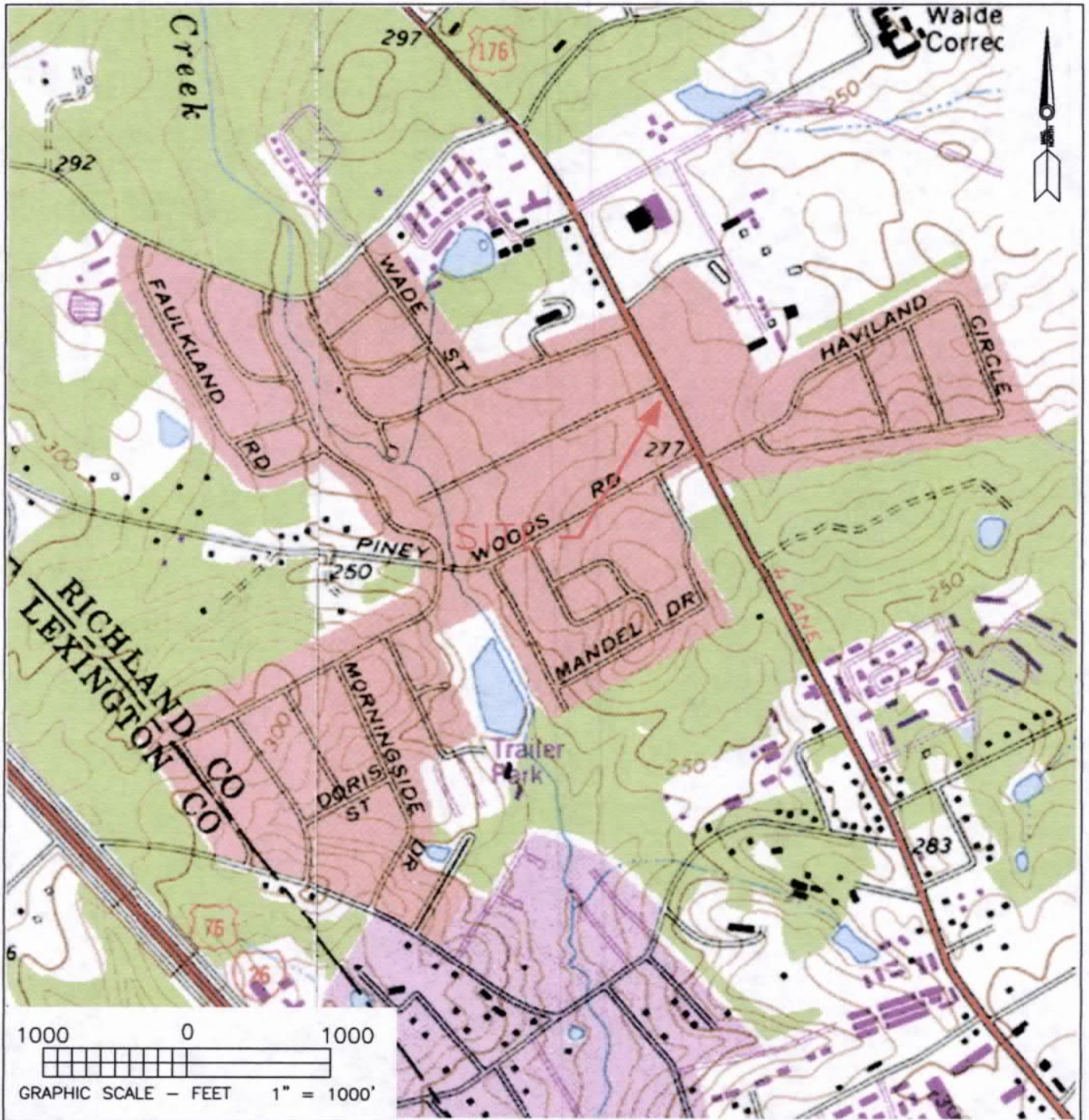
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**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	Proposed monitoring well locations
Location of property lines	Legend with facility name and address, UST permit number, and bar scale
Location of buildings	Streets or highways (indicate names and numbers)
Previous soil sampling locations	Location of all present and former ASTs and USTs
Previous monitoring well locations	Location of all potential receptors
Proposed soil boring locations	
3. Assessment Component Cost Agreement, SCDHEC Form D-3664





PROJECT:  
 SITE SPECIFIC WORK PLAN  
 BROAD RIVER AMOCO  
 4335 BROAD RIVER ROAD  
 UST PERMIT #11946, CA #NA  
 COLUMBIA, SOUTH CAROLINA

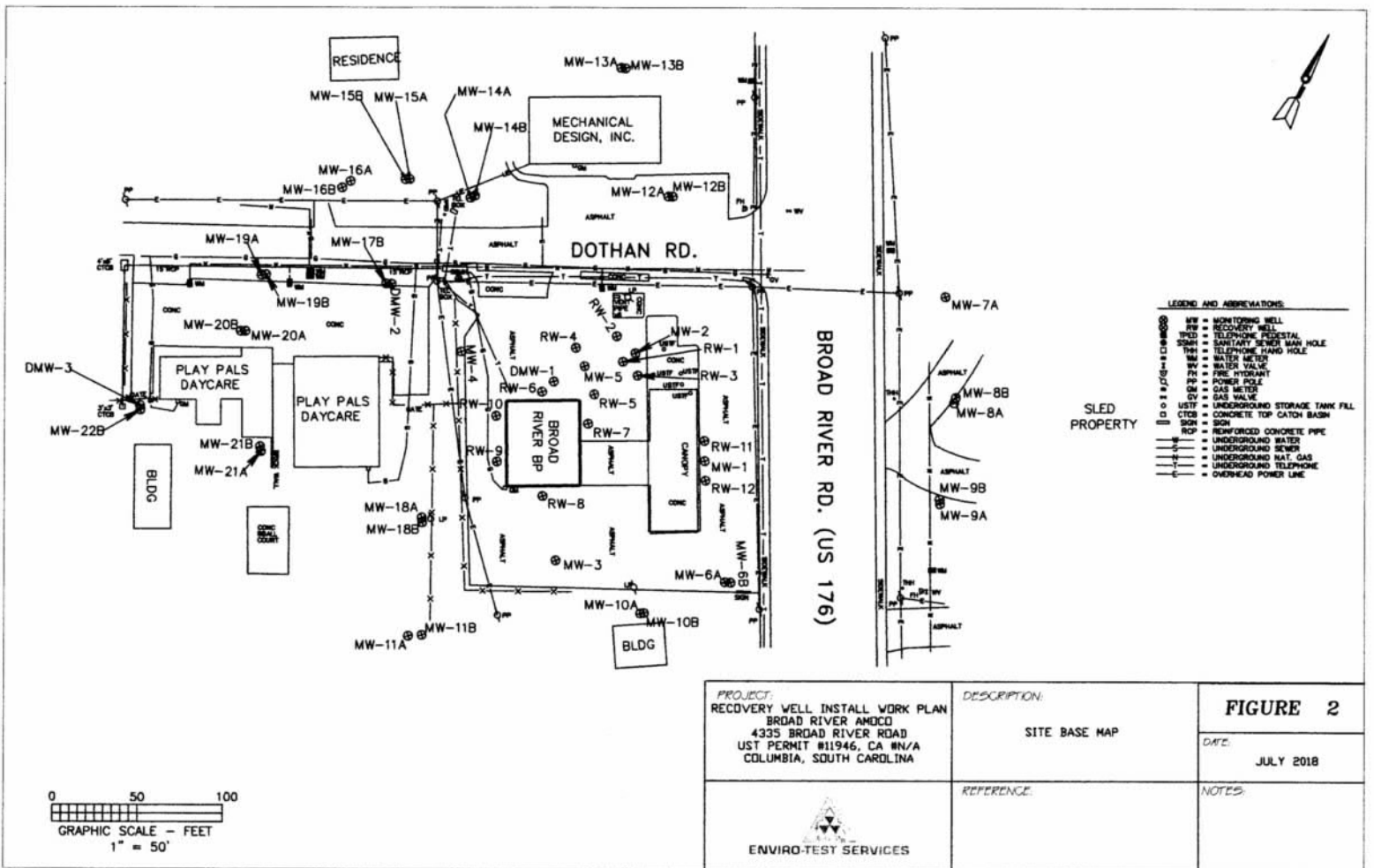
DESCRIPTION:  
 SITE LOCATION MAP

**FIGURE 1**  
 DATE:  
 JULY 2018



REFERENCE:  
 U.S.G.S. TOPOGRAPHIC MAP  
 (7.5 MINUTE SERIES)  
 COLUMBIA NORTH - 1972, REV. 1990  
 SOUTH CAROLINA QUADRANGLE

LEGEND:







Healthy People. Healthy Communities.

**ASSESSMENT COMPONENT COST AGREEMENT  
SOUTH CAROLINA**

Department of Health and Environmental Control  
Underground Storage Tank Management Division  
State Underground Petroleum Environmental Response Bank Account

June 15, 2017

**Facility Name:** Broad River Amoco

**UST Permit #:** 11946

**Cost Agreement #:** \_\_\_\_\_

ITEM	QUANTITY	UNIT	UNIT PRICE	TOTAL
<b>1. Plan Preparation</b>				
A1. Site-specific Work Plan	1	each	\$150.00	\$150.00
B1. Tax Map		each	\$70.00	\$0.00
C1. Tier II or Comp. Plan /QAPP Appendix B		each	\$250.00	\$0.00
<b>2. A1. Receptor Survey *</b>		each	\$551.00	\$0.00
<b>3. Survey (500 ft x 500 ft)</b>				
A1. Comprehensive Survey		each	\$1,040.00	\$0.00
B. Subsurface Geophysical Survey				
1B. < 10 meters below grade		each	\$1,300.00	\$0.00
2B. > 10 meters below grade		each	\$2,310.00	\$0.00
C1. Geophysical UST or Drum Survey		each	\$910.00	\$0.00
<b>4. Mob/Demob</b>				
A1. Equipment		each	\$1,020.00	\$0.00
B1. Personnel	2	each	\$423.00	\$846.00
C1. Adverse Terrain Vehicle		each	\$500.00	\$0.00
<b>5. A1. Soil Borings (hand auger)*</b>		foot	\$5.00	\$0.00
<b>6. Soil Borings (requiring equipment, push technology, etc)* or Field Screening (including water sample, soil sample, soil gas sample, etc.)*</b>				
AA. Standard		per foot	\$15.00	\$0.00
C1. Fractured Rock		per foot	\$20.20	\$0.00
<b>7. A1. Soil Leachability Model</b>		each	\$60.00	\$0.00
<b>8. Abandonment (per foot)*</b>				
A1. 2" diameter or less		per foot	\$3.10	\$0.00
B1. Greater than 2" to 6" diameter		per foot	\$4.50	\$0.00
C1. Dug/Bored well (up to 6 feet diameter)		per foot	\$15.00	\$0.00
<b>9. Well Installation (per foot)*</b>				
A1. Water Table (hand augered)		per foot	\$10.60	\$0.00
B1. Water Table (drill rig)		per foot	\$38.00	\$0.00
CC. Telescoping		per foot	\$50.00	\$0.00
DD. Rock Drilling		per foot	\$58.00	\$0.00
E1. 2" Rock Coring		per foot	\$30.90	\$0.00
G1. Rock Multi-sampling ports/screens		per foot	\$33.40	\$0.00
HH. Recovery Well (4" diameter)		per foot	\$45.00	\$0.00
II. Pushed Pre-packed screen (1.25" dia)		per foot	\$15.00	\$0.00
J1. Rotosonic (2" diameter)		per foot	\$44.00	\$0.00
K. Re-develop Existing Well		per foot	\$11.00	\$0.00
<b>10. Groundwater Sample Collection / Gauge Depth to Water or Product *</b>				
A1. Groundwater Purge		per well/receptor	\$60.00	\$0.00
B1. Air or Vapors		per receptor	\$12.00	\$0.00
C1. Water Supply		per well/receptor	\$22.00	\$0.00
D1. Groundwater No Purge or Duplicate	3	per well/receptor	\$28.00	\$84.00
E1. Gauge Well only		per well	\$7.00	\$0.00
F1. Sample Below Product		per well	\$12.00	\$0.00
G1. Passive Diffusion Bag		each	\$26.00	\$0.00
H1. Field Blank	3	each	\$24.60	\$73.80



I. Groundwater (low flow purge)	49	per well/receptor	\$91.00	\$4,459.00
<b>11. Laboratory Analyses-Groundwater</b>				
A2. BTEXNM+Oxyg's+1,2 DCA+Eth(8260B)	57	per sample	\$122.00	\$6,954.00
AA1. Lead, Filtered		per sample	\$13.80	\$0.00
B2. Rush EPA Method 8260B (All of item A.)		per sample	\$153.60	\$0.00
C2. Trimethal, Butyl, and Isopropyl Benzenes		per sample	\$36.40	\$0.00
D1. PAH's		per sample	\$60.60	\$0.00
E1. Lead		per sample	\$16.00	\$0.00
F1. EDB by EPA 8011	55	per sample	\$45.20	\$2,486.00
FF1. EDB by EPA Method 8011 Rush		per sample	\$68.20	\$0.00
G1. 8 RCRA Metals		per sample	\$63.40	\$0.00
H1. TPH (9070)		per sample	\$41.00	\$0.00
II. pH		per sample	\$5.20	\$0.00
J1. BOD		per sample	\$20.00	\$0.00
PP. Ethanol		per sample	\$14.80	\$0.00
<b>11. Analyses-Drinking Water</b>				
L. BTEXNM+1,2 DCA (524.2)		per sample	\$124.05	\$0.00
M. 7-OXYGENATES & ETHANOL (8260B)		per sample	\$91.75	\$0.00
N. EDB (504.1)		per sample	\$79.50	\$0.00
O. RCRA METALS (200.8)		per sample	\$100.00	\$0.00
<b>11. Analyses-Soil</b>				
Q1. BTEX + Naphth.		per sample	\$64.00	\$0.00
R1. PAH's		per sample	\$64.04	\$0.00
S1. 8 RCRA Metals		per sample	\$56.40	\$0.00
U1. TPH-DRO (3550C/8015C)		per sample	\$40.00	\$0.00
V1. TPH- GRO (5030B/8015C)		per sample	\$35.96	\$0.00
W1. Grain size/hydrometer		per sample	\$104.00	\$0.00
X1. Total Organic Carbon		per sample	\$30.60	\$0.00
<b>11. Analyses-Air</b>				
Y1. BTEX + Naphthalene		per sample	\$216.00	\$0.00
<b>11. Analyses-Free Phase Product</b>				
Z1. Hydrocarbon Fuel Identification		per sample	\$357.00	\$0.00
<b>12. Aquifer Characterization</b>				
A1. Pumping Test*		per hour	\$23.00	\$0.00
B1. Slug Test*		per test	\$191.00	\$0.00
C1. Fractured Rock		per test	\$100.00	\$0.00
<b>13. A1. Free Product Recovery Rate Test*</b>		each	\$38.00	\$0.00
<b>14. Fate/Transport Modeling</b>				
A1. Mathematical Model		each	\$100.00	\$0.00
B1. Computer Model		each	\$100.00	\$0.00
<b>15. Risk Evaluation</b>				
A. Tier I Risk Evaluation		each	\$300.00	\$0.00
B1. Tier II Risk Evaluation		each	\$100.00	\$0.00
<b>16. A1. Subsequent Survey*</b>		each	\$260.00	\$0.00
<b>17. Disposal (gallons or tons)*</b>				
AA. Wastewater	60	gallon	\$0.56	\$33.60
BB. Free Product		gallon	\$0.50	\$0.00
C1. Soil Treatment/Disposal		ton	\$60.00	\$0.00
D1. Drilling fluids		gallon	\$0.42	\$0.00
<b>18. Miscellaneous (attach receipts)</b>				
		each	\$0.00	\$0.00
		each	\$0.00	\$0.00
		each	\$0.00	\$0.00
<b>20. Tier I Assessment (Use DHEC 3665 form)</b>		standard		\$0.00
<b>21. IGWA (Use DHEC 3666 form)</b>		standard		\$0.00
<b>22. Corrective Action (Use DHEC 3667 form)</b>		PFP Bid		\$0.00

<b>23. Aggressive Fluid &amp; Vapor Recovery (AFVR)</b>					
A1. 8-hour Event*		each	\$1,375.00		\$0.00
AA. 24-hour Event*		each	\$3,825.00		\$0.00
A3. 48-hour Event*		each	\$6,265.00		\$0.00
A4. 96-hour Event*		each	\$12,567.50		\$0.00
C1. Off-gas Treatment 8 hour		per event	\$122.50		\$0.00
C2. Off-gas Treatment 24 hour		per event	\$241.50		\$0.00
C3. Off-gas Treatment 48 hour		per event	\$327.00		\$0.00
C4. Off-gas Treatment 96 hour		per event	\$780.00		\$0.00
D. Site Reconnaissance		each	\$203.25		\$0.00
E1. Additional Hook-ups		each	\$25.75		\$0.00
F1. Effluent Disposal		gallon	\$0.44		\$0.00
G. AFVR Mobilization/Demobilization		each	\$391.50		\$0.00
<b>24. Granulated Activated Carbon (GAC) filter system installation &amp; service:</b>					
A1. New GAC System Installation*		each	\$1,900.00		\$0.00
BB. Refurbished GAC Sys. Install*		each	\$900.00		\$0.00
C1. Filter replacement/removal*		each	\$350.00		\$0.00
DD. GAC System removal, cleaning, & refurbishment*		each	\$275.00		\$0.00
E1. GAC System housing*		each	\$250.00		\$0.00
F. In-line particulate filter		each	\$150.00		\$0.00
G1. Additional piping & fittings		foot	\$1.50		\$0.00
<b>25. Well Repair</b>					
A1. Additional Copies of the Report Delivered		each	\$50.00		\$0.00
B1. Repair 2x2 MW pad*		each	\$50.00		\$0.00
C1. Repair 4x4 MW pad*		each	\$88.00		\$0.00
D1. Repair well vault*		each	\$118.00		\$0.00
F1. Replace well cover bolts		each	\$2.60		\$0.00
G. Replace locking well cap & lock		each	\$15.00		\$0.00
H1. Replace/Repair stick-up*		each	\$134.00		\$0.00
II. Convert Flush-mount to Stick-up*		each	\$150.00		\$0.00
J1. Convert Stick-up to Flush-mount*		each	\$130.00		\$0.00
K1. Replace missing/illegible well ID plate		each	\$12.00		\$0.00
<b>Report Prep &amp; Project Management</b>	12%	percent	\$15,086.40		\$1,810.37
<b>TOTAL</b>					<b>\$16,896.77</b>

DHEC 2495 6-2017 \*The appropriate mobilization cost can be added to complete these tasks, as necessary



**AUG 29 2018**

MR FREDERICK N CECCHINI  
429 PRESS LINDLER ROAD  
COLUMBIA SC 29212-8322

**Re: Groundwater Sampling Directive**  
Broad River Amoco, 4335 Broad River Road, Columbia, SC  
UST# 11946; CA# 57806  
Release reported January 4, 2011  
Site-Specific Work Plan received August 8, 2018  
Richland County

Dear Mr. Cecchini:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (DHEC) has reviewed the referenced Site-Specific Work Plan (SSWP) submitted on your behalf by Enviro-Test Services, Inc. The next appropriate scope of work at the site is comprehensive groundwater sampling event. All work should be conducted in accordance with Enviro-Test Services, Inc.'s approved SSWP and Annual Contractor Quality Assurance Plan (ACQAP), and must be conducted in compliance with all applicable regulations. Enviro-Test Services, Inc. can use the UST Quality Assurance Program Plan (QAPP) Revision 3.1 as a guideline. A copy of the UST QAPP is available at <http://www.scdhec.gov/Environment/LW/UST/ReleaseAssessmentCleanup/QualityAssurance/>.

Groundwater sampling activities at the site should begin immediately upon receipt of this letter. Cost agreement #57806 has been approved for the amount shown on the enclosed cost agreement form for sampling all monitoring wells associated with the referenced release. Groundwater samples should be collected and analyzed for BTEX, naphthalene, MTBE, 1, 2-DCA, 8 oxygenates and EDB.

In accordance with Enviro-Test Services, Inc.'s ACQAP, 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.

Mr. Cecchini  
UST#11946 Broad River Amoco  
GWS  
Page 2

**The Monitoring Report, contractor checklist (QAPP Appendix K), and invoice are due within 60 days from the date of this letter.** The report submitted at the completion of these activities should include the required information outlined in Enviro-Test Services, Inc.'s ACQAP. Please note that all applicable South Carolina certification requirements apply to the services and report preparation. All site rehabilitation activities must be performed and submitted by a South Carolina Certified Underground Storage Tank Site Rehabilitation Contractor.

Enviro-Test Services, Inc. can submit an invoice for direct payment from the State Underground Petroleum Environmental Response Bank (SUPERB) Account for pre-approved costs. By law, the SUPERB Account cannot compensate any costs that are not pre-approved.

Please note that applicable South Carolina certification requirements regarding laboratory services and report preparation must be satisfied. 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.

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 DHEC is obtained. If for any reason additional tasks will be completed, these additional tasks and the associated cost must be pre-approved by DHEC for the cost to be paid. DHEC 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, DHEC reserves the right to question and/or reject costs if deemed unreasonable and the right to audit project records at any time during the project or after completion of work.

Please note if unnecessary dilutions are completed resulting in reporting limits of individual chemicals of concern (CoC) in excess of Risk-Based Screening Levels (RBSLs), the data cannot be used. In those cases, the Division may deny payment for any non-detect analysis where the reporting limit exceeds the RBSL. The UST Management Division encourages the use of 'J' values as necessary so the appropriate action can be determined for a release.

DHEC grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. The transport and disposal must be conducted in accordance with the Enviro-Test Services, Inc.'s ACQAP. 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.

Mr. Cecchini  
UST#11946 Broad River Amoco  
GWS  
Page 3

On all correspondence regarding this site, please reference UST Permit #11946. If you have any questions regarding this correspondence, please contact me by telephone at (803) 898-2622, by fax at (803) 898-0673, or by email at mooresct@dhec.sc.gov.

Sincerely,



Carolyn Moores, Hydrogeologist  
Corrective Action & Quality Assurance Section  
Underground Storage Tank Management Division  
Bureau of Land and Waste Management

Enc: Approved Cost Agreement

Cc: Enviro-Test Services, Inc., PO Box 2237, Irmo, SC 29063 (w/enc)  
Technical File (with enc)

**Approved Cost Agreement**

**57806**

Facility: 11946 BROAD RIVER AMOCO

MOORESCT

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
01 PLAN		A1 SITE SPECIFIC WORK PLAN	1.0000	\$150.000	150.00
04 MOB/DEMOP		B1 PERSONNEL	2.0000	\$423.000	846.00
10 SAMPLE COLLECTION		D1 GROUNDWATER NO PURGE/DUPLICATE	3.0000	\$28.000	84.00
		H1 FIELD BLANK	3.0000	\$24.600	73.80
		I GROUNDWATER (LOW FLOW PURGE)	49.0000	\$91.000	4,459.00
11 ANALYSES	GW GROUNDWATER	A2 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	57.0000	\$122.000	6,954.00
		F1 EDB BY 8011	55.0000	\$45.200	2,486.00
17 DISPOSAL		AA WASTEWATER	200.0000	\$0.560	112.00
19 RPT/PROJECT MNGT & COORDINATIO		PRT REPORT PREPARATION	0.1200	\$15,164.800	1,819.78
			<b>Total Amount</b>		<b>16,984.58</b>





## Owner/Operator Contractor Selection Form Underground Storage Tank (UST) Management Division

### 1. CONTRACTOR OF CHOICE

As the current or former UST Owner/Operator and the designated party responsible for the confirmed release reported on the date and permit number provided.

Date: 11/20/18      Permit Number: 11946

I would like to use the contractor listed below and request that they represent me for:

- Directed work scope:
- All future site rehabilitation scopes, except pay-for-performance contract solicitation.

Name of Contractor: CAROLINA TECHNICAL SERVICES INC

Address: PO BOX 115

City: LRMO

State: SC

Zip: 29063

Telephone Number: (803) 407 3336

UCC Number: 263

**NOTE:** After September 20, 1997, rehabilitation activities must be performed by a S.C. Certified Site Rehabilitation Contractor per Section 44-2-120(A) of the SUPERB Act and Section IV(A) of the S.C. DHEC SUPERB Site Rehabilitation and Fund Access Regulation R.61-98.

### 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     No 12      O/O Initial: PD ←

**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 fiancée.

### 3. PAYMENT

A. The first \$25,000.00 in eligible site rehabilitation costs for releases reported subsequent to July 1, 1993 will be applied against the applicable SUPERB deductible per Section 44-2-40(D) of the SUPERB Act, upon submittal of the canceled check (front and back) or a notarized statement from the contractor verifying payment.

B. For eligible costs exceeding the \$25,000.00 deductible, you can pay the contractor and, upon the submittal of the canceled check (front and back) or a notarized statement from the contractor verifying payment, be compensated from the SUPERB Account, or have payment issued directly from the SUPERB Account to the contractor. (Check one.)

For eligible costs exceeding the deductible, I request that payment be made to me after I have paid the contractor.      O/O Initial:

- OR -

For eligible costs exceeding the deductible, I request that payment be made directly to the contractor.      O/O Initial: PD ←

C. If the release qualifies under amnesty (reported prior to July 1, 1993) per Section 44-2-40(B) of the SUPERB Act, you can pay the contractor and be compensated from the SUPERB Account, or have payment issued directly from the SUPERB Account to the contractor. (Check one.)

For eligible costs, I request that payment be made to me after I have paid the contractor.      O/O Initial:

- OR -

For eligible costs, I request that payment be made directly to the contractor.      O/O Initial:

**NOTE:** As required by the SUPERB Act, all costs must receive prior financial approval from DHEC regardless of payment option.

### 4. UST OWNER/OPERATOR OR PARTY RESPONSIBLE FOR ABOVE REFERENCED RELEASE

Signature: [Signature]  
Printed Name: PATRY A. DENNIS

Date Signed: 11/20/18  
Telephone Number: (803) 477 75 75  
Email Address:



Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

ps 1/2

Site Information

Date: 11/19/18

Site ID #: 11946

Site Name: Broad River Amalco

County: Richland

Project Manager: C. Moores

Field Personnel: C. White

Notes: MW-20A & B checked w/ PID meter A = 3.5 ppm (no headspace detections, not elevated above background)  
B = 3.6

- in sewer drain, readings under homes, G. Mick investigating

- in sump under day care (middle building)

MW 21AB behind daycare nr sump pump opening - zero detections in well head space w/ PID

W/S onsite approx 10-10:30am

MW-22B on west side of daycare > clear and no PID headspace detections  
MW-D3

Crawlspace on west side no PID detections

Sewer Grate by MW-22B topped at 6 ppm w/ a baseline starting @ 1.7 ppm  
dug hole on west side building no detections w/ PID

Sewer hole in front of 1230 strong fuel odor 16570 ppm

@ 1208 sewer hole less of an odor but can still smell - 358 ppm  
21.5 ppm PID reading at water valve by fire hydrant  
btwn 1170 + 1166 #000671

@ 1158 sewer hole reading 196.5 ppm PID smelled more sewage than fuel but still whiffs of fuel noticeable

@ 1145 grate no detectable reading - continued to fall btw 10 ppm

@ 1131 sewer hole reading 108 ppm. Continuing trend of stronger sewer smell + weaker fuel smell.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_





Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

pg 2/2

Site Information

Date: 11/19/18	Site ID #: 11946	Site Name: Broad River Amoco
County: Richland	Project Manager: C. Moores	Field Personnel: C. White

Notes: Terry was unable to get equipment on site (claims)  
given until 1 pm  
evasive w/ answers about when  
Bill Wood contractor (new O/O)  
- sump unplugged under building @ 1351, so  
power could be restored to building

RW-7 and = 9.35' to top H<sub>2</sub>O

well next to RW-7 = 11.97 to top H<sub>2</sub>O

RW-12 <sup>Broad</sup> street side 12.79' to top H<sub>2</sub>O no odor  
of Tanks

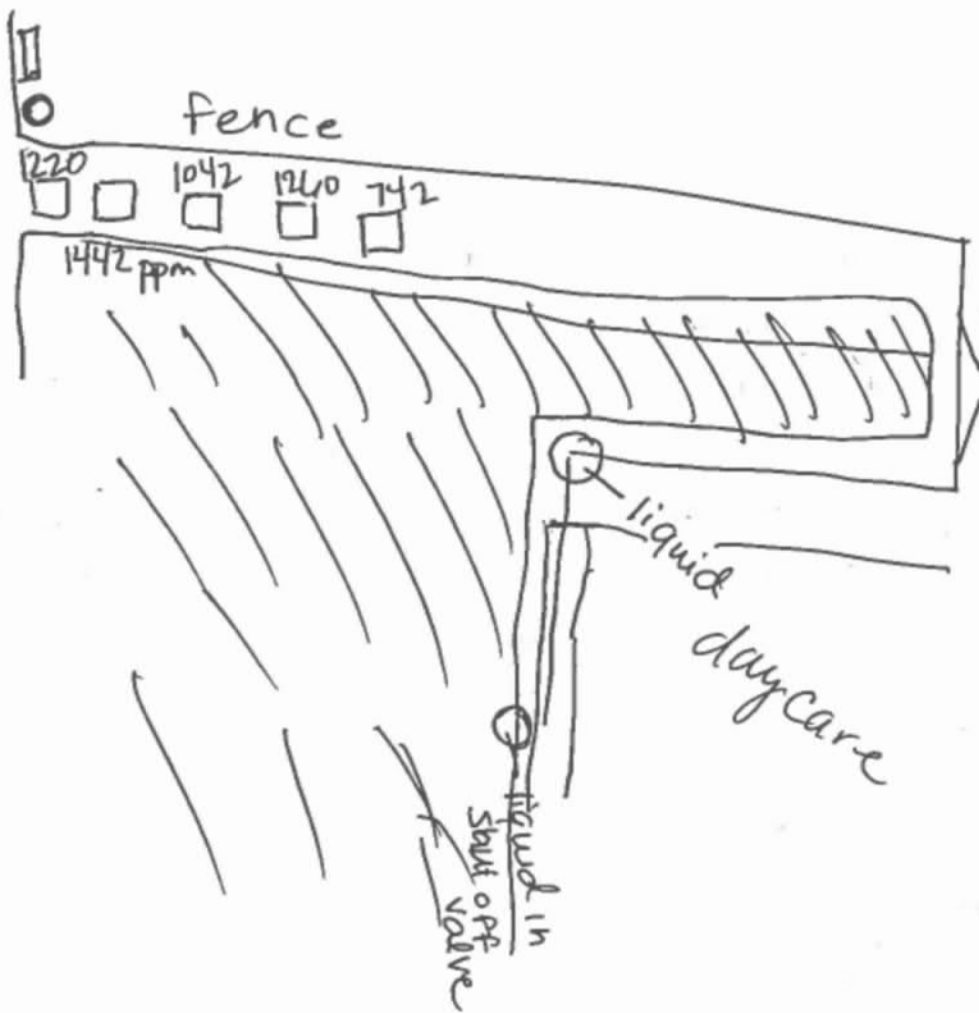
Soil + product sample from trench collected

RW-3 = 11.69' top of water (daycare side of tanks) (close to tanks)

- Barrier, more roll off trucks
- soil screening w/ LEL
- vacuum truck
- interceptors

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



Stopped digging @ 3:33 pm to move dump trailer in position for trenching excavation.



Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

Site Information

pg 1/2

Date: 11/20/18

Site ID #: 11946

Site Name: Broad River Amoco

County: Richland

Project Manager: C. Moores

Field Personnel: C. White

Notes: 11, 1, 4, 6 FP sucked from hole

→ email Bill Woods historical files

and George Mick

Truck driver (w/ no Hazmat endorsement) needs 40 hrs OSHA  
100% on road

10:30 AH-4 - no PID dxn

Storm grate <sup>west side by house</sup> PID rdgs 35 ppm - lite sheen

AH-3 - no PID dxn 2<sup>nd</sup> crawl opening by AH-3 no PID dxn

AH-2 - no PID dxn H<sub>2</sub>O abt 1' down

in front  
of sump

AH-1 no PID dxn

in sump crawl space - significantly better than yesterday  
reading 22 ppm

in Storm drain on South side/corner of property 111 ppm rdg

ODor very strong.

corner storm drain ~~1545~~ high 1747

Play ground area water is clear + free of sheen + odor

A break in the back storm water line w/ FP on ground  
+ 1545 ppm PID

Sand in NE corner of property, strong odor

Vapors coming from hillside 500 ppm along border w/ stn  
nothing <sup>-fluid</sup> at surface on base of hill

11<sup>th</sup> DOT Hazmat determination made on waste transport for playground etc

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

33 LEL rdgs near edge of trench - was highest rdg.

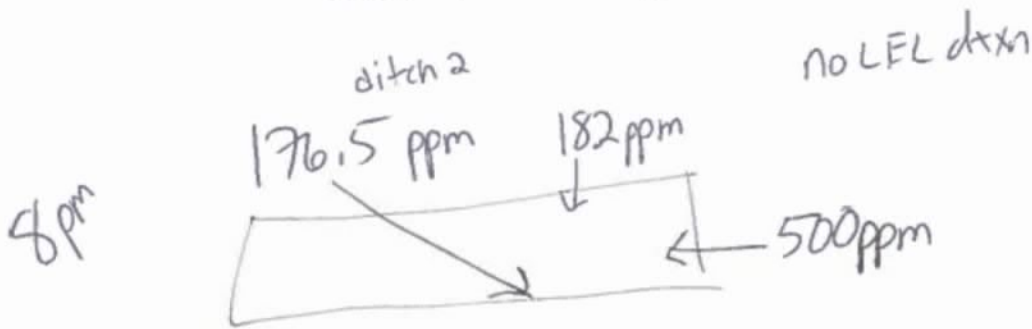
5:55 the back test trench found product  
moving to vacuum it from hole.

To LEL atm

Started vacuuming ditch 2 @ 6:30

7:45 Corie collected sample from ditch 2  
earlier collected samples from MW-5, ditch one, and back stormgrate <sup>(south)</sup>

Planning for overnite - to cover both holes  
Jason the overnite guy will have fire dept # contact in fo



N ↙

Final Rdgs Area  
ditch 1 yet

post vac  
4710  
13% LEL  
571 pp

pre vac  
70% LEL  
in trench (by rd closest to)

195 ppm

6% LEL  
374.8 ppm

Post vac

Final vacuum done on 1st trench before covering enclosed.





Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

Site Information

P2/2

Date: 11/20/18	Site ID #: 11946	Site Name: Broad River Amoco
County: Richland	Project Manager: C. Moores	Field Personnel: C White

Notes: Followed the storm drain from back of property to drainage ditch and found FP in ditch - deployed boom in ditch ahead of FP. the storm drain and ditch had no visible flow.  
Boom deployed @ 12:45 pm

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

pg 1/2

Site Information

Date: 11/21/18	Site ID #: 11946	Site Name: Broad River Annex
County: Richland	Project Manager: C. Moores	Field Personnel: C. White

Notes: 25 gal of Fp in truck - globs 577 total gal in truck  
this morning

→ Auger holes behind / back (SE) side of strn where odore

→ Abt Noon - 1 GPR coming on site

OSHA onsite - we are waiting on them to put monitors on contractors

0930 Auger holes on back side begun - 5 being dug to 5' soil sample collected @ 2', 4' + 5'

Another vac truck arriving at 10:30

0940 → vacuuming out of back hole - OSHA had to bless

A 3rd dig area identified in middle back of property to continue to rmv product

Ryan Calling for permission to plug rear storm drain

10:00 Fence Eqp arrived / staging

At IE had pro PID dtxns, no odor no staining, clean soil

1100 FP vacuumed from ditch 2

1116: 3.5" product in ditch 2

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

pg 2/2

Site Information

Date: 11/21/18	Site ID #: 11946	Site Name: Broad River Rd
County: Richland	Project Manager: C. Moores	Field Personnel: C. White

Notes: Talked w/ Tom abt rel 2 being in my name / or assmt  
He has written an assesment for rel 2 - Stephanie to  
rvw and sign

Talked to Faris (ARM) abt <sup>getting updated</sup> cost estimates for what has been done  
and the work that will be done. Once soil borings + GPR  
data collected will know more about the work that will need  
to be done

12:30 2<sup>nd</sup> vacuum truck

14:00 Spoke w/ sewer utility rep. Albert Little

Need to stop the FP before the <sup>back</sup> sewer grate since that drains  
everything upgradient to Broad River Rd

14:30 Back small trench dug to cut corr. drain from back sewer grate

16:15 GPR arrived → going to delineate the <sup>known/suspected</sup> path lines

INFO: old tanks supposedly removed

88-89 old stn demolished

(Contractor going to lock up site tonite before leaving)

Trench A is being leveled out + extended

5:00 Trench A is complete / TMW-3 complete

5:30 GPR still going in playground area and pathways of the  
sump area + water base area to back of property found

and also a graveled area in old septic mark-in area south  
of monument bench (<sup>btwn</sup> near sump crawl space + bb court)

5:35 covering trenches and plugging drain corr. pipe nr rear drain southside.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

-UST Field Data Information Sheet – Notes

-Purpose of the form is to record information gathered during a field activity

-DHEC UST Project Managers and Field Staff

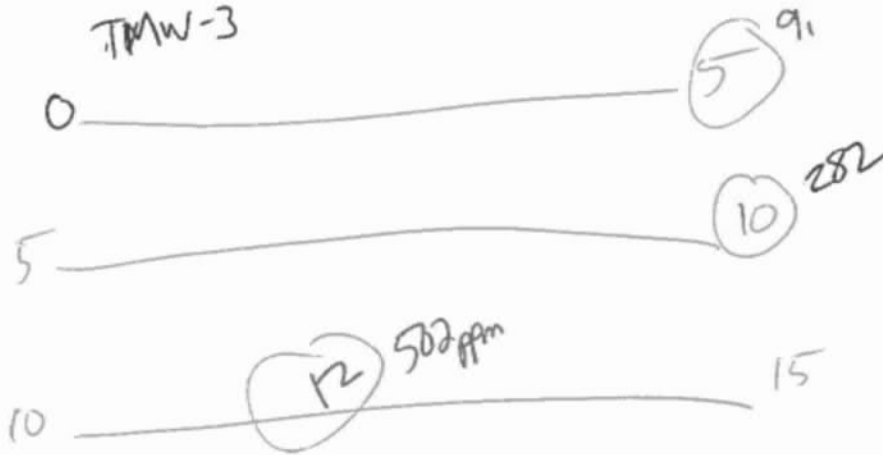
-Item-by-item instructions for completing the form:

Fill in all Site Information boxes

Record any applicable notes

Sign and date the form

-Form is scanned and saved electronically; Record Group Number 169, Retention Schedule 10304

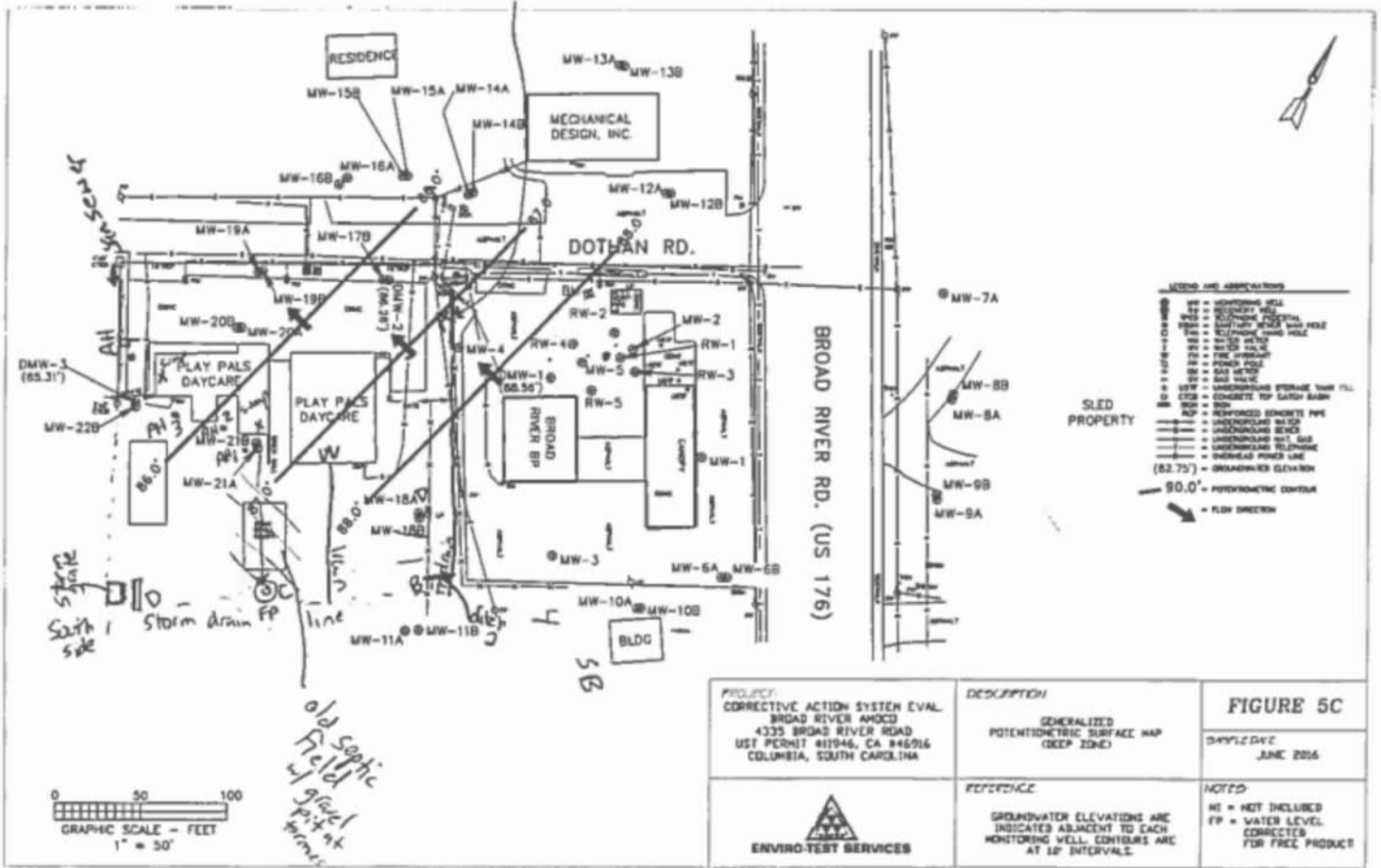


3 will be screened  
10' screen



1/20/18

1st trench



14:30 FP being pulled from hole - just begun

GPR to look for gravel pit

mWA

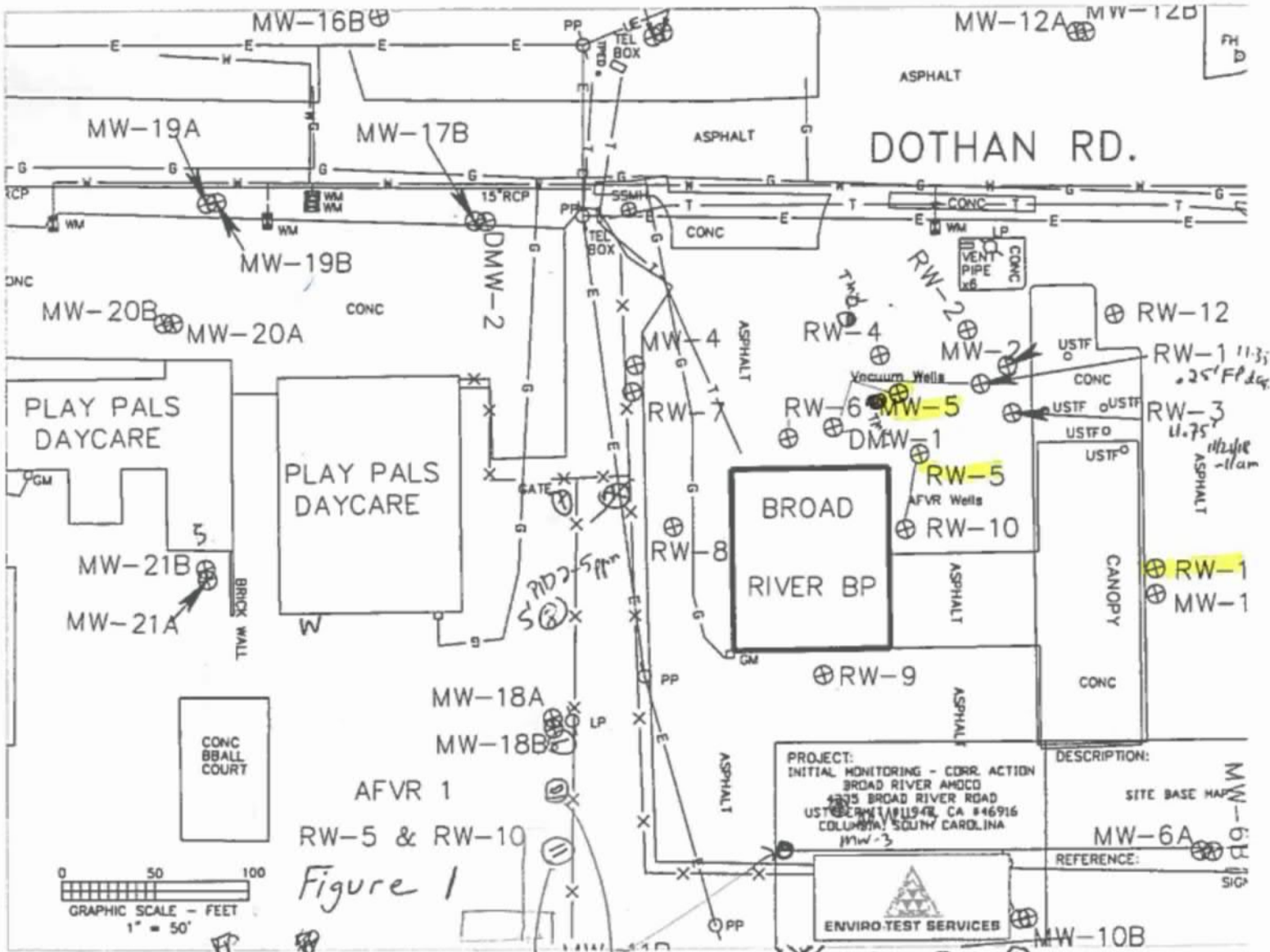
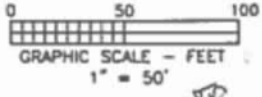


Figure 1

PROJECT: INITIAL MONITORING - CORR ACTION  
 BROAD RIVER AMOCO  
 1325 BROAD RIVER ROAD  
 UST 06111948, CA #46916  
 COLUMBIA, SOUTH CAROLINA  
 MW-3

DESCRIPTION:  
 SITE BASE MAP  
 MW-1-9  
 REFERENCE:  
 MW-6A  
 MW-10B



AD  
 495 ppm  
 Pass FP  
 in Angle  
 downing  
 1400  
 11/2/13

Foot Sand

① E  
 PH  
 no odor

TMW-1  
 TMW-2  
 TMW-3



Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

pg 1/2

Site Information

Date: 11/26/18	Site ID #: 11946	Site Name: Broad River Amoco
County: Richland	Project Manager: C. Moores	Field Personnel: C. White Ed. Mendenhall

Notes: 11:15 arrived onsite trench being filled w/ per gravel  
spoke w/ Ronnie & Terry abt air quality readings inside buildings

2nd trench At west end of trench is where FP is coming into trench - last sucked down  
abt 8:am and it is filled again so 3-4 hrs to fill again  
Middle back yard is water - no visible FP in hole or trench  
Stummy water

no visible product in trench 4 - muddy water  
and clear water no FP in sump area

More AQ will be

Goals - complete soil boring in back yard & around bldg 4-5'  
collecting 2' 4' 5' intervals & PID screening  
o borings by french drain area

Trench 1 done w/in the hr (w the lines)

More excavation on trench 2 (or B) area

1149 Sunday

1317 gal product this morn 8:15

MW-5 has 2' FP 12:30 - was bailed dry ~ 8am

TMW-2 - FP - abt 1' (was actively draining) - pic shows less

TMW-1 - FP - was darker & than 2

TMW-3 - FP ~ 1.5' color more matching to 2 - liter than  
" tiny ~ 1' water at bottom

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

-UST Field Data Information Sheet - Notes

-Purpose of the form is to record information gathered during a field activity

-DHEC UST Project Managers and Field Staff

-Item-by-item instructions for completing the form:

Fill in all Site Information boxes

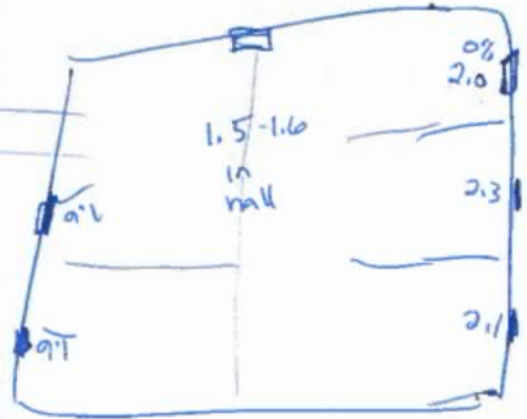
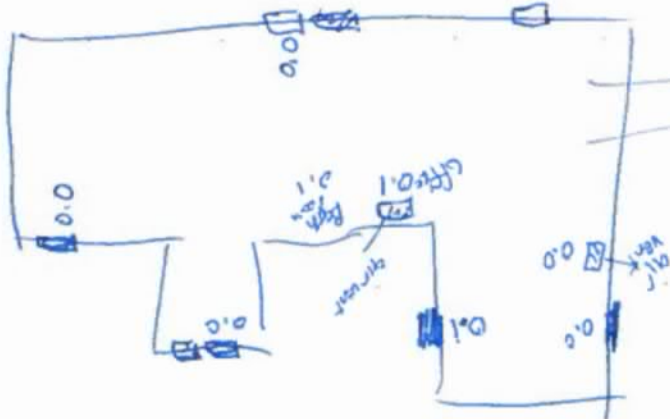
Record any applicable notes

Sign and date the form

-Form is scanned and saved electronically; Record Group Number 169, Retention Schedule 10304

windows are cracked  
in bldg  
in ppms

Readings w/  
Joe Goings



he will read again  
tonite.





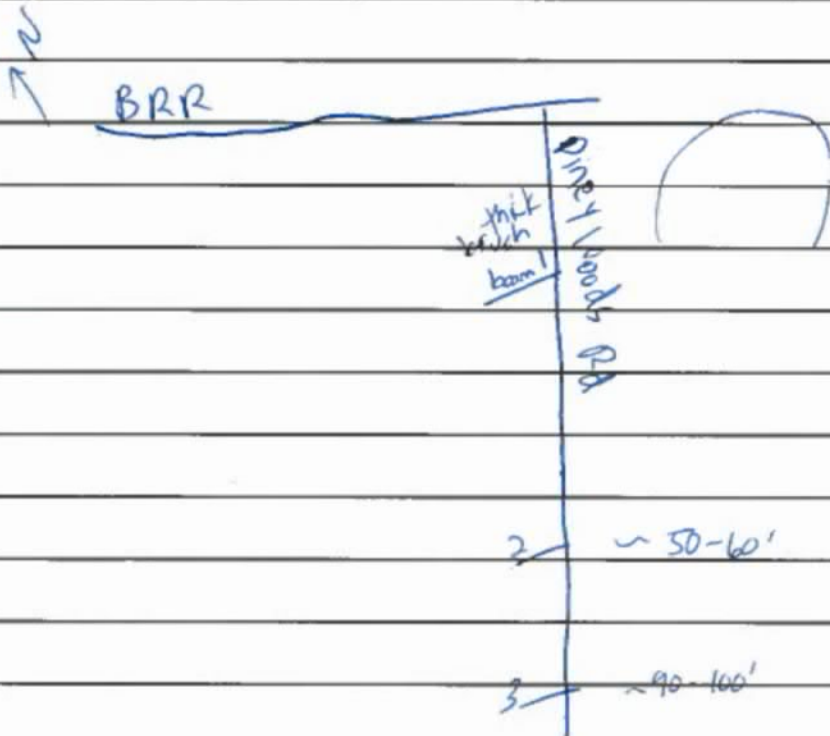
Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

pg 2/2

Site Information

Date: 11/26/18	Site ID #: 11946	Site Name: Broad River Amoco
County: Richland	Project Manager: C. Moores	Field Personnel: C. White Eck Mendenhall

Notes: 10A 7.5-17.5' screened. no odor  
no FP clean  
mw-3 odor - FP - dark abt 4"  
Checked Rolling Pines drainage ditch 3 booms  
1st boom had soaked FP and some FP past it btwn 1st & 2nd  
2nd & 3rd no staining no odor no sheen  
The FP at most abt 30-40' past 1st boom



Signature: \_\_\_\_\_

Date: \_\_\_\_\_



November 12, 2018

Carolyn Moores, Hydrogeologist  
Underground Storage Tank Management Division  
Bureau of Land and Waste Management  
South Carolina Department of Health and Environmental Control  
2600 Bull Street  
Columbia, South Carolina 29201



Re: Groundwater Sampling Assessment  
Broad River Amoco  
4335 Broad River Road, Columbia  
Richland County, South Carolina  
UST Permit #11946; CA #57806

Dear Ms. Moores;

Enviro-Test Services, Inc. (ETS) has completed a comprehensive groundwater sampling event at the Broad River Amoco site located in Columbia, South Carolina. The pertinent information regarding this assessment, including conclusions, is presented on the following pages and in the attached Figures, Tables, and Appendices.

Based on the analytical data collected during this sampling event, it is apparent that free-phase petroleum product is again present in one of the monitoring wells and three of the recovery wells associated with the release. At the time of this assessment, the contaminant plume was defined horizontally.

If you should have any questions regarding the results of this assessment, or should you need additional information, please do not hesitate to contact our office.

Sincerely,  
Enviro-Test Services, Inc.  
Contractor Certification #14

Michael L. Faris, P.G. (#2379)  
Hydrogeologist



Terry L. Teate  
President, Sr. Project Manager

cc: Fredrick Cecchini

## **Background**

The subject site is located in northwest Richland County in Columbia, South Carolina and is situated on the southwest side of Broad River Road, a five-lane local thoroughfare. The site is comprised of approximately 0.85 acres and is currently owned and operated as a petroleum retail facility, convenience store and restaurant (Broad River BP).

A 1939 aerial photograph from the Richland County Geographic Information System (GIS) shows that the subject property was utilized for agriculture and was partially wooded. Broad River Road appears as a two-lane road. Information available through the Richland County Assessor's Office indicates the property was owned by B.O. Derrick in 1955 and a 1959 aerial photograph indicates that the property had apparently been developed as a petroleum retail facility. Subsequently, the property was acquired by Associated Oils of South Carolina, Inc. in February 1988, and the previous UST system (B.O. Derrick) was properly closed, as reported to the SCDHEC in 1989. Reportedly, the closure included proper abandonment by removal of one 2,000-gallon UST and one 3,000-gallon UST. Additionally, the property redevelopment activities of 1988 and 1989 reportedly included the demolition of pre-existing structures and construction of the current store building, dispenser islands and UST system. Subsequently, the property was acquired by Mr. Frederick N. Cecchini in June 1997. In July 2018 Mr. Cecchini sold the property to the current owner, Broad River C-Store, LLC, whose mailing address is 41 Cromwell Ct., Irmo, SC 29063.

UST #	Product	Date Installed	Currently in use (Yes or No)	If not in use, Date Removed
1	Diesel (3,000 gallon)	1989	Yes	-
2	Gasoline RUL (3,000 gallon)	1989	Yes	-
3	Gasoline RUL (3,000 gallon)	1989	Yes	-
4	Gasoline (3,000 gallon)	(?)	No	1989
5	Gasoline (2,000 gallon)	(?)	No	1989
6	Gasoline RUL (8,000 gallon)	1989	Yes	-
7	Gasoline Super (8,000 gallon)	1989	Yes	-
8	Kerosene (1,000 gallon)	1989	Yes	-

Reportedly, no soil samples were collected for analysis at the time of proper abandonment of the previous UST system as reported to SCDHEC in 1989.

In December 2010, a Phase II Subsurface Investigation was performed by Partner Engineering and Science, Inc. of El Segundo, California. The Phase II investigation included the installation of four soil borings and a Temporary Monitoring Well Permit (Approval No. 4053) was obtained from the SCDHEC for the purpose of groundwater sample collection. The soil borings extended to terminal depths of 26 feet below land surface (BLS) utilizing direct push penetration technology with continuous soil sample collection. Drilling refusal was encountered in all four soil borings before groundwater was encountered; therefore, no groundwater samples were collected for laboratory analysis. Eight soil samples (two from each soil boring) were submitted for laboratory analysis for Volatile Organic Compounds (VOC) and Polynuclear Aromatic Hydrocarbons (PAH). The laboratory analytical results indicated the detection of various VOC and PAH chemical compounds at concentrations deemed reportable to the SCDHEC.

An Initial Groundwater Assessment (IGWA) was completed by Enviro-Test Services, Inc. during January, 2011 and an IGWA report was submitted on February 4, 2011. On January 20, 2011, the soil boring for monitoring well MW-1 was installed. The soil sample from the 10 to 15 feet sampling interval yielded the highest PID reading of 1,782 ppm and accordingly was submitted for laboratory analysis for BTEX, MTBE, naphthalene, PAH and lead. Moderately elevated concentrations of toluene, ethylbenzene, xylenes and naphthalene were detected in the soil sample. Saturated sediments were encountered at the depth interval of 35 to 40 feet below grade level (BGL). As such, monitoring well MW-1 was installed to a depth of 40 feet BGL and was screened from 40 to 20 feet BGL. On January 21, 2011, a groundwater sample was collected from monitoring well MW-1 and laboratory analysis for BTEX, naphthalene, MTBE, PAH and lead was performed. The depth to groundwater in monitoring well MW-1 was measured from the top-of-casing to be 20.92 feet. The groundwater sample yielded COC concentrations as follows: benzene (929 ug/l), toluene (10,300 ug/l), ethylbenzene (684 ug/l), MTBE (243 ug/l) and naphthalene (922 ug/l). Following review of the IGWA report, the SCDHEC requested a Tier I Assessment in correspondence dated February 7, 2011.

Field activities for the Tier I Assessment were commenced on February 24 and 25, 2011 with the completion of soil borings SB-1 through SB-9. Laboratory analysis of soil samples for BTEX, MTBE and PAH yielded elevated concentrations of benzene and naphthalene above RBSL in soil borings SB-1 (10 ft), SB-2 (5 ft), SB-3 (8 ft) and SB-5 (6 ft) which were installed proximal to the existing UST basin (SB-1 and SB-2) and product pipeline/dispenser islands (SB-3 and SB-5). Monitoring wells MW-2, MW-3 and MW-4 were completed on February 25, 2011 and were subsequently sampled on March 5, 2011. Laboratory analysis of the groundwater samples yielded concentrations of



benzene as follows: MW-1 (1,760 ug/l), MW-2 (1,650 ug/l), MW-3 (9.93 ug/l) and MW-4 (1,830 ug/l). Additionally, concentrations of MTBE were also detected in wells MW-2 (3,420 ug/l) and MW-4 (3,100 ug/l). Naphthalene by EPA method 8260 was detected in wells MW-1 (4,070J ug/l), MW-2 (462J ug/l) and MW-4 (598 ug/l). Also, elevated concentrations of toluene were detected in wells MW-1 (16,400 ug/l) and MW-2 (3,230 ug/l) and ethylbenzene in wells MW-1 (1,270 ug/l) and MW-4 (1,270 ug/l). A Tier I Assessment Report was submitted to SCDHEC on April 8, 2011. Subsequent to review of the Tier I Assessment Report, the Technical Project Manager and Section Manager, as applicable, expressed concern regarding the depth of the screened interval of each monitoring well in relation to the measured groundwater levels due to the fact that none of the monitoring wells were bracketing the water table of the site surficial aquifer.

Enviro-Test Services, Inc. stated that during soil boring and monitoring well installations no saturated sediments were encountered until the 35 to 40-ft depth interval of drilling at each well location; therefore, the monitoring wells were installed at depths somewhat deeper than preferable. Also, during drilling activities for installation of monitoring well MW-4, where elevated COC's were later detected in the March 5, 2011 groundwater sample, no petroleum hydrocarbon odors or elevated PID readings were noted to be present in apparent vadose soils; however, upon encountering saturated soils at approximately 35 feet, strong odors and elevated PID readings were readily apparent. Consequently, the Technical Project Manager decided that an additional monitoring well (MW-5) should be installed at a shallower, bracketing depth to determine the availability of groundwater for sample collection in what appeared to be unsaturated, vadose soils. Accordingly, on May 27, 2011 monitoring well MW-5 was installed to a depth of 20 feet, with a 10-ft screen at a location adjacent to the north corner of the existing convenience store building. The infiltration of groundwater was noted to be exceedingly slow; as such, groundwater was allowed to seep into the well casing for several days. On June 3, 2011, the depth to groundwater was measured at 13.80 feet and free product (gasoline) of a degraded appearance was measured at 13.68 feet (a free product thickness of 0.12 feet). Again, on June 20, 2011, depth to the groundwater was measured at 14.05 feet and free product at 13.75 feet (a free product thickness of 0.30 feet). These findings were submitted to the DHEC Project Manager on June 20, 2011.

Based on the results of the Tier I Assessment, a Tier II was requested. The Tier II was completed in 2013, with a report dated May 28, 2013, and the horizontal and vertical extent of the contaminant plume was delineated. Corrective Action

conducted at the site since the Tier II has consisted of a series of Aggressive Fluid Vapor Recovery (AFVR) events. This site is currently in the corrective action section of the UST Program in order to continue to remove the free-phase product associated with the release and monitor the dissolved-phase contaminant plume.

The subject property is bounded by Broad River Road to the northeast, then by the South Carolina Law Enforcement Division (SLED). The adjacent property to the southeast is a nail and beauty salon. The adjacent property to the southwest is commercially utilized as a nursery school and day care (Play Pal Day Care). The Play Pal Day Care facility encompasses two properties fronting Dothan Road. The subject property is bounded to the northwest by Dothan Road and a commercially utilized property beyond (MDC Associates, an apparent mechanical engineering firm). The commercial usage of the subject property and adjacent properties is expected to remain the same in the future.

### ***Site Geography***

In general, the site is located on the west side of a topographically ridge extending southeast to northwest. Broad River Road lies at or near the crest of the apparent topographic ridge. Storm water runoff on the east side of the ridge ultimately flows into the Broad River located approximately 2 miles east of the site. On the west side of the ridge, storm water runoff flows toward Stoop Creek located approximately 1,650 feet to the southwest (near the southwest dead end of Dothan Road). From this point, Stoop Creek flows southward approximately 2.6 miles before emptying into the Saluda River.

In the general vicinity, numerous surface water features are evident on the USGS topographic map including several unnamed creeks (apparently spring fed) and several small to medium-sized surface water impoundments. In relative close proximity to the site, three surface water features are apparent on the west side of the topographic ridge and three on the east side of the topographic ridge. These surface water features are visibly apparent of Figure 1, a topographic site location map. On the west side of the topographic ridge, located approximately 1,430 feet to the northwest is a small pond with an estimated surface elevation of 265 feet MSL, approximately 1,680 feet to the southwest is the aforementioned Stoop Creek (estimated surface elevation of 233 feet MSL) and approximately 2,370 feet to the south-southeast is an apparent spring-fed creek (estimated surface elevation of 252 feet MSL at depicted point of emergence).

On the east side of the topographic ridge, located approximately 1,240 feet to the northeast is an apparent spring-fed creek (estimated surface elevation of 248 feet MSL at the depicted point of emergence), approximately 1,820 feet to the east-northeast is an apparent spring-fed creek (estimated surface elevation of

230 feet MSL at the depicted point of emergence) and approximately 2,480 feet to the southeast is an apparent incised, spring-fed creek (estimated surface elevation of 235 feet MSL at the depicted point of emergence). Estimated surface elevations were obtained via the Richland County GIS utilizing a topographic option depicting contour intervals of two feet. For purposes of estimation, the depicted contours are deemed to be reasonably reliable.

According to the USGS Topographic Quadrangle Map of *Columbia North, South Carolina*, dated 1972 and revised in 1990, the elevation of the site is approximately 275 feet above mean sea level (MSL). The topography surrounding the site is relatively flat toward the north and east, but slopes downward toward the west/southwest. The topography in the general vicinity of the site slopes downward toward the west/southwest. A Topographic Site Location Map is included as Figure 1. A Site Base Map is included as Figure 2.

### ***Regional Geology and Hydrogeology***

The Broad River Amoco (BP) lies within the Lower Piedmont Physiographic Province in close proximity and northwest of the contact zone, the "fall line", with the Upper Coastal Plain Physiographic Province. The dominant rock types of the general area are related to the Carolina Slate Belt and specifically the Precambrian to Early Cambrian, Persimmon Fork Formation which is comprised primarily of green-gray to blue-gray, moderately metamorphosed, felsic volcanic (metavolcanic) tuffs and to a lesser extent mafic metavolcanic tuffs. These rocks occur as very weathered to moderately weathered outcrops in the site study area and are most often visible at areas of excavation related to road and building construction.

In the general vicinity, the uppermost aquifer generally occurs under unconfined conditions and receives water from precipitation, which infiltrates the unsaturated surface soils and migrates downward to the saturated zone. Underlying the uppermost aquifer is the fractured bedrock aquifer in which groundwater occurs in fractures, joints and faults. The fractured bedrock aquifer is often an important water resource for rural residences and commercial and light industrial properties at areas where municipal water supply is unavailable or unfeasible. Well yields are typically 1 to 350 gpm in the crystalline and metamorphic rocks with the larger yields located in areas of intensely fractured metamorphic rocks.

### ***Site Geology and Hydrogeology***

Based on the data collected during the Tier I and Tier II Assessments, it is apparent that groundwater can be found in several stratified layers or zones at the site. The most shallow water encountered at the site, other than perched water within the first five feet of the surface was generally found between 15' - 20' below ground level. This shallow water was very slow to accumulate in the boreholes. Typically it took at least several days to over a week for the water levels to come to equilibrium. It is likely that this most shallow water is present in small volume in the sandy clayey silt due to localized recharge, perching, and soil capillarity. The soils become more clayey (a silty clay) and mostly dry beginning at approximately 25' bgl. The second layer or zone of water encountered in the subsurface was typically found at an approximate depth of 35'-40'. The water in this second water-bearing zone was under significant hydraulic pressure and immediately entered the boreholes and rose upward many feet in the boreholes/wells.

The two layers of water are clearly connected as contamination has been identified at both depths during this Tier II investigation. There appears to be an aquitard comprised of mostly dry silty clay (with a small % of sand) between the two above-described zones of water across the area of study. Because the contaminants have been identified at both depths in and near the source area, there clearly is transmissivity between the two layers. Therefore, the silty clay is not considered a true aquiclude, but is acting at least as a partially confining unit.



## ***Summary of Findings***

### ***Gauging***

On October 3, 4, and 5 ETS personnel conducted a comprehensive groundwater sampling event at the site. Monitoring wells MW-19B, MW-20A, and MW-20B were inaccessible. On October 24 ETS personnel returned to the site and conducted sampling on MW-19B, MW-20A, and MW-20B. Each monitoring and recovery well associated with the release was located and gauged for static fluid levels. Prior to the initiation of any gauging, purging or sampling activities, clean plastic sheeting was placed on the ground surface around each well in order to provide a clean work area. Each well was opened and gauged with a decontaminated electronic water level indicator to the nearest 0.01-foot. Fluid levels and total depths of the monitoring wells were recorded on field data sheets in indelible ink. MW-13A and MW-15A were found to be dry during this assessment. MW-19A has been destroyed.

Groundwater flow direction(s) of the water table aquifer and second water bearing zone were determined to be generally toward the northwest, north, east, and south in a radial pattern from the source area outward. The current potentiometric data are summarized in Table 2. A Generalized Potentiometric Surface Map, displaying groundwater elevations at each sampled well and groundwater flow directions for the water table aquifer is included as Figure 5A. Potentiometric maps of the second water bearing zone and deep zone are included as Figures 5B and 5C, respectively.

### ***Purging***

The wells were purged with a low flow peristaltic pump with disposable tubing. Prior to purging, the well volumes were calculated using the diameter of the well, the static water level and the total depth of the well. The flow rate of the peristaltic pump remained low in order to minimize agitation of the water column.

Temperature, pH, specific conductivity, dissolved oxygen, and turbidity were measured and recorded throughout the purging process and purging continued until these parameters stabilized, typically in three to five well volumes. Stabilization occurs when pH measurements remain constant within 0.1 Standard Unit (SU), or reproducible to within 0.1 (SU), specific conductance varies no more than 5 percent, the temperature is constant for at least three consecutive readings and the turbidity has stabilized. Wells purged to dryness were considered sufficiently purged.

Samples were collected immediately after the purging process was complete. Prior to commencement of purging, the purging meters were calibrated according to manufacturer's specifications. Also, the meters' calibration was checked mid-way through and after the purging activities. The calibration checks indicated that the meters remained calibrated within the acceptable ranges of the meters' standards throughout the purging activities. The purging data were recorded on field data sheets in indelible ink. The Purge Meter Calibration Data Sheets and Monitoring Well Purging Data Sheets are included in Appendix B.

### ***Groundwater Sampling***

Groundwater samples were collected from monitoring wells MW-1 through MW-5, MW-6A, MW-6B, MW-7A, MW-8A, MW-8B, MW-9A, MW-9B, MW-10A, MW-10B, MW-11A, MW-11B, MW-12A, MW-12B, MW-13B, MW-14A, MW-14B, MW-15B, MW-17B, MW-18A, MW-18B, MW-19B, MW-20A, MW-20B, MW-21A, MW-21B, MW-22B, DMW-1, DMW-2, and DMW-3, as well as recovery wells RW-2, RW-3, RW-4, and RW-7 through RW-12. Each sample was placed into pre-labeled, laboratory-prepared sample containers utilizing a low flow peristaltic pump with disposable tubing via the straw method.

Purging parameters were again measured and recorded immediately after sample collection at each well. In order to further ensure sample integrity, samples were immediately placed on ice in an insulated cooler upon collection and entered into chain of custody. A field blank was collected at the completion of each day of sampling activities. A laboratory-prepared trip blank was included with each insulated sample cooler to ensure cross-contamination did not occur between the collected groundwater samples. Duplicate samples were collected from four wells: RW-8 (Duplicate 1), MW-21B (Duplicate 2), DMW-3 (Duplicate 3), MW-20B (Duplicate 4).

The groundwater samples were submitted to Shealy Laboratory, Inc. and a South Carolina certified laboratory for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, methyl tertiary-butyl ether (MTBE) and 1,2-dichloroethane (1,2-DCA) by EPA method 8260B, as well as for EDB by EPA method 8011.

Groundwater samples were also analyzed for the following eight oxygenates: di-isopropyl ether (DIPE), ethanol, ethyl tert-butyl alcohol (ETBA), ethyl tert-butyl ether (ETBE), tert-amyl alcohol (TAA), tert-amyl methyl ether (TAME), tert-butyl alcohol (TBA) and tert-butyl formate (TBF). The samples were also analyzed for nitrate, sulfate, ferrous iron, and methane.

The laboratory analytical results from this assessment (current) are tabulated in Table 3. Results from previous groundwater sampling events are tabulated with

the data from this assessment (current and historical) in Table 4. CoC detected at concentrations above the RBSLs established by SCDHEC are indicated in bold type. The complete laboratory analytical results, including chain-of-custody documentation, are included as Appendix B. A Groundwater CoC Site Map, indicating the October 2018 CoC concentrations in the groundwater at each monitoring well, is included as Figure 4.

### ***Disposal***

A total of 104 gallons of contaminated purge water and decontamination fluids were collected during this assessment. A disposal manifest for the contaminated purge water and decontamination fluids generated are included in Appendix G.

### ***Contractor Checklist***

The SCDHEC QAPP Contractor Checklist is included in Appendix K.

## ***Conclusions***

Based on the data collected during this assessment, it appears that the horizontal extent of the contaminant plume remains defined. However, MTBE remains present at a concentration greater than its RBSL in source area deep monitoring well DMW-1. Downgradient deep monitoring wells DMW-2 and DMW-3 contained MTBE above the limits of quantitation, but were less than the RBSL.

Free-phase product was again detected onsite. MW-5 contained 7.32 feet, and RW-1, RW-5, and RW-6 contained 0.07 feet, 0.52 feet, and 0.08 feet, respectively of free-phase product during this assessment. Additionally dissolved-phase CoC remain present at concentrations above RBSLs in monitoring wells MW-1, MW-2, MW-4, MW-17B, and DMW-1, as well as recovery wells RW-2, RW-3, RW-4, RW-7, RW-8, RW-10, RW-11, and RW-12. No other monitoring wells contained CoC greater than their respective RBSLs. Concentrations of dissolved-phase CoC have decreased in wells MW-1, MW-2, MW-4, and decreased significantly in recovery well RW-2. Concentrations have increased in recovery wells RW-3 and RW-4. It is recommended that AFVR events should continue to be conducted. Groundwater sampling events should be continued in order to monitor natural attenuation and potential downgradient migration of the dissolved-phase contaminant plume.



### ***References***

Maybin and Nystrom, 1997, revised by Willoughby, Howard and Nystrom, 2005.  
Generalized Geologic Map of South Carolina; South Carolina Department of  
Natural Resources Geological Survey.

USGS Open-File Report 2005-1323, Preliminary integrated geologic map  
databases for the United States: Alabama, Florida, Georgia, Mississippi,  
North Carolina, and South Carolina, <http://pubs.usgs.gov/of/2005/1323/>

## **FIGURES**

**Figure 1 – Site Location Map (Topographic)**

**Figure 2 – Site Base Map**

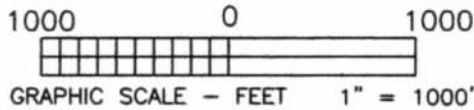
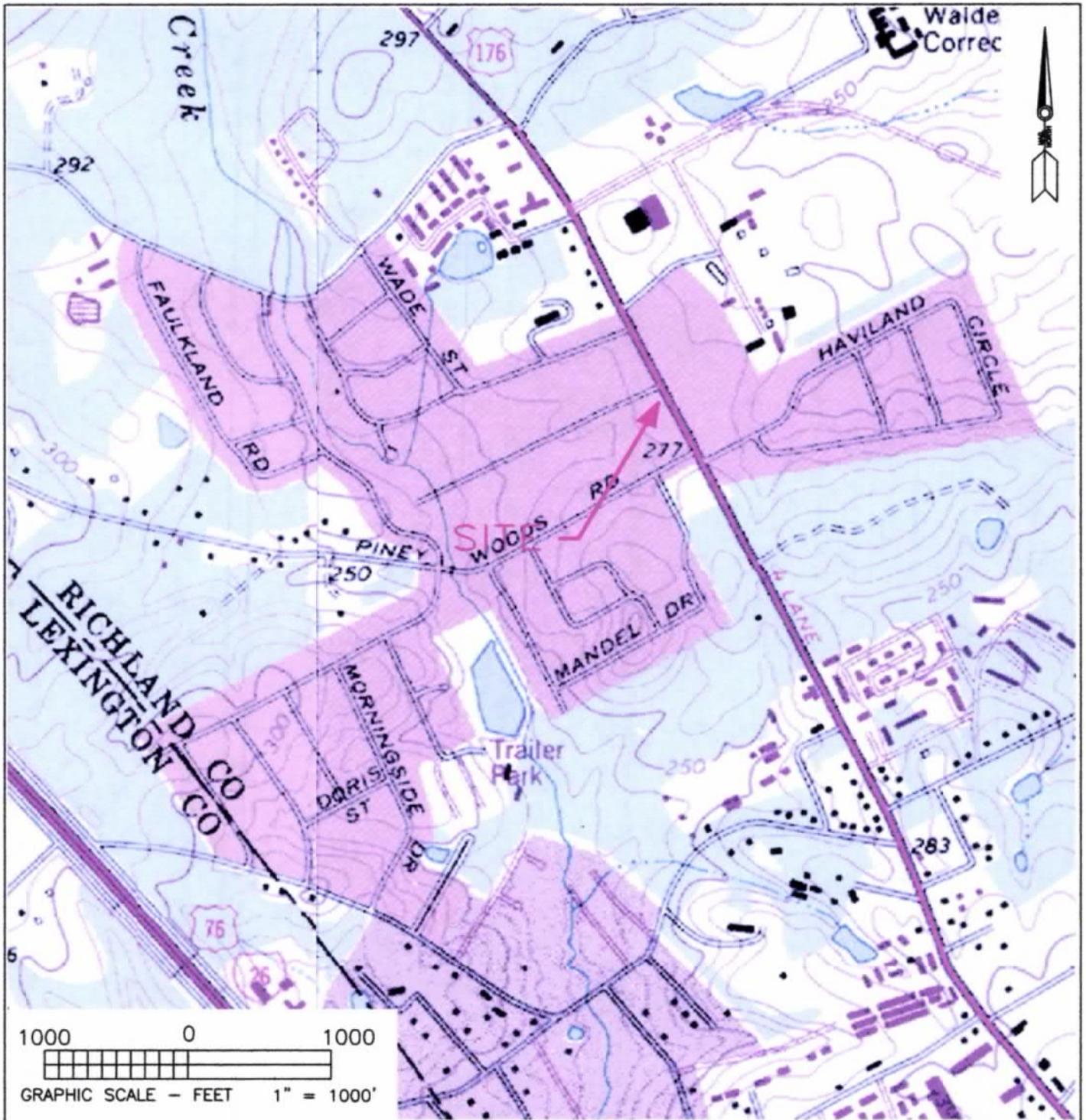
**Figure 3 – Not Included**

**Figure 4 – Groundwater CoC Map**

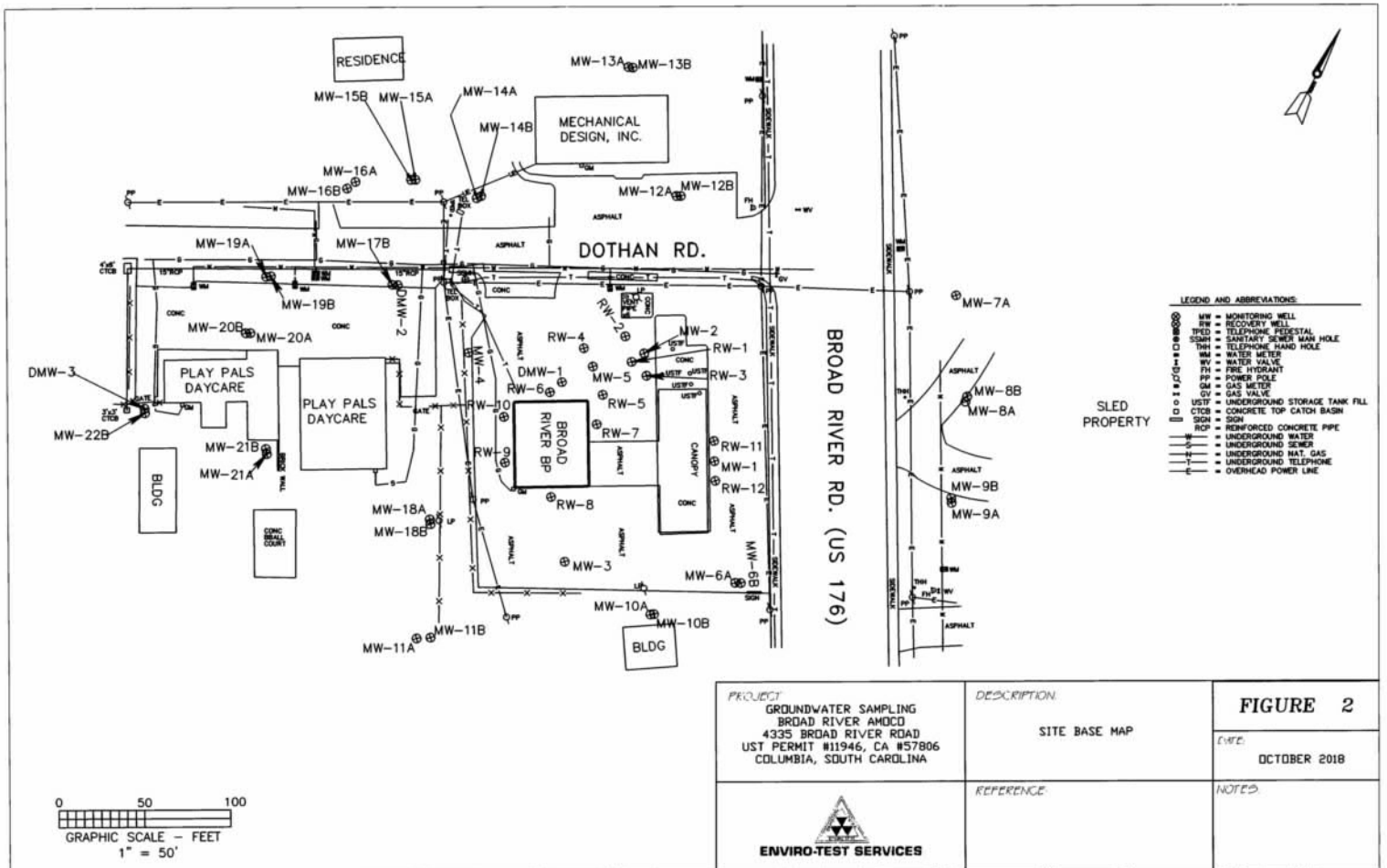
**Figure 5A – Potentiometric Map (Shallow)**

**Figure 5B – Potentiometric Map (Intermediate)**

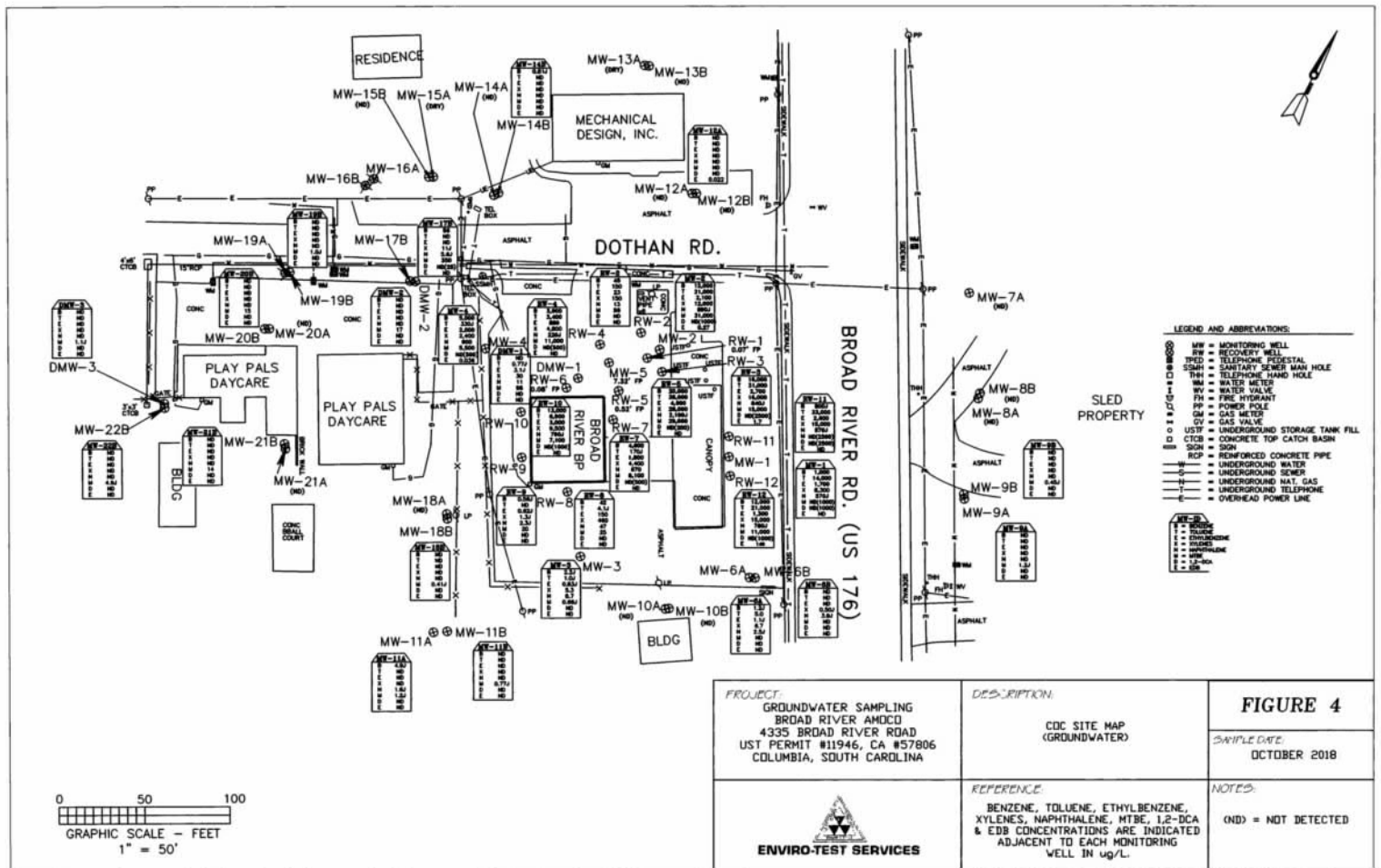
**Figure 5C – Potentiometric Map (Deep)**



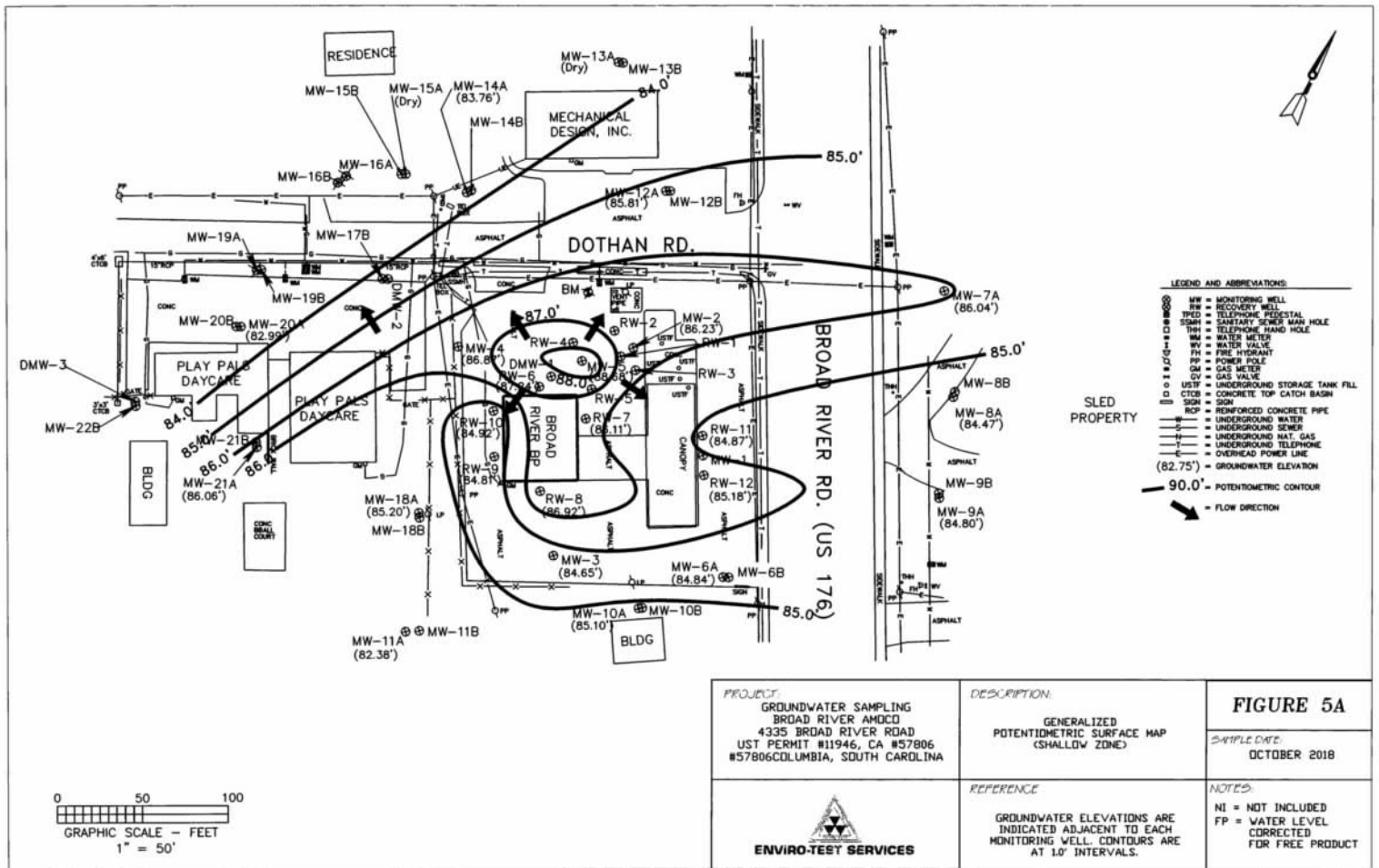
<p>PROJECT:</p> <p>GOUNDWATER SAMPLING          BROAD RIVER AMDCO          4335 BROAD RIVER ROAD          UST PERMIT #11946, CA #57806          COLUMBIA, SOUTH CAROLINA</p>	<p>DESCRIPTION:</p> <p>SITE LOCATION MAP</p>	<p><b>FIGURE 1</b></p> <p>DATE:</p> <p>OCTOBER 2018</p>
<p><b>ENVIRO-TEST SERVICES</b></p>	<p>REFERENCE:</p> <p>U.S.G.S. TOPOGRAPHIC MAP          (7.5 MINUTE SERIES)          COLUMBIA NORTH - 1972, REV. 1990          SOUTH CAROLINA QUADRANGLE</p>	<p>LEGEND:</p>

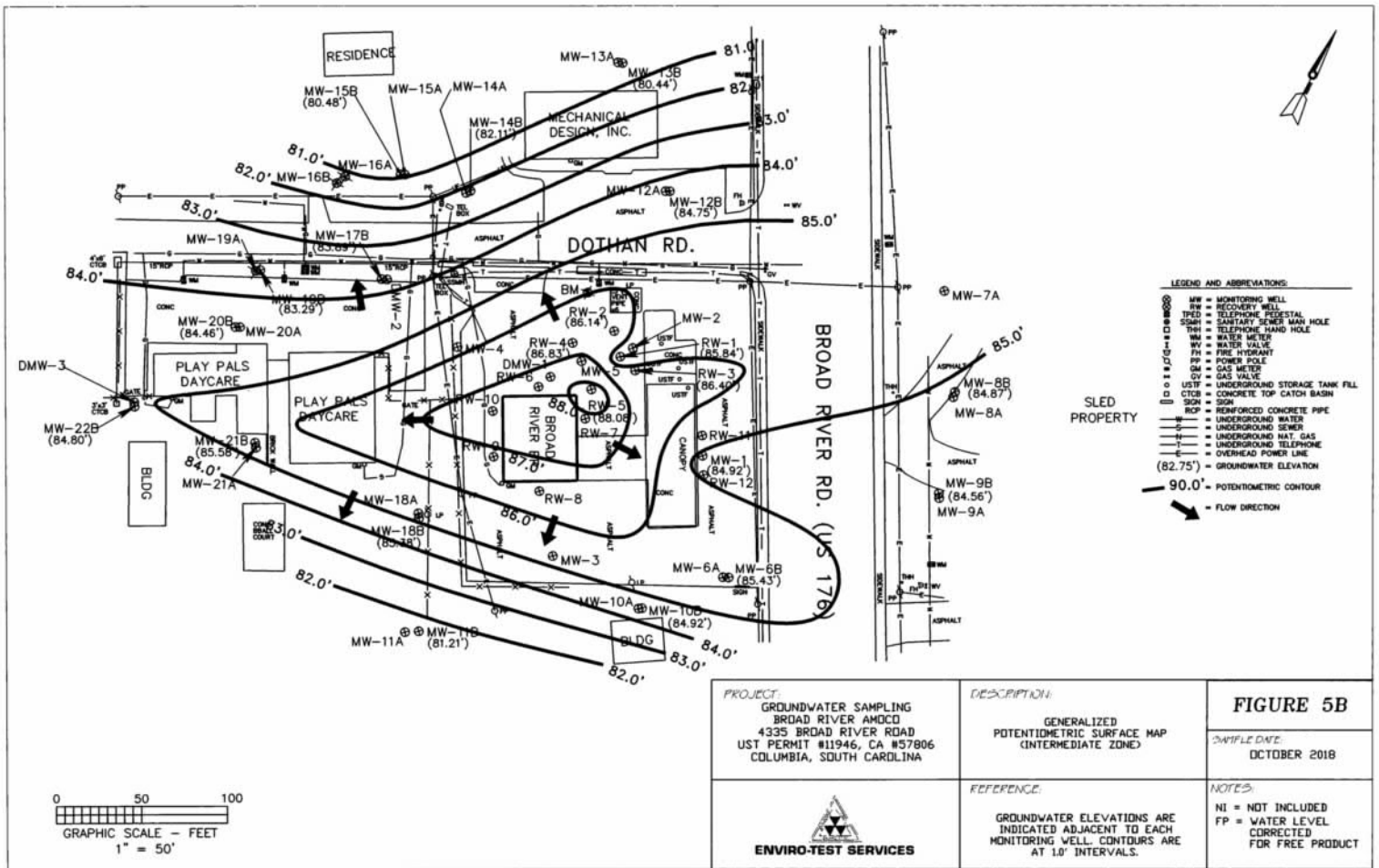


<b>PROJECT:</b> GROUNDWATER SAMPLING BROAD RIVER AMCCD 4335 BROAD RIVER ROAD UST PERMIT #11946, CA #57806 COLUMBIA, SOUTH CAROLINA	<b>DESCRIPTION:</b> SITE BASE MAP	<b>FIGURE 2</b>
	<b>REFERENCE:</b>	<b>DATE:</b> OCTOBER 2018
		<b>NOTES:</b>

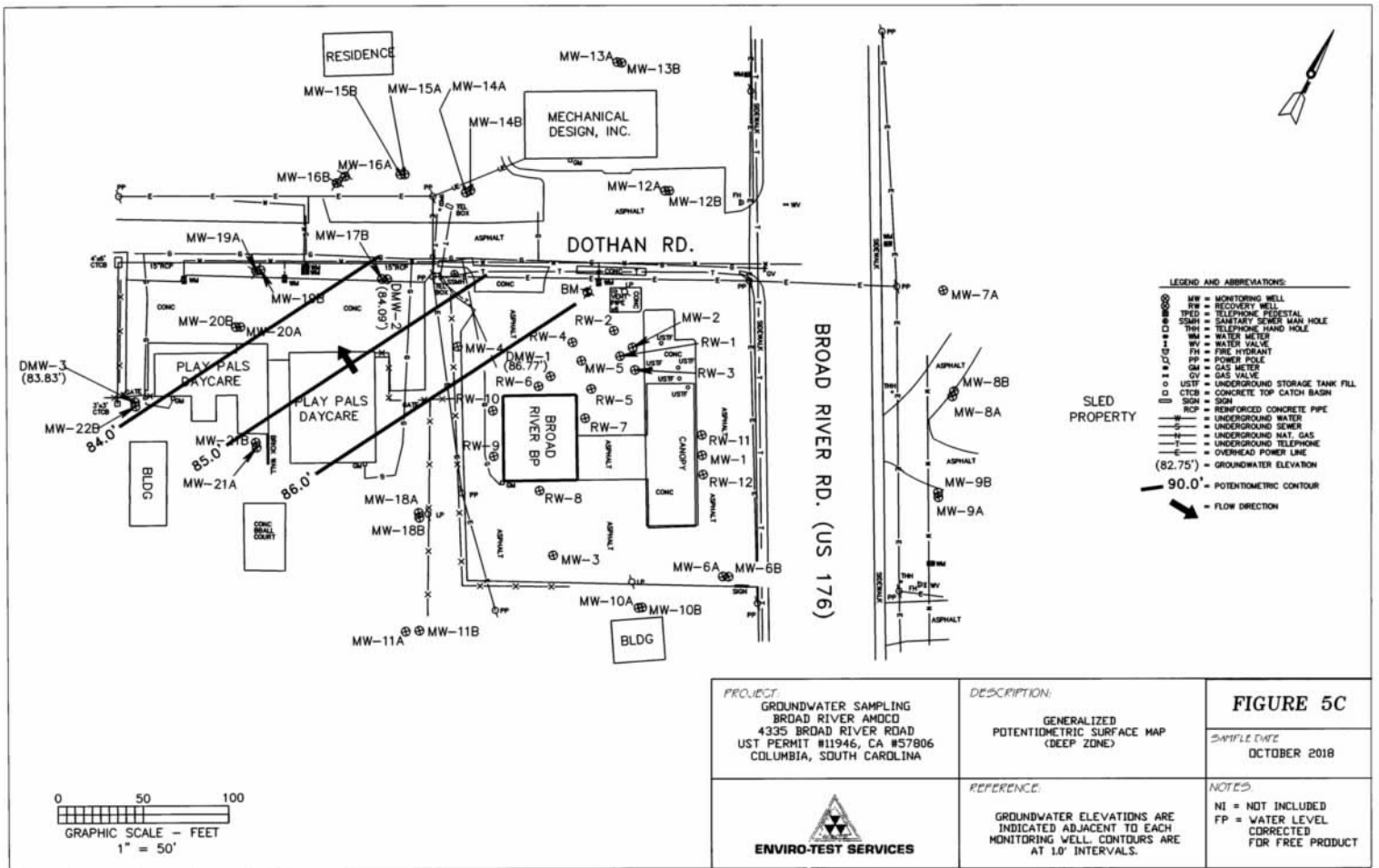












## **TABLES**

**Table 1 – Not Included**

**Table 2 – Potentiometric Data**

**Table 3 – Groundwater Analytical Data (Current)**

**Table 4 – Groundwater Analytical Data  
(Current & Historical)**

## **APPENDICES**

**A. Not Included**

**B. Purging Data Sheets & Laboratory Analytical Data**

**C. Not Included**

**D. Not Included**

**E. Not Included**

**F. Not Included**

**G. Disposal Manifest(s)**

**H. Not Included**

**I. Not Included**

**J. Not Included**

**K. SCDHEC Contractor Checklist**

**Table 2 – Potentiometric Data**  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation* (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
MW-1	1/21/2011	40.0	20.0 - 40.0	101.84	20.92	N/A	N/A	N/A	80.92
	3/5/2011	40.0	20.0 - 40.0	101.84	14.45	N/A	N/A	N/A	87.39
	3/5/2013	40.0	20.0 - 40.0	101.84	18.62	N/A	N/A	N/A	83.22
	3/6/2014	40.0	20.0 - 40.0	101.84	15.90	N/A	N/A	N/A	85.94
	8/5/2015	40.0	20.0 - 40.0	101.84	18.84	N/A	N/A	N/A	83.00
	6/7/2016	40.0	20.0 - 40.0	101.84	13.61	N/A	N/A	N/A	88.23
	9/18/2016	40.0	20.0 - 40.0	101.84	19.78	N/A	N/A	N/A	82.06
	10/3/2018	40.0	20.0 - 40.0	101.84	16.92	N/A	N/A	N/A	84.92
MW-2	3/5/2011	28.0	18.0 - 28.0	101.13	13.50	N/A	N/A	N/A	87.63
	3/6/2013	28.0	18.0 - 28.0	101.13	17.66	16.32	1.34	16.70	84.43
	3/5/2014	28.0	18.0 - 28.0	101.13	11.57	10.15	1.42	10.53	90.60
	8/5/2015	28.0	18.0 - 28.0	101.13	16.44	N/A	N/A	N/A	84.69
	6/7/2016	28.0	18.0 - 28.0	101.13	12.10	N/A	N/A	N/A	89.03
	9/18/2016	28.0	18.0 - 28.0	101.13	17.35	N/A	N/A	N/A	83.78
	10/3/2018	28.0	18.0 - 28.0	101.13	14.90	N/A	N/A	N/A	86.23
MW-3	3/5/2011	31.0	21.0 - 31.0	101.09	13.72	N/A	N/A	N/A	87.37
	3/6/2013	31.0	21.0 - 31.0	101.09	17.94	N/A	N/A	N/A	83.15
	3/7/2014	31.0	21.0 - 31.0	101.09	11.57	N/A	N/A	N/A	89.52
	8/5/2015	31.0	21.0 - 31.0	101.09	N/A	N/A	N/A	N/A	N/A
	6/7/2016	31.0	21.0 - 31.0	101.09	13.23	N/A	N/A	N/A	87.86
	9/18/2016	31.0	21.0 - 31.0	101.09	19.20	N/A	N/A	N/A	81.89
	10/3/2018	31.0	21.0 - 31.0	101.09	16.44	N/A	N/A	N/A	84.65
MW-4	3/5/2011	25.0	15.0 - 25.0	97.02	9.15	N/A	N/A	N/A	87.87
	3/6/2013	25.0	15.0 - 25.0	97.02	12.41	10.10	2.31	10.75	86.27
	3/5/2014	25.0	15.0 - 25.0	97.02	9.74	7.50	2.24	8.10	88.92
	8/5/2015	25.0	15.0 - 25.0	97.02	N/A	N/A	N/A	N/A	N/A
	6/7/2016	25.0	15.0 - 25.0	97.02	8.08	N/A	N/A	N/A	88.94
	9/18/2016	25.0	15.0 - 25.0	97.02	10.85	N/A	N/A	N/A	86.17
	10/3/2018	25.0	15.0 - 25.0	97.02	10.15	N/A	N/A	N/A	86.87

Note: \* Corrected WL = Static WL - (Product Thickness x Product Gravity)  
 N/A - Not Applicable                      NM - Not Measured                      NL - Not Located

**Table 2 – Potentiometric Data**  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation* (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
MW-5	6/20/2011	20.0	10.0 - 20.0	101.34	14.05	13.75	0.30	13.83	87.51
	3/6/2013	20.0	10.0 - 20.0	101.34	19.63	16.80	2.83	17.59	83.75
	3/5/2014	20.0	10.0 - 20.0	101.34	15.75	8.12	7.63	10.18	91.16
	8/5/2015	20.0	10.0 - 20.0	101.34	14.04	N/A	N/A	N/A	87.30
	6/7/2016	20.0	10.0 - 20.0	101.34	10.24	N/A	N/A	N/A	91.10
	9/18/2016	20.0	10.0 - 20.0	101.34	14.86	N/A	N/A	N/A	86.48
	10/4/2018	20.0	10.0 - 20.0	101.34	18.00	10.68	7.32	12.66	88.68
MW-6A	3/6/2013	25.5	15.5 - 25.5	101.84	18.00	N/A	N/A	N/A	83.84
	3/5/2014	25.5	15.5 - 25.5	101.84	15.15	N/A	N/A	N/A	86.69
	8/5/2015	25.5	15.5 - 25.5	101.84	N/A	N/A	N/A	N/A	N/A
	6/7/2016	25.5	15.5 - 25.5	101.84	13.40	N/A	N/A	N/A	88.44
	9/18/2016	25.5	15.5 - 25.5	101.84	19.87	N/A	N/A	N/A	81.97
	10/3/2018	25.5	15.5 - 25.5	101.84	17.00	N/A	N/A	N/A	84.84
MW-6B	3/6/2013	38.5	28.5 - 38.5	101.91	18.05	N/A	N/A	N/A	83.86
	3/5/2014	38.5	28.5 - 38.5	101.91	13.30	N/A	N/A	N/A	88.61
	8/5/2015	38.5	28.5 - 38.5	101.91	N/A	N/A	N/A	N/A	N/A
	6/7/2016	38.5	28.5 - 38.5	101.91	13.94	N/A	N/A	N/A	87.97
	9/18/2016	38.5	28.5 - 38.5	101.91	19.65	N/A	N/A	N/A	82.26
	10/3/2018	38.5	28.5 - 38.5	101.91	16.48	N/A	N/A	N/A	85.43
	MW-7A	3/6/2013	24.0	14.0 - 24.0	100.04	16.60	N/A	N/A	N/A
3/5/2014		24.0	14.0 - 24.0	100.04	11.00	N/A	N/A	N/A	89.04
8/5/2015		24.0	14.0 - 24.0	100.04	N/A	N/A	N/A	N/A	N/A
6/7/2016		24.0	14.0 - 24.0	100.04	12.29	N/A	N/A	N/A	87.75
9/19/2016		24.0	14.0 - 24.0	100.04	18.17	N/A	N/A	N/A	81.87
10/3/2018		24.0	14.0 - 24.0	100.04	14.00	N/A	N/A	N/A	86.04

Note: \* Corrected WL = Static WL - (Product Thickness x Product Gravity)  
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**Table 2 – Potentiometric Data**  
**Broad River Amoco; UST Permit #11946**  
**Historical through October 2018**

Monitor Well ID	Date	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation* (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
MW-8A	3/6/2013	23.0	13.0 - 23.0	100.45	16.84	N/A	N/A	N/A	83.61
	3/5/2014	23.0	13.0 - 23.0	100.45	12.04	N/A	N/A	N/A	88.41
	8/5/2015	23.0	13.0 - 23.0	100.45	N/A	N/A	N/A	N/A	N/A
	6/7/2016	23.0	13.0 - 23.0	100.45	12.44	N/A	N/A	N/A	88.01
	9/19/2016	23.0	13.0 - 23.0	100.45	18.53	N/A	N/A	N/A	81.92
	10/3/2018	23.0	13.0 - 23.0	100.45	15.98	N/A	N/A	N/A	84.47
MW-8B	3/6/2013	37.5	27.5 - 37.5	100.37	16.60	N/A	N/A	N/A	83.77
	3/5/2014	37.5	27.5 - 37.5	100.37	10.45	N/A	N/A	N/A	89.92
	8/5/2015	37.5	27.5 - 37.5	100.37	N/A	N/A	N/A	N/A	N/A
	6/7/2016	37.5	27.5 - 37.5	100.37	12.32	N/A	N/A	N/A	88.05
	9/19/2016	37.5	27.5 - 37.5	100.37	18.40	N/A	N/A	N/A	81.97
	10/3/2018	37.5	27.5 - 37.5	100.37	15.50	N/A	N/A	N/A	84.87
MW-9A	3/6/2013	23.0	13.0 - 23.0	101.36	18.61	N/A	N/A	N/A	82.75
	3/6/2014	23.0	13.0 - 23.0	101.36	11.50	N/A	N/A	N/A	89.86
	8/5/2015	23.0	13.0 - 23.0	101.36	N/A	N/A	N/A	N/A	N/A
	6/7/2016	23.0	13.0 - 23.0	101.36	13.41	N/A	N/A	N/A	87.95
	9/19/2016	23.0	13.0 - 23.0	101.36	19.45	N/A	N/A	N/A	81.91
	10/3/2018	23.0	13.0 - 23.0	101.36	16.56	N/A	N/A	N/A	84.80
MW-9B	3/6/2013	31.5	21.5 - 31.5	101.38	17.60	N/A	N/A	N/A	83.78
	3/6/2014	31.5	21.5 - 31.5	101.38	11.65	N/A	N/A	N/A	89.73
	8/5/2015	31.5	21.5 - 31.5	101.38	N/A	N/A	N/A	N/A	N/A
	6/7/2016	31.5	21.5 - 31.5	101.38	13.35	N/A	N/A	N/A	88.03
	9/19/2016	31.5	21.5 - 31.5	101.38	19.44	N/A	N/A	N/A	81.94
	10/3/2018	31.5	21.5 - 31.5	101.38	16.82	N/A	N/A	N/A	84.56

Note: \* Corrected WL = Static WL - (Product Thickness x Product Gravity)  
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 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation* (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
MW-12A	3/6/2013	20.0	10.0 - 20.0	99.26	13.95	N/A	N/A	N/A	85.31
	3/6/2014	20.0	10.0 - 20.0	99.26	16.20	N/A	N/A	N/A	83.06
	8/5/2015	20.0	10.0 - 20.0	99.26	N/A	N/A	N/A	N/A	N/A
	6/8/2016	20.0	10.0 - 20.0	99.26	15.43	N/A	N/A	N/A	83.83
	9/19/2016	20.0	10.0 - 20.0	99.26	17.22	N/A	N/A	N/A	82.04
	10/4/2018	20.0	10.0 - 20.0	99.26	13.45	N/A	N/A	N/A	85.81
MW-12B	3/6/2013	36.5	26.5 - 36.5	99.35	16.72	N/A	N/A	N/A	82.63
	3/6/2014	36.5	26.5 - 36.5	99.35	11.87	N/A	N/A	N/A	87.48
	8/5/2015	36.5	26.5 - 36.5	99.35	N/A	N/A	N/A	N/A	N/A
	6/8/2016	36.5	26.5 - 36.5	99.35	12.00	N/A	N/A	N/A	87.35
	9/19/2016	36.5	26.5 - 36.5	99.35	16.75	N/A	N/A	N/A	82.60
	10/4/2018	36.5	26.5 - 36.5	99.35	14.60	N/A	N/A	N/A	84.75
MW-13A	3/25/2013	22.0	12.0 - 22.0	98.70	19.80	N/A	N/A	N/A	78.90
	3/5/2014	22.0	12.0 - 22.0	98.70	N/A	N/A	N/A	N/A	N/A
	8/5/2015	22.0	12.0 - 22.0	98.70	N/A	N/A	N/A	N/A	N/A
	6/8/2016	22.0	12.0 - 22.0	98.70	12.33	N/A	N/A	N/A	86.37
	9/19/2016	22.0	12.0 - 22.0	98.70	dry	N/A	N/A	N/A	dry
	10/3/2018	22.0	12.0 - 22.0	98.70	dry	N/A	N/A	N/A	dry
MW-13B	3/6/2013	33.5	23.5 - 33.5	98.69	19.88	N/A	N/A	N/A	78.81
	3/6/2014	33.5	23.5 - 33.5	98.69	16.12	N/A	N/A	N/A	82.57
	8/5/2015	33.5	23.5 - 33.5	98.69	N/A	N/A	N/A	N/A	N/A
	6/8/2016	33.5	23.5 - 33.5	98.69	15.22	N/A	N/A	N/A	83.47
	9/19/2016	33.5	23.5 - 33.5	98.69	20.61	N/A	N/A	N/A	78.08
	10/3/2018	33.5	23.5 - 33.5	98.69	18.25	N/A	N/A	N/A	80.44

Note: \* Corrected WL = Static WL - (Product Thickness x Product Gravity)  
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**Historical through October 2018**

Monitor Well ID	Date	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation* (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
MW-14A	3/6/2013	20.0	10.0 - 20.0	97.49	14.52	N/A	N/A	N/A	82.97
	3/6/2014	20.0	10.0 - 20.0	97.49	11.10	N/A	N/A	N/A	86.39
	8/5/2015	20.0	10.0 - 20.0	97.49	N/A	N/A	N/A	N/A	N/A
	6/8/2016	20.0	10.0 - 20.0	97.49	3.78	N/A	N/A	N/A	93.71
	9/20/2016	20.0	10.0 - 20.0	97.49	15.57	N/A	N/A	N/A	81.92
	10/4/2018	20.0	10.0 - 20.0	97.49	13.73	N/A	N/A	N/A	83.76
MW-14B	3/6/2013	38.5	28.5 - 38.5	97.45	17.27	N/A	N/A	N/A	80.18
	3/6/2014	38.5	28.5 - 38.5	97.45	12.45	N/A	N/A	N/A	85.00
	8/5/2015	38.5	28.5 - 38.5	97.45	N/A	N/A	N/A	N/A	N/A
	6/8/2016	38.5	28.5 - 38.5	97.45	12.10	N/A	N/A	N/A	85.35
	9/20/2016	38.5	28.5 - 38.5	97.45	17.05	N/A	N/A	N/A	80.40
	10/4/2018	38.5	28.5 - 38.5	97.45	15.34	N/A	N/A	N/A	82.11
MW-15A	3/25/2013	17.0	7.0 - 17.0	96.87	16.01	N/A	N/A	N/A	80.86
	3/6/2014	17.0	7.0 - 17.0	96.87	15.58	N/A	N/A	N/A	81.29
	8/5/2015	17.0	7.0 - 17.0	96.87	N/A	N/A	N/A	N/A	N/A
	6/8/2016	17.0	7.0 - 17.0	96.87	12.60	N/A	N/A	N/A	84.27
	9/20/2016	17.0	7.0 - 17.0	96.87	dry	N/A	N/A	N/A	dry
	10/4/2018	17.0	7.0 - 17.0	96.87	dry	N/A	N/A	N/A	dry
MW-15B	3/6/2013	40.0	30.0 - 40.0	96.82	17.60	N/A	N/A	N/A	79.22
	3/6/2014	40.0	30.0 - 40.0	96.82	14.10	N/A	N/A	N/A	82.72
	8/5/2015	40.0	30.0 - 40.0	96.82	N/A	N/A	N/A	N/A	N/A
	6/8/2016	40.0	30.0 - 40.0	96.82	12.33	N/A	N/A	N/A	84.49
	9/20/2016	40.0	30.0 - 40.0	96.82	18.20	N/A	N/A	N/A	78.62
	10/4/2018	40.0	30.0 - 40.0	96.82	16.34	N/A	N/A	N/A	80.48

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**Historical through October 2018**

Monitor Well ID	Date	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation* (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
MW-16A	3/25/2013	18.0	8.0 - 18.0	95.95	16.21	N/A	N/A	N/A	79.74
	3/5/2014	18.0	8.0 - 18.0	95.95	Abandoned				
MW-16B	3/6/2013	37.0	27.0 - 37.0	95.68	16.75	N/A	N/A	N/A	78.93
	3/5/2014	37.0	27.0 - 37.0	95.68	Abandoned				
MW-17B	3/6/2013	39.5	29.5 - 39.5	92.69	9.05	N/A	N/A	N/A	83.64
	3/5/2014	39.5	29.5 - 39.5	92.69	6.04	N/A	N/A	N/A	86.65
	8/5/2015	39.5	29.5 - 39.5	92.69	N/A	N/A	N/A	N/A	N/A
	6/9/2016	39.5	29.5 - 39.5	92.69	5.70	N/A	N/A	N/A	86.99
	9/20/2016	39.5	29.5 - 39.5	92.69	8.25	N/A	N/A	N/A	84.44
	10/4/2018	39.5	29.5 - 39.5	92.69	8.80	N/A	N/A	N/A	83.89
MW-18A	3/6/2013	13.0	3.0 - 13.0	88.20	0.85	N/A	N/A	N/A	87.35
	3/5/2014	13.0	3.0 - 13.0	88.20	0.82	N/A	N/A	N/A	87.38
	8/5/2015	13.0	3.0 - 13.0	88.20	N/A	N/A	N/A	N/A	N/A
	6/9/2016	13.0	3.0 - 13.0	88.20	2.10	N/A	N/A	N/A	86.10
	9/20/2016	13.0	3.0 - 13.0	88.20	4.10	N/A	N/A	N/A	84.10
MW-18B	10/4/2018	13.0	3.0 - 13.0	88.20	3.00	N/A	N/A	N/A	85.20
	3/6/2013	35.0	25.0 - 35.0	88.30	1.05	N/A	N/A	N/A	87.25
	3/5/2014	35.0	25.0 - 35.0	88.30	0.78	N/A	N/A	N/A	87.52
	8/5/2015	35.0	25.0 - 35.0	88.30	N/A	N/A	N/A	N/A	N/A
	6/9/2016	35.0	25.0 - 35.0	88.30	0.57	N/A	N/A	N/A	87.73
	9/20/2016	35.0	25.0 - 35.0	88.30	5.44	N/A	N/A	N/A	82.86
	10/4/2018	35.0	25.0 - 35.0	88.30	2.92	N/A	N/A	N/A	85.38

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 Historical through October 2018

Monitor Well ID	Date	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation* (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
MW-19A	3/6/2013	15.0	5.0 - 15.0	91.63	7.95	N/A	N/A	N/A	83.68
	3/5/2014	15.0	5.0 - 15.0	91.63	6.02	N/A	N/A	N/A	85.61
	8/5/2015	15.0	5.0 - 15.0	91.63	N/A	N/A	N/A	N/A	N/A
	6/9/2016	15.0	5.0 - 15.0	91.63	6.13	N/A	N/A	N/A	85.50
	9/20/2016	15.0	5.0 - 15.0	91.63	8.00	N/A	N/A	N/A	83.63
	10/3/2018	15.0	5.0 - 15.0	91.63	destroyed	N/A	N/A	N/A	N/A
MW-19B	3/6/2013	34.0	24.0 - 34.0	91.69	8.35	N/A	N/A	N/A	83.34
	3/5/2014	34.0	24.0 - 34.0	91.69	7.58	N/A	N/A	N/A	84.11
	8/5/2015	34.0	24.0 - 34.0	91.69	N/A	N/A	N/A	N/A	N/A
	6/9/2016	34.0	24.0 - 34.0	91.69	6.00	N/A	N/A	N/A	85.69
	9/20/2016	34.0	24.0 - 34.0	91.69	10.40	N/A	N/A	N/A	81.29
	10/24/2018	34.0	24.0 - 34.0	91.69	8.40	N/A	N/A	N/A	83.29
MW-20A	3/6/2013	15.0	5.0 - 15.0	88.67	5.05	N/A	N/A	N/A	83.62
	3/5/2014	15.0	5.0 - 15.0	88.67	4.97	N/A	N/A	N/A	83.70
	8/5/2015	15.0	5.0 - 15.0	88.67	N/A	N/A	N/A	N/A	N/A
	6/9/2016	15.0	5.0 - 15.0	88.67	5.60	N/A	N/A	N/A	83.07
	9/20/2016	15.0	5.0 - 15.0	88.67	6.45	N/A	N/A	N/A	82.22
	10/24/2018	15.0	5.0 - 15.0	88.67	5.68	N/A	N/A	N/A	82.99
MW-20B	3/6/2013	35.0	25.0 - 35.0	88.61	4.11	N/A	N/A	N/A	84.50
	3/5/2014	35.0	25.0 - 35.0	88.61	3.62	N/A	N/A	N/A	84.99
	8/5/2015	35.0	25.0 - 35.0	88.61	N/A	N/A	N/A	N/A	N/A
	6/9/2016	35.0	25.0 - 35.0	88.61	2.82	N/A	N/A	N/A	85.79
	9/20/2016	35.0	25.0 - 35.0	88.61	5.50	N/A	N/A	N/A	83.11
	10/24/2018	35.0	25.0 - 35.0	88.61	4.15	N/A	N/A	N/A	84.46

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 Historical through October 2018

Monitor Well ID	Date	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation* (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
RW-5	3/6/2013	38.5	18.5 - 38.5	101.62	17.64	17.58	0.06	17.6	84.02
	3/5/2014	38.5	18.5 - 38.5	101.62	10.88	10.58	0.30	10.66	90.96
	8/5/2015	38.5	18.5 - 38.5	101.62	15.04	N/A	N/A	N/A	86.58
	6/8/2016	38.5	18.5 - 38.5	101.62	11.08	N/A	N/A	N/A	90.54
	9/18/2016	38.5	18.5 - 38.5	101.62	17.91	N/A	N/A	N/A	83.71
	10/4/2018	38.5	18.5 - 38.5	101.62	13.92	13.40	0.52	13.54	88.08
RW-6	10/5/2018	35.0	5.0 - 35.0	101.16	13.98	13.90	0.08	13.92	87.24
RW-7	10/3/2018	40.0	10.0 - 40.0	97.29	11.18	N/A	N/A	N/A	86.11
RW-8	10/3/2018	32.0	2.0 - 32.0	98.52	11.60	N/A	N/A	N/A	86.92
RW-9	10/3/2018	40.0	10.0 - 40.0	101.41	16.60	N/A	N/A	N/A	84.81
RW-10	10/4/2018	39.0	9.0 - 39.0	101.66	16.74	N/A	N/A	N/A	84.92
RW-11	10/3/2018	40.0	10.0 - 40.0	101.82	16.95	N/A	N/A	N/A	84.87
RW-12	10/4/2018	39.0	9.0 - 39.0	101.38	16.20	N/A	N/A	N/A	85.18

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 Historical through October 2018

Monitor Well ID	Date	Total Well Depth (feet bgs)	Screened Interval (feet bgs)	Top of Casing Elevation* (feet)	Static Water Level (feet bgs)	Static Product Level (feet bgs)	Product Thickness (feet)	Corrected Water Level* (feet)	GW Elevation (feet)
DMW-1	3/6/2013	65.0	60.0 - 65.0	101.16	18.21	N/A	N/A	N/A	82.95
	3/7/2014	65.0	60.0 - 65.0	101.16	14.07	N/A	N/A	N/A	87.09
	8/5/2015	65.0	60.0 - 65.0	101.16	N/A	N/A	N/A	N/A	N/A
	6/8/2016	65.0	60.0 - 65.0	101.16	12.60	N/A	N/A	N/A	88.56
	9/18/2016	65.0	60.0 - 65.0	101.16	17.72	N/A	N/A	N/A	83.44
	10/3/2018	65.0	60.0 - 65.0	101.16	14.39	N/A	N/A	N/A	86.77
DMW-2	3/6/2013	65.0	60.0 - 65.0	92.63	9.40	N/A	N/A	N/A	83.23
	3/7/2014	65.0	60.0 - 65.0	92.63	5.94	N/A	N/A	N/A	86.69
	8/5/2015	65.0	60.0 - 65.0	92.63	N/A	N/A	N/A	N/A	N/A
	6/9/2016	65.0	60.0 - 65.0	92.63	6.37	N/A	N/A	N/A	86.26
	9/20/2016	65.0	60.0 - 65.0	92.63	10.45	N/A	N/A	N/A	82.18
	10/4/2018	65.0	60.0 - 65.0	92.63	8.54	N/A	N/A	N/A	84.09
DMW-3	3/6/2013	65.0	60.0 - 65.0	87.41	2.10	N/A	N/A	N/A	85.31
	3/5/2014	65.0	60.0 - 65.0	87.41	1.40	N/A	N/A	N/A	86.01
	8/5/2015	65.0	60.0 - 65.0	87.41	N/A	N/A	N/A	N/A	N/A
	6/9/2016	65.0	60.0 - 65.0	87.41	2.10	N/A	N/A	N/A	85.31
	9/20/2016	65.0	60.0 - 65.0	87.41	4.38	N/A	N/A	N/A	83.03
	10/5/2018	65.0	60.0 - 65.0	87.41	3.58	N/A	N/A	N/A	83.83

Note: \* Corrected WL = Static WL - (Product Thickness x Product Gravity)  
 N/A - Not Applicable                      NM - Not Measured                      NL - Not Located



**Table 3 – Current Groundwater Analytical Data**  
**Broad River Amoco; UST Permit #11946**  
**October 2018**

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>
<b>MW-1</b>	10/3/2018	<b>1,000</b>	<b>14,000</b>	<b>1,700</b>	8,300	<b>570 J</b>	<b>ND (1,000)</b>	<b>ND (1,000)</b>	ND (0.020)
<b>MW-2</b>	10/3/2018	<b>12,000</b>	<b>21,000</b>	<b>2,100</b>	<b>12,000</b>	<b>890 J</b>	<b>31,000</b>	<b>ND (1,000)</b>	<b>0.27</b>
<b>MW-3</b>	10/3/2018	2.2 J	1.0 J	0.83 J	5.3	8.7	0.66 J	ND (5.0)	ND (0.020)
<b>MW-4</b>	10/3/2018	<b>5,000</b>	330 J	<b>2,000</b>	2,400	<b>900</b>	<b>5,500</b>	<b>ND (500)</b>	0.036
<b>MW-5</b>	10/4/2018	<b>7.32' Free Product</b>							
<b>MW-6A</b>	10/3/2018	1.2 J	5.0	1.1 J	6.7	2.5 J	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-6B</b>	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	0.50 J	3.9 J	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-7A</b>	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-8A</b>	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.021)
<b>MW-8B</b>	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-9A</b>	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	1.2 J	ND (5.0)	ND (0.020)
<b>MW-9B</b>	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	0.45 J	ND (5.0)	ND (0.020)
<b>MW-10A</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-10B</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-11A</b>	10/5/2018	4.9 J	ND (5.0)	ND (5.0)	ND (5.0)	1.6 J	1.2 J	ND (5.0)	ND (0.020)
<b>MW-11B</b>	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	0.77 J	ND (5.0)	ND (0.019)
<b>MW-12A</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.021)
<b>MW-12B</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-13A</b>	10/3/2018	Dry							
<b>MW-13B</b>	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-14A</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-14B</b>	10/4/2018	0.81 J	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-15A</b>	10/4/2018	Dry							
<b>MW-15B</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-16A</b>	10/3/2018	Abandoned							
<b>MW-16B</b>	10/3/2018	Abandoned							
<b>MW-17B</b>	10/4/2018	<b>56</b>	ND (25)	ND (25)	11 J	5.6 J	<b>350</b>	<b>ND (25)</b>	ND (0.020)

Note: All units expressed in µg/L (PPB) MCL = Maximum Contaminant Level  
 ND( ) - Not Detected Above Method Detection Limit (limit in µg/l)  
 NA - Not Analyzed J - Estimated result < PQL and > Method Detection Limit

**Table 3 – Current Groundwater Analytical Data  
Broad River Amoco; UST Permit #11946  
October 2018**

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>
<b>MW-18A</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-18B</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	0.41 J	ND (5.0)	ND (0.020)
<b>MW-19A</b>	10/3/2018	Destroyed							
<b>MW-19B</b>	10/24/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	1.0 J	ND (5.0)	ND (0.020)
<b>MW-20A</b>	10/24/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-20B</b>	10/24/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	15	ND (5.0)	ND (0.020)
<b>MW-21A</b>	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>MW-21B</b>	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	14	ND (5.0)	ND (0.020)
<b>MW-22B</b>	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	4.9 J	ND (5.0)	ND (0.019)
<b>RW-1</b>	10/3/2018	0.07' Free Product							
<b>RW-2</b>	10/3/2018	45	150	23	150	13	56	ND (5.0)	ND (0.020)
<b>RW-3</b>	10/3/2018	16,000	31,000	2,700	16,000	840 J	15,000	ND (2,500)	1.7
<b>RW-4</b>	10/3/2018	3,900	3,400	880	4,800	220 J	11,000	ND (500)	ND (0.020)
<b>RW-5</b>	10/4/2018	0.52' Free Product							
<b>RW-6</b>	10/5/2018	0.08' Free Product							
<b>RW-7</b>	10/3/2018	4,600	170 J	1,800	4,400	670	8,100	ND (500)	ND (0.021)
<b>RW-8</b>	10/3/2018	42	4.1 J	150	460	47	25	ND (5.0)	ND (0.020)
<b>RW-9</b>	10/3/2018	0.56 J	ND (5.0)	0.62 J	1.3 J	2.3 J	20	ND (5.0)	ND (0.020)
<b>RW-10</b>	10/4/2018	13,000	6,900	3,000	9,500	790 J	7,100	ND (1,000)	ND (0.020)
<b>RW-11</b>	10/3/2018	800 J	33,000	2,600	15,000	570 J	ND (2,500)	ND (2,500)	ND (0.020)
<b>RW-12</b>	10/4/2018	12,000	21,000	1,300	15,000	780 J	11,000	ND (1,000)	140
<b>DMW-1</b>	10/3/2018	ND (5.0)	0.77 J	3.1 J	30	11	98	ND (5.0)	ND (0.021)
<b>DMW-2</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	17	ND (5.0)	ND (0.020)
<b>DMW-3</b>	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	1.1 J	ND (5.0)	ND (0.021)

Note: All units expressed in µg/L (PPB) MCL = Maximum Contaminant Level  
 ND( ) - Not Detected Above Method Detection Limit (limit in µg/l)  
 NA - Not Analyzed J - Estimated result < PQL and > Method Detection Limit

**Table 3 – Current Groundwater Analytical Data**  
**Broad River Amoco; UST Permit #11946**  
**October 2018**

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>
<b>Duplicate 1 (RW-8)</b>	10/3/2018	48	5.0 J	170	560	52	24 J	ND (25)	ND (0.020)
<b>Duplicate 2 (MW-21B)</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	14	ND (5.0)	ND (0.019)
<b>Duplicate 3 (DMW-3)</b>	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	1.1 J	ND (5.0)	ND (0.019)
<b>Duplicate 4 (MW-20B)</b>	10/24/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	15	ND (5.0)	ND (0.019)
<b>Field Blank 1</b>	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>Field Blank 2</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>Field Blank 3</b>	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)
<b>Field Blank 4</b>	10/24/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	
<b>Trip Blank 1</b>	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	NA
<b>Trip Blank 2</b>	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	NA
<b>Trip Blank 3</b>	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	NA
<b>Trip Blank 4</b>	10/24/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	NA

Note: All units expressed in µg/L (PPB) MCL = Maximum Contaminant Level  
 ND( ) - Not Detected Above Method Detection Limit (limit in µg/l)  
 NA - Not Analyzed J - Estimated result < PQL and > Method Detection Limit

**Table 3 – Current Groundwater Analytical Data  
 –8 Oxygenates–  
 Broad River Amoco; UST Permit #11946  
 October 2018**

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	—	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>MW-1</b>	10/3/2018	<b>ND (1,000)</b>	<b>ND (20,000)</b>	<b>ND (4,000)</b>	<b>ND (200)</b>	<b>2,000 J</b>	<b>ND (2,000)</b>	<b>ND (4,000)</b>	<b>ND (1,000)</b>
<b>MW-2</b>	10/3/2018	<b>ND (1,000)</b>	<b>ND (20,000)</b>	<b>ND (4,000)</b>	<b>ND (200)</b>	<b>60,000</b>	<b>440 J</b>	<b>19,000</b>	<b>ND (1,000)</b>
<b>MW-3</b>	10/3/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>71</b>	<b>ND (10)</b>	<b>15 J</b>	<b>ND (5.0)</b>
<b>MW-4</b>	10/3/2018	<b>ND (500)</b>	<b>ND (10,000)</b>	<b>ND (2,000)</b>	<b>ND (100)</b>	<b>2,500</b>	<b>160 J</b>	<b>3,800</b>	<b>ND (500)</b>
<b>MW-5</b>	10/4/2018	<b>7.32' Free Product</b>							
<b>MW-6A</b>	10/3/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-6B</b>	10/3/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-7A</b>	10/3/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-8A</b>	10/3/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-8B</b>	10/3/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-9A</b>	10/3/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-9B</b>	10/3/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-10A</b>	10/4/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-10B</b>	10/4/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-11A</b>	10/5/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-11B</b>	10/5/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-12A</b>	10/4/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-12B</b>	10/4/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-13A</b>	10/3/2018	<b>Dry</b>							
<b>MW-13B</b>	10/3/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-14A</b>	10/4/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-14B</b>	10/4/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>21</b>	<b>ND (10)</b>	<b>9.2 J</b>	<b>ND (5.0)</b>
<b>MW-15A</b>	10/4/2018	<b>Dry</b>							
<b>MW-15B</b>	10/4/2018	<b>ND (5.0)</b>	<b>ND (100)</b>	<b>ND (20)</b>	<b>ND (1.0)</b>	<b>ND (20)</b>	<b>ND (10)</b>	<b>ND (20)</b>	<b>ND (5.0)</b>
<b>MW-16A</b>	10/3/2018	<b>Abandoned</b>							
<b>MW-16B</b>	10/3/2018	<b>Abandoned</b>							
<b>MW-17B</b>	10/4/2018	<b>6.0 J</b>	<b>ND (500)</b>	<b>ND (100)</b>	<b>2.1 J</b>	<b>520</b>	<b>ND (50)</b>	<b>2,300</b>	<b>ND (25)</b>

Note: All units expressed in µg/L (PPB) N/A - Not Analyzed  
 ND( ) - Not Detected Above Method Detection Limit (limit in µg/l)  
 NA - Not Analyzed J - Estimated result < PQL and > Method Detection Limit

**Table 3 – Current Groundwater Analytical Data  
 –8 Oxygenates–  
 Broad River Amoco; UST Permit #11946  
 October 2018**

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	—	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
MW-18A	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-18B	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-19A	10/3/2018	Destroyed							
MW-19B	10/24/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-20A	10/24/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-20B	10/24/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-21A	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-21B	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
MW-22B	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
RW-1	10/3/2018	<b>0.07' Free Product</b>							
RW-2	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	17 J	ND (10)	25	ND (5.0)
RW-3	10/3/2018	<b>ND (2,500)</b>	<b>ND (50,000)</b>	ND (10,000)	<b>ND (500)</b>	<b>68,000</b>	<b>350 J</b>	<b>9,700 J</b>	ND (2,500)
RW-4	10/3/2018	<b>ND (500)</b>	<b>ND (10,000)</b>	ND (2,000)	<b>ND (100)</b>	<b>2,900</b>	<b>200 J</b>	<b>2,000</b>	ND (500)
RW-5	10/4/2018	<b>0.52' Free Product</b>							
RW-6	10/5/2018	<b>0.08' Free Product</b>							
RW-7	10/3/2018	<b>ND (500)</b>	ND (10,000)	ND (2,000)	<b>ND (100)</b>	<b>3,600</b>	120 J	<b>4,600</b>	ND (500)
RW-8	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	110	ND (10)	15 J	ND (5.0)
RW-9	10/3/2018	3.5 J	ND (100)	ND (20)	0.53 J	130	2.4 J	180	ND (5.0)
RW-10	10/4/2018	<b>ND (1,000)</b>	<b>ND (20,000)</b>	ND (4,000)	<b>ND (200)</b>	<b>9,400</b>	<b>340 J</b>	<b>ND (4,000)</b>	ND (1,000)
RW-11	10/3/2018	<b>ND (2,500)</b>	<b>ND (50,000)</b>	ND (10,000)	<b>ND (500)</b>	<b>ND (10,000)</b>	<b>ND (5,000)</b>	<b>ND (10,000)</b>	ND (2,500)
RW-12	10/4/2018	<b>ND (1,000)</b>	<b>ND (20,000)</b>	ND (4,000)	<b>ND (200)</b>	<b>30,000</b>	<b>ND (2,000)</b>	<b>11,000</b>	ND (1,000)
DMW-1	10/3/2018	0.97 J	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
DMW-2	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
DMW-3	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)

Note: All units expressed in µg/L (PPB)      N/A - Not Analyzed  
 ND( ) - Not Detected Above Method Detection Limit (limit in µg/l)  
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**Table 3 – Current Groundwater Analytical Data  
 –8 Oxygenates–  
 Broad River Amoco; UST Permit #11946  
 October 2018**

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	<b>—</b>	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>Duplicate 1 (RW-8)</b>	10/3/2018	ND (25)	ND (500)	ND (100)	ND (5.0)	110	ND (50)	ND (100)	ND (25)
<b>Duplicate 2 (MW-21B)</b>	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>Duplicate 3 (DMW-3)</b>	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>Duplicate 4 (MW-20B)</b>	10/24/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>Field Blank 1</b>	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>Field Blank 2</b>	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>Field Blank 3</b>	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>Field Blank 4</b>	10/24/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>Trip Blank 1</b>	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>Trip Blank 2</b>	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>Trip Blank 3</b>	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>Trip Blank 4</b>	10/24/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)

Note: All units expressed in µg/L (PPB) N/A - Not Analyzed  
 ND( ) - Not Detected Above Method Detection Limit (limit in µg/l)  
 NA - Not Analyzed J - Estimated result < PQL and > Method Detection Limit

**Table 4 – Current & Historical Groundwater Analytical Data**  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead	
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>	
<b>MW-1</b>	3/5/2011	1,760	18,400	1,270	5,140	4,070J	<83.9	<121	<0.0032	18	
	3/8/2013	2,480	12,800	1,550	5,650	623	70.8 J	ND(11.6)	ND (0.0039)	14 J	
	3/6/2014	3,080	35,100	3,130	13,300	754J	ND(38.5)	ND(58.1)	ND(0.0063)	NA	
	8/5/2015	2,360J	34,300	3,310	14,400	2,660	ND(38.5)	ND(58.1)	ND(0.00750)	NA	
	1/17/2016	1,650	25,500	1,660	8,510	ND(44.0)	ND(19.3)	ND(29.0)	ND(0.00750)	NA	
	6/7/2016	2,230J	33,600	3,370	13,400	ND(88.0)	ND(38.5)	ND(58.1)	ND(0.00750)	NA	
	9/18/2016	3,000	41,000	4,000	16,000	780 J	ND(200)	ND(200)	ND(0.0048)	NA	
10/3/2018	1,000	14,000	1,700	8,300	570 J	ND (1,000)	ND (1,000)	ND (0.020)	NA		
<b>MW-2</b>	3/5/2011	1,650	3,230	422	2,190	462J	3,420	<12.1	1.42	<15	
	3/6/2013	1.34' Free Product									
	3/5/2014	1.42' Free Product									
	8/5/2015	14,100	23,300	2,930J	15,500	5,050	47,000	ND(116)	ND(0.00750)	NA	
	1/17/2016	11,700	19,400	2,210	14,600	ND(44.0)	34,400	ND(29.0)	0.134	NA	
	6/7/2016	4,220	6,650	944	5,820	1,130	14,300	ND(11.6)	0.057	NA	
	9/18/2016	17,000	29,000	3,300	19,000	930 J	47,000	ND(200)	0.44	NA	
	10/3/2018	12,000	21,000	2,100	12,000	890 J	31,000	ND (1,000)	0.27	NA	
	<b>MW-3</b>	3/5/2011	<15	10.4	9.52	30.6	4.74J	7.91	<0.121	<0.0032	<15
		3/8/2013	0.417 J	1.05	0.408 J	1.72 J	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)
3/7/2014		2.04J	20.9J	2.81J	17.3J	7.44J	ND(0.770)	ND(1.16)	ND(0.0063)	NA	
8/5/2015		Not Sampled									
1/17/2016		1.17J	5.04	1.03J	7.62J	ND(0.176)	0.999J	ND(0.116)	ND(0.00750)	NA	
6/7/2016		ND(0.111)	1.25J	ND(0.109)	2.80J	ND(0.176)	ND(0.077)	ND(0.116)	0.052	NA	
9/18/2016		0.61 J	1.9 J	0.45 J	3.2 J	1.2 J	1.2 J	ND(0.40)	ND(0.0049)	NA	
10/3/2018		2.2 J	1.0 J	0.83 J	5.3	8.7	0.66 J	ND (5.0)	ND (0.020)	NA	

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**Table 4 – Current & Historical Groundwater Analytical Data**  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>
<b>MW-4</b>	3/5/2011	1,830	198	1,270	3,160	598	3,100	<12.1	<0.0032	<15
	3/6/2013	2.31' Free Product								
	3/5/2014	2.24' Free Product								
	8/5/2015	5,720	309J	2,390	7,180	934	4,060	ND(11.6)	ND(0.00750)	NA
	1/17/2016	5,530	131J	1,610	4,880	468	6,670	ND(5.81)	ND(0.00750)	NA
	6/7/2016	863	24.3J	453	1,360	296	1,020	ND(1.16)	ND(0.00750)	NA
	9/18/2016	9,200	460	3,200	8,500	810	9,000	ND(20)	ND(0.0048)	NA
	10/3/2018	5,000	330 J	2,000	2,400	900	5,500	ND (500)	0.036	NA
<b>MW-5</b>	6/20/2011	0.30' Free Product								
	3/6/2013	2.83' Free Product								
	3/5/2014	7.63' Free Product								
	8/5/2015	18,700	36,000	3,540	20,100	2,950	25,700	ND(58.1)	ND(0.00750)	NA
	1/17/2016	12,600	29,700	3,120	20,800	ND(44.0)	17,200	ND(29.0)	ND(0.00750)	NA
	6/7/2016	17,100	30,000	3,410	21,600	2,890	28,100	ND(29.0)	0.016J	NA
	9/18/2016	20,000	38,000	4,600	28,000	2,100 J	29,000	ND(200)	ND(0.0049)	NA
	10/4/2018	7.32' Free Product								
<b>MW-6A</b>	3/6/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	13 J
	3/5/2014	ND(0.111)	0.469J	ND(0.109)	1.63J	2.43J	ND(0.077)	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/7/2016	0.872J	7.07	2.44J	20.4	15.8	ND(0.077)	ND(0.116)	ND(0.00750)	NA
	9/18/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0049)	NA
	10/3/2018	1.2 J	5.0	1.1 J	6.7	2.5 J	ND (5.0)	ND (5.0)	ND (0.020)	NA
	10/4/2018	7.32' Free Product								
<b>MW-6B</b>	3/6/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	19
	3/5/2014	0.372J	2.96J	2.15J	13.9J	13.1	ND(0.077)	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/7/2016	ND(0.111)	2.45J	0.812J	7.11J	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA
	9/18/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0051)	NA
	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	0.50 J	3.9 J	ND (5.0)	ND (5.0)	ND (0.020)	NA

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**Table 4 – Current & Historical Groundwater Analytical Data**  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead	
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>	
<b>MW-7A</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/5/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	1.06J	ND(0.077)	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/7/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA	
	9/19/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0051)	NA
	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA	
	<b>MW-8A</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	6.8 J
3/5/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.0063)	NA		
8/5/2015	Not Sampled										
1/17/2016	Not Sampled										
6/7/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA		
9/19/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0049)	NA	
10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.021)	NA		
<b>MW-8B</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/5/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/7/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA	
	9/19/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0049)	NA	
	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA	
	<b>MW-9A</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	2.62	0.642 J	ND (0.0039)	ND (3.8)
3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	3.21J	0.667J	ND(0.0063)	NA		
8/5/2015	Not Sampled										
1/17/2016	Not Sampled										
6/7/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	3.24J	ND(0.116)	ND(0.00750)	NA		
9/19/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	2.8 J	ND(0.40)	ND(0.0051)	NA		
10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	1.2 J	ND (5.0)	ND (0.020)	NA		

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 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>
<b>MW-9B</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	2.79	0.675 J	ND (0.0039)	ND (3.8)
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	3.51J	0.668J	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/7/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	4.73J	ND(0.116)	ND(0.00750)	NA
	9/19/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	6.2	ND(0.40)	ND(0.0050)	NA
	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	0.45 J	ND (5.0)	ND (0.020)	NA
<b>MW-10A</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	NA
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/7/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA
	9/19/2016	ND(0.40)	0.61 J	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0051)	NA
10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA	
<b>MW-10B</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/7/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA
	9/19/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0051)	NA
10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA	
<b>MW-11A</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	1.00	ND (0.116)	ND (0.0039)	11 J
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	1.67J	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/7/2016	4.08J	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	1.23J	ND(0.116)	0.042	NA
	9/18/2016	3.0 J	ND(0.40)	ND(0.40)	ND(0.40)	1.3 J	1.5 J	ND(0.40)	ND(0.0048)	NA
10/5/2018	4.9 J	ND (5.0)	ND (5.0)	ND (5.0)	1.6 J	1.2 J	ND (5.0)	ND (0.020)	NA	

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**Table 4 – Current & Historical Groundwater Analytical Data**  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>
<b>MW-11B</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	1.12	ND (0.116)	ND (0.0039)	ND (3.8)
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	0.940J	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/7/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	0.864J	ND(0.116)	0.014J	NA
	9/19/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	0.95 J	ND(0.40)	ND(0.0050)	NA
	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	0.77 J	ND (5.0)	ND (0.019)	NA
<b>MW-12A</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	0.486J	ND(0.077)	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/8/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	0.022	NA
	9/19/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0051)	NA
	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.021)	NA
<b>MW-12B</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	0.359J	ND(0.077)	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/8/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	0.049	NA
	9/19/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0053)	NA
	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA
<b>MW-13A</b>	3/25/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	7.8 J
	3/5/2014	Insufficient Water								
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/8/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA
	9/19/2016	Dry								
	10/3/2018	Dry								

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 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead	
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>	
<b>MW-13B</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	0.322J	ND(0.077)	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/8/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA	
	9/19/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0049)	NA
	10/3/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA
<b>MW-14A</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	0.329J	ND(0.077)	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/8/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	0.014J	NA	
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0048)	NA
	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA
<b>MW-14B</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	0.277J	ND(0.077)	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/8/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA	
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0052)	NA
	10/4/2018	0.81 J	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA
<b>MW-15A</b>	3/25/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	5.3 J	
	3/6/2014	ND(0.111)	ND(0.122)	0.166J	0.893J	0.454J	ND(0.077)	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/8/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA	
	9/20/2016	Dry									
10/4/2018	Dry										

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**Broad River Amoco; UST Permit #11946**  
 Historical through October 2018

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead	
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>	
<b>MW-15B</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/6/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/8/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA	
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0053)	NA
	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA
<b>MW-16A</b>	3/25/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	<b>35</b>	
	3/5/2014	Abandoned									
<b>MW-16B</b>	3/7/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/5/2014	Abandoned									
<b>MW-17B</b>	3/6/2013	<b>6.58</b>	2.47	1.1 J	3.87 J	ND (0.352)	<b>244</b>	ND (0.232)	ND (0.0039)	ND (3.8)	
	3/5/2014	ND(1.11)	3.27J	ND(1.09)	9.61J	12.8J	<b>420</b>	ND(1.16)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/8/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	0.021	NA	
<b>MW-18A</b>	9/20/2016	<b>40</b>	ND(0.40)	ND(0.40)	6.4	3.4 J	<b>400</b>	ND(0.40)	ND(0.0050)	NA	
	10/4/2018	<b>56</b>	ND (25)	ND (25)	11 J	5.6 J	<b>350</b>	<b>ND (25)</b>	ND (0.020)	NA	
	3/6/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	1.42	ND (0.116)	ND (0.0039)	<b>590</b>	
<b>MW-18A</b>	3/5/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	0.363J	2.82J	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/9/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	1.15J	ND(0.116)	ND(0.00750)	NA	
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	1.1 J	ND(0.40)	ND(0.0051)	NA	
10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA		

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Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead	
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>	
<b>MW-18B</b>	3/6/2013	ND (0.111)	0.459 J	ND (0.109)	2.03 J	ND (0.176)	0.841 J	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/5/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	0.225J	0.416J	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/9/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA	
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0052)	NA
	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	0.41 J	ND (5.0)	ND (0.020)	NA
<b>MW-19A</b>	3/6/2013	0.566 J	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/5/2014	1.97J	1.87J	0.941J	6.10J	3.67J	0.644J	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/9/2016	2.08J	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA	
	9/20/2016	0.55 J	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	1.4 J	ND(0.40)	ND(0.0050)	NA	
	10/3/2018	Destroyed									
<b>MW-19B</b>	3/6/2013	0.253 J	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/5/2014	0.329J	0.349J	0.123J	1.07J	1.33J	1.11J	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/9/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	1.41J	ND(0.116)	ND(0.00750)	NA	
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	1.4 J	ND(0.40)	ND(0.0051)	NA	
	10/24/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	1.0 J	ND (5.0)	ND (0.020)	NA	
<b>MW-20A</b>	3/6/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	1.15	ND (0.116)	ND (0.0039)	ND (3.8)	
	3/5/2014	ND(0.111)	0.991J	0.505J	2.92J	3.50J	0.526J	ND(0.116)	ND(0.0063)	NA	
	8/5/2015	Not Sampled									
	1/17/2016	Not Sampled									
	6/9/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	0.810J	ND(0.116)	ND(0.00750)	NA	
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0051)	NA	
10/24/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA		

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Monitor Well ID	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>
<b>MW-20B</b>	3/6/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	2.25	ND (0.116)	ND (0.0039)	8.77 J
	3/5/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	0.492J	18.1	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/9/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.00750)	NA
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	22	ND(0.40)	ND(0.0052)	NA
	10/24/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	15	ND (5.0)	ND (0.020)	NA
<b>MW-21A</b>	3/6/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	ND (0.078)	ND (0.116)	ND (0.0039)	12 J
	3/5/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	ND(0.077)	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/9/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	20.8	ND(0.116)	ND(0.00750)	NA
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.0050)	NA
	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (0.020)	NA
<b>MW-21B</b>	3/6/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	1.34	ND (0.116)	ND (0.0039)	6.8 J
	3/5/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	5.75	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/9/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	20.4	ND(0.116)	ND(0.00750)	NA
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	7.5	ND(0.40)	ND(0.0052)	NA
	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	14	ND (5.0)	ND (0.020)	NA
<b>MW-22B</b>	3/6/2013	ND (0.111)	ND (0.122)	ND (0.109)	ND (0.179)	ND (0.176)	1.83	ND (0.116)	ND (0.0039)	ND (3.8)
	3/5/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	2.64J	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/9/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	3.60J	ND(0.116)	ND(0.00750)	NA
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	4.9 J	ND(0.40)	ND(0.0049)	NA
	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	4.9 J	ND (5.0)	ND (0.019)	NA

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**Table 4 – Current & Historical Groundwater Analytical Data**  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>
<b>RW-1</b>	3/6/2013	<b>0.15' Free Product</b>								
	3/5/2014	<b>6.68' Free Product</b>								
	8/5/2015	4,060	21,500	2,770	24,100	1,670	2,080	ND(23.2)	ND(0.00750)	NA
	1/17/2016	1,100	2,650	88.4J	8,050	394	282	ND(2.90)	ND(0.00750)	NA
	6/8/2016	121	1,420	665	4,000	324	ND(0.770)	ND(1.16)	ND(0.00750)	NA
	9/18/2016	13,000	24,000	4,200	22,000	920 J	9,900	ND(80)	0.07	NA
	10/3/2018	<b>0.07' Free Product</b>								
<b>RW-2</b>	3/8/2013	9,420	12,800	2,030	11,000	565 J	9,100	224 J	1.65	ND (3.8)
	3/5/2014	11,000	18,500	1,580	9,850	299J	26,900	58.1J	ND(0.0063)	NA
	8/5/2015	199	409	20.6J	1,920	116	90.1	ND(1.16)	ND(0.00750)	NA
	1/17/2016	1,220	4,330	276	4,880	313	1,510	ND(5.81)	ND(0.00750)	NA
	6/8/2016	5,340	11,800	1,270	9,000	1,150	16,800	ND(11.6)	0.120	NA
	9/18/2016	12,000	35,000	4,400	26,000	1,300 J	22,000	ND(200)	0.13	NA
	10/3/2018	45	150	23	150	13	56	ND (5.0)	ND (0.020)	NA
<b>RW-3</b>	3/6/2013	<b>0.05' Free Product</b>								
	3/5/2014	<b>0.06' Free Product</b>								
	8/5/2015	4,710	7,870	908	7,760	642	6,460	ND(11.6)	ND(0.00750)	NA
	1/17/2016	12,800	25,500	2,860	19,200	ND(44.0)	9,600	ND(29.0)	0.539	NA
	6/8/2016	2,920	5,970	814	5,430	ND(17.6U)	1,910	ND(11.6)	0.091	NA
	9/18/2016	15,000	27,000	2,400	15,000	620 J	12,000	ND(80)	2.3	NA
	10/3/2018	16,000	31,000	2,700	16,000	840 J	15,000	ND (2,500)	1.7	NA

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 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethylbenzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>
<b>RW-4</b>	3/8/2013	3,390	1,730	977	4,900	210 J	4,460	ND (5.81)	ND (0.0039)	12 J
	3/7/2014	2,960	4,070	378J	3,500	186J	9,160	ND(11.6)	ND(0.0063)	NA
	8/5/2015	4,680	5,720	1,050	6,190	1,100	20,200	ND(23.2)	ND(0.00750)	NA
	1/17/2016	5,290	6,900	1,110	6,590	ND(35.2)	18,200	ND(23.2)	ND(0.00750)	NA
	6/8/2016	6,560	7,610	1,250	7,350	2,110	30,700	ND(23.2)	ND(0.00750)	NA
	9/18/2016	3,800	4,600	750	4,400	220 J	8,600	ND(20)	ND(0.0051)	NA
	10/3/2018	3,900	3,400	880	4,800	220 J	11,000	ND (500)	ND (0.020)	NA
<b>RW-5</b>	3/6/2013	0.06' Free Product								
	3/5/2014	0.30' Free Product								
	8/5/2015	20,000	33,200	3,060	18,100	2,780	10,600	ND(58.1)	ND(0.00750)	NA
	1/17/2016	7,990	22,000	2,270	18,800	ND(35.2)	3,060	ND(23.2)	ND(0.00750)	NA
	6/8/2016	388	1,040	196	3,160	227	225	ND(1.16)	ND(0.00750)	NA
	9/18/2016	24,000	47,000	4,600	24,000	1,000 J	11,000	ND(200)	ND(0.0050)	NA
	10/4/2018	0.52' Free Product								
<b>RW-6</b>	10/5/2018	0.08' Free Product								
<b>RW-7</b>	10/3/2018	4,600	170 J	1,800	4,400	670	8,100	ND (500)	ND (0.021)	NA
<b>RW-8</b>	10/3/2018	42	4.1 J	150	460	47	25	ND (5.0)	ND (0.020)	NA
<b>RW-9</b>	10/3/2018	0.56 J	ND (5.0)	0.62 J	1.3 J	2.3 J	20	ND (5.0)	ND (0.020)	NA
<b>RW-10</b>	10/4/2018	13,000	6,900	3,000	9,500	790 J	7,100	ND (1,000)	ND (0.020)	NA
<b>RW-11</b>	10/3/2018	800 J	33,000	2,600	15,000	570 J	ND (2,500)	ND (2,500)	ND (0.020)	NA
<b>RW-12</b>	10/4/2018	12,000	21,000	1,300	15,000	780 J	11,000	ND (1,000)	140	NA

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**Table 4 – Current & Historical Groundwater Analytical Data**  
**Broad River Amoco; UST Permit #11946**  
 Historical through October 2018

Monitor Well ID	Date Sampled	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Naphthalene	MTBE	1,2-DCA	EDB	Total Lead
<b>RBSLs</b>	<b>N/A</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>25</b>	<b>40</b>	<b>5 (MCL)</b>	<b>0.05</b>	<b>15 (Action Level)</b>
<b>DMW-1</b>	3/8/2013	507	ND (1.22)	ND (1.09)	ND (0.179)	ND (1.76)	131	14.2 J	ND (0.0039)	ND (3.8)
	3/7/2014	ND(0.111)	0.827J	ND(0.109)	1.17J	ND(0.176)	159	2.60J	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/8/2016	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	116	ND(0.116)	0.031	NA
	9/18/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	90	ND(0.40)	ND(0.0049)	NA
	10/3/2018	ND (5.0)	0.77 J	3.1 J	30	11	98	ND (5.0)	ND (0.021)	NA
<b>DMW-2</b>	3/6/2013	4.12	0.548 J	ND (0.109)	0.805 J	ND (0.176)	153	ND (0.116)	ND (0.0039)	ND (3.8)
	3/7/2014	0.669J	3.63J	1.90J	10.7J	13.2	89.2	ND(0.232)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/9/2016	ND(0.111)	0.611J	ND(0.109)	4.05J	ND(0.176)	5.92	ND(0.116)	ND(0.00750)	NA
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	6.3	ND(0.40)	ND(0.0050)	NA
	10/4/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	17	ND (5.0)	ND (0.020)	NA
<b>DMW-3</b>	3/6/2013	0.281 J	0.497 J	ND (0.109)	ND (0.179)	ND (0.176)	1.76	ND (0.116)	ND (0.0039)	120
	3/5/2014	ND(0.111)	ND(0.122)	ND(0.109)	ND(0.179)	ND(0.176)	1.33J	ND(0.116)	ND(0.0063)	NA
	8/5/2015	Not Sampled								
	1/17/2016	Not Sampled								
	6/9/2016	ND(0.111)	ND(0.122)	ND(0.109)	1.59J	ND(0.176)	1.04J	ND(0.116)	ND(0.00750)	NA
	9/20/2016	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	ND(0.40)	1.2 J	ND(0.40)	ND(0.0050)	NA
	10/5/2018	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	1.1 J	ND (5.0)	ND (0.021)	NA

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**Table 4 – Current & Historical Groundwater Analytical Data**  
 –8 Oxygenates–  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	—	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>MW-1</b>	3/5/2011	NA	NA	NA	NA	NA	NA	NA	NA
	3/8/2013	ND (23.6)	ND (12,500)	ND (3,760)	ND (23.4)	6,340	ND (24)	ND (29)	ND (48.7)
	3/6/2014	ND(118)	ND(62,500)	ND(18,800)	ND(117)	ND(4,270)	ND(120)	ND(145)	ND(243)
	8/5/2015	ND(118)	ND(62,500)	ND(18,800)	ND(117)	ND(507)	ND(120)	ND(145)	ND(243)
	1/17/2016	ND(59.0)	ND(31,200)	ND(9,400)	ND(58.5)	3,170J	ND(60.0)	ND(72.5)	ND(122)
	6/7/2016	ND(118)	ND(62,500)	ND(18,800)	ND(117)	4,130J	ND(120)	ND(7,500)	ND(243)
	10/3/2018	ND (1,000)	ND (20,000)	ND (4,000)	ND (200)	2,000 J	ND (2,000)	ND (4,000)	ND (1,000)
<b>MW-2</b>	3/5/2011	NA	NA	NA	NA	NA	NA	NA	NA
	3/6/2013	<b>1.34' Free Product</b>							
	3/5/2014	<b>1.42' Free Product</b>							
	8/5/2015	ND(236)	ND(125,000)	ND(37,600)	ND(234)	48,800	3,740J	21,700	ND(487)
	1/17/2016	ND(59.0)	ND(31,200)	ND(9,400)	ND(58.5)	34,900	444J	14,700	ND(122)
	6/7/2016	ND(23.6)	ND(12,500)	ND(3,760)	ND(23.4)	23,200	ND(24)	6,170	ND(48.7)
	10/3/2018	ND (1,000)	ND (20,000)	ND (4,000)	ND (200)	60,000	440 J	19,000	ND (1,000)
	<b>MW-3</b>	3/5/2011	NA	NA	NA	NA	NA	NA	NA
3/8/2013		ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	31	ND (0.24)	ND (0.29)	ND (0.487)
3/7/2014		ND(2.36)	ND(1,250)	ND(376)	ND(2.34)	ND(10.1)	ND(2.40)	ND(2.90)	ND(4.87)
8/5/2015		Not Sampled							
1/17/2016		ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	46.8	ND(0.240)	6.08J	ND(0.487)
6/7/2016		ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	42	ND(0.240)	ND(15.0)	ND(0.487)
10/3/2018		ND (5.0)	ND (100)	ND (20)	ND (1.0)	71	ND (10)	15 J	ND (5.0)
<b>MW-4</b>	3/5/2011	NA	NA	NA	NA	NA	NA	NA	NA
	3/6/2013	<b>2.31' Free Product</b>							
	3/5/2014	<b>2.24' Free Product</b>							
	8/5/2015	ND(23.6)	ND(12,500)	ND(3,760)	ND(23.4)	2,410	441J	2,180	ND(48.7)
	1/17/2016	ND(11.8)	ND(6,250)	ND(1,880)	ND(11.7)	1,360	176J	1,600	ND(24.3)
	6/7/2016	ND(2.36)	ND(1,250)	ND(376)	ND(2.34)	373	30.4J	265	ND(4.87)
	10/3/2018	ND (500)	ND (10,000)	ND (2,000)	ND (100)	2,500	160 J	3,800	ND (500)

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 –8 Oxygenates–  
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 Historical through October 2018

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	—	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>MW-5</b>	6/20/2011	NA	NA	NA	NA	NA	NA	NA	NA
	3/6/2013	2.83' Free Product							
	3/5/2014	7.63' Free Product							
	8/5/2015	ND(118)	ND(62,500)	ND(18,800)	ND(117)	17,500	2,220J	3,740J	ND(243)
	1/17/2016	ND(59.0)	ND(31,200)	ND(9,400)	ND(58.5)	6,030	473J	ND(72.5)	ND(122)
	6/7/2016	ND(59.0)	ND(31,200)	ND(9,400)	ND(58.5)	12,300	797J	ND(3,750)	ND(122)
	10/4/2018	7.32' Free Product							
<b>MW-6A</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(15.0)	ND(0.487)
	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-6B</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(15.0)	ND(0.487)
	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-7A</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)	

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Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	—	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>MW-8A</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-8B</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-9A</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-9B</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)

Note: All units expressed in µg/L (PPB)  
 ND ( ) - Not Detected Above Method Detection Limit (limit in µg/l)  
 NA - Not Analyzed      J - Estimated result < PQL and > Method Detection Limit



**Table 4 – Current & Historical Groundwater Analytical Data**  
 –8 Oxygenates–  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	—	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>MW-10A</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-10B</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-11A</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	2.92J	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	0.440J	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(15.0)	ND(0.487)
	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-11B</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/7/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(15.0)	ND(0.487)
	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-12A</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/8/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)

Note: All units expressed in µg/L (PPB)  
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**Table 4 – Current & Historical Groundwater Analytical Data  
 –8 Oxygenates–  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018**

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	---	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>MW-12B</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/8/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-13A</b>	3/25/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	Insufficient Water							
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/8/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	1/17/2016	Dry							
<b>MW-13B</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/8/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-14A</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/8/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)

Note: All units expressed in µg/L (PPB)  
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**Table 4 – Current & Historical Groundwater Analytical Data**  
 –8 Oxygenates–  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	—	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>RW-6</b>	10/5/2018	<b>0.08' Free Product</b>							
<b>RW-7</b>	10/3/2018	<b>ND (500)</b>	ND (10,000)	ND (2,000)	<b>ND (100)</b>	<b>3,600</b>	120 J	<b>4,600</b>	ND (500)
<b>RW-8</b>	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	110	ND (10)	15 J	ND (5.0)
<b>RW-9</b>	10/3/2018	3.5 J	ND (100)	ND (20)	0.53 J	130	2.4 J	180	ND (5.0)
<b>RW-10</b>	10/4/2018	<b>ND (1,000)</b>	<b>ND (20,000)</b>	ND (4,000)	<b>ND (200)</b>	<b>9,400</b>	<b>340 J</b>	<b>ND (4,000)</b>	ND (1,000)
<b>RW-11</b>	10/3/2018	<b>ND (2,500)</b>	<b>ND (50,000)</b>	ND (10,000)	<b>ND (500)</b>	<b>ND (10,000)</b>	<b>ND (5,000)</b>	<b>ND (10,000)</b>	ND (2,500)
<b>RW-12</b>	10/4/2018	<b>ND (1,000)</b>	<b>ND (20,000)</b>	ND (4,000)	<b>ND (200)</b>	<b>30,000</b>	<b>ND (2,000)</b>	<b>11,000</b>	ND (1,000)
<b>DMW-1</b>	3/8/2013	ND (2.36)	ND (1250)	ND (376)	ND (2.34)	<b>2,550</b>	ND (2.4)	75.5 J	ND (4.87)
	3/7/2014	3.59J	ND(125)	ND(37.6)	ND(0.234)	<b>2,300</b>	ND(0.240)	125	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/8/2016	0.992J	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
<b>DMW-2</b>	10/3/2018	0.97 J	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	3/6/2013	1.49 J	ND (125)	ND (37.6)	ND (0.234)	141	ND (0.24)	230	ND (0.487)
	3/7/2014	0.867J	ND(250)	ND(75.2)	ND(0.468)	120	ND(0.480)	340	ND(0.974)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
<b>DMW-3</b>	6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
	3/6/2013	ND (0.236)	239 J	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
1/17/2016	Not Sampled								
6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)	
10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)	

Note: All units expressed in µg/L (PPB)  
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**Table 4 – Current & Historical Groundwater Analytical Data**  
 --8 Oxygenates--  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	---	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>MW-14B</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/8/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	21	ND (10)	9.2 J	ND (5.0)
<b>MW-15A</b>	3/25/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/8/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	Not Sampled							
<b>MW-15B</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/6/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/8/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-16A</b>	3/25/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	Abandoned							
<b>MW-16B</b>	3/7/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	Abandoned							
<b>MW-17B</b>	3/6/2013	2.6 J	ND (250)	ND (75.2)	ND (0.468)	244	ND (0.48)	400	ND (0.974)
	3/5/2014	4.68J	ND(1,250)	ND(376)	ND(2.34)	422	ND(2.40)	1,120	ND(4.87)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/8/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	6.0 J	ND (500)	ND (100)	2.1 J	520	ND (50)	2,300	ND (25)

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–8 Oxygenates–  
Broad River Amoco; UST Permit #11946  
Historical through October 2018**

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	—	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>MW-18A</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-18B</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/4/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-19A</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	5.8 J	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	7.86J	ND(0.240)	15.2	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/3/2018	Destroyed							
<b>MW-19B</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	6.04J	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/24/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)

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Broad River Amoco; UST Permit #11946  
Historical through October 2018**

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	—	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>MW-20A</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/24/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-20B</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/24/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-21A</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-21B</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)
<b>MW-22B</b>	3/6/2013	ND (0.236)	ND (125)	ND (37.6)	ND (0.234)	ND (1.01)	ND (0.24)	ND (0.29)	ND (0.487)
	3/5/2014	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	8/5/2015	Not Sampled							
	1/17/2016	Not Sampled							
	6/9/2016	ND(0.236)	ND(125)	ND(37.6)	ND(0.234)	ND(1.01)	ND(0.240)	ND(0.290)	ND(0.487)
	10/5/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	ND (20)	ND (10)	ND (20)	ND (5.0)

Note: All units expressed in µg/L (PPB)  
 ND( ) - Not Detected Above Method Detection Limit (limit in µg/l)  
 NA - Not Analyzed                      J - Estimated result < PQL and > Method Detection Limit

**Table 4 – Current & Historical Groundwater Analytical Data**  
 –8 Oxygenates–  
 Broad River Amoco; UST Permit #11946  
 Historical through October 2018

Monitor Well ID	Date Sampled	DIPE	Ethanol	ETBA	ETBE	TAA	TAME	TBA	TBF
<b>RBSLs</b>	—	<b>150</b>	<b>10,000</b>	<b>N/A</b>	<b>47</b>	<b>240</b>	<b>128</b>	<b>1,400</b>	<b>N/A</b>
<b>RW-1</b>	3/6/2013	<b>0.15' Free Product</b>							
	3/5/2014	<b>6.68' Free Product</b>							
	8/5/2015	ND(47.2)	<b>ND(25,000)</b>	ND(7,520)	ND(46.8)	<b>13,100</b>	ND(48.0)	<b>1,420J</b>	ND(97.4)
	1/17/2016	ND(5.90)	ND(3,120)	ND(940)	ND(5.85)	<b>487J</b>	22.7J	ND(7.25)	ND(12.2)
	6/8/2016	ND(2.36)	ND(1,250)	ND(376)	ND(2.34)	ND(10.1)	ND(2.40)	ND(150)	ND(4.87)
	10/3/2018	<b>0.07' Free Product</b>							
<b>RW-2</b>	3/8/2013	72.7 J	<b>ND (25,000)</b>	ND (7520)	ND (46.8)	<b>32,100</b>	ND (48)	<b>5,970</b>	ND (97.4)
	3/5/2014	ND(59.0)	<b>ND(31,200)</b>	ND(9,400)	<b>ND(58.5)</b>	<b>16,900</b>	110J	<b>13,900</b>	ND(122)
	8/5/2015	ND(2.36)	ND(1,250)	ND(376)	ND(2.34)	220	ND(2.40)	71.8J	ND(4.87)
	1/17/2016	ND(11.8)	ND(6,250)	ND(1,880)	ND(11.7)	<b>429J</b>	ND(12.0)	549	ND(24.3)
	6/8/2016	ND(23.6)	<b>ND(12,500)</b>	ND(3,760)	ND(23.4)	<b>13,700</b>	ND(24)	<b>11,700</b>	ND(48.7)
	10/3/2018	ND (5.0)	ND (100)	ND (20)	ND (1.0)	17 J	ND (10)	25	ND (5.0)
<b>RW-3</b>	3/6/2013	<b>0.05' Free Product</b>							
	3/5/2014	<b>0.06' Free Product</b>							
	8/5/2015	ND(23.6)	<b>ND(12,500)</b>	ND(3,760)	ND(23.4)	<b>21,000</b>	<b>464J</b>	<b>3,330</b>	ND(48.7)
	1/17/2016	ND(59.0)	<b>ND(31,200)</b>	ND(9,400)	ND(58.5)	<b>34,200</b>	<b>320J</b>	<b>4,680</b>	ND(122)
	6/8/2016	ND(23.6)	<b>ND(12,500)</b>	ND(3,760)	ND(23.4)	<b>8,330</b>	<b>138J</b>	<b>ND(1,500)</b>	ND(48.7)
	10/3/2018	<b>ND (2,500)</b>	<b>ND (50,000)</b>	ND (10,000)	<b>ND (500)</b>	<b>68,000</b>	<b>350 J</b>	<b>9,700 J</b>	ND (2,500)
<b>RW-4</b>	3/8/2013	ND (11.8)	ND (6,250)	ND (1880)	ND (11.7)	<b>5,690</b>	ND (12)	<b>2,180</b>	ND (24.3)
	3/7/2014	ND(23.6)	<b>ND(12,500)</b>	ND(3,760)	ND(23.4)	<b>5550</b>	53.3J	<b>2,930</b>	ND(48.7)
	8/5/2015	ND(47.2)	<b>ND(25,000)</b>	ND(7,520)	ND(46.8)	<b>11,900</b>	<b>743J</b>	<b>9,020</b>	ND(97.4)
	1/17/2016	ND(47.2)	<b>ND(25,000)</b>	ND(7,520)	ND(46.8)	<b>9,470</b>	117J	<b>6,730</b>	ND(97.4)
	6/8/2016	ND(47.2)	<b>ND(25,000)</b>	ND(7,520)	ND(46.8)	<b>11,900</b>	<b>743J</b>	<b>9,020</b>	ND(97.4)
	10/3/2018	<b>ND (500)</b>	<b>ND (10,000)</b>	ND (2,000)	<b>ND (100)</b>	<b>2,900</b>	<b>200 J</b>	<b>2,000</b>	ND (500)
<b>RW-5</b>	3/6/2013	<b>0.06' Free Product</b>							
	3/5/2014	<b>0.30' Free Product</b>							
	8/5/2015	ND(118)	<b>ND(62,500)</b>	ND(18,800)	<b>ND(117)</b>	<b>19,500</b>	<b>2,150J</b>	ND(145)	ND(243)
	1/17/2016	ND(47.2)	<b>ND(25,000)</b>	ND(7,520)	ND(46.8)	<b>2,520J</b>	<b>189J</b>	ND(58.0)	ND(97.4)
	6/8/2016	ND(2.36)	ND(1,250)	ND(376)	ND(2.34)	<b>546</b>	20.5J	ND(150)	ND(4.87)
	10/4/2018	<b>0.52' Free Product</b>							

Note: All units expressed in µg/L (PPB)  
 ND( ) - Not Detected Above Method Detection Limit (limit in µg/l)  
 NA - Not Analyzed                      J - Estimated result < PQL and > Method Detection Limit



**APPENDIX A  
NOT INCLUDED**

**APPENDIX B**  
**PURGING DATA SHEETS &**  
**LABORATORY ANALYTICAL DATA**



## Purge Meter Calibration Data Sheet

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry L. Teate, Tom Teate Weather: Clear, Sunny 86-90°  
(full names)

**pH / Specific Conductivity Meter**

Model & Serial #:  Hanna HI9824 - S/N 886328  
 (check one)  Hanna HI9824 - S/N 871936

**Dissolved Oxygen Meter**

Model & Serial #:  YSI 58 Dissolved Oxygen - S/N 510  
 (check one)  YSI 550A Dissolved Oxy. - S/N 06A280  
YSI 15D 100942 Pro

**Turbidity Meter**

Model & Serial #:  Micro-TPW 2000 - S/N 201401347  
 (check one)

**Initial Calibration**

pH Calibration: 4.0 / 7.0 / 10.0  
 pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 1000  
 Spec. Cond. Standard: 1000 us/cm

Turbidity Calibration: 0.02 / 10.0 / 1000  
 Turbidity Standard: 0.02 / 10.0 / 1000

Date: 10-5-18  
 Time: 0715

**Midday Calibration Check**

pH Calibration: \_\_\_\_\_  
 pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: \_\_\_\_\_  
 Spec. Cond. Standard: \_\_\_\_\_

Turbidity Calibration: \_\_\_\_\_  
 Turbidity Standard: 0.02 / 10.0 / 1000

Date: \_\_\_\_\_  
 Time: \_\_\_\_\_

**End-of-Day Calibration Check**

pH Calibration: 4.0 / 7.0 / 10.0  
 pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 1000  
 Spec. Cond. Standard: 1000 us/cm

Turbidity Calibration: 0.02 / 10.0 / 1000  
 Turbidity Standard: 0.02 / 10.0 / 1000

Date: 10-5-18  
 Time: 1145



## Purge Meter Calibration Data Sheet

### Site Data

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry L. Teate, Tom Teate Weather: Clear, Sunny 86-90°  
(full names)

### pH / Specific Conductivity Meter

Model & Serial #:  Hanna HI9824 - S/N 886328  
 Hanna HI9824 - S/N 871936

### Dissolved Oxygen Meter

Model & Serial #:  YSI 58 Dissolved Oxygen - S/N 510  
 YSI 550A Dissolved Oxy. - S/N 06A280  
YSI 15D 100942 Pro

### Turbidity Meter

Model & Serial #:  Micro-TPW 2000 - S/N 201401347  
(check one)

### Initial Calibration

pH Calibration: 4.0 / 7.0 / 10.0  
 pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 998  
1000  
 Spec. Cond. Standard: US/cm

Turbidity Calibration: 0.02 / 10.0 / 1000  
 Turbidity Standard: 0.02 / 10.0 / 1000

Date: 10-4-18

Time: 8:00

### Midday Calibration Check

pH Calibration: 4.0 / 7.0 / 10.0  
 pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 999  
1000  
 Spec. Cond. Standard: US/cm

Turbidity Calibration: 0.02 / 10.0 / 1000  
 Turbidity Standard: 0.02 / 10.0 / 1000

Date: 10-4-18

Time: 1230

### End-of-Day Calibration Check

pH Calibration: 4.0 / 7.0 / 10.0  
 pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 1001  
US-cm  
 Spec. Cond. Standard:

Turbidity Calibration: 0.02 / 10.0 / 1000  
 Turbidity Standard: 0.02 / 10.0 / 1000

Date: 10-4-18

Time: 1910



## Purge Meter Calibration Data Sheet

### Site Data

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry L. Teate, Tom Teate Weather: Clear, Sunny 86-90°  
(full names)

### pH / Specific Conductivity Meter

Model & Serial #:  Hanna HI9824 - S/N 886328  
 Hanna HI9824 - S/N 871936

### Dissolved Oxygen Meter

Model & Serial #:  YSI 58 Dissolved Oxygen - S/N 510  
 YSI 550A Dissolved Oxy. - S/N 06A280  
 YSI 15D 100942 Pro

### Turbidity Meter

Model & Serial #:  Micro-TPW 2000 - S/N 201401347  
(check one)

### Initial Calibration

pH Calibration: 4.0 / 7.0 / 10.0  
 pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 1002  
 Spec. Cond. Standard: 1000 us/cm

Turbidity Calibration: .02 / 10.0 / 999  
 Turbidity Standard: 0.02 / 10.0 / 1000

Date: 10-3-18  
 Time: 0648

### Midday Calibration Check

pH Calibration:       /      /        
 pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 998  
 Spec. Cond. Standard: 1000 us/cm

Turbidity Calibration: .02 / 10.0 / 1002  
 Turbidity Standard: 0.02 / 10.0 / 1000

Date: 10-3-18  
 Time: 1250

### End-of-Day Calibration Check

pH Calibration:       /      /        
 pH Standard: 4.01 / 7.00 / 10.01

Spec. Cond. Calibration: 1000  
 Spec. Cond. Standard: 1000 us/cm

Turbidity Calibration: .02 / 10.2 / 1001  
 Turbidity Standard: 0.02 / 10.0 / 1000

Date: 10-3-18  
 Time: 1935



## Purge Meter Calibration Data Sheet

### Site Data

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry L. Teate Weather: Clear 80°  
(full names)

### pH / Specific Conductivity Meter

Model & Serial #:  Hanna HI9824 - S/N 886328  
 (check one)  Hanna HI9824 - S/N 871936

### Dissolved Oxygen Meter

Model & Serial #:  YSI 58 Dissolved Oxygen - S/N 510  
 (check one)  YSI 550A Dissolved Oxy. - S/N 06A280  
 YSI Pro SN-15D100942

### Turbidity Meter

Model & Serial #:  Micro-TPW 2000 - S/N 201401347  
 (check one)

### Initial Calibration

pH Calibration: <u>4.0 / 7.0 / 10.0</u>	Spec. Cond. Calibration: <u>1000</u>	Turbidity Calibration: <u>0.02 / 10.0 / 1000</u>	Date: <u>10-24-18</u>
pH Standard: <u>4.01 / 7.00 / 10.01</u>	Spec. Cond. Standard: <u>USCM / 1000</u>	Turbidity Standard: <u>0.02 / 10.0 / 1000</u>	Time: <u>8:45</u>

### Midday Calibration Check

pH Calibration: <u>      /      /      </u>	Spec. Cond. Calibration: <u>      </u>	Turbidity Calibration: <u>      /      /      </u>	Date: <u>      </u>
pH Standard: <u>4.01 / 7.00 / 10.01</u>	Spec. Cond. Standard: <u>      </u>	Turbidity Standard: <u>0.02 / 10.0 / 1000</u>	Time: <u>      </u>

### End-of-Day Calibration Check

pH Calibration: <u>4.0 / 7.0 / 10.0</u>	Spec. Cond. Calibration: <u>1000</u>	Turbidity Calibration: <u>0.02 / 10.0 / 1000</u>	Date: <u>10-24-18</u>
pH Standard: <u>4.01 / 7.00 / 10.01</u>	Spec. Cond. Standard: <u>1000 / USCM</u>	Turbidity Standard: <u>0.02 / 10.0 / 1000</u>	Time: <u>1050</u>



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-5 Diameter (in): 2" Well Volume (gal): \_\_\_\_\_  
 Total Depth: 20' Static Water Level: 18.0 Static Product Level: 10.68  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.853  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (mild, moderate, strong)									
Dissolved Oxygen									

Sample Collection Time: \_\_\_\_\_

Remarks: Free Product = 7.32 FT





## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate (full names) Weather: Clear, H: 79°

**Well Data**

Well Number: RW-1 Diameter (in): 2" Well Volume (gal): \_\_\_\_\_  
 Total Depth: 40.0 Static Water Level: 15.42 Static Product Level: 15.35

\* 1" well: 1 vol. volume = (TD - SWL) x 0.04  
 \* 2" well: 1 vol. volume = (TD - SWL) x 0.16  
 \* 4" well: 1 vol. volume = (TD - SWL) x 0.64  
 TD = Total Depth SWL = Static Water Level

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (mild, moderate, strong)									
Dissolved Oxygen									

Sample Collection Time: \_\_\_\_\_

Remarks: Free Product = 0.07



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-5 Diameter (in): 4" Well Volume (gal): \_\_\_\_\_  
 Total Depth: 38.5 Static Water Level: 13.92 Static Product Level: 13.40  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.853  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (mild, moderate, strong)									
Dissolved Oxygen									

Sample Collection Time: \_\_\_\_\_

Remarks: Free Product = 0.52 Text6s



## Monitoring Well Purging Data Sheet

Date: 10-5-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-6 Diameter (in): 4" Well Volume (gal): 13.7  
 Total Depth: 35' Static Water Level: 13.98 Static Product Level: 13.90  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (mild, moderate, strong)									
Dissolved Oxygen									

Sample Collection Time: \_\_\_\_\_

Remarks: Free Product = 0.08



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-1 Diameter (in): 2" Well Volume (gal): 3.7  
 Total Depth: 40.0' Static Water Level: 16.92 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)	1.0	.5	.5	.5					.2
Time (military)									
pH (standard units)	8.2	8.2	7.9	7.9					7.9
Specific Cond. (µS/cm)	102	47	74	62					70
Water Temp (°C)	27.2	26.4	26.5	26.2					26.3
Turbidity (mild, moderate, strong)	3.09	36.51	6.93	6.81					6.77
Dissolved Oxygen	5.38	4.69	4.15	4.01					3.90

Sample Collection Time: 0715

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-2 Diameter (in): 2" Well Volume (gal): 2.1  
 Total Depth: 28.0' Static Water Level: 14.90 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)	.5	1.0	.5						.2
Time (military)	.5	1.0	.5						.2
pH (standard units)	8.5	8.4	8.5						8.5
Specific Cond. (µS/cm)	112	112	125						118
Water Temp (°C)	26.3	27.0	26.3						26.1
Turbidity (mild, moderate, strong)	143.6	94.74	92.18						93.22
Dissolved Oxygen	3.16	1.43	2.03						1.96

Sample Collection Time: 0907

Remarks: Sheen on top of sample



# Monitoring Well Purging Data Sheet

Date: 10-3-18

### Site Data

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

### Well Data

Well Number: MW-3 Diameter (in): 2" Well Volume (gal): 2.3  
 Total Depth: 31.0' Static Water Level: 16.44 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

### Purging Data

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)	1.0	.5	.2	.2					.2
Time (minutes)									
pH (standard units)	8.7	8.6	8.5	8.5					8.5
Specific Cond. (µS/cm)	152	136	220	228					218
Water Temp (°C)	24.7	24.8	24.5	24.4					24.5
Turbidity (mld, moderate, strong)	5.73	6.62	8.81	8.77					8.79
Dissolved Oxygen	1.59	1.46	1.40	1.40					1.41

Sample Collection Time: 1211

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-4 Diameter (in): 2" Well Volume (gal): 2.4  
 Total Depth: 25.0 Static Water Level: 10.15 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.169  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	.5	.5					.2
Time (military)									
pH (standard units)	8.8	8.9	8.8	8.8					8.8
Specific Cond. (µS/cm)	374	493	491	491					482
Water Temp (°C)	27.3	27.6	27.4	27.5					27.4
Turbidity (mild, moderate, strong)	31.41	303.2	257.3	259.1					251.3
Dissolved Oxygen	3.08	2.42	2.81	2.79					2.64

Sample Collection Time: 1618

Remarks: \_\_\_\_\_





## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-6A Diameter (in): 2" Well Volume (gal): 1.3  
 Total Depth: 25.5 Static Water Level: 17.0 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.2						2
Time (military)									...
pH (standard units)	7.6	7.6	7.6						7.6
Specific Cond. (µS/cm)	115	42	25						29
Water Temp (°C)	23.9	24.8	23.8						23.5
Turbidity (nkl, moderate, strong)	170.5	466.5	464.9						471.3
Dissolved Oxygen	3.13	2.90	2.92						

Sample Collection Time: 1334

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-6B Diameter (in): 2" Well Volume (gal): 3.5  
 Total Depth: 38.5 Static Water Level: 16.48 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	.5	.5					.2
Time (military)									
pH (standard units)	7.5	7.5	7.5						7.5
Specific Cond. (µS/cm)	64	73	88						66
Water Temp (°C)	26.1	26.9	25.8						25.7
Turbidity (mild, moderate, strong)	37.79	8.90	8.19						8.70
Dissolved Oxygen	3.87	3.59	3.57						3.52

Sample Collection Time: 1358

Remarks: \_\_\_\_\_  
 \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-7A Diameter (in): 2" Well Volume (gal): 1.6  
 Total Depth: 24.0 Static Water Level: 14.0 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0	.5					.5
Time (military)									
pH (standard units)	7.6	7.6	7.5	7.5					7.5
Specific Cond. (µS/cm)	21	14	20	20					21
Water Temp (°C)	28.2	27.3	27.0	27.1					27.0
Turbidity (mild, moderate, strong)	27.47	26.69	12.93	12.77					12.59
Dissolved Oxygen	5.92	5.94	5.22	5.01					4.92

Sample Collection Time: 1439

Remarks: \_\_\_\_\_



ENVIRONMENTAL TEST SERVICES

# Monitoring Well Purging Data Sheet

Date: 10-3-18

### Site Data

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

### Well Data

Well Number: MW-8A Diameter (in): 2" Well Volume (gal): 1.1  
 Total Depth: 23.0' Static Water Level: 15.98 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.169  
 4" well: 1 well volume = (TD - SWL) x 0.669  
 (TD = Total Depth SWL = Static Water Level)

### Purging Data

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.5	1.0	.5					.2
Time (minutes)									
pH (standard units)	8.2	8.3	8.3	8.3					8.3
Specific Cond. (µS/cm)	96	103	104	104					111
Water Temp (°C)	28.3	28.9	28.4	28.0					27.8
Turbidity (nephelometric units)	743.7	1100	576.3	574.7					570.1
Dissolved Oxygen	3.22	2.92	2.87	2.88					2.89

Sample Collection Time: 1508

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-8B Diameter (in): 2" Well Volume (gal): 3.5  
 Total Depth: 37.5 Static Water Level: 15.50 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0	.5					.5
Time (military)									
pH (standard units)	8.1	8.1	8.0	8.0					8.0
Specific Cond. (µS/cm)	31	38	35	35					33
Water Temp (°C)	27.3	28.2	26.5	26.3					26.3
Turbidity (mild, moderate, strong)	74.17	26.58	6.68	6.55					6.51
Dissolved Oxygen	6.15	6.20	6.09	5.91					5.90

Sample Collection Time: 1542

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-9A Diameter (in): 2" Well Volume (gal): 1.0  
 Total Depth: 23.0 Static Water Level: 16.56 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	1.0	.5					.2
Time (military)									
pH (standard units)	8.2	8.0	7.8	7.8					7.9
Specific Cond. (µS/cm)	49	70	31	42					40
Water Temp (°C)	27.1	26.8	25.1	25.1					25.0
Turbidity (mild, moderate, strong)	31.66	460.5	49.12	49.04					47.32
Dissolved Oxygen	2.46	2.18	2.09	2.02					1.96

Sample Collection Time: 1739

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-9B Diameter (in): 2" Well Volume (gal): 2.3  
 Total Depth: 31.5 Static Water Level: 16.82 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	.5	.2					.2
Time (military)									
pH (standard units)	8.1	8.4	8.2	8.2					8.3
Specific Cond. (µS/cm)	38	30	44	47					41
Water Temp (°C)	27.1	26.2	25.3	25.6					25.7
Turbidity (mild, moderate, strong)	45.62	32.31	36.62	36.51					36.17
Dissolved Oxygen	4.30	4.18	4.11	4.21					4.15

Sample Collection Time: 1820

Remarks: \_\_\_\_\_





## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear. Hot 92°  
(full names)

**Well Data**

Well Number: MW-13A Diameter (in): \_\_\_\_\_ Well Volume (gal): \_\_\_\_\_  
 Total Depth: \_\_\_\_\_ Static Water Level: \_\_\_\_\_ Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.863  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (mild, moderate, strong)									
Dissolved Oxygen									

Sample Collection Time: \_\_\_\_\_

Remarks: Damaged



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-13B Diameter (in): 2" Well Volume (gal): 2.9  
 Total Depth: 36.5 Static Water Level: 18.25 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	.5	.5					.2
Time (military)									
pH (standard units)	8.9	9.0	8.9	8.9					8.9
Specific Cond. (µS/cm)	152	151	145	147					145
Water Temp (°C)	23.0	21.8	22.5	21.2					21.3
Turbidity (mild, moderate, strong)	16.67	28.71	17.84	17.80					17.82
Dissolved Oxygen	6.31	6.12	6.09	5.97					6.0

Sample Collection Time: 1928

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-2 Diameter (in): 4" Well Volume (gal): 4.1  
 Total Depth: 40.0 Static Water Level: 14.82 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0	1.0					.5
Time (military)									
pH (standard units)	8.6	8.9	8.7	8.7					8.7
Specific Cond. (µS/cm)	30	24	32	30					31
Water Temp (°C)	27.5	27.7	27.4	27.1					27.0
Turbidity (mild, moderate, strong)	7.05	6.24	6.02	6.09					6.12
Dissolved Oxygen	2.37	2.17	2.28	2.12					2.10

Sample Collection Time: 945

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-3 Diameter (in): 4" Well Volume (gal): \_\_\_\_\_  
 Total Depth: 41.0 Static Water Level: 15.04 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.5	.5						1.2
Time (military)									
pH (standard units)	8.4	8.3	8.2						8.2
Specific Cond. (µS/cm)	80	92	83						82
Water Temp (°C)	26.8	27.0	25.6						25.8
Turbidity (mild, moderate, strong)	4.47	3.94	3.80						2.76
Dissolved Oxygen	1.90	1.68	2.19						1.66

Sample Collection Time: 1024

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-4 Diameter (in): 4" Well Volume (gal): \_\_\_\_\_  
 Total Depth: 40.5 Static Water Level: 14.0 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.659  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	.5	.5					.2
Time (military)									
pH (standard units)	8.8	8.8	8.7	8.7					8.7
Specific Cond. (µS/cm)	34	91	141	133					129
Water Temp (°C)	27.5	27.1	26.4	26.3					26.2
Turbidity (mild, moderate, strong)	181.8	45.40	70.54	68.86					60.72
Dissolved Oxygen	1.73	1.44	1.36	1.35					1.34

Sample Collection Time: 1057

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-D1 Diameter (in): 2" Well Volume (gal): \_\_\_\_\_  
 Total Depth: 65' Static Water Level: 14.39 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	.5	.5					.2
Time (military)									
pH (standard units)	9.2	9.3	9.2	9.3					9.3
Specific Cond. (µS/cm)	566	564	361	294					296
Water Temp (°C)	27.1	26.3	25.2	25.1					25.2
Turbidity (mld, moderate, strong)	7.65	9.92	4.26	4.29					4.30
Dissolved Oxygen	3.67	3.62	3.63	3.60					3.51

Sample Collection Time: 1138

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-10A Diameter (in): 2" Well Volume (gal): .8  
 Total Depth: 17.5' Static Water Level: 12.10 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	.5	.2					.2
Time (military)									
pH (standard units)	8.7	8.8	8.8						8.8
Specific Cond. (µS/cm)	254	157	163						151
Water Temp (°C)	24.7	24.2	24.5						24.3
Turbidity (mld, moderate, strong)	9.49	35.15	34.89						38.17
Dissolved Oxygen	3.19	2.12	1.99						2.04

Sample Collection Time: 1820

Remarks: \_\_\_\_\_





## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear. Hot 92°  
(full names)

**Well Data**

Well Number: MW-10B Diameter (in): 2" Well Volume (gal): 4.3  
 Total Depth: 39.0' Static Water Level: 12.42 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.5	.5						.5
Time (military)									
pH (standard units)	8.7	8.8	8.7						8.7
Specific Cond. (µS/cm)	161	163	118						118
Water Temp (°C)	25.2	24.8	23.5						23.2
Turbidity (mild, moderate, strong)	7.00	87.82	88.03						135.0
Dissolved Oxygen	6.29	6.06	5.94						5.92

Sample Collection Time: 1857

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-12A Diameter (in): 2" Well Volume (gal): 1.0  
 Total Depth: 20.0' Static Water Level: 13.45 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	.5	.5					.2
Time (military)		5	5	5					2
pH (standard units)	9.5	8.1	7.8	7.8					7.9
Specific Cond. (µS/cm)	59	63	41	61					60
Water Temp (°C)	26.1	25.5	25.5	25.7					25.6
Turbidity (mild, moderate, strong)	138.9	1100	874.3	869.2					811.4
Dissolved Oxygen	6.32	6.17	6.10	5.87					5.89

Sample Collection Time: 1710

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-12 B Diameter (in): 2" Well Volume (gal): 3.5  
 Total Depth: 36.5 Static Water Level: 14.60 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	.5						.2
Time (military)									
pH (standard units)	8.4	8.4	8.4						8.4
Specific Cond. (µS/cm)	75	74	70						70
Water Temp (°C)	25.9	25.6	24.4						24.5
Turbidity (mild, moderate, strong)	22.61	10.28	10.13						6.41
Dissolved Oxygen	5.35	5.25	5.21						5.23

Sample Collection Time: 1748

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear. Hot 92°  
(full names)

**Well Data**

Well Number: MW-14A Diameter (in): 2" Well Volume (gal): 1.0  
 Total Depth: 20.0' Static Water Level: 13.73 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	1.0	.5					.2
Time (military)									
pH (standard units)	8.9	8.4	8.3	8.3					8.3
Specific Cond. (µS/cm)	76	70	50	45					47
Water Temp (°C)	24.8	23.4	23.8	23.9					23.7
Turbidity (mild, moderate, strong)	189.6	75.43	68.73	67.29					65.24
Dissolved Oxygen	5.98	5.96	5.85	5.84					5.81

Sample Collection Time: 1032

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-14 B Diameter (in): 2" Well Volume (gal): 3.7  
 Total Depth: 38.5 Static Water Level: 15.34 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.169  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	.5						.2
Time (military)									
pH (standard units)	8.6	8.7	8.7						8.7
Specific Cond. (µS/cm)	150	149	97						97
Water Temp (°C)	23.3	23.2	22.9						22.8
Turbidity (mild, moderate, strong)	19.10	10.09	9.16						9.34
Dissolved Oxygen	2.82	2.20	2.18						2.18

Sample Collection Time: 958

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-4-8

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-15A Diameter (in): 2" Well Volume (gal): \_\_\_\_\_  
 Total Depth: 17' Static Water Level: Dry Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)									
Time (military)									
pH (standard units)									
Specific Cond. (µS/cm)									
Water Temp (°C)									
Turbidity (mild, moderate, strong)									
Dissolved Oxygen									

Sample Collection Time: \_\_\_\_\_

Remarks: Dry



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-15B Diameter (in): 2" Well Volume (gal): 3.8  
 Total Depth: 40.0 Static Water Level: 16.34 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0	.5					.2
Time (military)									
pH (standard units)	9.1	9.0	8.9	8.9					8.9
Specific Cond. (µS/cm)	130	129	130	94					97
Water Temp (°C)	23.2	22.3	22.4	22.8					22.9
Turbidity (mild, moderate, strong)	28.05	15.48	6.97	6.81					6.80
Dissolved Oxygen	4.22	3.61	3.59	3.59					3.57

Sample Collection Time: 1112

Remarks: \_\_\_\_\_





## Monitoring Well Purging Data Sheet

Date: \_\_\_\_\_

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-17B Diameter (in): 2" Well Volume (gal): 5.0  
 Total Depth: 39.5' Static Water Level: 8.80 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	.5						.2
Time (military)									
pH (standard units)	9.0	8.9	8.9						8.9
Specific Cond. (µS/cm)	215	140	139						135
Water Temp (°C)	30.2	29.8	28.0						29.0
Turbidity (mild, moderate, strong)	1.65	4.30	4.28						4.19
Dissolved Oxygen	2.48	2.42	2.42						2.40

Sample Collection Time: 1410

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-D2 Diameter (in): 2" Well Volume (gal): 9.2  
 Total Depth: 65' Static Water Level: 8.54 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0	1.0					.2
Time (military)									
pH (standard units)	9.1	9.2	9.2	9.1					9.1
Specific Cond. (µS/cm)	301	310	237	233					212
Water Temp (°C)	30.5	30.0	28.7	28.6					28.2
Turbidity (mil, moderate, strong)	1.78	6.04	0.95	0.95					0.92
Dissolved Oxygen	5.55	5.65	5.63	5.58					5.60

Sample Collection Time: 1500

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-18A Diameter (in): 2" Well Volume (gal): 1.6  
 Total Depth: 13.0 Static Water Level: 3.0 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0						1.2
Time (military)									
pH (standard units)	8.9	8.7	8.7						8.7
Specific Cond. (µS/cm)	296	127	118						110
Water Temp (°C)	28.5	27.4	27.3						27.5
Turbidity (mild, moderate, strong)	204.6	554.0	549.2						537.2
Dissolved Oxygen	2.35	1.95	1.90						1.97

Sample Collection Time: 1548

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: \_\_\_\_\_

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-18B Diameter (in): 2" Well Volume (gal): 5.2  
 Total Depth: 35.0 Static Water Level: 2.92 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.853  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	.5						.5
Time (military)									
pH (standard units)	8.9	8.8	8.9						8.9
Specific Cond. (µS/cm)	129	168	161						160
Water Temp (°C)	27.7	26.2	26.5						26.5
Turbidity (mild, moderate, strong)	7.58	3.63	3.24						3.20
Dissolved Oxygen	4.13	3.82	3.78						3.71

Sample Collection Time: 1632

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-5-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear. Hot 92°  
(full names)

**Well Data**

Well Number: MW-11A Diameter (in): 2" Well Volume (gal): 2.0  
 Total Depth: 20.0' Static Water Level: 7.55 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.683  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	.5						.2
Time (military)									
pH (standard units)	8.6	8.5	8.5						8.4
Specific Cond. (µS/cm)	140	128	135						134
Water Temp (°C)	23.8	23.5	23.1						23.2
Turbidity (mild, moderate, strong)	11.24	16.21	16.64						24.64
Dissolved Oxygen	4.43	4.12	3.98						4.10

Sample Collection Time: 745

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-5-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear. Hot 92°  
(full names)

**Well Data**

Well Number: MW-11B Diameter (in): 2" Well Volume (gal): 4.2  
 Total Depth: 35.0' Static Water Level: 9.05 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.169  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	.5						.2
Time (military)									
pH (standard units)	8.5	8.6	8.6						8.6
Specific Cond. (µS/cm)	117	117	116						110
Water Temp (°C)	22.7	22.8	22.5						22.7
Turbidity (mild, moderate, strong)	25.44	8.21	8.04						8.12
Dissolved Oxygen	4.60	4.57	4.47						4.32

Sample Collection Time: 828

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-24-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd - Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry L. Teate Weather: Clear Sunny 86°  
(full names)

**Well Data**

Well Number: MW-19-B Diameter (in): 2" Well Volume (gal): 4.1  
 Total Depth: 34.0 Static Water Level: 8.40 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.5	.5	.5					.2
Time (military)									
pH (standard units)	8.9	9.0	8.9	8.9					9.0
Specific Cond. (µS/cm)	167	135	164	164					160
Water Temp (°C)	29.5	29.1	27.8	28.0					27.8
Turbidity (mild, moderate, strong)	16.50	25.55	43.89	43.37					57.83
Dissolved Oxygen	2.42	2.31	2.33	2.30					2.29

Sample Collection Time: 920

Remarks: \_\_\_\_\_





## Monitoring Well Purging Data Sheet

Date: 10-24-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd - Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry L. Teate Weather: Clear Sunny 86°  
(full names)

**Well Data**

Well Number: MW-20A Diameter (in): 2" Well Volume (gal): 1.5  
 Total Depth: 15.0' Static Water Level: 5.68 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0	.5					.5
Time (military)									
pH (standard units)	8.0	7.9	8.0	8.0					8.0
Specific Cond. (µS/cm)	92	131	102	95					98
Water Temp (°C)	29.1	28.0	28.3	28.1					28.5
Turbidity (mild, moderate, strong)	1100	1100	366.5	360.1					349.2
Dissolved Oxygen	2.61	2.29	2.20	2.18					2.21

Sample Collection Time: 9:55

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-24-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd - Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry L. Teate Weather: Clear Sunny 86°  
(full names)

**Well Data**

Well Number: MW-20B Diameter (in): 2" Well Volume (gal): 5.0  
 Total Depth: 35.0 Static Water Level: 4.15 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		.5	.5	.5					.5
Time (military)									
pH (standard units)	8.6	8.6	8.5	8.5					8.6
Specific Cond. (µS/cm)	113	118	117	115					115
Water Temp (°C)	28.7	29.5	27.9	28.0					28.1
Turbidity (mild, moderate, strong)	300.0	240.5	53.08	57.11					50.87
Dissolved Oxygen	2.24	2.18	1.78	1.83					1.80

Sample Collection Time: 1035

Remarks: Duplicate # 4



## Monitoring Well Purging Data Sheet

Date: 10-5-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-21A Diameter (in): \_\_\_\_\_ Well Volume (gal): 1.7  
 Total Depth: 12.0 Static Water Level: 1.10 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.683  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0	.5					.2
Time (military)									
pH (standard units)	8.8	8.6	8.5	8.5					8.5
Specific Cond. (µS/cm)	116	136	140	141					140
Water Temp (°C)	28.9	27.9	27.0	27.1					27.4
Turbidity (mild, moderate, strong)	17.38	21.74	91.32	91.32					91.35
Dissolved Oxygen	3.91	3.49	2.95	2.80					2.88

Sample Collection Time: 915

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-5-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-22B Diameter (in): 2" Well Volume (gal): 5.2  
 Total Depth: 35.0 Static Water Level: 2.60 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.683  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	.5						.2
Time (military)									...
pH (standard units)	8.8	8.8	8.7						8.7
Specific Cond. (µS/cm)	131	161	136						132
Water Temp (°C)	26.2	26.5	24.6						24.5
Turbidity (mild, moderate, strong)	8.92	4.86	4.82						4.66
Dissolved Oxygen	3.34	3.19	3.16						3.15

Sample Collection Time: 1030

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-5-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-D3 Diameter (in): 2" Well Volume (gal): 10.0  
 Total Depth: 65' Static Water Level: 3.58 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.683  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.5	1.0	.5					.2
Time (military)									...
pH (standard units)	8.9	9.0	8.9	8.9					8.9
Specific Cond. (µS/cm)	242	249	354	258					255
Water Temp (°C)	27.2	26.0	25.9	25.4					25.4
Turbidity (mild, moderate, strong)	5.23	3.03	2.81	2.79					2.02
Dissolved Oxygen	4.21	4.14	4.20	4.15					4.18

Sample Collection Time: 1110

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-7 Diameter (in): 4" Well Volume (gal): 18.8  
 Total Depth: 40.0 Static Water Level: 11.18 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.5	1.0	.5					.5
Time (military)									
pH (standard units)	8.9	8.9	9.0	8.9					8.5
Specific Cond. (µS/cm)	339	336	337	142					155
Water Temp (°C)	27.1	27.5	25.7	25.5					25.6
Turbidity (mild, moderate, strong)	8.20	13.57	7.73	7.69					7.59
Dissolved Oxygen	1.89	1.64	2.19	2.13					2.08

Sample Collection Time: 1655

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-8 Diameter (in): 4" Well Volume (gal): 13.3  
 Total Depth: 32.0 Static Water Level: 11.60 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0	.5					1.5
Time (military)									
pH (standard units)	8.7	8.6	8.6	8.6					8.6
Specific Cond. (µS/cm)	438	586	553	550					517
Water Temp (°C)	27.1	24.9	26.1	26.0					25.8
Turbidity (mild, moderate, strong)	85.47	159.3	145.6	142.8					140.2
Dissolved Oxygen	1.92	1.74	2.65	2.09					1.90

Sample Collection Time: \_\_\_\_\_

Remarks: Duplicate - 1





## Monitoring Well Purging Data Sheet

Date: 10-5-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd, Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: MW-21B Diameter (in): 2" Well Volume (gal): 5.4  
 Total Depth: 35' Static Water Level: 1.65 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.683  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0	.5					.5
Time (military)									...
pH (standard units)	9.0	8.8	8.5	8.5					8.5
Specific Cond. (µS/cm)	211	112	76	75					78
Water Temp (°C)	28.2	26.9	25.7	25.4					25.6
Turbidity (mild, moderate, strong)	41.60	379.4	93.72	93.12					102.5
Dissolved Oxygen	3.15	2.95	2.97	2.95					2.94

Sample Collection Time: 952

Remarks: Duplicate - 2



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-9 Diameter (in): 4" Well Volume (gal): 15.2  
 Total Depth: 40' Static Water Level: 16.60 Static Product Level: \_\_\_\_\_  
1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
 (TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0						.2
Time (military)									
pH (standard units)	8.5	8.5	8.5						8.5
Specific Cond. (µS/cm)	127	124	133						129
Water Temp (°C)	24.4	25.1	24.8						24.7
Turbidity (mid, moderate, strong)	40.49	37.85	37.04						35.81
Dissolved Oxygen	2.57	2.34	2.48						2.22

Sample Collection Time: 1257

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-10 Diameter (in): 4" Well Volume (gal): 14.5  
 Total Depth: 39.0' Static Water Level: 16.74 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.5	1.0	1.0					.5
Time (military)									
pH (standard units)	9.0	9.0	9.1	9.0					9.0
Specific Cond. (µS/cm)	409	407	409	410					412
Water Temp (°C)	25.3	24.9	24.1	24.0					24.1
Turbidity (mild, moderate, strong)	51.68	60.47	75.45	74.88					72.83
Dissolved Oxygen	2.85	2.19	2.24	2.20					2.18

Sample Collection Time: 910

Remarks: Sheen on top of sample



## Monitoring Well Purging Data Sheet

Date: 10-3-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-11 Diameter (in): 4" Well Volume (gal): 15.0  
 Total Depth: 40.0' Static Water Level: 16.95' Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.653  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.5	.5	.5					.2
Time (military)									
pH (standard units)	7.8	7.6	7.5	7.5					7.5
Specific Cond. (µS/cm)	46	43	25	48					40
Water Temp (°C)	25.7	25.2	25.6	25.5					25.4
Turbidity (mld, moderate, strong)	40.38	162.1	100.0	100.8					97.22
Dissolved Oxygen	2.94	2.43	2.70	2.40					

Sample Collection Time: 7:56

Remarks: \_\_\_\_\_



## Monitoring Well Purging Data Sheet

Date: 10-4-18

**Site Data**

Facility Name: Broad River Amoco Facility Location: 4335 Broad River Rd. Columbia, SC  
 UST Permit # 11946 Field Personnel: Terry Teate, Tom Teate Weather: Clear Hot 92°  
(full names)

**Well Data**

Well Number: RW-12 Diameter (in): 4" Well Volume (gal): 14.8  
 Total Depth: 39.0' Static Water Level: 16.20 Static Product Level: \_\_\_\_\_

1" well: 1 well volume = (TD - SWL) x 0.047  
 2" well: 1 well volume = (TD - SWL) x 0.163  
 4" well: 1 well volume = (TD - SWL) x 0.663  
(TD = Total Depth SWL = Static Water Level)

**Purging Data**

	Initial	1st vol.	2nd vol.	3rd vol.	4th vol.	5th vol.	6th vol.	7th vol.	Post Sampling
Volume Purged (gal)		1.0	1.0	.2					.2
Time (military)									
pH (standard units)	7.4	7.5	7.4	7.4					7.4
Specific Cond. (µS/cm)	28	21	29	27					27
Water Temp (°C)	27.1	27.0	26.8	26.2					26.1
Turbidity (mild, moderate, strong)	39.06	119.1	137.3	135.9					132.4
Dissolved Oxygen	1.87	1.59	1.54	1.40					1.50

Sample Collection Time: 825

Remarks: \_\_\_\_\_

# SHEALY ENVIRONMENTAL SERVICES, INC.

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## Report of Analysis

**Enviro-Test Services Inc.**  
PO Box 2237  
Irmo, SC 29063  
Attention: Terry Teate



Project Name: Broad River Amoco  
Project Number: 11946  
Lot Number: **TJ24025**  
Date Completed: 11/01/2018



11/01/2018 4:22 PM  
Approved and released by:  
Lab Director - Greenville: Lucas Odom



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# **SHEALY ENVIRONMENTAL SERVICES, INC.**

SC DHEC No. 32010001

NELAC No E87653

NC DENR No. 329

NC Field Parameters No: 5639

## **Case Narrative Enviro-Test Services Inc. Lot Number: TJ24025**

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.



# SHEALY ENVIRONMENTAL SERVICES, INC.

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**Sample Summary**  
**Enviro-Test Services Inc.**  
**Lot Number: TJ24025**

<b>Sample Number</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Date Sampled</b>	<b>Date Received</b>
001	MW-19B	Aqueous	10/24/2018 0920	10/24/2018
002	MW-20A	Aqueous	10/24/2018 0955	10/24/2018
003	MW-20B	Aqueous	10/24/2018 1035	10/24/2018
004	Duplicate-4	Aqueous	10/24/2018 1037	10/24/2018
005	Field Blank	Aqueous	10/24/2018 0905	10/24/2018
006	Trip Blank	Aqueous	10/24/2018	10/24/2018

(6 samples)

# SHEALY ENVIRONMENTAL SERVICES, INC.

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## Detection Summary Enviro-Test Services Inc.

Lot Number: TJ24025

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-19B	Aqueous	Methyl tertiary butyl ether	8260B	10	J	ug/L	5
003	MW-20B	Aqueous	Methyl tertiary butyl ether	8260B	15		ug/L	7
004	Duplicate-4	Aqueous	Methyl tertiary butyl ether	8260B	15		ug/L	8

(3 detections)

Description: MW-19B

Matrix: Aqueous

Date Sampled: 10/24/2018 0920

Date Received: 10/24/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/30/2018 1315	BWS		88028		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	ug/L	1
<b>Methyl tertiary butyl ether (MTBE)</b>		<b>1634-04-4</b>	<b>8260B</b>	<b>1.0</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
Naphthalene		91-20-3	8260B	ND		5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		112	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		112	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/25/2018 1339	SCD	10/24/2018 2201	87506		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		65	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: **MW-20A**Matrix: **Aqueous**Date Sampled: **10/24/2018 0955**Date Received: **10/24/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/30/2018 1340	BWS		88028		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		111	70-130
Bromofluorobenzene		111	70-130
Toluene-d8		113	70-130

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/25/2018 1350	SCD	10/24/2018 2201	87506		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		87	57-137						

LOQ = Limit of Quantitation      B = Detected in the method blank      E = Quantitation of compound exceeded the calibration range      DL = Detection Limit  
 ND = Not detected at or above the DL      N = Recovery is out of criteria      P = The RPD between two GC columns exceeds 40%      J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time      W = Reported on wet weight basis

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Description: MW-20B

Matrix: Aqueous

Date Sampled: 10/24/2018 1035

Date Received: 10/24/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/30/2018 1406	BWS		88028		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1	
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>15</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		111	70-130
Bromofluorobenzene		106	70-130
Toluene-d8		113	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/25/2018 1400	SCD	10/24/2018 2201	87506		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: Duplicate-4

Matrix: Aqueous

Date Sampled: 10/24/2018 1037

Date Received: 10/24/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/30/2018 2200	MNS		88106		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	ug/L	1
<b>Methyl tertiary butyl ether (MTBE)</b>		<b>1634-04-4</b>	<b>8260B</b>	<b>15</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
Naphthalene		91-20-3	8260B	ND		5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		98	70-130
Bromofluorobenzene		101	70-130
Toluene-d8		104	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/25/2018 1411	SCD	10/24/2018 2201	87506		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		78	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description. **Field Blank**Matrix. **Aqueous**Date Sampled: **10/24/2018 0905**Date Received **10/24/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/30/2018 2221	MNS		88106		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		96	70-130
Bromofluorobenzene		103	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	10/25/2018 1442	SCD	10/24/2018 2201	87506		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		87	57-137

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: Trip Blank

Matrix Aqueous

Date Sampled: 10/24/2018

Date Received: 10/24/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/30/2018 2244	MNS		88106		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		98	70-130						
Bromofluorobenzene		100	70-130						
Toluene-d8		102	70-130						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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## QC Summary

## Volatile Organic Compounds by GC/MS - MB

Sample ID: TQ88028-001

Matrix: Aqueous

Batch: 88028

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	20	8.0	ug/L	10/30/2018 1142
tert-Amyl methyl ether (TAME)	ND		1	10	0.42	ug/L	10/30/2018 1142
Benzene	ND		1	5.0	0.40	ug/L	10/30/2018 1142
tert-Butyl formate (TBF)	ND		1	5.0	2.0	ug/L	10/30/2018 1142
1,2-Dichloroethane	ND		1	5.0	0.40	ug/L	10/30/2018 1142
Diisopropyl ether (IPE)	ND		1	5.0	0.40	ug/L	10/30/2018 1142
3,3-Dimethyl-1-butanol	ND		1	20	8.0	ug/L	10/30/2018 1142
Ethanol	ND		1	100	40	ug/L	10/30/2018 1142
Ethylbenzene	ND		1	5.0	0.40	ug/L	10/30/2018 1142
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	0.40	ug/L	10/30/2018 1142
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	10/30/2018 1142
Naphthalene	ND		1	5.0	0.40	ug/L	10/30/2018 1142
tert-butyl alcohol (TBA)	ND		1	20	8.0	ug/L	10/30/2018 1142
Toluene	ND		1	5.0	0.40	ug/L	10/30/2018 1142
Xylenes (total)	ND		1	5.0	0.40	ug/L	10/30/2018 1142
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		109	70-130				
Bromofluorobenzene		107	70-130				
Toluene-d8		112	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - LCS

Sample ID: TQ88028-002

Matrix: Aqueous

Batch: 88028

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	760		1	76	70-130	10/30/2018 1001
tert-Amyl methyl ether (TAME)	50	48		1	96	70-130	10/30/2018 1001
Benzene	50	43		1	86	70-130	10/30/2018 1001
tert-Butyl formate (TBF)	250	290		1	115	70-130	10/30/2018 1001
1,2-Dichloroethane	50	49		1	97	70-130	10/30/2018 1001
Diisopropyl ether (IPE)	50	46		1	92	70-130	10/30/2018 1001
3,3-Dimethyl-1-butanol	1000	780		1	78	70-130	10/30/2018 1001
Ethanol	5000	5000		1	99	70-130	10/30/2018 1001
Ethylbenzene	50	50		1	100	70-130	10/30/2018 1001
Ethyl-tert-butyl ether (ETBE)	50	46		1	92	70-130	10/30/2018 1001
Methyl tertiary butyl ether (MTBE)	50	47		1	94	70-130	10/30/2018 1001
Naphthalene	50	47		1	94	70-130	10/30/2018 1001
tert-butyl alcohol (TBA)	1000	740		1	74	70-130	10/30/2018 1001
Toluene	50	47		1	94	70-130	10/30/2018 1001
Xylenes (total)	100	98		1	98	70-130	10/30/2018 1001
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		108	70-130				
Bromofluorobenzene		108	70-130				
Toluene-d8		111	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - MB

Sample ID: TQ88106-001

Matrix: Aqueous

Batch: 88106

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	20	8.0	ug/L	10/30/2018 2121
tert-Amyl methyl ether (TAME)	ND		1	10	0.42	ug/L	10/30/2018 2121
Benzene	ND		1	5.0	0.40	ug/L	10/30/2018 2121
tert-Butyl formate (TBF)	ND		1	5.0	2.0	ug/L	10/30/2018 2121
1,2-Dichloroethane	ND		1	5.0	0.40	ug/L	10/30/2018 2121
Diisopropyl ether (IPE)	ND		1	5.0	0.40	ug/L	10/30/2018 2121
3,3-Dimethyl-1-butanol	ND		1	20	8.0	ug/L	10/30/2018 2121
Ethanol	ND		1	100	40	ug/L	10/30/2018 2121
Ethylbenzene	ND		1	5.0	0.40	ug/L	10/30/2018 2121
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	0.40	ug/L	10/30/2018 2121
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	10/30/2018 2121
Naphthalene	ND		1	5.0	0.40	ug/L	10/30/2018 2121
tert-butyl alcohol (TBA)	ND		1	20	8.0	ug/L	10/30/2018 2121
Toluene	ND		1	5.0	0.40	ug/L	10/30/2018 2121
Xylenes (total)	ND		1	5.0	0.40	ug/L	10/30/2018 2121
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		97	70-130				
Bromofluorobenzene		99	70-130				
Toluene-d8		102	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - LCS

Sample ID: TQ88106-002

Matrix: Aqueous

Batch: 88106

Prep Method: 5030B

Analytical Method: 8260B

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	10/30/2018 2037
tert-Amyl methyl ether (TAME)	50	50		1	100	70-130	10/30/2018 2037
Benzene	50	44		1	88	70-130	10/30/2018 2037
tert-Butyl formate (TBF)	250	270		1	108	70-130	10/30/2018 2037
1,2-Dichloroethane	50	46		1	91	70-130	10/30/2018 2037
Diisopropyl ether (IPE)	50	46		1	91	70-130	10/30/2018 2037
3,3-Dimethyl-1-butanol	1000	880		1	88	70-130	10/30/2018 2037
Ethanol	5000	4000		1	81	70-130	10/30/2018 2037
Ethylbenzene	50	53		1	106	70-130	10/30/2018 2037
Ethyl-tert-butyl ether (ETBE)	50	46		1	92	70-130	10/30/2018 2037
Methyl tertiary butyl ether (MTBE)	50	45		1	89	70-130	10/30/2018 2037
Naphthalene	50	49		1	97	70-130	10/30/2018 2037
tert-butyl alcohol (TBA)	1000	840		1	84	70-130	10/30/2018 2037
Toluene	50	48		1	97	70-130	10/30/2018 2037
Xylenes (total)	100	110		1	105	70-130	10/30/2018 2037
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		93	70-130				
Bromofluorobenzene		104	70-130				
Toluene-d8		99	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and  $\geq$  DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MB

Sample ID: TQ87506-001

Matrix: Aqueous

Batch: 87506

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/24/2018 2201

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	10/25/2018 1059
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		106	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - LCS

Sample ID: TQ87506-002

Matrix: Aqueous

Batch: 87506

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/24/2018 2201

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.25		1	102	60-140	10/25/2018 1110
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		106	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and  $\geq$  DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MS

Sample ID: TJ24025-004MS

Matrix: Aqueous

Batch: 87506

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/24/2018 2201

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	0.24		1	97	60-140	10/25/2018 1421
Surrogate	Q	% Rec	Acceptance Limit					
1,1,1,2-Tetrachloroethane		76	57-137					

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MSD

Sample ID: TJ24025-004MD

Matrix: Aqueous

Batch: 87506

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/24/2018 2201

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	0.24		1	98	2.2	60-140	20	10/25/2018 1432
Surrogate	Q	% Rec	Acceptance Limit							
1,1,1,2-Tetrachloroethane		70	57-137							

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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**Chain of Custody  
and  
Miscellaneous Documents**



Chain of Custody Record

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Telephone No. 803-791-9700 Fax No. 803-791-9111
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Number 89988

Client: Enviro-Test Services, Report to Contact: Michael Faris, Telephone No./E-mail: 803-413-4936, Address: P.O. Box 2257, City: Irmo, State: SC, Zip Code: 29063, Project Name: Broad River Amoco, Project No: 11946, Sample ID / Description, Date, Time, Matrix, No. of Containers by Preservative Type, Analysis (Attach list if more space is needed), Barcode: TJ24025, Remarks / Cooler I.D.

Turn Around Time Required (Prior lab approval required for expedited TAT), Sample Disposal, Possible Hazard Identification, OC Requirements (Specify), 1. Requisitioned by: Terry L. Teate, Date: 10-24-18, Time: 1343, 2. Received by, 3. Received by, 4. Laboratory received by: Erin Bran, Date: 10-24-18, Time: 1343, Note: All samples are retained for four weeks from receipt unless other arrangements are made., LAD USE ONLY, Received on Ice (Circle) Yes No Ice Pack, Receipt Temp: 2.0 °C

DISTRIBUTOR: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Pets/Client Copy

Document Number: F-AD-103 Effective Date: 06-01-2014

SHEALY ENVIRONMENTAL SERVICES, INC.

# SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.  
Document Number: MS0018C-14

Page 1 of 1  
Effective Date: 8/2/2018

## Sample Receipt Checklist (SRC)

Client: Enviro-Test

Cooler Inspected by/date: ETB/10-24-18 Lot #: TJ24025

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: _____ Chlorine Strip ID: _____ Tested by: _____	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt: _____ %Solid Snap-Cup ID: _____	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: <u>10</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: <input type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	16. For VOA and RSK-175 samples, were hubbles present >"pau-size" (1/4" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRU/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH <sub>2</sub> /TKN/cyanide/phenol/625 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # _____
<b>Sample Preservation</b> (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 _____ mL of circle one: H <sub>2</sub> SO <sub>4</sub> , HNO <sub>3</sub> , HCl, NaOH using SR # _____	
Time of preservation _____. If more than one preservative is needed, please note in the comments below.	
Sample(s) _____ were received with bubbles >6 mm in diameter.	
Sample(s) _____ were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) with Shealy ID: _____	
SR barcode labels applied by: <u>ETB</u> Date: <u>10-24-18</u>	
Comments: _____ _____ _____ _____	

# SHEALY ENVIRONMENTAL SERVICES, INC.

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## Report of Analysis

### Enviro-Test Services Inc.

PO Box 2237  
Irmo, SC 29063  
Attention: Terry Teate

Project Name: Broad River Amoco

Project Number: 11946

Lot Number: **TJ05073**

Date Completed: 10/16/2018



10/17/2018 8:09 AM

Approved and released by:  
Project Manager: Lucas Odom



The electronic signature above is the equivalent of a handwritten signature  
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Shealy Environmental Services, Inc.  
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 [www.shealylab.com](http://www.shealylab.com)



# **SHEALY ENVIRONMENTAL SERVICES, INC.**

SC DHEC No. 32010001

NELAC No E87653

NC DENR No: 329

NC Field Parameters No: 5639

## **Case Narrative Enviro-Test Services Inc. Lot Number: TJ05073**

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.

### **EDB by Microextraction**

Sample -002 has been qualified with a "P" as the relative percent difference between two GC columns exceeds method criteria. Per SCDHEC, the lesser of the two values has been reported.

Due to a large detection of the target compound, sample -025 has been analyzed at 250X dilution. This large dilution caused the surrogate to recover outside of method criteria. No corrective action is required as it is known that dilutions of 5X and greater may impact surrogate recoveries.

# SHEALY ENVIRONMENTAL SERVICES, INC.

## Sample Summary Enviro-Test Services Inc. Lot Number: TJ05073

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MW-1	Aqueous	10/03/2018 0715	10/05/2018
002	MW-2	Aqueous	10/03/2018 0907	10/05/2018
003	MW-3	Aqueous	10/03/2018 1211	10/05/2018
004	MW-4	Aqueous	10/03/2018 1618	10/05/2018
005	MW-6A	Aqueous	10/03/2018 1334	10/05/2018
006	MW-6B	Aqueous	10/03/2018 1358	10/05/2018
007	MW-7A	Aqueous	10/03/2018 1439	10/05/2018
008	MW-8A	Aqueous	10/03/2018 1508	10/05/2018
009	MW-8B	Aqueous	10/03/2018 1542	10/05/2018
010	MW-9A	Aqueous	10/03/2018 1739	10/05/2018
011	MW-9B	Aqueous	10/03/2018 1820	10/05/2018
012	MW-13B	Aqueous	10/03/2018 1928	10/05/2018
013	RW-2	Aqueous	10/03/2018 0945	10/05/2018
014	RW-3	Aqueous	10/03/2018 1024	10/05/2018
015	RW-4	Aqueous	10/03/2018 1057	10/05/2018
016	RW-7	Aqueous	10/03/2018 1655	10/05/2018
017	RW-8	Aqueous	10/03/2018 1855	10/05/2018
018	RW-9	Aqueous	10/03/2018 1257	10/05/2018
019	RW-11	Aqueous	10/03/2018 0756	10/05/2018
020	MW-D1	Aqueous	10/03/2018 1138	10/05/2018
021	Duplicate-1	Aqueous	10/03/2018 1856	10/05/2018
022	Field Blank FB-1	Aqueous	10/03/2018 0705	10/05/2018
023	Trip Blank-1	Aqueous	10/03/2018	10/05/2018
024	RW-10	Aqueous	10/04/2018 0910	10/05/2018
025	RW-12	Aqueous	10/04/2018 0825	10/05/2018
026	MW-10A	Aqueous	10/04/2018 1820	10/05/2018
027	MW-10B	Aqueous	10/04/2018 1857	10/05/2018
028	MW-12A	Aqueous	10/04/2018 1710	10/05/2018
029	MW-12B	Aqueous	10/04/2018 1748	10/05/2018
030	MW-14A	Aqueous	10/04/2018 1032	10/05/2018
031	MW-14B	Aqueous	10/04/2018 0958	10/05/2018
032	MW-15B	Aqueous	10/04/2018 1112	10/05/2018
033	MW-17B	Aqueous	10/04/2018 1410	10/05/2018
034	MW-17B	Aqueous	10/04/2018 1410	
035	MW-D2	Aqueous	10/04/2018 1500	10/05/2018
036	MW-18A	Aqueous	10/04/2018 1548	10/05/2018
037	MW-18B	Aqueous	10/04/2018 1632	10/05/2018
038	MW-10A	Aqueous	10/04/2018 1820	
039	MW-10B	Aqueous	10/04/2018 1857	
040	Field Blank FB-2	Aqueous	10/04/2018 0810	10/05/2018
041	Trip Blank-2	Aqueous	10/04/2018	10/05/2018
042	MW-11-A	Aqueous	10/05/2018 0745	10/05/2018
043	MW-11-B	Aqueous	10/05/2018 0828	10/05/2018
044	MW-21-A	Aqueous	10/05/2018 0915	10/05/2018
045	MW-21-B	Aqueous	10/05/2018 0952	10/05/2018

## Sample Summary (Continued)

Lot Number: TJ05073

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
046	MW-22-B	Aqueous	10/05/2018 1030	10/05/2018
047	MW-D3	Aqueous	10/05/2018 1110	10/05/2018
048	Duplicate-2	Aqueous	10/05/2018 0955	10/05/2018
049	Duplicate-3	Aqueous	10/05/2018 1113	10/05/2018
050	Field Blank-3	Aqueous	10/05/2018 0725	10/05/2018
051	Trp Blank-3	Aqueous	10/05/2018	10/05/2018

(51 samples)

# SHEALY ENVIRONMENTAL SERVICES, INC.

## Detection Summary Enviro-Test Services Inc. Lot Number: TJ05073

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
001	MW-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	2000	J	ug/L	9
001	MW-1	Aqueous	Benzene	8260B	1000		ug/L	9
001	MW-1	Aqueous	Ethylbenzene	8260B	1700		ug/L	9
001	MW-1	Aqueous	Naphthalene	8260B	570	J	ug/L	9
001	MW-1	Aqueous	Toluene	8260B	14000		ug/L	9
001	MW-1	Aqueous	Xylenes (total)	8260B	8300		ug/L	9
002	MW-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	60000		ug/L	10
002	MW-2	Aqueous	tert-Amyl methyl ether	8260B	440	J	ug/L	10
002	MW-2	Aqueous	Benzene	8260B	12000		ug/L	10
002	MW-2	Aqueous	Ethylbenzene	8260B	2100		ug/L	10
002	MW-2	Aqueous	Methyl tertiary butyl ether	8260B	31000		ug/L	10
002	MW-2	Aqueous	Naphthalene	8260B	890	J	ug/L	10
002	MW-2	Aqueous	tert-butyl alcohol (TBA)	8260B	19000		ug/L	10
002	MW-2	Aqueous	Toluene	8260B	21000		ug/L	10
002	MW-2	Aqueous	Xylenes (total)	8260B	12000		ug/L	10
002	MW-2	Aqueous	1,2-Dibromoethane (EDB)	8011	0.27	P	ug/L	10
003	MW-3	Aqueous	tert-Amyl alcohol (TAA)	8260B	71		ug/L	11
003	MW-3	Aqueous	Benzene	8260B	2.2	J	ug/L	11
003	MW-3	Aqueous	Ethylbenzene	8260B	0.83	J	ug/L	11
003	MW-3	Aqueous	Methyl tertiary butyl ether	8260B	0.66	J	ug/L	11
003	MW-3	Aqueous	Naphthalene	8260B	8.7		ug/L	11
003	MW-3	Aqueous	tert-butyl alcohol (TBA)	8260B	15	J	ug/L	11
003	MW-3	Aqueous	Toluene	8260B	1.0	J	ug/L	11
003	MW-3	Aqueous	Xylenes (total)	8260B	5.3		ug/L	11
004	MW-4	Aqueous	tert-Amyl alcohol (TAA)	8260B	2500		ug/L	12
004	MW-4	Aqueous	tert-Amyl methyl ether	8260B	160	J	ug/L	12
004	MW-4	Aqueous	Benzene	8260B	5000		ug/L	12
004	MW-4	Aqueous	Ethylbenzene	8260B	2000		ug/L	12
004	MW-4	Aqueous	Methyl tertiary butyl ether	8260B	5500		ug/L	12
004	MW-4	Aqueous	Naphthalene	8260B	900		ug/L	12
004	MW-4	Aqueous	tert-butyl alcohol (TBA)	8260B	3800		ug/L	12
004	MW-4	Aqueous	Toluene	8260B	330	J	ug/L	12
004	MW-4	Aqueous	Xylenes (total)	8260B	2400		ug/L	12
004	MW-4	Aqueous	1,2-Dibromoethane (EDB)	8011	0.036		ug/L	12
005	MW-6A	Aqueous	Benzene	8260B	1.2	J	ug/L	13
005	MW-6A	Aqueous	Ethylbenzene	8260B	1.1	J	ug/L	13
005	MW-6A	Aqueous	Naphthalene	8260B	2.5	J	ug/L	13
005	MW-6A	Aqueous	Toluene	8260B	5.0		ug/L	13
005	MW-6A	Aqueous	Xylenes (total)	8260B	6.7		ug/L	13
006	MW-6B	Aqueous	Naphthalene	8260B	3.9	J	ug/L	14
006	MW-6B	Aqueous	Xylenes (total)	8260B	0.50	J	ug/L	14
010	MW-9A	Aqueous	Methyl tertiary butyl ether	8260B	1.2	J	ug/L	18
011	MW-9B	Aqueous	Methyl tertiary butyl ether	8260B	0.45	J	ug/L	19
013	RW-2	Aqueous	tert-Amyl alcohol (TAA)	8260B	17	J	ug/L	21
013	RW-2	Aqueous	Benzene	8260B	45		ug/L	21

## Detection Summary (Continued)

Lot Number: TJ05073

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
013	RW-2	Aqueous	Ethylbenzene	8260B	23		ug/L	21
013	RW-2	Aqueous	Methyl tertiary butyl ether	8260B	56		ug/L	21
013	RW-2	Aqueous	Naphthalene	8260B	13		ug/L	21
013	RW-2	Aqueous	tert-butyl alcohol (TBA)	8260B	25		ug/L	21
013	RW-2	Aqueous	Toluene	8260B	150		ug/L	21
013	RW-2	Aqueous	Xylenes (total)	8260B	150		ug/L	21
014	RW-3	Aqueous	tert-Amyl alcohol (TAA)	8260B	68000		ug/L	22
014	RW-3	Aqueous	tert-Amyl methyl ether	8260B	350	J	ug/L	22
014	RW-3	Aqueous	Benzene	8260B	16000		ug/L	22
014	RW-3	Aqueous	Ethylbenzene	8260B	2700		ug/L	22
014	RW-3	Aqueous	Methyl tertiary butyl ether	8260B	15000		ug/L	22
014	RW-3	Aqueous	Naphthalene	8260B	840	J	ug/L	22
014	RW-3	Aqueous	tert-butyl alcohol (TBA)	8260B	9700	J	ug/L	22
014	RW-3	Aqueous	Toluene	8260B	31000		ug/L	22
014	RW-3	Aqueous	Xylenes (total)	8260B	16000		ug/L	22
014	RW-3	Aqueous	1,2-Dibromoethane (EDB)	8011	1.7		ug/L	22
015	RW-4	Aqueous	tert-Amyl alcohol (TAA)	8260B	2900		ug/L	23
015	RW-4	Aqueous	tert-Amyl methyl ether	8260B	200	J	ug/L	23
015	RW-4	Aqueous	Benzene	8260B	3900		ug/L	23
015	RW-4	Aqueous	Ethylbenzene	8260B	880		ug/L	23
015	RW-4	Aqueous	Methyl tertiary butyl ether	8260B	11000		ug/L	23
015	RW-4	Aqueous	Naphthalene	8260B	220	J	ug/L	23
015	RW-4	Aqueous	tert-butyl alcohol (TBA)	8260B	2000		ug/L	23
015	RW-4	Aqueous	Toluene	8260B	3400		ug/L	23
015	RW-4	Aqueous	Xylenes (total)	8260B	4800		ug/L	23
016	RW-7	Aqueous	tert-Amyl alcohol (TAA)	8260B	3600		ug/L	24
016	RW-7	Aqueous	tert-Amyl methyl ether	8260B	120	J	ug/L	24
016	RW-7	Aqueous	Benzene	8260B	4600		ug/L	24
016	RW-7	Aqueous	Ethylbenzene	8260B	1800		ug/L	24
016	RW-7	Aqueous	Methyl tertiary butyl ether	8260B	8100		ug/L	24
016	RW-7	Aqueous	Naphthalene	8260B	670		ug/L	24
016	RW-7	Aqueous	tert-butyl alcohol (TBA)	8260B	4600		ug/L	24
016	RW-7	Aqueous	Toluene	8260B	170	J	ug/L	24
016	RW-7	Aqueous	Xylenes (total)	8260B	4400		ug/L	24
017	RW-8	Aqueous	tert-Amyl alcohol (TAA)	8260B	110		ug/L	25
017	RW-8	Aqueous	Benzene	8260B	42		ug/L	25
017	RW-8	Aqueous	Ethylbenzene	8260B	150		ug/L	25
017	RW-8	Aqueous	Methyl tertiary butyl ether	8260B	25		ug/L	25
017	RW-8	Aqueous	Naphthalene	8260B	47		ug/L	25
017	RW-8	Aqueous	tert-butyl alcohol (TBA)	8260B	15	J	ug/L	25
017	RW-8	Aqueous	Toluene	8260B	4.1	J	ug/L	25
017	RW-8	Aqueous	Xylenes (total)	8260B	460		ug/L	25
018	RW-9	Aqueous	tert-Amyl alcohol (TAA)	8260B	130		ug/L	26
018	RW-9	Aqueous	tert-Amyl methyl ether	8260B	2.4	J	ug/L	26
018	RW-9	Aqueous	Benzene	8260B	0.56	J	ug/L	26
018	RW-9	Aqueous	Diisopropyl ether (IPE)	8260B	3.5	J	ug/L	26
018	RW-9	Aqueous	Ethylbenzene	8260B	0.62	J	ug/L	26
018	RW-9	Aqueous	Ethyl-tert-butyl ether (ETBE)	8260B	0.53	J	ug/L	26

## Detection Summary (Continued)

Lot Number: TJ05073

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
018	RW-9	Aqueous	Methyl tertiary butyl ether	8260B	20		ug/L	26
018	RW-9	Aqueous	Naphthalene	8260B	2.3	J	ug/L	26
018	RW-9	Aqueous	tert-butyl alcohol (TBA)	8260B	180		ug/L	26
018	RW-9	Aqueous	Xylenes (total)	8260B	1.3	J	ug/L	26
019	RW-11	Aqueous	Benzene	8260B	800	J	ug/L	27
019	RW-11	Aqueous	Ethylbenzene	8260B	2600		ug/L	27
019	RW-11	Aqueous	Naphthalene	8260B	570	J	ug/L	27
019	RW-11	Aqueous	Toluene	8260B	33000		ug/L	27
019	RW-11	Aqueous	Xylenes (total)	8260B	15000		ug/L	27
020	MW-D1	Aqueous	Diisopropyl ether (IPE)	8260B	0.97	J	ug/L	28
020	MW-D1	Aqueous	Ethylbenzene	8260B	3.1	J	ug/L	28
020	MW-D1	Aqueous	Methyl tertiary butyl ether	8260B	98		ug/L	28
020	MW-D1	Aqueous	Naphthalene	8260B	11		ug/L	28
020	MW-D1	Aqueous	Toluene	8260B	0.77	J	ug/L	28
020	MW-D1	Aqueous	Xylenes (total)	8260B	30		ug/L	28
021	Duplicate-1	Aqueous	tert-Amyl alcohol (TAA)	8260B	110		ug/L	29
021	Duplicate-1	Aqueous	Benzene	8260B	48		ug/L	29
021	Duplicate-1	Aqueous	Ethylbenzene	8260B	170		ug/L	29
021	Duplicate-1	Aqueous	Methyl tertiary butyl ether	8260B	24	J	ug/L	29
021	Duplicate-1	Aqueous	Naphthalene	8260B	52		ug/L	29
021	Duplicate-1	Aqueous	Toluene	8260B	5.0	J	ug/L	29
021	Duplicate-1	Aqueous	Xylenes (total)	8260B	560		ug/L	29
024	RW-10	Aqueous	tert-Amyl alcohol (TAA)	8260B	9400		ug/L	32
024	RW-10	Aqueous	tert-Amyl methyl ether	8260B	340	J	ug/L	32
024	RW-10	Aqueous	Benzene	8260B	13000		ug/L	32
024	RW-10	Aqueous	Ethylbenzene	8260B	3000		ug/L	32
024	RW-10	Aqueous	Methyl tertiary butyl ether	8260B	7100		ug/L	32
024	RW-10	Aqueous	Naphthalene	8260B	790	J	ug/L	32
024	RW-10	Aqueous	Toluene	8260B	6900		ug/L	32
024	RW-10	Aqueous	Xylenes (total)	8260B	9500		ug/L	32
025	RW-12	Aqueous	tert-Amyl alcohol (TAA)	8260B	30000		ug/L	33
025	RW-12	Aqueous	Benzene	8260B	12000		ug/L	33
025	RW-12	Aqueous	Ethylbenzene	8260B	1300		ug/L	33
025	RW-12	Aqueous	Methyl tertiary butyl ether	8260B	11000		ug/L	33
025	RW-12	Aqueous	Naphthalene	8260B	780	J	ug/L	33
025	RW-12	Aqueous	tert-butyl alcohol (TBA)	8260B	11000		ug/L	33
025	RW-12	Aqueous	Toluene	8260B	21000		ug/L	33
025	RW-12	Aqueous	Xylenes (total)	8260B	15000		ug/L	33
025	RW-12	Aqueous	1,2-Dibromoethane (EDB)	8011	140		ug/L	33
031	MW-14B	Aqueous	tert-Amyl alcohol (TAA)	8260B	21		ug/L	39
031	MW-14B	Aqueous	Benzene	8260B	0.81	J	ug/L	39
031	MW-14B	Aqueous	tert-butyl alcohol (TBA)	8260B	9.2	J	ug/L	39
033	MW-17B	Aqueous	tert-Amyl alcohol (TAA)	8260B	520		ug/L	41
033	MW-17B	Aqueous	Benzene	8260B	56		ug/L	41
033	MW-17B	Aqueous	Diisopropyl ether (IPE)	8260B	6.0	J	ug/L	41
033	MW-17B	Aqueous	Ethyl-tert-butyl ether (ETBE)	8260B	2.1	J	ug/L	41
033	MW-17B	Aqueous	Methyl tertiary butyl ether	8260B	350		ug/L	41
033	MW-17B	Aqueous	Naphthalene	8260B	5.6	J	ug/L	41

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**Detection Summary (Continued)****Lot Number: TJ05073**

<b>Sample</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Parameter</b>	<b>Method</b>	<b>Result</b>	<b>Q</b>	<b>Units</b>	<b>Page</b>
033	MW-17B	Aqueous	tert-butyl alcohol (TBA)	8260B	2300		ug/L	41
033	MW-17B	Aqueous	Xylenes (total)	8260B	11	J	ug/L	41
035	MW-D2	Aqueous	Methyl tertiary butyl ether	8260B	17		ug/L	42
037	MW-18B	Aqueous	Methyl tertiary butyl ether	8260B	0.41	J	ug/L	44
042	MW-11-A	Aqueous	Benzene	8260B	4.9	J	ug/L	47
042	MW-11-A	Aqueous	Methyl tertiary butyl ether	8260B	1.2	J	ug/L	47
042	MW-11-A	Aqueous	Naphthalene	8260B	1.6	J	ug/L	47
043	MW-11-B	Aqueous	Methyl tertiary butyl ether	8260B	0.77	J	ug/L	48
045	MW-21-B	Aqueous	Methyl tertiary butyl ether	8260B	14		ug/L	50
046	MW-22-B	Aqueous	Methyl tertiary butyl ether	8260B	4.9	J	ug/L	51
047	MW-D3	Aqueous	Methyl tertiary butyl ether	8260B	1.1	J	ug/L	52
048	Duplicate-2	Aqueous	Methyl tertiary butyl ether	8260B	14		ug/L	53
049	Duplicate-3	Aqueous	Methyl tertiary butyl ether	8260B	1.1	J	ug/L	54

(154 detections)



Description: MW-1

Matrix: Aqueous

Date Sampled: 10/03/2018 0715

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	200	10/13/2018 1841	JJG		86387		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	2000	J	4000	1600	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		2000	84	ug/L	1
<b>Benzene</b>		<b>71-43-2</b>	<b>8260B</b>	<b>1000</b>		<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>
tert-Butyl formate (TBF)		762-75-4	8260B	ND		1000	400	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		1000	80	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		1000	80	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		4000	1600	ug/L	1
Ethanol		64-17-5	8260B	ND		20000	8000	ug/L	1
<b>Ethylbenzene</b>		<b>100-41-4</b>	<b>8260B</b>	<b>1700</b>		<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		200	80	ug/L	1
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	ND		1000	80	ug/L	1
<b>Naphthalene</b>		<b>91-20-3</b>	<b>8260B</b>	<b>570</b>	<b>J</b>	<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		4000	1600	ug/L	1
<b>Toluene</b>		<b>108-88-3</b>	<b>8260B</b>	<b>14000</b>		<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>
<b>Xylenes (total)</b>		<b>1330-20-7</b>	<b>8260B</b>	<b>8300</b>		<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		112	70-130
Bromofluorobenzene		120	70-130
Toluene-d8		121	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 0529	SCD	10/07/2018 2122	85720		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		59	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

Shealy Environmental Services, Inc

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Description: MW-2

Matrx Aqueous

Date Sampled: 10/03/2018 0907

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	200	10/13/2018 1904	JJG		86387		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	60000		4000	1600	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	440	J	2000	84	ug/L	1	
Benzene	71-43-2	8260B	12000		1000	80	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		1000	400	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		1000	80	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1000	80	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		4000	1600	ug/L	1	
Ethanol	64-17-5	8260B	ND		20000	8000	ug/L	1	
Ethylbenzene	100-41-4	8260B	2100		1000	80	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		200	80	ug/L	1	
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	31000		1000	80	ug/L	1	
Naphthalene	91-20-3	8260B	890	J	1000	80	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	19000		4000	1600	ug/L	1	
Toluene	108-88-3	8260B	21000		1000	80	ug/L	1	
Xylenes (total)	1330-20-7	8260B	12000		1000	80	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		112	70-130
Bromofluorobenzene		118	70-130
Toluene-d8		122	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 0539	SCD	10/07/2018 2122	85720		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
1,2-Dibromoethane (EDB)	106-93-4	8011	0.27	P	0.021	0.021	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,1,1,2-Tetrachloroethane		84	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: **MW-3**Matrix: **Aqueous**Date Sampled: **10/03/2018 1211**Date Received: **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1408	JJG		86387		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	71		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
<b>Benzene</b>	<b>71-43-2</b>	<b>8260B</b>	<b>2.2</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
<b>Ethylbenzene</b>	<b>100-41-4</b>	<b>8260B</b>	<b>0.83</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1	
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>0.66</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
<b>Naphthalene</b>	<b>91-20-3</b>	<b>8260B</b>	<b>8.7</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
tert-butyl alcohol (TBA)	75-65-0	8260B	15	J	20	8.0	ug/L	1	
Toluene	108-88-3	8260B	1.0	J	5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	5.3		5.0	0.40	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		115	70-130						
Bromofluorobenzene		122	70-130						
Toluene-d8		124	70-130						

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 0550	SCD	10/07/2018 2122	85720		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		90	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-4

Matrx. Aqueous

Date Sampled: 10/03/2018 1618

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	100	10/13/2018 1927	JJG		86387		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	2500		2000	800	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	160	J	1000	42	ug/L	1	
Benzene	71-43-2	8260B	5000		500	40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	200	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		500	40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		500	40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		2000	800	ug/L	1	
Ethanol	64-17-5	8260B	ND		10000	4000	ug/L	1	
Ethylbenzene	100-41-4	8260B	2000		500	40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	40	ug/L	1	
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	5500		500	40	ug/L	1	
Naphthalene	91-20-3	8260B	900		500	40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	3800		2000	800	ug/L	1	
Toluene	108-88-3	8260B	330	J	500	40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	2400		500	40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		113	70-130
Bromofluorobenzene		120	70-130
Toluene-d8		123	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 0600	SCD	10/07/2018 2122	85720		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
1,2-Dibromoethane (EDB)	106-93-4	8011	0.036		0.020	0.020	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,1,1,2-Tetrachloroethane		85	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-6A

Matrx Aqueous

Date Sampled: 10/03/2018 1334

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1431	JJG		86387		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
<b>Benzene</b>	<b>71-43-2</b>	<b>8260B</b>	<b>1.2</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
<b>Ethylbenzene</b>	<b>100-41-4</b>	<b>8260B</b>	<b>1.1</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1	
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		5.0	0.40	ug/L	1	
<b>Naphthalene</b>	<b>91-20-3</b>	<b>8260B</b>	<b>2.5</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
<b>Toluene</b>	<b>108-88-3</b>	<b>8260B</b>	<b>5.0</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
<b>Xylenes (total)</b>	<b>1330-20-7</b>	<b>8260B</b>	<b>6.7</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		118	70-130
Toluene-d8		123	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 0611	SCD	10/07/2018 2122	85720		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		80	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-6B

Matrix: Aqueous

Date Sampled: 10/03/2018 1358

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1453	JJG		86387		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	ND		5.0	0.40	ug/L	1
<b>Naphthalene</b>		<b>91-20-3</b>	<b>8260B</b>	<b>3.9</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	0.50	J	5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		112	70-130
Bromofluorobenzene		118	70-130
Toluene-d8		124	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 0621	SCD	10/07/2018 2122	85720		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		62	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-7A

Matrix: Aqueous

Date Sampled: 10/03/2018 1439

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1516	JJG		86387		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		117	70-130
Toluene-d8		123	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 0632	SCD	10/07/2018 2122	85720		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		91	57-137

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: MW-8A

Matrix: Aqueous

Date Sampled 10/03/2018 1508

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1539	JJG		86387		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	0.40	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		115	70-130						
Bromofluorobenzene		118	70-130						
Toluene-d8		123	70-130						

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 0643	SCD	10/07/2018 2122	85720		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		91	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

Description: **MW-8B**Matrx **Aqueous**Date Sampled: **10/03/2018 1542**Date Received: **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1602	JJG		86387		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		118	70-130
Toluene-d8		123	70-130

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 0653	SCD	10/07/2018 2122	85720		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		81	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: MW-9A

Matrix: Aqueous

Date Sampled: 10/03/2018 1739

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1625	JJG		86387		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1	
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>1.2</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		113	70-130
Bromofluorobenzene		119	70-130
Toluene-d8		123	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 0704	SCD	10/07/2018 2122	85720		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		80	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Client: Enviro-Test Services Inc.

Laboratory ID: TJ05073-011

Description: MW-9B

Matrix: Aqueous

Date Sampled: 10/03/2018 1820

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1648	JJG		86387		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	0.45	J	5.0	0.40	ug/L	1
Naphthalene		91-20-3	8260B	ND		5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		113	70-130
Bromofluorobenzene		116	70-130
Toluene-d8		122	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1025	SCD	10/07/2018 2122	85721		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		79	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description MW-13B

Matrix: Aqueous

Date Sampled: 10/03/2018 1928

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1710	JJG		86387		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		119	70-130
Toluene-d8		123	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1035	SCD	10/07/2018 2122	85721		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: RW-2

Matrix: Aqueous

Date Sampled: 10/03/2018 0945

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
2	5030B	8260B	1	10/15/2018 2244	MNS		86550		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	17	J	20	8.0	ug/L	2	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	2	
<b>Benzene</b>	<b>71-43-2</b>	<b>8260B</b>	<b>45</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>2</b>	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	2	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	2	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	2	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	2	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	2	
<b>Ethylbenzene</b>	<b>100-41-4</b>	<b>8260B</b>	<b>23</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>2</b>	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	2	
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>56</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>2</b>	
<b>Naphthalene</b>	<b>91-20-3</b>	<b>8260B</b>	<b>13</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>2</b>	
tert-butyl alcohol (TBA)	75-65-0	8260B	25		20	8.0	ug/L	2	
<b>Toluene</b>	<b>108-88-3</b>	<b>8260B</b>	<b>150</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>2</b>	
<b>Xylenes (total)</b>	<b>1330-20-7</b>	<b>8260B</b>	<b>150</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>2</b>	

Surrogate	Q	Run 2 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		111	70-130
Bromofluorobenzene		121	70-130
Toluene-d8		119	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1046	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Client: Enviro-Test Services Inc.

Laboratory ID TJ05073-014

Description: RW-3

Matrix: Aqueous

Date Sampled: 10/03/2018 1024

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	500	10/13/2018 2012	JJG		86387		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	68000		10000	4000	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	350	J	5000	210	ug/L	1	
Benzene	71-43-2	8260B	16000		2500	200	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		2500	1000	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		2500	200	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		2500	200	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		10000	4000	ug/L	1	
Ethanol	64-17-5	8260B	ND		50000	20000	ug/L	1	
Ethylbenzene	100-41-4	8260B	2700		2500	200	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		500	200	ug/L	1	
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	15000		2500	200	ug/L	1	
Naphthalene	91-20-3	8260B	840	J	2500	200	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	9700	J	10000	4000	ug/L	1	
Toluene	108-88-3	8260B	31000		2500	200	ug/L	1	
Xylenes (total)	1330-20-7	8260B	16000		2500	200	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		113	70-130						
Bromofluorobenzene		118	70-130						
Toluene-d8		122	70-130						

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	2	10/11/2018 1745	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
1,2-Dibromoethane (EDB)	106-93-4	8011	1.7		0.040	0.040	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,1,1,2-Tetrachloroethane		57	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Client: Enviro-Test Services Inc.

Laboratory ID TJ05073-015

Description: RW-4

Matrix: Aqueous

Date Sampled: 10/03/2018 1057

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	100	10/13/2018 2035	JJG		86387		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	2900		2000	800	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	200	J	1000	42	ug/L	1	
Benzene	71-43-2	8260B	3900		500	40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		500	200	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		500	40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		500	40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		2000	800	ug/L	1	
Ethanol	64-17-5	8260B	ND		10000	4000	ug/L	1	
Ethylbenzene	100-41-4	8260B	880		500	40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		100	40	ug/L	1	
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	11000		500	40	ug/L	1	
Naphthalene	91-20-3	8260B	220	J	500	40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	2000		2000	800	ug/L	1	
Toluene	108-88-3	8260B	3400		500	40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	4800		500	40	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		111	70-130						
Bromofluorobenzene		120	70-130						
Toluene-d8		123	70-130						

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1108	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		77	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: RW-7

Matrix: Aqueous

Date Sampled: 10/03/2018 1655

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	100	10/13/2018 2058	JJG		86387		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	3600		2000	800	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	120	J	1000	42	ug/L	1
Benzene		71-43-2	8260B	4600		500	40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		500	200	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		500	40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		500	40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		2000	800	ug/L	1
Ethanol		64-17-5	8260B	ND		10000	4000	ug/L	1
Ethylbenzene		100-41-4	8260B	1800		500	40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		100	40	ug/L	1
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	8100		500	40	ug/L	1
Naphthalene		91-20-3	8260B	670		500	40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	4600		2000	800	ug/L	1
Toluene		108-88-3	8260B	170	J	500	40	ug/L	1
Xylenes (total)		1330-20-7	8260B	4400		500	40	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		112	70-130						
Bromofluorobenzene		121	70-130						
Toluene-d8		124	70-130						

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1118	SCD	10/07/2018 2122	85721		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		70	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

Shealy Environmental Services, Inc.

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Description: **RW-8**Matrix: **Aqueous**Date Sampled: **10/03/2018 1855**Date Received: **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/13/2018 1733	JJG		86387
2	5030B	8260B	10	10/16/2018 0331	MNS		86550

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	110		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1
<b>Benzene</b>	<b>71-43-2</b>	<b>8260B</b>	<b>42</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1
<b>Ethylbenzene</b>	<b>100-41-4</b>	<b>8260B</b>	<b>150</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		10	0.40	ug/L	1
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>25</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
<b>Naphthalene</b>	<b>91-20-3</b>	<b>8260B</b>	<b>47</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
tert-butyl alcohol (TBA)	75-65-0	8260B	15	J	20	8.0	ug/L	1
<b>Toluene</b>	<b>108-88-3</b>	<b>8260B</b>	<b>4.1</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
<b>Xylenes (total)</b>	<b>1330-20-7</b>	<b>8260B</b>	<b>460</b>		<b>50</b>	<b>4.0</b>	<b>ug/L</b>	<b>2</b>

Surrogate	Run 1			Run 2		
	Q	% Recovery	Acceptance Limits	Q	% Recovery	Acceptance Limits
1,2-Dichloroethane-d4		112	70-130		113	70-130
Bromofluorobenzene		125	70-130		116	70-130
Toluene-d8		123	70-130		120	70-130

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	10/10/2018 1129	SCD	10/07/2018 2122	85721

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

Surrogate	Run 1		
	Q	% Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		95	57-137

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

Shealy Environmental Services, Inc

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Description: **RW-9**Matrx **Aqueous**Date Sampled: **10/03/2018 1257**Date Received: **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1756	JJG		86387		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	130		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	2.4	J	10	0.42	ug/L	1
Benzene		71-43-2	8260B	0.56	J	5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	3.5	J	5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	0.62	J	5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	0.53	J	1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	20		5.0	0.40	ug/L	1
Naphthalene		91-20-3	8260B	2.3	J	5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	180		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	1.3	J	5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		109	70-130
Bromofluorobenzene		115	70-130
Toluene-d8		124	70-130

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1140	SCD	10/07/2018 2122	85721		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		73	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

Description **RW-11**Matrix: **Aqueous**Date Sampled: **10/03/2018 0756**Date Received **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	500	10/13/2018 1851	JM1		86389		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		10000	4000	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		5000	210	ug/L	1
<b>Benzene</b>		<b>71-43-2</b>	<b>8260B</b>	<b>800</b>	<b>J</b>	<b>2500</b>	<b>200</b>	<b>ug/L</b>	<b>1</b>
tert-Butyl formate (TBF)		762-75-4	8260B	ND		2500	1000	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		2500	200	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		2500	200	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		10000	4000	ug/L	1
Ethanol		64-17-5	8260B	ND		50000	20000	ug/L	1
<b>Ethylbenzene</b>		<b>100-41-4</b>	<b>8260B</b>	<b>2600</b>		<b>2500</b>	<b>200</b>	<b>ug/L</b>	<b>1</b>
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		500	200	ug/L	1
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	ND		2500	200	ug/L	1
<b>Naphthalene</b>		<b>91-20-3</b>	<b>8260B</b>	<b>570</b>	<b>J</b>	<b>2500</b>	<b>200</b>	<b>ug/L</b>	<b>1</b>
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		10000	4000	ug/L	1
<b>Toluene</b>		<b>108-88-3</b>	<b>8260B</b>	<b>33000</b>		<b>2500</b>	<b>200</b>	<b>ug/L</b>	<b>1</b>
<b>Xylenes (total)</b>		<b>1330-20-7</b>	<b>8260B</b>	<b>15000</b>		<b>2500</b>	<b>200</b>	<b>ug/L</b>	<b>1</b>

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		112	70-130
Bromofluorobenzene		115	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	10/10/2018 1150	SCD	10/07/2018 2122	85721		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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		69	57-137						

LOQ = Limit of Quantitation      B = Detected in the method blank      E = Quantitation of compound exceeded the calibration range      DL = Detection Limit  
 ND = Not detected at or above the DL      N = Recovery is out of criteria      P = The RPD between two GC columns exceeds 40%      J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time      W = Reported on wet weight basis

Description: MW-D1

Matrix: Aqueous

Date Sampled: 10/03/2018 1138

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1425	JM1		86389		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	0.97	J	5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	3.1	J	5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)		1634-04-4	8260B	98		5.0	0.40	ug/L	1
Naphthalene		91-20-3	8260B	11		5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	0.77	J	5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	30		5.0	0.40	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		113	70-130						
Bromofluorobenzene		116	70-130						
Toluene-d8		121	70-130						

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1201	SCD	10/07/2018 2122	85721		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	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						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

Shealy Environmental Services, Inc

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Description: Duplicate-1

Matrix: Aqueous

Date Sampled: 10/03/2018 1856

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	5	10/13/2018 1913	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	110		100	40	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	2.1	ug/L	1	
<b>Benzene</b>	<b>71-43-2</b>	<b>8260B</b>	<b>48</b>		<b>25</b>	<b>2.0</b>	<b>ug/L</b>	<b>1</b>	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		25	10	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		25	2.0	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		25	2.0	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	40	ug/L	1	
Ethanol	64-17-5	8260B	ND		500	200	ug/L	1	
<b>Ethylbenzene</b>	<b>100-41-4</b>	<b>8260B</b>	<b>170</b>		<b>25</b>	<b>2.0</b>	<b>ug/L</b>	<b>1</b>	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		50	2.0	ug/L	1	
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>24</b>	<b>J</b>	<b>25</b>	<b>2.0</b>	<b>ug/L</b>	<b>1</b>	
<b>Naphthalene</b>	<b>91-20-3</b>	<b>8260B</b>	<b>52</b>		<b>25</b>	<b>2.0</b>	<b>ug/L</b>	<b>1</b>	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		100	40	ug/L	1	
<b>Toluene</b>	<b>108-88-3</b>	<b>8260B</b>	<b>5.0</b>	<b>J</b>	<b>25</b>	<b>2.0</b>	<b>ug/L</b>	<b>1</b>	
<b>Xylenes (total)</b>	<b>1330-20-7</b>	<b>8260B</b>	<b>560</b>		<b>25</b>	<b>2.0</b>	<b>ug/L</b>	<b>1</b>	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		115	70-130						
Bromofluorobenzene		118	70-130						
Toluene-d8		121	70-130						

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1212	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		99	57-137						

LOQ = Limit of Quantitation      B = Detected in the method blank      E = Quantitation of compound exceeded the calibration range      DL = Detection Limit  
 ND = Not detected at or above the DL      N = Recovery is out of criteria      P = The RPD between two GC columns exceeds 40%      J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time      W = Reported on wet weight basis



Description: **Field Blank FB-1**Matrix: **Aqueous**Date Sampled: **10/03/2018 0705**Date Received: **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1319	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		115	70-130
Bromofluorobenzene		113	70-130
Toluene-d8		120	70-130

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1223	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		95	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: Trip Blank-1

Matrix: Aqueous

Date Sampled: 10/03/2018

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1341	JM1		86389		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)		75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)		994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene		71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)		762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane		107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)		108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol		624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol		64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene		100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)		637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1
tert-butyl alcohol (TBA)		75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene		108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)		1330-20-7	8260B	ND		5.0	0.40	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		118	70-130						
Bromofluorobenzene		118	70-130						
Toluene-d8		122	70-130						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: **RW-10**Matrix: **Aqueous**Date Sampled: **10/04/2018 0910**Date Received: **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	200	10/13/2018 1936	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	9400		4000	1600	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	340	J	2000	84	ug/L	1	
Benzene	71-43-2	8260B	13000		1000	80	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		1000	400	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		1000	80	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1000	80	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		4000	1600	ug/L	1	
Ethanol	64-17-5	8260B	ND		20000	8000	ug/L	1	
Ethylbenzene	100-41-4	8260B	3000		1000	80	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		200	80	ug/L	1	
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	7100		1000	80	ug/L	1	
Naphthalene	91-20-3	8260B	790	J	1000	80	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		4000	1600	ug/L	1	
Toluene	108-88-3	8260B	6900		1000	80	ug/L	1	
Xylenes (total)	1330-20-7	8260B	9500		1000	80	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		112	70-130						
Bromofluorobenzene		117	70-130						
Toluene-d8		120	70-130						

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1233	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		77	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

Description: RW-12

Matrix: Aqueous

Date Sampled: 10/04/2018 0825

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	200	10/13/2018 1958	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	30000		4000	1600	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		2000	84	ug/L	1	
<b>Benzene</b>	<b>71-43-2</b>	<b>8260B</b>	<b>12000</b>		<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		1000	400	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		1000	80	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		1000	80	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		4000	1600	ug/L	1	
Ethanol	64-17-5	8260B	ND		20000	8000	ug/L	1	
<b>Ethylbenzene</b>	<b>100-41-4</b>	<b>8260B</b>	<b>1300</b>		<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		200	80	ug/L	1	
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>11000</b>		<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>	
<b>Naphthalene</b>	<b>91-20-3</b>	<b>8260B</b>	<b>780</b>	<b>J</b>	<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>	
tert-butyl alcohol (TBA)	75-65-0	8260B	11000		4000	1600	ug/L	1	
<b>Toluene</b>	<b>108-88-3</b>	<b>8260B</b>	<b>21000</b>		<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>	
<b>Xylenes (total)</b>	<b>1330-20-7</b>	<b>8260B</b>	<b>15000</b>		<b>1000</b>	<b>80</b>	<b>ug/L</b>	<b>1</b>	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		111	70-130
Bromofluorobenzene		115	70-130
Toluene-d8		118	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	250	10/11/2018 1756	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
1,2-Dibromoethane (EDB)	106-93-4	8011	140		5.1	5.1	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,1,1,2-Tetrachloroethane	N	0 00	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: MW-10A

Matrx: Aqueous

Date Sampled: 10/04/2018 1820

Date Received 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1447	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		115	70-130
Toluene-d8		119	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1255	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		93	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: **MW-10B**Matrx: **Aqueous**Date Sampled: **10/04/2018 1857**Date Received: **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1509	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		116	70-130
Toluene-d8		119	70-130

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1306	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		87	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description MW-12A

Matrx. Aqueous

Date Sampled: 10/04/2018 1710

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/13/2018 1531	JM1		86389

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		116	70-130
Bromofluorobenzene		117	70-130
Toluene-d8		123	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	10/10/2018 1316	SCD	10/07/2018 2122	85721

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		75	57-137

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Client: Enviro-Test Services Inc.

Laboratory ID: TJ05073-029

Description: MW-12B

Matrix: Aqueous

Date Sampled: 10/04/2018 1748

Date Received 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1553	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		115	70-130
Toluene-d8		122	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1327	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		81	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Client: Enviro-Test Services Inc.

Laboratory ID: TJ05073-030

Description: MW-14A

Matrix: Aqueous

Date Sampled: 10/04/2018 1032

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1615	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		113	70-130
Bromofluorobenzene		116	70-130
Toluene-d8		122	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1338	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description **MW-14B**Matrix: **Aqueous**Date Sampled: **10/04/2018 0958**Date Received: **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1637	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	21		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
<b>Benzene</b>	<b>71-43-2</b>	<b>8260B</b>	<b>0.81</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
<b>tert-butyl alcohol (TBA)</b>	<b>75-65-0</b>	<b>8260B</b>	<b>9.2</b>	<b>J</b>	<b>20</b>	<b>8.0</b>	<b>ug/L</b>	<b>1</b>	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		113	70-130
Bromofluorobenzene		111	70-130
Toluene-d8		121	70-130

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1349	SCD	10/07/2018 2122	85721		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		91	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-15B

Matrix: Aqueous

Date Sampled: 10/04/2018 1112

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/13/2018 1659	JM1		86389

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		113	70-130
Bromofluorobenzene		113	70-130
Toluene-d8		121	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	10/12/2018 0042	SCD	10/09/2018 1620	85932

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		104	57-137

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-17B

Matrx: Aqueous

Date Sampled 10/04/2018 1410

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	5	10/13/2018 2020	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	520		100	40	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		50	2.1	ug/L	1	
Benzene	71-43-2	8260B	56		25	2.0	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		25	10	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		25	2.0	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	6.0	J	25	2.0	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		100	40	ug/L	1	
Ethanol	64-17-5	8260B	ND		500	200	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		25	2.0	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	2.1	J	5.0	2.0	ug/L	1	
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	350		25	2.0	ug/L	1	
Naphthalene	91-20-3	8260B	5.6	J	25	2.0	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	2300		100	40	ug/L	1	
Toluene	108-88-3	8260B	ND		25	2.0	ug/L	1	
Xylenes (total)	1330-20-7	8260B	11	J	25	2.0	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		112	70-130
Bromofluorobenzene		115	70-130
Toluene-d8		119	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1645	SCD	10/09/2018 1620	85935		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		88	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-D2

Matrix: Aqueous

Date Sampled: 10/04/2018 1500

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/13/2018 1722	JM1		86389

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>17</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		116	70-130
Bromofluorobenzene		114	70-130
Toluene-d8		120	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	10/10/2018 1656	SCD	10/09/2018 1620	85935

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-18A

Matrx: Aqueous

Date Sampled: 10/04/2018 1548

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1744	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		10	0.40	ug/L	1	
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260B	ND		50	0.40	ug/L	1	
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		50	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		50	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		113	70-130
Bromofluorobenzene		111	70-130
Toluene-d8		119	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1706	SCD	10/09/2018 1620	85935		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		90	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: **MW-18B**Matrix: **Aqueous**Date Sampled: **10/04/2018 1632**Date Received: **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/13/2018 1806	JM1		86389		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1	
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>0.41</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		113	70-130						
Bromofluorobenzene		114	70-130						
Toluene-d8		120	70-130						

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1717	SCD	10/09/2018 1620	85935		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		80	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: Field Blank FB-2

Matrx: Aqueous

Date Sampled: 10/04/2018 0810

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/13/2018 1403	JM1		86389

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		115	70-130
Bromofluorobenzene		113	70-130
Toluene-d8		121	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	10/10/2018 1728	SCD	10/09/2018 1620	85935

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: Trip Blank-2

Matrx. Aqueous

Date Sampled: 10/04/2018

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/15/2018 1329	STM		86487		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		112	70-130						
Bromofluorobenzene		115	70-130						
Toluene-d8		121	70-130						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-11-A

Matrix: Aqueous

Date Sampled: 10/05/2018 0745

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/13/2018 1828	JM1		86389

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1
<b>Benzene</b>	<b>71-43-2</b>	<b>8260B</b>	<b>4.9</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>1.2</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
<b>Naphthalene</b>	<b>91-20-3</b>	<b>8260B</b>	<b>1.6</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		113	70-130
Bromofluorobenzene		113	70-130
Toluene-d8		119	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	10/10/2018 1739	SCD	10/09/2018 1620	85935

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		80	57-137

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-11-B

Matrix: Aqueous

Date Sampled: 10/05/2018 0828

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/14/2018 1519	MNS		86410

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>0.77</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		112	70-130
Bromofluorobenzene		111	70-130
Toluene-d8		122	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	10/10/2018 1749	SCD	10/09/2018 1620	85935

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		73	57-137

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: MW-21-A

Matrix: Aqueous

Date Sampled: 10/05/2018 0915

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/14/2018 1923	MNS		86410		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		112	70-130
Bromofluorobenzene		112	70-130
Toluene-d8		119	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1800	SCD	10/09/2018 1620	85935		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		91	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: MW-21-B

Matrix: Aqueous

Date Sampled: 10/05/2018 0952

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/14/2018 1648	MNS		86410

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>14</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		113	70-130
Bromofluorobenzene		114	70-130
Toluene-d8		121	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	10/10/2018 1811	SCD	10/09/2018 1620	85935

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		78	57-137

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: MW-22-B

Matrx: Aqueous

Date Sampled: 10/05/2018 1030

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/14/2018 1710	MNS		86410

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>4.9</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		112	70-130
Toluene-d8		120	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	10/10/2018 1821	SCD	10/09/2018 1620	85935

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		83	57-137

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Client: Enviro-Test Services Inc.

Laboratory ID: TJ05073-047

Description: MW-D3

Matrix: Aqueous

Date Sampled: 10/05/2018 1110

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260B	1	10/14/2018 1732	MNS		86410

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>1.1</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		113	70-130
Toluene-d8		121	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	8011	8011	1	10/10/2018 1832	SCD	10/09/2018 1620	85935

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		83	57-137

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: Duplicate-2

Matrix: Aqueous

Date Sampled: 10/05/2018 0955

Date Received 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/14/2018 1754	MNS		86410		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1	
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>14</b>		<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		115	70-130
Bromofluorobenzene		114	70-130
Toluene-d8		120	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1843	SCD	10/09/2018 1620	85935		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		90	57-137						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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Description: Duplicate-3

Matrx: Aqueous

Date Sampled: 10/05/2018 1113

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/14/2018 1816	MNS		86410		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	ug/L	1	
<b>Methyl tertiary butyl ether (MTBE)</b>	<b>1634-04-4</b>	<b>8260B</b>	<b>1.1</b>	<b>J</b>	<b>5.0</b>	<b>0.40</b>	<b>ug/L</b>	<b>1</b>	
Naphthalene	91-20-3	8260B	ND		5.0	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		114	70-130
Bromofluorobenzene		113	70-130
Toluene-d8		120	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1854	SCD	10/09/2018 1620	85935		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		87	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description: Field Blank-3

Matrix: Aqueous

Date Sampled: 10/05/2018 0725

Date Received: 10/05/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/14/2018 1838	MNS		86410		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,2-Dichloroethane-d4		112	70-130
Bromofluorobenzene		108	70-130
Toluene-d8		118	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	8011	8011	1	10/10/2018 1959	SCD	10/09/2018 1620	85936		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	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		68	57-137						

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

DL = Detection Limit

ND = Not detected at or above the DL

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

J = Estimated result &lt; LOQ and ≥ DL

H = Out of holding time

W = Reported on wet weight basis

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Description **Trip Blank-3**Matrix: **Aqueous**Date Sampled: **10/05/2018**Date Received: **10/05/2018****Volatile Organic Compounds by GC/MS**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	5030B	8260B	1	10/14/2018 1901	MNS		86410		
Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run	
tert-Amyl alcohol (TAA)	75-85-4	8260B	ND		20	8.0	ug/L	1	
tert-Amyl methyl ether (TAME)	994-05-8	8260B	ND		10	0.42	ug/L	1	
Benzene	71-43-2	8260B	ND		5.0	0.40	ug/L	1	
tert-Butyl formate (TBF)	762-75-4	8260B	ND		5.0	2.0	ug/L	1	
1,2-Dichloroethane	107-06-2	8260B	ND		5.0	0.40	ug/L	1	
Diisopropyl ether (IPE)	108-20-3	8260B	ND		5.0	0.40	ug/L	1	
3,3-Dimethyl-1-butanol	624-95-3	8260B	ND		20	8.0	ug/L	1	
Ethanol	64-17-5	8260B	ND		100	40	ug/L	1	
Ethylbenzene	100-41-4	8260B	ND		5.0	0.40	ug/L	1	
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260B	ND		1.0	0.40	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	0.40	ug/L	1	
tert-butyl alcohol (TBA)	75-65-0	8260B	ND		20	8.0	ug/L	1	
Toluene	108-88-3	8260B	ND		5.0	0.40	ug/L	1	
Xylenes (total)	1330-20-7	8260B	ND		5.0	0.40	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
1,2-Dichloroethane-d4		111	70-130						
Bromofluorobenzene		111	70-130						
Toluene-d8		120	70-130						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range    DL = Detection Limit  
 ND = Not detected at or above the DL    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%    J = Estimated result < LOQ and ≥ DL  
 H = Out of holding time    W = Reported on wet weight basis

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## QC Summary

## Volatile Organic Compounds by GC/MS - MB

Sample ID: TQ86387-001

Matrix: Aqueous

Batch: 86387

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	20	8.0	ug/L	10/13/2018 1257
tert-Amyl methyl ether (TAME)	ND		1	10	0.42	ug/L	10/13/2018 1257
Benzene	ND		1	5.0	0.40	ug/L	10/13/2018 1257
tert-Butyl formate (TBF)	ND		1	5.0	2.0	ug/L	10/13/2018 1257
1,2-Dichloroethane	ND		1	5.0	0.40	ug/L	10/13/2018 1257
Diisopropyl ether (IPE)	ND		1	5.0	0.40	ug/L	10/13/2018 1257
3,3-Dimethyl-1-butanol	ND		1	20	8.0	ug/L	10/13/2018 1257
Ethanol	ND		1	100	40	ug/L	10/13/2018 1257
Ethylbenzene	ND		1	5.0	0.40	ug/L	10/13/2018 1257
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	0.40	ug/L	10/13/2018 1257
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	10/13/2018 1257
Naphthalene	ND		1	5.0	0.40	ug/L	10/13/2018 1257
tert-butyl alcohol (TBA)	ND		1	20	8.0	ug/L	10/13/2018 1257
Toluene	ND		1	5.0	0.40	ug/L	10/13/2018 1257
Xylenes (total)	ND		1	5.0	0.40	ug/L	10/13/2018 1257
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		111	70-130				
Bromofluorobenzene		118	70-130				
Toluene-d8		121	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - LCS

Sample ID: TQ86387-002

Matrix: Aqueous

Batch: 86387

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	1100		1	111	70-130	10/13/2018 1212
tert-Amyl methyl ether (TAME)	50	58		1	115	70-130	10/13/2018 1212
Benzene	50	49		1	97	70-130	10/13/2018 1212
tert-Butyl formate (TBF)	250	290		1	118	70-130	10/13/2018 1212
1,2-Dichloroethane	50	54		1	108	70-130	10/13/2018 1212
Diisopropyl ether (IPE)	50	57		1	114	70-130	10/13/2018 1212
3,3-Dimethyl-1-butanol	1000	1100		1	112	70-130	10/13/2018 1212
Ethanol	5000	6400		1	128	70-130	10/13/2018 1212
Ethylbenzene	50	51		1	102	70-130	10/13/2018 1212
Ethyl-tert-butyl ether (ETBE)	50	57		1	115	70-130	10/13/2018 1212
Methyl tertiary butyl ether (MTBE)	50	59		1	118	70-130	10/13/2018 1212
Naphthalene	50	58		1	117	70-130	10/13/2018 1212
tert-butyl alcohol (TBA)	1000	1100		1	109	70-130	10/13/2018 1212
Toluene	50	52		1	104	70-130	10/13/2018 1212
Xylenes (total)	100	100		1	100	70-130	10/13/2018 1212
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		110	70-130				
Bromofluorobenzene		114	70-130				
Toluene-d8		120	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - MS

Sample ID: TJ05073-001MS

Matrix: Aqueous

Batch: 86387

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	2000	200000	210000		200	104	70-130	10/13/2018 2121
tert-Amyl methyl ether (TAME)	ND	10000	9500		200	95	70-130	10/13/2018 2121
Benzene	1000	10000	7500	N	200	65	70-130	10/13/2018 2121
tert-Butyl formate (TBF)	ND	50000	47000		200	94	70-130	10/13/2018 2121
1,2-Dichloroethane	ND	10000	8800		200	88	70-130	10/13/2018 2121
Diisopropyl ether (IPE)	ND	10000	9000		200	90	70-130	10/13/2018 2121
3,3-Dimethyl-1-butanol	ND	200000	220000		200	108	70-130	10/13/2018 2121
Ethanol	ND	1000000	1200000		200	118	70-130	10/13/2018 2121
Ethylbenzene	1700	10000	8200	N	200	65	70-130	10/13/2018 2121
Ethyl-tert-butyl ether (ETBE)	ND	10000	9200		200	92	70-130	10/13/2018 2121
Methyl tertiary butyl ether (MTBE)	ND	10000	10000		200	101	70-130	10/13/2018 2121
Naphthalene	570	10000	10000		200	97	70-130	10/13/2018 2121
tert-butyl alcohol (TBA)	ND	200000	210000		200	104	70-130	10/13/2018 2121
Toluene	14000	10000	19000	N	200	55	70-130	10/13/2018 2121
Xylenes (total)	8300	20000	22000	N	200	67	70-130	10/13/2018 2121
Surrogate	Q	% Rec	Acceptance Limit					
1,2-Dichloroethane-d4		116	70-130					
Bromofluorobenzene		119	70-130					
Toluene-d8		120	70-130					

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - MSD

Sample ID: TJ05073-001MD

Matrix: Aqueous

Batch: 86387

Prep Method: 5030B

Analytical Method: 8260B

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)	2000	200000	210000		200	104	0.20	70-130	20	10/13/2018 2143
tert-Amyl methyl ether (TAME)	ND	10000	9400		200	94	1.8	70-130	20	10/13/2018 2143
Benzene	1000	10000	7200	N	200	62	3.5	70-130	20	10/13/2018 2143
tert-Butyl formate (TBF)	ND	50000	46000		200	92	2.1	70-130	20	10/13/2018 2143
1,2-Dichloroethane	ND	10000	8500		200	85	3.0	70-130	20	10/13/2018 2143
Diisopropyl ether (IPE)	ND	10000	8900		200	89	0.89	70-130	20	10/13/2018 2143
3,3-Dimethyl-1-butanol	ND	200000	210000		200	105	2.7	70-130	20	10/13/2018 2143
Ethanol	ND	1000000	1200000		200	116	1.8	70-130	20	10/13/2018 2143
Ethylbenzene	1700	10000	7900	N	200	62	3.7	70-130	20	10/13/2018 2143
Ethyl-tert-butyl ether (ETBE)	ND	10000	9100		200	91	1.1	70-130	20	10/13/2018 2143
Methyl tertiary butyl ether (MTBE)	ND	10000	9800		200	98	3.5	70-130	20	10/13/2018 2143
Naphthalene	570	10000	10000		200	98	0.21	70-130	20	10/13/2018 2143
tert-butyl alcohol (TBA)	ND	200000	210000		200	104	0.25	70-130	20	10/13/2018 2143
Toluene	14000	10000	19000	N	200	47	4.2	70-130	20	10/13/2018 2143
Xylenes (total)	8300	20000	21000	N	200	63	3.9	70-130	20	10/13/2018 2143
Surrogate	Q	% Rec	Acceptance Limit							
1,2-Dichloroethane-d4		108	70-130							
Bromofluorobenzene		117	70-130							
Toluene-d8		118	70-130							

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - MB

Sample ID: TQ86389-001

Matrix: Aqueous

Batch: 86389

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	20	8.0	ug/L	10/13/2018 1232
tert-Amyl methyl ether (TAME)	ND		1	10	0.42	ug/L	10/13/2018 1232
Benzene	ND		1	5.0	0.40	ug/L	10/13/2018 1232
tert-Butyl formate (TBF)	ND		1	5.0	2.0	ug/L	10/13/2018 1232
1,2-Dichloroethane	ND		1	5.0	0.40	ug/L	10/13/2018 1232
Diisopropyl ether (IPE)	ND		1	5.0	0.40	ug/L	10/13/2018 1232
3,3-Dimethyl-1-butanol	ND		1	20	8.0	ug/L	10/13/2018 1232
Ethanol	ND		1	100	40	ug/L	10/13/2018 1232
Ethylbenzene	ND		1	5.0	0.40	ug/L	10/13/2018 1232
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	0.40	ug/L	10/13/2018 1232
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	10/13/2018 1232
Naphthalene	ND		1	5.0	0.40	ug/L	10/13/2018 1232
tert-butyl alcohol (TBA)	ND		1	20	8.0	ug/L	10/13/2018 1232
Toluene	ND		1	5.0	0.40	ug/L	10/13/2018 1232
Xylenes (total)	ND		1	5.0	0.40	ug/L	10/13/2018 1232
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		115	70-130				
Bromofluorobenzene		113	70-130				
Toluene-d8		120	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - LCS

Sample ID: TQ86389-002

Matrix: Aqueous

Batch: 86389

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	940		1	94	70-130	10/13/2018 1148
tert-Amyl methyl ether (TAME)	50	51		1	102	70-130	10/13/2018 1148
Benzene	50	47		1	95	70-130	10/13/2018 1148
tert-Butyl formate (TBF)	250	260		1	103	70-130	10/13/2018 1148
1,2-Dichloroethane	50	49		1	97	70-130	10/13/2018 1148
Diisopropyl ether (IPE)	50	50		1	100	70-130	10/13/2018 1148
3,3-Dimethyl-1-butanol	1000	960		1	96	70-130	10/13/2018 1148
Ethanol	5000	4500		1	90	70-130	10/13/2018 1148
Ethylbenzene	50	52		1	103	70-130	10/13/2018 1148
Ethyl-tert-butyl ether (ETBE)	50	49		1	98	70-130	10/13/2018 1148
Methyl tertiary butyl ether (MTBE)	50	50		1	101	70-130	10/13/2018 1148
Naphthalene	50	51		1	102	70-130	10/13/2018 1148
tert-butyl alcohol (TBA)	1000	900		1	90	70-130	10/13/2018 1148
Toluene	50	50		1	99	70-130	10/13/2018 1148
Xylenes (total)	100	100		1	102	70-130	10/13/2018 1148
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		107	70-130				
Bromofluorobenzene		115	70-130				
Toluene-d8		115	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - MS

Sample ID: TJ05073-033MS

Matrix: Aqueous

Batch: 86389

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	520	5000	6000		5	109	70-130	10/13/2018 2042
tert-Amyl methyl ether (TAME)	ND	250	280		5	112	70-130	10/13/2018 2042
Benzene	56	250	320		5	106	70-130	10/13/2018 2042
tert-Butyl formate (TBF)	ND	1300	440	N	5	35	70-130	10/13/2018 2042
1,2-Dichloroethane	ND	250	270		5	109	70-130	10/13/2018 2042
Diisopropyl ether (IPE)	6 0	250	280		5	111	70-130	10/13/2018 2042
3,3-Dimethyl-1-butanol	ND	5000	5800		5	116	70-130	10/13/2018 2042
Ethanol	ND	25000	26000		5	104	70-130	10/13/2018 2042
Ethylbenzene	ND	250	280		5	112	70-130	10/13/2018 2042
Ethyl-tert-butyl ether (ETBE)	2 1	250	270		5	108	70-130	10/13/2018 2042
Methyl tertiary butyl ether (MTBE)	350	250	630		5	113	70-130	10/13/2018 2042
Naphthalene	5 6	250	280		5	110	70-130	10/13/2018 2042
tert-butyl alcohol (TBA)	2300	5000	8100		5	117	70-130	10/13/2018 2042
Toluene	ND	250	270		5	109	70-130	10/13/2018 2042
Xylenes (total)	11	500	570		5	112	70-130	10/13/2018 2042
Surrogate	Q	% Rec	Acceptance Limit					
1,2-Dichloroethane-d4		111	70-130					
Bromofluorobenzene		116	70-130					
Toluene-d8		117	70-130					

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - MSD

Sample ID: TJ05073-033MD

Matrix: Aqueous

Batch: 86389

Prep Method: 5030B

Analytical Method: 8260B

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)	520	5000	6000		5	110	0.27	70-130	20	10/13/2018 2104
tert-Amyl methyl ether (TAME)	ND	250	280		5	111	1.4	70-130	20	10/13/2018 2104
Benzene	56	250	310		5	104	1.7	70-130	20	10/13/2018 2104
tert-Butyl formate (TBF)	ND	1300	400	N	5	32	8.9	70-130	20	10/13/2018 2104
1,2-Dichloroethane	ND	250	270		5	107	1.7	70-130	20	10/13/2018 2104
Diisopropyl ether (IPE)	6.0	250	280		5	111	0.47	70-130	20	10/13/2018 2104
3,3-Dimethyl-1-butanol	ND	5000	5700		5	114	1.4	70-130	20	10/13/2018 2104
Ethanol	ND	25000	26000		5	103	1.7	70-130	20	10/13/2018 2104
Ethylbenzene	ND	250	270		5	107	3.9	70-130	20	10/13/2018 2104
Ethyl-tert-butyl ether (ETBE)	2.1	250	270		5	108	0.15	70-130	20	10/13/2018 2104
Methyl tertiary butyl ether (MTBE)	350	250	630		5	114	0.58	70-130	20	10/13/2018 2104
Naphthalene	5.6	250	280		5	110	0.41	70-130	20	10/13/2018 2104
tert-butyl alcohol (TBA)	2300	5000	8200		5	119	1.5	70-130	20	10/13/2018 2104
Toluene	ND	250	260		5	106	2.9	70-130	20	10/13/2018 2104
Xylenes (total)	11	500	550		5	107	4.2	70-130	20	10/13/2018 2104
Surrogate	Q	% Rec	Acceptance Limit							
1,2-Dichloroethane-d4		110	70-130							
Bromofluorobenzene		114	70-130							
Toluene-d8		116	70-130							

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - MB

Sample ID: TQ86410-001

Matrix: Aqueous

Batch: 86410

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	20	8.0	ug/L	10/14/2018 1347
tert-Amyl methyl ether (TAME)	ND		1	10	0.42	ug/L	10/14/2018 1347
Benzene	ND		1	5.0	0.40	ug/L	10/14/2018 1347
tert-Butyl formate (TBF)	ND		1	5.0	2.0	ug/L	10/14/2018 1347
1,2-Dichloroethane	ND		1	5.0	0.40	ug/L	10/14/2018 1347
Diisopropyl ether (IPE)	ND		1	5.0	0.40	ug/L	10/14/2018 1347
3,3-Dimethyl-1-butanol	ND		1	20	8.0	ug/L	10/14/2018 1347
Ethanol	ND		1	100	40	ug/L	10/14/2018 1347
Ethylbenzene	ND		1	5.0	0.40	ug/L	10/14/2018 1347
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	0.40	ug/L	10/14/2018 1347
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	10/14/2018 1347
Naphthalene	ND		1	5.0	0.40	ug/L	10/14/2018 1347
tert-butyl alcohol (TBA)	ND		1	20	8.0	ug/L	10/14/2018 1347
Toluene	ND		1	5.0	0.40	ug/L	10/14/2018 1347
Xylenes (total)	ND		1	5.0	0.40	ug/L	10/14/2018 1347
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		109	70-130				
Bromofluorobenzene		112	70-130				
Toluene-d8		120	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and  $\geq$  DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - LCS

Sample ID: TQ86410-002

Matrix: Aqueous

Batch: 86410

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	940		1	94	70-130	10/14/2018 1303
tert-Amyl methyl ether (TAME)	50	50		1	100	70-130	10/14/2018 1303
Benzene	50	46		1	93	70-130	10/14/2018 1303
tert-Butyl formate (TBF)	250	250		1	101	70-130	10/14/2018 1303
1,2-Dichloroethane	50	47		1	95	70-130	10/14/2018 1303
Diisopropyl ether (IPE)	50	50		1	99	70-130	10/14/2018 1303
3,3-Dimethyl-1-butanol	1000	980		1	98	70-130	10/14/2018 1303
Ethanol	5000	4900		1	98	70-130	10/14/2018 1303
Ethylbenzene	50	50		1	100	70-130	10/14/2018 1303
Ethyl-tert-butyl ether (ETBE)	50	48		1	96	70-130	10/14/2018 1303
Methyl tertiary butyl ether (MTBE)	50	49		1	98	70-130	10/14/2018 1303
Naphthalene	50	50		1	100	70-130	10/14/2018 1303
tert-butyl alcohol (TBA)	1000	930		1	93	70-130	10/14/2018 1303
Toluene	50	49		1	99	70-130	10/14/2018 1303
Xylenes (total)	100	99		1	99	70-130	10/14/2018 1303
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		107	70-130				
Bromofluorobenzene		113	70-130				
Toluene-d8		116	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - MB

Sample ID: TQ86487-001

Matrix: Aqueous

Batch: 86487

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	20	8.0	ug/L	10/15/2018 1037
tert-Amyl methyl ether (TAME)	ND		1	10	0.42	ug/L	10/15/2018 1037
Benzene	ND		1	5.0	0.40	ug/L	10/15/2018 1037
tert-Butyl formate (TBF)	ND		1	5.0	2.0	ug/L	10/15/2018 1037
1,2-Dichloroethane	ND		1	5.0	0.40	ug/L	10/15/2018 1037
Diisopropyl ether (IPE)	ND		1	5.0	0.40	ug/L	10/15/2018 1037
3,3-Dimethyl-1-butanol	ND		1	20	8.0	ug/L	10/15/2018 1037
Ethanol	ND		1	100	40	ug/L	10/15/2018 1037
Ethylbenzene	ND		1	5.0	0.40	ug/L	10/15/2018 1037
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	0.40	ug/L	10/15/2018 1037
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	10/15/2018 1037
Naphthalene	ND		1	5.0	0.40	ug/L	10/15/2018 1037
tert-butyl alcohol (TBA)	ND		1	20	8.0	ug/L	10/15/2018 1037
Toluene	ND		1	5.0	0.40	ug/L	10/15/2018 1037
Xylenes (total)	ND		1	5.0	0.40	ug/L	10/15/2018 1037
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		115	70-130				
Bromofluorobenzene		115	70-130				
Toluene-d8		120	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - LCS

Sample ID: TQ86487-002

Matrix: Aqueous

Batch: 86487

Prep Method: 5030B

Analytical Method: 8260B

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	10/15/2018 0938
tert-Amyl methyl ether (TAME)	50	52		1	104	70-130	10/15/2018 0938
Benzene	50	50		1	100	70-130	10/15/2018 0938
tert-Butyl formate (TBF)	250	270		1	108	70-130	10/15/2018 0938
1,2-Dichloroethane	50	51		1	102	70-130	10/15/2018 0938
Diisopropyl ether (IPE)	50	52		1	104	70-130	10/15/2018 0938
3,3-Dimethyl-1-butanol	1000	1000		1	100	70-130	10/15/2018 0938
Ethanol	5000	5000		1	100	70-130	10/15/2018 0938
Ethylbenzene	50	53		1	106	70-130	10/15/2018 0938
Ethyl-tert-butyl ether (ETBE)	50	50		1	101	70-130	10/15/2018 0938
Methyl tertiary butyl ether (MTBE)	50	52		1	103	70-130	10/15/2018 0938
Naphthalene	50	51		1	102	70-130	10/15/2018 0938
tert-butyl alcohol (TBA)	1000	930		1	93	70-130	10/15/2018 0938
Toluene	50	52		1	105	70-130	10/15/2018 0938
Xylenes (total)	100	100		1	105	70-130	10/15/2018 0938
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		108	70-130				
Bromofluorobenzene		113	70-130				
Toluene-d8		118	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - MB

Sample ID: TQ86550-001

Matrix: Aqueous

Batch: 86550

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
tert-Amyl alcohol (TAA)	ND		1	20	8.0	ug/L	10/15/2018 2056
tert-Amyl methyl ether (TAME)	ND		1	10	0.42	ug/L	10/15/2018 2056
Benzene	ND		1	5.0	0.40	ug/L	10/15/2018 2056
tert-Butyl formate (TBF)	ND		1	5.0	2.0	ug/L	10/15/2018 2056
1,2-Dichloroethane	ND		1	5.0	0.40	ug/L	10/15/2018 2056
Diisopropyl ether (IPE)	ND		1	5.0	0.40	ug/L	10/15/2018 2056
3,3-Dimethyl-1-butanol	ND		1	20	8.0	ug/L	10/15/2018 2056
Ethanol	ND		1	100	40	ug/L	10/15/2018 2056
Ethylbenzene	ND		1	5.0	0.40	ug/L	10/15/2018 2056
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	0.40	ug/L	10/15/2018 2056
Methyl tertiary butyl ether (MTBE)	ND		1	5.0	0.40	ug/L	10/15/2018 2056
Naphthalene	ND		1	5.0	0.40	ug/L	10/15/2018 2056
tert-butyl alcohol (TBA)	ND		1	20	8.0	ug/L	10/15/2018 2056
Toluene	ND		1	5.0	0.40	ug/L	10/15/2018 2056
Xylenes (total)	ND		1	5.0	0.40	ug/L	10/15/2018 2056
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		110	70-130				
Bromofluorobenzene		115	70-130				
Toluene-d8		118	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## Volatile Organic Compounds by GC/MS - LCS

Sample ID: TQ86550-002

Matrix: Aqueous

Batch: 86550

Prep Method: 5030B

Analytical Method: 8260B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
tert-Amyl alcohol (TAA)	1000	990		1	99	70-130	10/15/2018 2013
tert-Amyl methyl ether (TAME)	50	52		1	104	70-130	10/15/2018 2013
Benzene	50	48		1	95	70-130	10/15/2018 2013
tert-Butyl formate (TBF)	250	260		1	106	70-130	10/15/2018 2013
1,2-Dichloroethane	50	50		1	100	70-130	10/15/2018 2013
Diisopropyl ether (IPE)	50	51		1	102	70-130	10/15/2018 2013
3,3-Dimethyl-1-butanol	1000	1100		1	106	70-130	10/15/2018 2013
Ethanol	5000	4800		1	97	70-130	10/15/2018 2013
Ethylbenzene	50	50		1	100	70-130	10/15/2018 2013
Ethyl-tert-butyl ether (ETBE)	50	50		1	99	70-130	10/15/2018 2013
Methyl tertiary butyl ether (MTBE)	50	50		1	100	70-130	10/15/2018 2013
Naphthalene	50	52		1	103	70-130	10/15/2018 2013
tert-butyl alcohol (TBA)	1000	960		1	96	70-130	10/15/2018 2013
Toluene	50	49		1	99	70-130	10/15/2018 2013
Xylenes (total)	100	100		1	100	70-130	10/15/2018 2013
Surrogate	Q	% Rec	Acceptance Limit				
1,2-Dichloroethane-d4		108	70-130				
Bromofluorobenzene		114	70-130				
Toluene-d8		114	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MB

Sample ID: TQ85720-001

Matrix: Aqueous

Batch: 85720

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/07/2018 2122

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	10/10/2018 0321
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		88	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - LCS

Sample ID: TQ85720-002

Matrix: Aqueous

Batch: 85720

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/07/2018 2122

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.24		1	95	60-140	10/10/2018 0332
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		97	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MS

Sample ID: TJ05073-010MS

Matrix: Aqueous

Batch: 85720

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/07/2018 2122

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	ND	0.26	0.26		1	100	60-140	10/10/2018 0715
Surrogate	Q	% Rec	Acceptance Limit					
1,1,1,2-Tetrachloroethane		66	57-137					

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

Shealy Environmental Services, Inc

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## EDB & DBCP by Microextraction - MSD

Sample ID: TJ05073-010MD

Matrix: Aqueous

Batch: 85720

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/07/2018 2122

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	0.24	0.21		1	87	20	60-140	20	10/10/2018 0725
Surrogate	Q	% Rec	Acceptance Limit							
1,1,1,2-Tetrachloroethane		87	57-137							

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MB

Sample ID: TQ85721-001

Matrix: Aqueous

Batch: 85721

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/07/2018 2122

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	10/10/2018 1004
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		100	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - LCS

Sample ID: TQ85721-002

Matrix: Aqueous

Batch: 85721

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/07/2018 2122

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.25		1	98	60-140	10/10/2018 1014
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		101	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MS

Sample ID: TJ05073-031MS

Matrix: Aqueous

Batch: 85721

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/07/2018 2122

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	ND	0.26	0.25		1	95	60-140	10/10/2018 1359
Surrogate	Q	% Rec	Acceptance Limit					
1,1,1,2-Tetrachloroethane		88	57-137					

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MSD

Sample ID: TJ05073-031MD

Matrix: Aqueous

Batch: 85721

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/07/2018 2122

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	0.23		1	93	4.5	60-140	20	10/10/2018 1410
Surrogate	Q	% Rec	Acceptance Limit							
1,1,1,2-Tetrachloroethane		76	57-137							

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MB

Sample ID: TQ85932-001

Matrix: Aqueous

Batch: 85932

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/09/2018 1620

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	10/11/2018 2048
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		92	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - LCS

Sample ID: TQ85932-002

Matrix: Aqueous

Batch: 85932

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/09/2018 1620

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.24		1	95	60-140	10/11/2018 2059
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		99	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

Shealy Environmental Services, Inc

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## EDB & DBCP by Microextraction - MS

Sample ID: TJ05073-032MS

Matrix: Aqueous

Batch: 85932

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/09/2018 1620

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	0.22		1	90	60-140	10/12/2018 0053
Surrogate	Q	% Rec	Acceptance Limit					
1,1,1,2-Tetrachloroethane		88	57-137					

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

♦ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MSD

Sample ID: TJ05073-032MD

Batch: 85932

Analytical Method: 8011

Matrix: Aqueous

Prep Method: 8011

Prep Date: 10/09/2018 1620

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	0.24		1	95	7.9	60-140	20	10/12/2018 0103
Surrogate	Q	% Rec	Acceptance Limit							
1,1,1,2-Tetrachloroethane		78	57-137							

LOQ = Limit of Quantitation

DL = Detection Limit

LOD = Limit of Detection

P = The RPD between two GC columns exceeds 40%

J = Estimated result < LOQ and ≥ DL

ND = Not detected at or above the DL

N = Recovery is out of criteria

+ = RPD is out of criteria

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

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## EDB & DBCP by Microextraction - MB

Sample ID: TQ85935-001

Matrix: Aqueous

Batch: 85935

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/09/2018 1620

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	10/10/2018 1508
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		99	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - LCS

Sample ID: TQ85935-002

Matrix: Aqueous

Batch: 85935

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/09/2018 1620

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.23		1	92	60-140	10/10/2018 1518
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		96	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MS

Sample ID: TJ05073-049MS

Matrix: Aqueous

Batch: 85935

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/09/2018 1620

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	0.22		1	91	60-140	10/10/2018 1905
Surrogate	Q	% Rec	Acceptance Limit					
1,1,1,2-Tetrachloroethane		73	57-137					

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and  $\geq$  DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MSD

Sample ID: TJ05073-049MD

Matrix: Aqueous

Batch: 85935

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/09/2018 1620

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	0.23	1		95	4.5	60-140	20	10/10/2018 1916
Surrogate	Q	% Rec	Acceptance Limit							
1,1,1,2-Tetrachloroethane		90	57-137							

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

\* = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - MB

Sample ID: TQ85936-001

Matrix: Aqueous

Batch: 85936

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/09/2018 1620

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.020	0.020	ug/L	10/10/2018 1937
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		94	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

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## EDB & DBCP by Microextraction - LCS

Sample ID: TQ85936-002

Matrix: Aqueous

Batch: 85936

Prep Method: 8011

Analytical Method: 8011

Prep Date: 10/09/2018 1620

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.22		1	89	60-140	10/10/2018 1948
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		93	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the DL

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

Shealy Environmental Services, Inc  
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**Chain of Custody  
and  
Miscellaneous Documents**



Chain-of-Custody Record

SHEALY ENVIRONMENTAL SERVICES, INC.

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

Number 76681

Client: Enviro-Test
Address: P.O. Box 2237
City: Irmo, State: SC, Zip Code: 29063
Project No: 11946
Report to Contact: Michael Faris
Sampler's Signature: Turny L Teate
Printed Name: Turny L Teate
Telephone No./Email: 803-413-4936
Quote No:
Page 6 of 6

Table with columns: Sample ID / Description, Date, Time, Matrix, and various chemical analysis parameters (BTEX, N, M, 1,2-DCA, 8-SCOX, PCB, PBB, Bell). Rows include MW-1 through MW-9A.

Turn Around Time Required (Pilot lab approval required for expedited TAT).
Sample Disposal: Return to Client, Disposal by Lab
Possible Hazard Identification: Non-Hazard, Flammable, Skin Irritant, Poison, Unknown
OC Requirements (Quantity):
1. Relinquished by: Turny L Teate, Date: 10-5-18, Time: 1518
2. Received by:
3. Received by:
4. Laboratory received by: Erin Brown, Date: 10-5-18, Time: 1518
Note: All samples are retained for four weeks from receipt unless other arrangements are made.
LAB USE ONLY: Received on Ice (Circle) Yes No Ice Pack Receipt Temp: 2.9 °C

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy
Document Number: F-AD-133 Effective Date: (6-01-2014)

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Page 91 of 97

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**Chain of Custody Record**

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Number **75686**

Client: <b>Enviro-Test</b>		Report to Contact: <b>Michael Faris</b>		Telephone No. / Email: <b>803-413-4936</b>		Quote No.	
Address: <b>P.O. Box 22347</b>		Sampler's Signature: <i>Terry L. Teate</i>		Analyte (Attach list if more space is needed)		Page: <b>2 of 6</b>	
City: <b>Irmo</b> State: <b>SC</b> Zip Code: <b>29063</b>		Printed Name: <b>Terry L Teate</b>		BTEX, V, M 8560 xygen 1-2, PCA EDB-Sa II		 <b>TJ05073</b> LID Remarks / Cooler I.D.	
Project Name: <b>Broad River Amoco</b>		Project No.: <b>11946</b>					
Sample ID / Description		Date	Time	Mobile		No. of Containers by Preservative Type	
(Containers for each sample may be combined on one line) <b>MW-9B</b>		<b>10-3-18</b>	<b>1820</b>	<b>EX</b>		<b>6</b>	
<b>MW-13B</b>			<b>1928</b>				
<b>RW-2</b>			<b>945</b>				
<b>RW-3</b>			<b>1024</b>				
<b>RW-4</b>			<b>1057</b>				
<b>RW-7</b>			<b>1655</b>				
<b>RW-8</b>			<b>1855</b>				
<b>RW-9</b>			<b>1257</b>				
<b>RW-11</b>			<b>756</b>				
<b>MW-01</b>			<b>1138</b>				
Turn Around Time Required (Prior lab approval required for expedited TAT) <input type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify)		Sample Disposal <input type="checkbox"/> Return to Client <input type="checkbox"/> Dispose by Lab		Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown		QC Requirements (Specify)	
1. Requisitioned by: <i>Terry L. Teate</i>		Date: <b>10-5-18</b>	Time: <b>5:18</b>	1. Received by:		Date:	Time:
2. Requisitioned by:		Date:	Time:	2. Received by:		Date:	Time:
3. Requisitioned by:		Date:	Time:	3. Received by:		Date:	Time:
4. Requisitioned by:		Date:	Time:	4. Laboratory received by: <i>Gene Brown</i>		Date: <b>10-5-18</b>	Time: <b>7:51P</b>
Note: All samples are retained for four weeks from receipt unless other arrangements are made.				LAB USE ONLY Received on ice (Circle) <input checked="" type="checkbox"/> No Ice Pack Receipt Temp: <b>2.9 °C</b>			

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: F-AD-103 Effective Date: 06-01-2014




**Chain of Custody Record**

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Telephone No. 803-791-9700 Fax No. 803-791-9111  
www.shealylab.com

Number **75680**

Client: <b>Enviro-Test</b>		Report to Contact: <b>Michael Faris</b>		Telephone No. / E-mail: <b>803-413-4936</b>		Quote No.	
Address: <b>P.O. Box 2237</b>		Sampler's Signature: <i>Terry L. Teate</i>		Analysis (Affect <input type="checkbox"/> if more space is needed)		Page <b>3</b> of <b>6</b>	
City: <b>Irmo</b> State: <b>SC</b> Zip Code: <b>29063</b>		Printed Name: <b>Terry L. Teate</b>		X BTEXNM X 12-PCA X 8-SCDyege X EPB-801		 <b>TJ05073</b> LJO	
Project Name: <b>Broad River Amoco</b>		Project No.: <b>11946</b>					

Sample ID / Description <small>(Containers for each sample may be combined on one line.)</small>	Date	Time	Matrix	No of Containers by Preservative Type																
				None	Formal	Bar	Other	None	MEDIA	MEDIA	NO	NO	None							
Duplicate - 1	10-3-18	1856	5X																	
Field Blank FB1	7	705																		
Trip Blank - 1																				

Turn Around Time Required (Prior lab approval required for expedited TAT.) <input type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify)		Sample Disposal <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab		Possible Hazard Identification <input type="checkbox"/> Not-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown				OC Requirements (Specify)	
1. Relinquished by <i>Terry L. Teate</i>	Date: <b>10-5-18</b>	Time: <b>1518</b>	1. Received by	Date	Time	2. Received by	Date	Time	
2. Relinquished by	Date	Time	3. Received by	Date	Time	4. Laboratory received by <i>Gina Brown</i>	Date: <b>10-5-18</b>	Time: <b>1518</b>	
Note: All samples are retained for four weeks from receipt unless other arrangements are made.			LAB USE ONLY Received on Ice (Circle) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Ice Pack		Receipt Temp: <b>29</b> °C				

**SHEALY ENVIRONMENTAL SERVICES, INC.**






**Chain of Custody Record**

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106 Vantage Point Drive • West Columbia, SC 29172  
Telephone No. 803-791-8700 Fax No. 803-791-8111  
www.shealylab.com

Number **76697**

Client <b>Enviro-Test</b>		Report to Contact <b>Michael Faris</b>		Telephone No. / E-mail <b>803-413-4936</b>		Quote No. <b>4 of 6</b>	
Address <b>P.O. Box 2237</b>		Sampler's Signature <i>Terry L Teate</i>		Analysis (Attach if more space is needed)		Page <b>4</b> of <b>6</b>	
City <b>Irmo</b>		State Zip Code <b>SC 29063</b>		Printed Name <b>Terry L Teate</b>		 <b>TJ05073</b> LXD	
Project Name <b>Broad River AMOCO</b>		Project No. <b>11946</b>		R.O. No.			
Sample ID / Description		Date	Time	Matrix		No of Containers by Preservative Type	
<i>RW-10</i>		<i>10-4-18</i>	<i>0910</i>	<i>XX</i>		<i>6</i>	
<i>RW-12</i>		<i>10-4-18</i>	<i>0825</i>				
<i>MW-10 A</i>		<i>10-4-18</i>	<i>1820</i>				
<i>MW-10 B</i>		<i>10-4-18</i>	<i>1857</i>				
<i>MW-12 A</i>		<i>10-4-18</i>	<i>1710</i>				
<i>MW-12 B</i>		<i>10-4-18</i>	<i>1748</i>				
<i>MW-14 A</i>		<i>10-4-18</i>	<i>1032</i>				
<i>MW-14 B</i>		<i>10-4-18</i>	<i>0958</i>				
<i>MW-15 B</i>		<i>10-4-18</i>	<i>1112</i>				
<i>MW-17 B</i>		<i>10-4-18</i>	<i>1410</i>				
Turn Around Time Required (Prior lab approval required for expedited TAT.)		Sample Disposal		Possible Hazard Identification		GC Requirements (Specify)	
<input type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify)		<input type="checkbox"/> Return to Client <input type="checkbox"/> Dispose by Lab		<input type="checkbox"/> Eye Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown			
1. Relinquished by <i>Terry L Teate</i>		Date	Time	1. Received by		Date	Time
		<i>10-5-18</i>	<i>1518</i>				
2. Relinquished by		Date	Time	2. Received by		Date	Time
3. Relinquished by		Date	Time	3. Received by		Date	Time
4. Relinquished by		Date	Time	4. Laboratory received by <i>Geri Brown</i>		Date	Time
						<i>10-5-18</i>	<i>1518</i>
Note: All samples are retained for four weeks from receipt unless other arrangements are made.				LAB USE ONLY		Receipt Temp. <i>3.0</i> °C	
				Received on Ice (Circle) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Ice Pack			

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Samples; PINK-Print/Click Copy

Document Number: F-AD-100 Effective Date: 08-01-2014

**SHEALY ENVIRONMENTAL SERVICES, INC.**



**Chain of Custody Record**

**SHEALY ENVIRONMENTAL SERVICES, INC.**

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

Number **76690**

Client <b>Enviro-Test</b>		Report to Contact <b>Michael Faris</b>		Telephone No. / E-mail <b>803-413-4936</b>		Quote No.	
Address <b>P.O. Box 2237</b>		Sampler's Signature <i>Terry L Teate</i>		Analyte (Attach if more space is needed)		Page <b>5 of 6</b>	
City <b>Irmo</b> State <b>SC</b> Zip Code <b>29069</b>		Printed Name <b>Terry L Teate</b>		BTEX, M, N 12, DCA 8-5, 6, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 EDB-8011		TJ05073 Lab	
Project Name <b>Broad River AMOCO</b>		Project No. <b>11946</b> P.O. No.					
Sample ID / Description		Date	Time	Metric	No of Containers by Preservative Type		
(Containers for each sample may be contained on one line.)							
MW-17B		10-4-18	1410	5X	6		
MW-D2			1500				
MW-18A			1548				
MW-18B			1632				
MW-10A			1820				
MW-10B			1857				
Field Blank FB-2			0810				
Trip Blank-2					2		
Turn Around Time Required (Prior lab approval required for expedited TAT)		Samples Disposal		Possible Hazard Identification		OC Requirement (Specify)	
<input type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify)		<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Blk Inhibit <input type="checkbox"/> Poison <input type="checkbox"/> Unknown			
1. Relinquished by <i>Terry L Teate</i>		Date	Time	1. Received by		Date	Time
2. Relinquished by		Date	Time	2. Received by		Date	Time
3. Relinquished by		Date	Time	3. Received by		Date	Time
4. Relinquished by		Date	Time	4. Laboratory received by <i>Gin Brown</i>		Date	Time
Note: All samples are retained for four weeks from receipt unless other arrangements are made.				LAB USE ONLY		Receipt Temp. <b>3.0°C</b>	
				Received on Ice (Circle) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Ice Pack			

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Rel/Client Copy

Document Number: F-AD-132 Effective Date: 08-01-2014



**Chain of Custody Record**

**SHEALY ENVIRONMENTAL SERVICES, INC.**  
106 Vantage Point Drive • West Columbia, SC 29172  
Telephone No. 803-791-9700 Fax No. 803-791-9111  
www.shealylab.com

Number **76699**

Client: <b>Enviro-Test</b>		Report to Contact: <b>Michael Faris</b>		Telephone No. / E-mail: <b>803-413-4936</b>		Quote No.:	
Address: <b>P.O. Box 2237</b>		Sampler's Signature: <i>Terry L Teate</i>		Analysis (Attach if more space is needed):		Page <b>6 of 6</b>	
City: <b>Irmo</b>	State: <b>SC</b>	Zip Code: <b>29063</b>	Printed Name: <b>Terry L Teate</b>		 <b>TJ05073</b> <small>LID</small>		
Project Name: <b>Broad River Amoco</b>							
Project No.: <b>11946</b>		P.O. No.:		Matrix:		No. of Containers by Dimensions Type	
Sample ID / Description		Date	Time	Volume	Temp	PH	Other
<small>Containers for each sample may be combined on one line.</small>							
<b>MW-11-A</b>	<b>10-5-18</b>	<b>0745</b>	<b>5X</b>				
<b>MW-11-B</b>		<b>0828</b>					
<b>MW-21-A</b>		<b>0915</b>					
<b>MW-21-B</b>		<b>0952</b>					
<b>MW-22-B</b>		<b>1030</b>					
<b>MW-D3</b>		<b>1110</b>					
<b>Duplicate - 2</b>		<b>0955</b>					
<b>Duplicate - 3</b>		<b>0113</b>					
<b>Field Blank - 3</b>		<b>0725</b>					
<b>Trip Blank - 3</b>							
Turn Around Time Required (Prior lab approval required for expedited IRL) <input type="checkbox"/> Standard <input type="checkbox"/> Rush (Specify)		Sample Disposal <input type="checkbox"/> Return to Client <input type="checkbox"/> Dispose by Lab		Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown		QC Requirements (Specify)	
1. Relinquished by: <i>Terry L Teate</i>		Date: <b>10-5-18</b>	Time: <b>1418</b>	1. Received by:		Date:	Time:
2. Relinquished by:		Date:	Time:	2. Received by:		Date:	Time:
3. Relinquished by:		Date:	Time:	3. Received by:		Date:	Time:
4. Relinquished by:		Date:	Time:	4. Laboratory received by: <i>Erin Brown</i>		Date: <b>10-5-18</b>	Time: <b>7518</b>
Note: All samples are retained for four weeks from receipt unless other arrangements are made.				LAB USE ONLY Received on Ice (Circle) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Ice Pack		Receipt Temp: <b>22</b> °C	

DISTRIBUTION: WHITE & YELLOW-Return to laboratory with Sample(s); PINK-Field/Client Copy

Document Number: F-AD-133 Effective Date: 08-01-2014

**SHEALY ENVIRONMENTAL SERVICES, INC.**

# SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.  
Document Number ME0018C-14

Page: 1 of 1  
Effective Date: 8/2/2018

## Sample Receipt Checklist (SRC)

Client: Enviro-Test Cooler Inspected by/date: MWH/10-5-18 Lot #: TJ05073

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: _____ Chlorine Strip ID: _____ Tested by: _____	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt: %Solid Snap-Cup ID: _____	
<u>29/29</u> °C / _____ °C / _____ °C / _____ °C	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: <u>6</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH <sub>3</sub> /TKN/cyanide/phenol/625 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # _____

**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 \_\_\_\_\_ mL of circle one: H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub>, HCl, NaOH using SR # \_\_\_\_\_  
Time of preservation \_\_\_\_\_. If more than one preservative is needed, please note in the comments below.

Sample(s) \_\_\_\_\_ were received with bubbles > 6 mm in diameter.

Samples(s) \_\_\_\_\_ were received with TRC > 0.5 mg/L. (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>) with Shealy ID: \_\_\_\_\_

SR barcode labels applied by: LKH Date: 10-5-18

Comments:

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**APPENDIX C  
NOT INCLUDED**

**APPENDIX D**  
**NOT INCLUDED**

**APPENDIX E**  
**NOT INCLUDED**

**APPENDIX F**  
**NOT INCLUDED**



**APPENDIX G**  
**DISPOSAL MANIFEST(S)**

# Grandall

C 241895

## NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. . . . . Manifest Document No. 62198  
 2. Page 1 of 1

3. Generator's Name and Mailing Address **Enviro-Test Services**  
 1621 Lake Murray Blvd  
 Columbia, SC 29212  
 4. Generator's Phone (803) 413-4936

5. Transporter 1 Company Name **Crandall Corporation** 6. US EPA ID Number **3CD981864499** A. Transporter's Phone (803) 791-4800

7. Transporter 2 Company Name 8. US EPA ID Number B. Transporter's Phone

9. Designated Facility Name and Site Address **Crandall Corporation**  
 100 Rich Lex Dr  
 Lexington, SC 29072 10. US EPA ID Number **3CD981864499** C. Facility's Phone (803) 791-4800

11. Waste Shipping Name and Description	12. Containers		13. Total Quantity	14. Unit Wt./Vol.
	No.	Type		
a. Non Hazardous Waste, Petroleum Contact Water		TT	103.7	G
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above  
*Purge Water from Broad River  
 Sample Event  
 Amoco, Richland Co, SC*

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information  
 Infotrac 800-535-5053 Registrant Crandall Corp  
 Srv Call ID: GLB0262198

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name <i>Terry L. Teate</i>	Signature <i>Terry L. Teate</i>	Month 10	Day 25	Year 18
---	------------------------------------	-------------	-----------	------------

17. Transporter 1/Acknowledgement of Receipt of Materials Printed/Typed Name <i>Terry L. Teate</i>	Signature <i>Terry L. Teate</i>	Month 10	Day 25	Year 18
--	------------------------------------	-------------	-----------	------------

18. Transporter 2/Acknowledgement of Receipt of Materials Printed/Typed Name	Signature	Month	Day	Year
---	-----------	-------	-----	------

19. Discrepancy Indication Space

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

Printed/Typed Name <i>Sub Loomis</i>	Signature <i>[Signature]</i>	Month 10	Day 25	Year 18
---	---------------------------------	-------------	-----------	------------

GENERATOR

TRANSPORTER

FACILITY

**APPENDIX H**  
**NOT INCLUDED**

**APPENDIX I  
NOT INCLUDED**

**APPENDIX J  
NOT INCLUDED**

**APPENDIX K**  
**SCDHEC CONTRACTOR CHECKLIST**

### Contractor Checklist

For each report submitted to the UST Management Division, the contractor will be required to verify that all data elements for the required scope of work have been provided. For items not required for the scope of work, the N/A box should be checked. For items required and not completed or provided, the No box should be checked and a thorough description of the reason must be provided.

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

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







Healthy People. Healthy Communities

NOV 27 2018

TREY CARTER  
PACE ANALYTICAL SERVICES  
9800 KINCEY AVE STE 100  
HUNTERSVILLE NC 28078



Re: Laboratory Analyses Approval  
(Analytical) Bid #IFB-5400012961-04/06/17-EMW; PO #4600671671

Dear Mr. Carter:

Under the terms and conditions of the referenced bid package, analytical sampling has been approved for the referenced facility. The facility has been assigned an individual Cost Agreement (CA) number listed below. Please reference the CA number and Purchase Order number on the appropriate invoice submitted for payment against the facility.

UST #	FACILITY NAME	# of Samples (ANALYSES-GROUNDWATER)	# OF WSW Samples (ANALYSES-POTABLE WATER)	CA #
11946	Broad River Amoco	4 - Hydrocarbon Fuel Identification (D3328 whole oil & EPA 8260 MOD)	NA	58456

If you have any questions or need further assistance, please contact Robert A. Dunn by phone (803) 898-0671 or email [dunnra@dhec.sc.gov](mailto:dunnra@dhec.sc.gov).

Sincerely,

*for Stephanie Briney*

Carolyn Moores, Hydrogeologist  
Corrective Action & Quality Assurance Section  
UST Management Division  
Bureau of Land & Waste Management

Enc: Approved Cost Agreement

Cc: Robert A. Dunn, UST Management Division, Corrective Action & Field Support Section  
Technical File

**Approved Cost Agreement****58456**

Facility: 11946 BROAD RIVER AMOCO

MOORESCT

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
18 MISCELLANEOUS		HYDROCARBON FUEL IDENTIFICATION	4.0000	\$250.000	1,000.00
			<b>Total Amount</b>		<b>1,000.00</b>



NOV 27 2018



MR PALLAV DESAI  
BROAD RIVER C STORE LLC  
41 CROMWELL CT  
IRMO SC 29063

Re: **Tier II Notice to Proceed**  
Broad River Amoco, 4335 Broad River Rd, Columbia, SC  
UST Permit # 11946; CA # 58446, MWA #UMW-27277  
Release Reported November 16, 2018  
Site-Specific Work Plan discussed November 20 and 21, 2018  
Richland County

Dear Mr. Desai:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (DHEC) has reviewed and approved the referenced Site-Specific Work Plan (SSWP) discussed with personnel from Carolina Technical Services, Incorporated. All work should be conducted in accordance with the most recent revision of the UST Quality Assurance Program Plan (QAPP), Carolina Technical Services' approved SSWP and Annual Contractor Quality Assurance Plan (ACQAP), and in compliance with all applicable regulations. A copy of the current revision of the UST QAPP is available at <http://www.scdhec.gov/Environment/LW/UST/ReleaseAssessmentCleanup/QualityAssurance/>

The Tier II Assessment should begin immediately upon receipt of this letter. A monitoring well approval has been enclosed for the monitoring well installation. Cost agreement # 58446 has been approved for the amount shown on the enclosed cost agreement form

Please be aware that the June 15, 2017 State Underground Petroleum Environmental Response Bank (SUPERB) Allowable Costs sheet states that "If the vertical and horizontal extent of chemicals of concern is not fully defined by the tier report, the Division may not approve additional future mobilizations for additional screening or well installation." Any screening point that is converted to a permanent monitoring well will be reimbursed at the approved well installation rate. **Please contact the Division prior to well installation for concurrence regarding the final well locations. Please note that you and/or your contractor are responsible for obtaining all off-site access agreements and/or encroachment permits necessary for this scope of work.**

**The Contractor must provide the UST Project Manager with a Project Status Report on a weekly basis via e-mail or notify the UST Project Manager via email 4 days prior to initiation of any site rehabilitation activities. If there are any changes or conflicts with the date(s) of site activities, the UST Project Manager must be contacted within 24 hours of those changes.**

**The Tier II report, contractor checklist (QAPP Appendix K), and invoice should be submitted to the Division within ninety (90) days of the date of this correspondence.** The report submitted at the completion of these activities should include the required information outlined in the UST QAPP.

According to Division records, the release at the facility was reported to DHEC on November 16, 2018. In accordance with Section 44-2-40(D) of the State Underground Petroleum Environmental Response Bank (SUPERB) Account, you are responsible for the first \$25,000 of site rehabilitation costs. Please be sure to provide proof of costs that will be applied to the deductible with the invoice. Acceptable proof of payment of deductible costs include a copy of the cancelled check (front and back) that made payment to your contractor or a signed notarized statement by your site rehabilitation contractor for the amount that was paid directly to your contractor. Carolina Technical Services Inc., can submit an invoice for direct payment from the State Underground Petroleum Environmental Response Bank (SUPERB) Account for preapproved costs that exceed the \$25,000 deductible. An interim well drilling invoice may not be submitted for this scope of work as the deductible has not been met. By law, the SUPERB Account cannot compensate any costs that are not pre-approved. 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.


Please note that in accordance with R.61-92, Subpart H, Section 280.114, you are required to notify the Division by certified mail within ten (10) days of commencing a voluntary or involuntary proceeding in bankruptcy. State law also requires that an owner/operator or guarantor that files for bankruptcy protection must immediately submit appropriate forms documenting that entity's ability to demonstrate financial responsibility.

Please note that applicable South Carolina certification requirements regarding laboratory services, well installation, and report preparation must be satisfied. Any site rehabilitation activity associated with the UST release must be performed by a DHEC-certified site rehabilitation contractor as required by R.61-98.

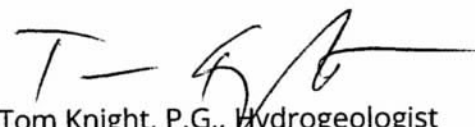
The Division grants pre-approval for transportation of virgin petroleum impacted soil and groundwater from the referenced site to a permitted treatment facility. There can be no spillage or leakage in transport. All investigation-derived waste (IDW) must be properly contained and labeled prior to disposal. 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 Chemical of Concern (CoC) concentrations based on laboratory analysis is below Risk-Based Screening Levels (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 regarding this site, please reference UST Permit #11946. If there are any questions concerning this project, you may contact me at (803) 898-0601 or by email at knightbt@dhec.sc.gov.

Sincerely,

  
for Carolyn Moores, Hydrogeologist

Corrective Action and Quality Assurance Section

  
Tom Knight, P.G., Hydrogeologist  
Assessment & Unregulated Petroleum Section  
UST Management Division  
Bureau of Land and Waste Management

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

cc: Carolina Technical Services, Inc., 7130-A Broad River Rd, Columbia SC 29063 (w/enc.)  
Technical file (w/ enc.)



### Monitoring Well Approval Form

**Approval is hereby granted to:** Carolina Technical Services, Inc

**(on behalf of):** Broad River C Store LLC

**Facility:** Broad River Amoco, Columbia, SC

**UST Permit Number:** 11946

**County:** Richland

This approval is for the installation of up to 15 soil borings/temporary monitoring wells, fifteen (15) shallow monitoring wells, four (4) recovery wells ; and additional wells as needed and pre-approved by the Department to complete the scope of the assessment. The monitoring wells are to be installed in the approved locations. 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 DHEC shall be completed and submitted to DHEC within 30 days after well completion or abandonment unless another schedule has been approved by DHEC. 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 DHEC within 30 days of receipt of laboratory results unless another schedule has been approved by DHEC as required by R.61-71.H.1.d.
5. If any of the information provided to DHEC changes, notification to Tom Knight (tel: (803) 898-0601 or e-mail: knightbt@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 May 27, 2016. A copy of this approval should be on the site during well installation.

**Date of Issuance: November 21, 2018**

**Approval #: UMW-27277**

Tom Knight, P.G., Hydrogeologist  
Assessment & Unregulated Petroleum Section  
Underground Storage Tank Management Division  
Bureau of Land and Waste Management

**Approved Cost Agreement**

**58446**

Facility: 11946 BROAD RIVER AMOCO

MENDENJE

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
01 PLAN		A1 SITE SPECIFIC WORK PLAN	1.0000	\$150.000	150.00
03 COMPREHENSIVE SURVEY		A1 COMPREHENSIVE SURVEY	1.0000	\$1,040.000	1,040.00
04 MOB/DEMOB		A1 EQUIPMENT	2.0000	\$1,020.000	2,040.00
		B1 PERSONNEL	5.0000	\$423.000	2,115.00
06 SOIL BORINGS (DRILLED)		AA SOIL BORING/FLD SCR. STANDARD	400.0000	\$15.000	6,000.00
08 ABANDONMENT		A1 ABANDONMENT 2" DIA OR LESS	400.0000	\$3.100	1,240.00
09 WELL INSTALLATION		B1 WATER TABLE (DRILL RIG)	300.0000	\$38.000	11,400.00
		HH RECOVERY WELL (4 INCH DIA)	70.0000	\$45.000	3,150.00
10 SAMPLE COLLECTION		A1 GROUNDWATER (PURGE)	28.0000	\$60.000	1,680.00
		E1 GAUGE WELL ONLY	44.0000	\$7.000	308.00
		H1 FIELD BLANK	2.0000	\$24.600	49.20
11 ANALYSES					
	GW GROUNDWATER	A2 BTEXNM+OXYGS+1,2-DCA+ETH-8260B	32.0000	\$122.000	3,904.00
		D1 PAHS	30.0000	\$60.600	1,818.00
		E1 LEAD	30.0000	\$16.000	480.00
		F1 EDB BY 8011	30.0000	\$45.200	1,356.00
	SOIL SOIL	U1 TPH-DRO (3550C - 8015C)	20.0000	\$40.000	800.00
		V1 TPH-GRO (5035B - 8015C)	20.0000	\$35.960	719.20
		W1 GRAIN SIZE / HYDROMETER	2.0000	\$104.000	208.00
12 AQUIFER CHARACTERIZATION		B1 SLUG TEST	4.0000	\$191.000	764.00
16 SUBSEQUENT SURVEY		A1 SUBSEQUENT SURVEY	1.0000	\$260.000	260.00
17 DISPOSAL		AA WASTEWATER	500.0000	\$0.560	280.00
		C1 SOIL TREATMENT DISPOSAL	30.0000	\$60.000	1,800.00
19 RPT/PROJECT MNGT & COORDINATIO		PRT REPORT PREPARATION	0.1200	\$41,561.400	4,987.37
				<b>Total Amount</b>	<b>46,548.77</b>



UST # 119416

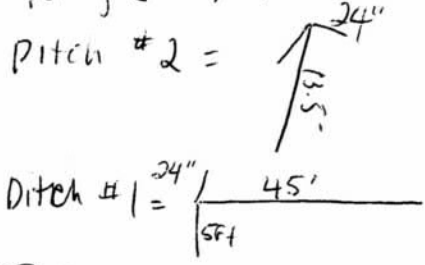
-Purpose of the form is to record information gathered during a field activity  
 -DHEC UST Project Managers and Field Staff  
 -Item-by-item instructions for completing the form:  
 Fill in all Site Information boxes  
 Record any applicable notes  
 Sign and date the form

15" DTP - 900 AM Tank was

21" DTW  
 340 gal.  
 • set Temp wells in boreholes already dug.  
 • monitor PID, vac ditches.  
 • only line ditch 1, since #2 is vertical and dammed up @ out fall pipe.  
 TMW3  
 DTW: 13.18  
 BTP: 9.52'  
 TMW2  
 DTW: 8.07  
 DTP: 8.07-14  
 TMW1: casing 0.9' abg.  
 DTW: 13.35  
 DTP: 7.91

② C. White 11/23/2018

Terry (803) 413-4936 ①



• Terry came @ 3pm Thurs.  
 Ditch 1 was pretty empty, now has liquid.  
 • Cold Temps appear to help w/ vapors.  
 • Rain arriving ~~Saturday~~ <sup>Friday</sup> night to Sunday morning.  
 • @ 3:30 AM (Friday): Sucking on pit. (Goal #1)  
 • Goal #2 = building pump  
 • Sewer (back) appears to be flowing from stream back to property.  
 8:35: Terry off to get pea gravel and slotted pipe.  
 8:57: Ditch 2: 2.75"  
 Ditch 1: 1.3"

③ CFT @ 12, waiting on parts. Come back 2-3 to see where it's at. Andy will call or text about update. If done before then.

- 3pm
- building trench pump system.
  - Billy come tomorrow to pump
  - extend trench in back if LEL is low.
  - soil borings in back didn't show hot soil.
  - staked booms.





Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

Site Information

Date:	Site ID #:	Site Name:
County:	Project Manager:	Field Personnel:

Notes:

STAKE  
BUOMS

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



UST #11946 Site Visit 11/24/18





UST #11946 site visit 11/26/2018











USF #11946 2415 VISIT 11/27/18







Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

Site Information

Date: 11/28/2018

Site ID #: 11946

Site Name: Broad River

County: Richland

Project Manager: C. Moore

Field Personnel: C. White

Notes:

MW-5: Bailed "clean" @ 3:06 PM, sampled again at 15:40 and dirty  
TMW-1: fuel present  
TMW-2: fuel present  
~~TMW-3: clu~~  
RW-1: fuel present  
RW-5: [small] measurable fuel present  
RW-4: clean  
RW-6: clean  
TMW-3: product  
MW-3: product  
MW-9: clean  
RW-8: clean  
RW-7: clean  
next to RW-7: clean mw-4 (?)  
investigated black mark on ditch 3 -> proved to just  
be staining

Signature:

*C. White*

Date:

11/28/18



WST #11946 Site Visit 11/28/18

















UST # 11946 site visit 12/5/18





Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

Site Information

Date: 12/6/18

Site ID #: 11946

Site Name: Broad Rvr. Amocco

County: Richland

Project Manager: C. Moore

Field Personnel: C. White

Notes: ARM: Asbestos guys @ 9:45; removed canisters outside last night, do readings inside bldg and crawl space if can arrives. Replace booms if arrived. Fix TMW-3; sample stone house behind day care.

CTSI: Installed 17. Found free product. Installing 3<sup>rd</sup> that collapsed yesterday. Install 2 recovery wells near <sup>SES</sup> and <sup>SP1</sup> by tank pit. Also install 4<sup>th</sup> TW<sup>#18</sup> by MW-3 up hill.

ARM: Replace booms around 12:00+. Installing inside floor vapor canisters. Vacuum pits.

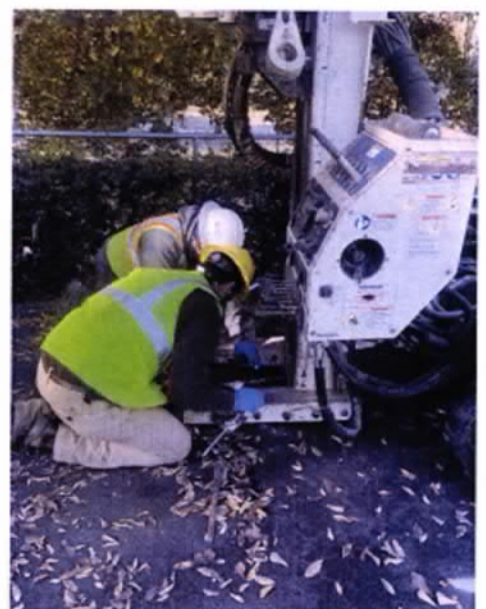
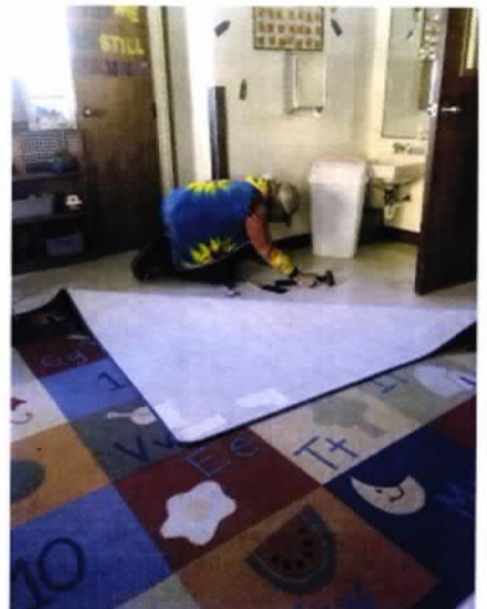
CTSI: 17, 15, and 18 TMWs installed. Concrete for RWS was cut. Plan includes moving forward w/ drilling those.

Left site @ 12:03

Signature: 

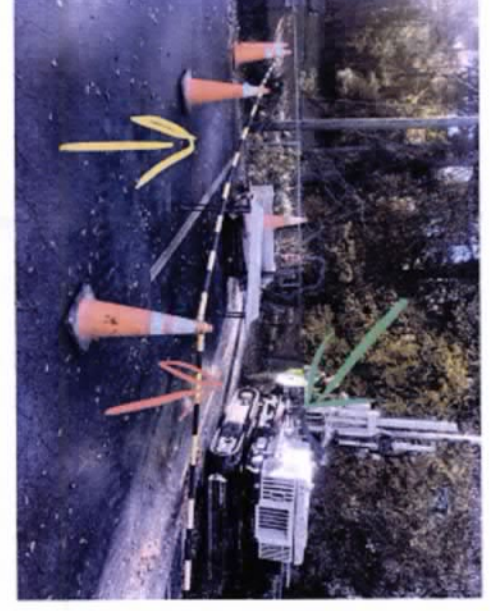
Date: 12/6/2018





UST # 11946 site visit 12/6/18







Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

Site Information

Date: 12/7/18

Site ID #: 11946

Site Name: Broad River

County: Richland

Project Manager: C. Moore

Field Personnel: C. White

Notes: arrived 11:05

ARM: dig trench, bentonite "wall" to stop rain.  
Trench 3 is covered in fp layer (black),  
appears to be very shallow (0.01 or less)  
Asked to suck #3 before they back fill.

CTSI: RWA (SB#11) complete and RWB (sw#8) in  
progress. plugged SB holes; TMWs have bentonite  
plug @ bottom.

ARM: located more FP flowing in when digging  
trench to fill w/ hole plug.

• check ditch ✓ no FP

Talked to hair salon. House is vacant. Best contact  
is Ms. Anne (803) 367-2471  
↳ gave # to Bill Wood.

Signature: \_\_\_\_\_

*C. White*

Date: \_\_\_\_\_

12/7/18

-UST Field Data Information Sheet – Notes

-Purpose of the form is to record information gathered during a field activity

-DHEC UST Project Managers and Field Staff

-Item-by-item instructions for completing the form:

Fill in all Site Information boxes

Record any applicable notes

Sign and date the form

-Form is scanned and saved electronically; Record Group Number 169, Retention Schedule 10304





UST # 11946 site visit 12/7/18









**Art A. Shrader - Broad River Amoco (UST Permit # 11946)**

---

**From:** Don Siron  
**To:** terryteate@aol.com  
**Date:** 4/21/2011 5:13 PM  
**Subject:** Broad River Amoco (UST Permit # 11946)  
**CC:** Doll, Chris S.; Shrader, Art A.; jdkottboy@aol.com

*Additional Well*

Terry,

Art and I discussed the proposed path forward for the Broad River Amoco site this afternoon with Jim. Here's what we agreed to:

Enviro-Test Services will install a new well with a 10 foot screen in the vicinity of MW-2 and SUPERB will pay for this work to verify site conditions. The groundwater level in existing monitoring well MW-2 will be checked prior to the installation of the new well. The new well will be constructed such that the screen brackets the elevation of the groundwater level measured in MW-2. For example, if the water table elevation in MW-2 is 86 feet, then the screen in the new well will be set to bracket the 86 foot level. The new well may prove useful to determine if product is present in the vicinity of the worst case wells (MW-1 and MW-2). Art Shrader would be present during the boring and will check the depth to groundwater (and product if present) in the new well approximately 2 weeks after the well is installed.

If the new well has water, Enviro-Test Services will adjust the well screens in existing monitoring wells MW-3 and MW-4 appropriately. MW-2 will not be altered.

If the new well is dry, Enviro-Test Services will not be required to do any additional work to Monitoring Wells MW-2, MW-3, and MW-4 and we will pay for the Tier I with no additional sampling. The new well will not be abandoned.

Again, SUPERB would pay for the installation of this additional well to verify site conditions. No changes are required to the IGWA well (MW-1).

Should you have any questions please contact Art or Chris as I will be on travel most of next week.

Thanks,  
Don

Donald L. Siron, P.G., Assistant Chief  
Bureau of Land and Waste Management  
2600 Bull Street, Columbia, SC 29201-1708  
Phone (803) 896-4004 · Fax (803) 896-6245  
Email: sirondl@dhec.sc.gov





# SHEALY ENVIRONMENTAL SERVICES, INC.

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## Report of Analysis

### ARM Environmental Services, Inc.

1210 1st Street S. Ext.  
Columbia, SC 29209  
Attention: Michael Faris

Project Name: Broad River BP

Project Number: 12-414.2-18

Lot Number: **TK28026**

Date Completed: 12/07/2018



12/07/2018 4:07 PM

Approved and released by:  
Lab Director - Greenville: Lucas Odom



The electronic signature above is the equivalent of a handwritten signature.  
This report shall not be reproduced, except in its entirety, without the written approval of Shealy Environmental Services, Inc.

Shealy Environmental Services, Inc.  
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 [www.shealylab.com](http://www.shealylab.com)

# **SHEALY ENVIRONMENTAL SERVICES, INC.**

SC DHEC No: 32010001

NELAC No: E87653

NC DENR No: 329

NC Field Parameters No: 5639

## **Case Narrative ARM Environmental Services, Inc. Lot Number: TK28026**

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.

# SHEALY ENVIRONMENTAL SERVICES, INC.

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## Sample Summary ARM Environmental Services, Inc. Lot Number: TK28026

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	Daycare	Aqueous	11/27/2018 1055	11/27/2018
002	1257 Dothan Rd	Aqueous	11/27/2018 1140	11/27/2018
003	Dup	Aqueous	11/27/2018 1100	11/27/2018
004	FB	Aqueous	11/27/2018 1210	11/27/2018
005	Trip Blank	Aqueous	11/27/2018	11/27/2018

(5 samples)

# SHEALY ENVIRONMENTAL SERVICES, INC.

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**Detection Summary**  
**ARM Environmental Services, Inc.**  
**Lot Number: TK28026**

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
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(0 detections)

Description: Daycare

Matrix: Aqueous

Date Sampled: 11/27/2018 1055

Date Received: 11/27/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	524.2	524.2	1	12/05/2018 2203	STM		91555

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	524.2	ND		0.50	ug/L	1
1,2-Dichloroethane	107-06-2	524.2	ND		0.50	ug/L	1
Ethylbenzene	100-41-4	524.2	ND		0.50	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	524.2	ND		0.50	ug/L	1
Naphthalene	91-20-3	524.2	ND		0.50	ug/L	1
Toluene	108-88-3	524.2	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	524.2	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		95	70-130
1,2-Dichlorobenzene-d4		93	70-130

## Semivolatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	12/05/2018 1421	CMP2	11/29/2018 1603	90935

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		0.80	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		0.80	ug/L	1
Anthracene	120-12-7	8270D	ND		0.80	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		0.80	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		0.80	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		0.80	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		0.80	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		0.80	ug/L	1
Chrysene	218-01-9	8270D	ND		0.80	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		0.80	ug/L	1
Fluoranthene	206-44-0	8270D	ND		0.80	ug/L	1
Fluorene	86-73-7	8270D	ND		0.80	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		0.80	ug/L	1
Naphthalene	91-20-3	8270D	ND		0.80	ug/L	1
Phenanthrene	85-01-8	8270D	ND		0.80	ug/L	1
Pyrene	129-00-0	8270D	ND		0.80	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		68	38-127
2-Fluorobiphenyl		54	37-129
Terphenyl-d14		79	10-148

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range  
 ND = Not detected at or above the LOQ    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%  
 H = Out of holding time    W = Reported on wet weight basis

Shealy Environmental Services, Inc.  
 106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Description: Daycare

Matrix: Aqueous

Date Sampled: 11/27/2018 1055

Date Received: 11/27/2018

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch			
1	504.1	504.1	1	12/03/2018 1325	DAL1	12/03/2018 0854	91168			
Parameter		CAS Number		Analytical Method		Result	Q	LOQ	Units	Run
1,2-Dibromoethane (EDB)		106-93-4		504.1		ND		0.0098	ug/L	1
Surrogate	Q	Run 1 % Recovery	Acceptance Limits							
1,1,1,2-Tetrachloroethane		119	57-137							

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

H = Out of holding time

W = Reported on wet weight basis

Shealy Environmental Services, Inc.

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

Description: 1257 Dothan Rd

Matrix: Aqueous

Date Sampled: 11/27/2018 1140

Date Received: 11/27/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	524.2	524.2	1	12/05/2018 2228	STM		91555

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	524.2	ND		0.50	ug/L	1
1,2-Dichloroethane	107-06-2	524.2	ND		0.50	ug/L	1
Ethylbenzene	100-41-4	524.2	ND		0.50	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	524.2	ND		0.50	ug/L	1
Naphthalene	91-20-3	524.2	ND		0.50	ug/L	1
Toluene	108-88-3	524.2	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	524.2	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		100	70-130
1,2-Dichlorobenzene-d4		97	70-130

## Semivolatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	12/06/2018 1356	CMP2	11/29/2018 1603	90935

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		0.80	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		0.80	ug/L	1
Anthracene	120-12-7	8270D	ND		0.80	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		0.80	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		0.80	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		0.80	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		0.80	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		0.80	ug/L	1
Chrysene	218-01-9	8270D	ND		0.80	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		0.80	ug/L	1
Fluoranthene	206-44-0	8270D	ND		0.80	ug/L	1
Fluorene	86-73-7	8270D	ND		0.80	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		0.80	ug/L	1
Naphthalene	91-20-3	8270D	ND		0.80	ug/L	1
Phenanthrene	85-01-8	8270D	ND		0.80	ug/L	1
Pyrene	129-00-0	8270D	ND		0.80	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		72	38-127
2-Fluorobiphenyl		73	37-129
Terphenyl-d14		86	10-148

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range  
 ND = Not detected at or above the LOQ    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%  
 H = Out of holding time    W = Reported on wet weight basis

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Client: **ARM Environmental Services, Inc.**

Laboratory ID: **TK28026-002**

Description: **1257 Dothan Rd**

Matrix: **Aqueous**

Date Sampled: **11/27/2018 1140**

Date Received: **11/27/2018**

### EDB & DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	504.1	504.1	1	12/03/2018 1349	DAL1	12/03/2018 0854	91168

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	504.1	ND		0.0097	ug/L	1

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

LOQ = Limit of Quantitation      B = Detected in the method blank      E = Quantitation of compound exceeded the calibration range  
 ND = Not detected at or above the LOQ      N = Recovery is out of criteria      P = The RPD between two GC columns exceeds 40%  
 H = Out of holding time      W = Reported on wet weight basis

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Description: Dup

Matrix: Aqueous

Date Sampled: 11/27/2018 1100

Date Received: 11/27/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	524.2	524.2	1	12/05/2018 2253	STM		91555

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	524.2	ND		0.50	ug/L	1
1,2-Dichloroethane	107-06-2	524.2	ND		0.50	ug/L	1
Ethylbenzene	100-41-4	524.2	ND		0.50	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	524.2	ND		0.50	ug/L	1
Naphthalene	91-20-3	524.2	ND		0.50	ug/L	1
Toluene	108-88-3	524.2	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	524.2	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		96	70-130
1,2-Dichlorobenzene-d4		97	70-130

## Semivolatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270D	1	12/06/2018 1421	CMP2	11/29/2018 1603	90935

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Acenaphthene	83-32-9	8270D	ND		0.80	ug/L	1
Acenaphthylene	208-96-8	8270D	ND		0.80	ug/L	1
Anthracene	120-12-7	8270D	ND		0.80	ug/L	1
Benzo(a)anthracene	56-55-3	8270D	ND		0.80	ug/L	1
Benzo(a)pyrene	50-32-8	8270D	ND		0.80	ug/L	1
Benzo(b)fluoranthene	205-99-2	8270D	ND		0.80	ug/L	1
Benzo(g,h,i)perylene	191-24-2	8270D	ND		0.80	ug/L	1
Benzo(k)fluoranthene	207-08-9	8270D	ND		0.80	ug/L	1
Chrysene	218-01-9	8270D	ND		0.80	ug/L	1
Dibenzo(a,h)anthracene	53-70-3	8270D	ND		0.80	ug/L	1
Fluoranthene	206-44-0	8270D	ND		0.80	ug/L	1
Fluorene	86-73-7	8270D	ND		0.80	ug/L	1
Indeno(1,2,3-c,d)pyrene	193-39-5	8270D	ND		0.80	ug/L	1
Naphthalene	91-20-3	8270D	ND		0.80	ug/L	1
Phenanthrene	85-01-8	8270D	ND		0.80	ug/L	1
Pyrene	129-00-0	8270D	ND		0.80	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Nitrobenzene-d5		63	38-127
2-Fluorobiphenyl		67	37-129
Terphenyl-d14		85	10-148

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range  
 ND = Not detected at or above the LOQ    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%  
 H = Out of holding time    W = Reported on wet weight basis

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Description: Dup

Matrix: Aqueous

Date Sampled: 11/27/2018 1100

Date Received: 11/27/2018

**EDB & DBCP by Microextraction**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch	Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run	
1	504.1	504.1	1	12/03/2018 1401	DAL1	12/03/2018 0854	91168	1,2-Dibromoethane (EDB)	106-93-4	504.1	ND		0.010	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits													
1,1,1,2-Tetrachloroethane		120	57-137													

LOQ = Limit of Quantitation

B = Detected in the method blank

E = Quantitation of compound exceeded the calibration range

ND = Not detected at or above the LOQ

N = Recovery is out of criteria

P = The RPD between two GC columns exceeds 40%

H = Out of holding time

W = Reported on wet weight basis

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Description: FB

Matrix: Aqueous

Date Sampled: 11/27/2018 1210

Date Received: 11/27/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	524.2	524.2	1	12/05/2018 2318	STM		91555

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
Benzene	71-43-2	524.2	ND		0.50	ug/L	1
1,2-Dichloroethane	107-06-2	524.2	ND		0.50	ug/L	1
Ethylbenzene	100-41-4	524.2	ND		0.50	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	524.2	ND		0.50	ug/L	1
Naphthalene	91-20-3	524.2	ND		0.50	ug/L	1
Toluene	108-88-3	524.2	ND		0.50	ug/L	1
Xylenes (total)	1330-20-7	524.2	ND		0.50	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		102	70-130
1,2-Dichlorobenzene-d4		94	70-130

## EDB &amp; DBCP by Microextraction

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	504.1	504.1	1	12/03/2018 1413	DAL1	12/03/2018 0854	91168

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	Units	Run
1,2-Dibromoethane (EDB)	106-93-4	504.1	ND		0.0097	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
1,1,1,2-Tetrachloroethane		120	57-137

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range  
 ND = Not detected at or above the LOQ    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%  
 H = Out of holding time    W = Reported on wet weight basis

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Description: Trip Blank

Matrix: Aqueous

Date Sampled: 11/27/2018

Date Received: 11/27/2018

## Volatile Organic Compounds by GC/MS

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch		
1	524.2	524.2	1	12/05/2018 2343	STM		91555		
Parameter		CAS Number	Analytical Method	Result	Q	LOQ	Units	Run	
Benzene		71-43-2	524.2	ND		0.50	ug/L	1	
1,2-Dichloroethane		107-06-2	524.2	ND		0.50	ug/L	1	
Ethylbenzene		100-41-4	524.2	ND		0.50	ug/L	1	
Methyl tertiary butyl ether (MTBE)		1634-04-4	524.2	ND		0.50	ug/L	1	
Naphthalene		91-20-3	524.2	ND		0.50	ug/L	1	
Toluene		108-88-3	524.2	ND		0.50	ug/L	1	
Xylenes (total)		1330-20-7	524.2	ND		0.50	ug/L	1	
Surrogate	Q	Run 1 % Recovery	Acceptance Limits						
Bromofluorobenzene		96	70-130						
1,2-Dichlorobenzene-d4		101	70-130						

LOQ = Limit of Quantitation    B = Detected in the method blank    E = Quantitation of compound exceeded the calibration range  
 ND = Not detected at or above the LOQ    N = Recovery is out of criteria    P = The RPD between two GC columns exceeds 40%  
 H = Out of holding time    W = Reported on wet weight basis

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## QC Summary

## Volatile Organic Compounds by GC/MS - MB

Sample ID: TQ91555-001

Matrix: Aqueous

Batch: 91555

Prep Method: 524.2

Analytical Method: 524.2

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
Benzene	ND		1	0.50	ug/L	12/05/2018 2117
1,2-Dichloroethane	ND		1	0.50	ug/L	12/05/2018 2117
Ethylbenzene	ND		1	0.50	ug/L	12/05/2018 2117
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	ug/L	12/05/2018 2117
Naphthalene	ND		1	0.50	ug/L	12/05/2018 2117
Toluene	ND		1	0.50	ug/L	12/05/2018 2117
Xylenes (total)	ND		1	0.50	ug/L	12/05/2018 2117
Surrogate	Q	% Rec	Acceptance Limit			
Bromofluorobenzene		92	70-130			
1,2-Dichlorobenzene-d4		90	70-130			

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

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

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## Volatile Organic Compounds by GC/MS - LCS

Sample ID: TQ91555-002

Matrix: Aqueous

Batch: 91555

Prep Method: 524.2

Analytical Method: 524.2

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Benzene	5.0	4.2		1	83	70-130	12/05/2018 2041
1,2-Dichloroethane	5.0	4.0		1	81	70-130	12/05/2018 2041
Ethylbenzene	5.0	4.2		1	85	70-130	12/05/2018 2041
Methyl tertiary butyl ether (MTBE)	5.0	4.0		1	80	70-130	12/05/2018 2041
Naphthalene	5.0	4.2		1	84	70-130	12/05/2018 2041
Toluene	5.0	4.1		1	82	70-130	12/05/2018 2041
Xylenes (total)	10	8.4		1	84	70-130	12/05/2018 2041
Surrogate	Q	% Rec	Acceptance Limit				
Bromofluorobenzene		94	70-130				
1,2-Dichlorobenzene-d4		96	70-130				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and  $\geq$  DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

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

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## Semivolatile Organic Compounds by GC/MS - MB

Sample ID: TQ90935-001

Matrix: Aqueous

Batch: 90935

Prep Method: 3520C

Analytical Method: 8270D

Prep Date: 11/29/2018 1603

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
Acenaphthene	ND		1	0.80	ug/L	12/02/2018 2024
Acenaphthylene	ND		1	0.80	ug/L	12/02/2018 2024
Anthracene	ND		1	0.80	ug/L	12/02/2018 2024
Benzo(a)anthracene	ND		1	0.80	ug/L	12/02/2018 2024
Benzo(a)pyrene	ND		1	0.80	ug/L	12/02/2018 2024
Benzo(b)fluoranthene	ND		1	0.80	ug/L	12/02/2018 2024
Benzo(g,h,i)perylene	ND		1	0.80	ug/L	12/02/2018 2024
Benzo(k)fluoranthene	ND		1	0.80	ug/L	12/02/2018 2024
Chrysene	ND		1	0.80	ug/L	12/02/2018 2024
Dibenzo(a,h)anthracene	ND		1	0.80	ug/L	12/02/2018 2024
Fluoranthene	ND		1	0.80	ug/L	12/02/2018 2024
Fluorene	ND		1	0.80	ug/L	12/02/2018 2024
Indeno(1,2,3-c,d)pyrene	ND		1	0.80	ug/L	12/02/2018 2024
Naphthalene	ND		1	0.80	ug/L	12/02/2018 2024
Phenanthrene	ND		1	0.80	ug/L	12/02/2018 2024
Pyrene	ND		1	0.80	ug/L	12/02/2018 2024
Surrogate	Q	% Rec	Acceptance Limit			
Nitrobenzene-d5		82	38-127			
2-Fluorobiphenyl		71	37-129			
Terphenyl-d14		95	10-148			

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

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

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## Semivolatile Organic Compounds by GC/MS - LCS

Sample ID: TQ90935-002

Matrix: Aqueous

Batch: 90935

Prep Method: 3520C

Analytical Method: 8270D

Prep Date: 11/29/2018 1603

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	40	34		1	85	30-122	12/02/2018 2049
Acenaphthylene	40	30		1	75	30-130	12/02/2018 2049
Anthracene	40	32		1	80	30-123	12/02/2018 2049
Benzo(a)anthracene	40	34		1	85	40-125	12/02/2018 2049
Benzo(a)pyrene	40	29		1	73	40-128	12/02/2018 2049
Benzo(b)fluoranthene	40	35		1	86	30-130	12/02/2018 2049
Benzo(g,h,i)perylene	40	34		1	86	30-130	12/02/2018 2049
Benzo(k)fluoranthene	40	33		1	83	30-130	12/02/2018 2049
Chrysene	40	35		1	87	30-130	12/02/2018 2049
Dibenzo(a,h)anthracene	40	32		1	81	30-130	12/02/2018 2049
Fluoranthene	40	34		1	85	40-128	12/02/2018 2049
Fluorene	40	33		1	83	30-124	12/02/2018 2049
Indeno(1,2,3-c,d)pyrene	40	33		1	81	30-130	12/02/2018 2049
Naphthalene	40	30		1	76	30-130	12/02/2018 2049
Phenanthrene	40	32		1	79	40-123	12/02/2018 2049
Pyrene	40	36		1	90	40-126	12/02/2018 2049
Surrogate	Q	% Rec	Acceptance Limit				
Nitrobenzene-d5		85	38-127				
2-Fluorobiphenyl		78	37-129				
Terphenyl-d14		96	10-148				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

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

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## Semivolatile Organic Compounds by GC/MS - MS

Sample ID: TK28026-001MS

Matrix: Aqueous

Batch: 90935

Prep Method: 3520C

Analytical Method: 8270D

Prep Date: 11/29/2018 1603

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
Acenaphthene	ND	80	47		1	59	30-122	12/05/2018 1444
Acenaphthylene	ND	80	43		1	54	30-130	12/05/2018 1444
Anthracene	ND	80	48		1	60	30-123	12/05/2018 1444
Benzo(a)anthracene	ND	80	56		1	69	40-125	12/05/2018 1444
Benzo(a)pyrene	ND	80	48		1	60	40-128	12/05/2018 1444
Benzo(b)fluoranthene	ND	80	59		1	74	30-130	12/05/2018 1444
Benzo(g,h,i)perylene	ND	80	55		1	69	30-130	12/05/2018 1444
Benzo(k)fluoranthene	ND	80	58		1	72	30-130	12/05/2018 1444
Chrysene	ND	80	54		1	68	30-130	12/05/2018 1444
Dibenzo(a,h)anthracene	ND	80	54		1	67	30-130	12/05/2018 1444
Fluoranthene	ND	80	56		1	69	40-128	12/05/2018 1444
Fluorene	ND	80	50		1	62	30-124	12/05/2018 1444
Indeno(1,2,3-c,d)pyrene	ND	80	56		1	70	30-130	12/05/2018 1444
Naphthalene	ND	80	48		1	60	30-130	12/05/2018 1444
Phenanthrene	ND	80	52		1	65	40-123	12/05/2018 1444
Pyrene	ND	80	54		1	68	40-126	12/05/2018 1444
Surrogate	Q	% Rec	Acceptance Limit					
Nitrobenzene-d5		66	38-127					
2-Fluorobiphenyl		52	37-129					
Terphenyl-d14		73	10-148					

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

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

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## Semivolatile Organic Compounds by GC/MS - MSD

Sample ID: TK28026-001MD

Matrix: Aqueous

Batch: 90935

Prep Method: 3520C

Analytical Method: 8270D

Prep Date: 11/29/2018 1603

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	% Rec Limit	% RPD Limit	Analysis Date	
Acenaphthene	ND	80	53	1		66	12	30-122	40	12/05/2018 1507	
Acenaphthylene	ND	80	48	1		59	10	30-130	40	12/05/2018 1507	
Anthracene	ND	80	49	1		62	3.7	30-123	40	12/05/2018 1507	
Benzo(a)anthracene	ND	80	54	1		67	3.0	40-125	40	12/05/2018 1507	
Benzo(a)pyrene	ND	80	46	1		58	3.7	40-128	40	12/05/2018 1507	
Benzo(b)fluoranthene	ND	80	59	1		74	0.16	30-130	40	12/05/2018 1507	
Benzo(g,h,i)perylene	ND	80	55	1		68	0.44	30-130	40	12/05/2018 1507	
Benzo(k)fluoranthene	ND	80	56	1		71	2.4	30-130	40	12/05/2018 1507	
Chrysene	ND	80	56	1		70	2.2	30-130	40	12/05/2018 1507	
Dibenzo(a,h)anthracene	ND	80	54	1		67	0.22	30-130	40	12/05/2018 1507	
Fluoranthene	ND	80	57	1		71	2.0	40-128	40	12/05/2018 1507	
Fluorene	ND	80	54	1		67	8.3	30-124	40	12/05/2018 1507	
Indeno(1,2,3-c,d)pyrene	ND	80	56	1		71	0.67	30-130	40	12/05/2018 1507	
Naphthalene	ND	80	55	1		69	14	30-130	40	12/05/2018 1507	
Phenanthrene	ND	80	55	1		69	5.0	40-123	40	12/05/2018 1507	
Pyrene	ND	80	55	1		68	0.51	40-126	40	12/05/2018 1507	
Surrogate	Q	% Rec	Acceptance Limit								
Nitrobenzene-d5		71	38-127								
2-Fluorobiphenyl		60	37-129								
Terphenyl-d14		71	10-148								

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

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

Shealy Environmental Services, Inc.

106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.shealylab.com

## EDB & DBCP by Microextraction - MB

Sample ID: TQ91168-001

Matrix: Aqueous

Batch: 91168

Prep Method: 504.1

Analytical Method: 504.1

Prep Date: 12/03/2018 854

Parameter	Result	Q	Dil	LOQ	Units	Analysis Date
1,2-Dibromoethane (EDB)	ND		1	0.010	ug/L	12/03/2018 1037
Surrogate	Q	% Rec	Acceptance Limit			
1,1,1,2-Tetrachloroethane		92	57-137			

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and  $\geq$  DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

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

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106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 [www.shealylab.com](http://www.shealylab.com)

## EDB & DBCP by Microextraction - LCS

Sample ID: TQ91168-002

Matrix: Aqueous

Batch: 91168

Prep Method: 504.1

Analytical Method: 504.1

Prep Date: 12/03/2018 854

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% Rec Limit	Analysis Date
1,2-Dibromoethane (EDB)	0.25	0.23		1	90	70-130	12/03/2018 1048
Surrogate	Q	% Rec	Acceptance Limit				
1,1,1,2-Tetrachloroethane		96	57-137				

LOQ = Limit of Quantitation

P = The RPD between two GC columns exceeds 40%

N = Recovery is out of criteria

DL = Detection Limit

J = Estimated result < LOQ and ≥ DL

+ = RPD is out of criteria

LOD = Limit of Detection

ND = Not detected at or above the LOQ

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

Shealy Environmental Services, Inc.

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**Chain of Custody  
and  
Miscellaneous Documents**



CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

ASSESSMENT & REMEDIAL SERVICES

1210 1/2 STREET SOUTH/EXTENSION COLUMBIA, SOUTH CAROLINA 29209

PHONE: 803-793-3314

FAX: 803-703-2507

Project #	Project Name	Sampler Name (print)	Sample ID / Description	Preservative			Laboratory Utilized	Matrix	C = Composite G = Grab	S. GW, DW, I, Other	BTEX+N+M+DCA+oxy by 825B	EDB by 8011	PAHs by 0270D	Total Lead by 6070C	Dissolved Lead by 6010C	BTEX+N+M+DCA by 524.2	Oxygenates + ethanol by 826B	EDB by 504.1	# of Containers	
				1. Unpreserved	4. HNO <sub>3</sub>	5. ICI														6. 50% KI
				Date	Time	Sampler Signatures														
12-414.2-18	Broad River BP	Andrew Desilet	Daycove	11-27-18	1055	<i>Andrew Desilet</i>		G DW				X	X		X			X	7	
	1257 Daman Rd.		Dup	11-27-18	1140			G DW				X	X		X			X		
	FB		Trip Blank	11-27-18	1210			G DW				X	X		X			X		
				11-27-18	1535															
Relinquished by / Sampler				Date	Time	Received by		Date												
<i>Andrew Desilet</i>				11-27-18	1535															
Relinquished by				Date	Time	Received by		Date												
Relinquished by				Date	Time	Received by		Date												
						<i>Megedy Carter</i>														
																		Project Manager	Michael Favis	
																		P.O. Number	1535	

# SHEALY ENVIRONMENTAL SERVICES, INC.

Shealy Environmental Services, Inc.  
Document Number: ME0018C-14

Page 1 of 1  
Effective Date: 8/2/2018

## Sample Receipt Checklist (SRC)

Client: ARM Cooler Inspected by/date: MEC / 11-28-18 Lot #: TK28026

Means of receipt: <input type="checkbox"/> SESI <input checked="" type="checkbox"/> Client <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	1. Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	2. If custody seals were present, were they intact and unbroken?
pH Strip ID: _____ Chlorine Strip ID: _____ Tested by: _____	
Original temperature upon receipt / Derived (Corrected) temperature upon receipt: %Solid Snap-Cup ID: <u>131239</u> <span style="float: right;">EVB 11-28-18</span>	
1.4 / 1.4 °C / °C / °C / °C <span style="float: right;">NA</span>	
Method: <input checked="" type="checkbox"/> Temperature Blank <input type="checkbox"/> Against Bottles IR Gun ID: <u>5</u> IR Gun Correction Factor: <u>0</u> °C	
Method of coolant: <input checked="" type="checkbox"/> Wet Ice <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	4. Is the commercial courier's packing slip attached to this form?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5. Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	6. Were sample IDs listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7. Were sample IDs listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	8. Was collection date & time listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. Was collection date & time listed on all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10. Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11. Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	13. Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	17. Were all DRO/metals/nutrient samples received at a pH of <2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	19. Were all applicable NH <sub>3</sub> /TKN/cyanide/phenol/625 (< 0.5mg/L) samples free of residual chlorine?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc...) correctly transcribed from the COC into the comment section in LIMS?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	21. Was the quote number listed on the container label? If yes, Quote # _____
<b>Sample Preservation</b> (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 _____ mL of circle one: H2SO4, HNO3, HCl, NaOH using SR # _____	
Time of preservation: _____. If more than one preservative is needed, please note in the comments below.	
Sample(s) _____ were received with bubbles >6 mm in diameter.	
Sample(s) _____ were received with TRC > 0.5 mg/L (If #19 is no) and were adjusted accordingly in sample receiving with sodium thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> ) with Shealy ID: _____	
SR barcode labels applied by: <u>ETP</u> Date: <u>11-28-18</u>	

Comments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

Site Information

Date: 12/11/2018	Site ID #: 11946	Site Name: Broad Rrr. Ammodo
County: Richland	Project Manager: C. moore E. mendenhall	Field Personnel:

Notes: Arrived @ 1019. No ARM, ~~Terry~~<sup>clw</sup> Envin South, or CTSI personnel on site.  
↳ correction. ARM doing soil borings in backyard of white brickhouse behind daycare.  
• plan is just to complete soil borings  
• vac truck in shop  
• flyer not @ white brick house  
left site @ 1050



Signature: *Culler* Date: 12/11/18

SCANNED

**-UST Field Data Information Sheet – Notes**

**-Purpose of the form is to record information gathered during a field activity**

**-DHEC UST Project Managers and Field Staff**

**-Item-by-item instructions for completing the form:**

**Fill in all Site Information boxes**

**Record any applicable notes**

**Sign and date the form**

**-Form is scanned and saved electronically; Record Group Number 169, Retention Schedule 10304**





UST # 11946 site visit 12/11/18

















UST #11946 site visit 12/10/18

92  
ted

















Underground Storage Tank Management Division  
Field Data Information Sheet - Notes

Site Information

Date: 12/15/18	Site ID #: 11946	Site Name: Broad River.
County: Richland	Project Manager: C. Moore E. Mendenhall	Field Personnel: C. White

Notes: Arrived @ 14:27

- Terry and Billy (ARM) on-site vacuuming Trench 'B'
- moving to Trench 'A' once B runs dry
- Terry showed me two locations where product/water was emerging from the hill behind the gas station.
- Indicated their plan for the weekend is to continue to vacuum the trenches as they fill.

left site @ 14:57



Signature: C. White Date: 12/15/18



**-UST Field Data Information Sheet – Notes**

**-Purpose of the form is to record information gathered during a field activity**

**-DHEC UST Project Managers and Field Staff**

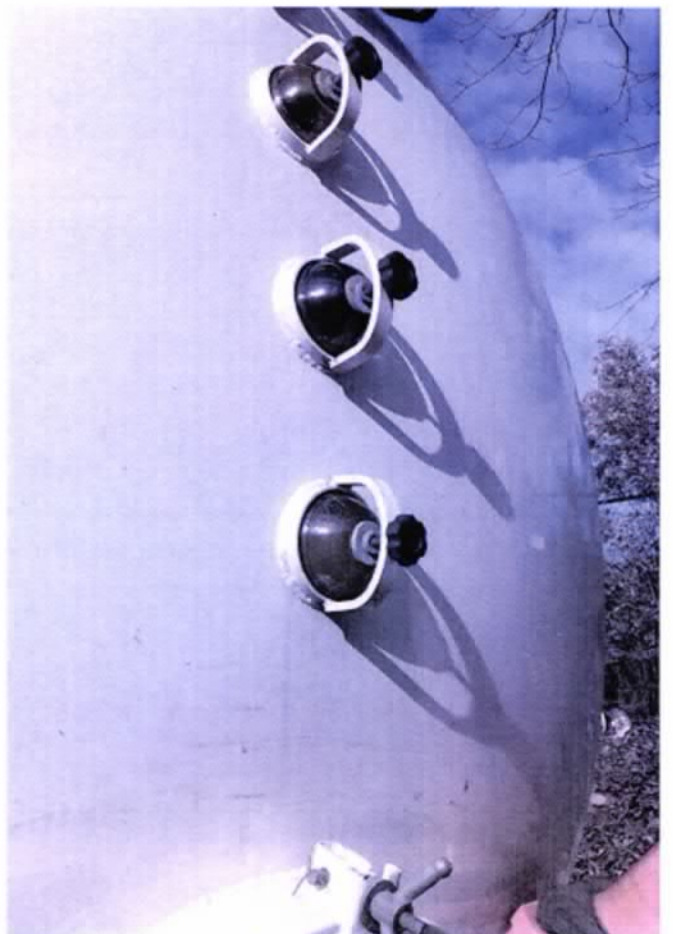
**-Item-by-item instructions for completing the form:**

**Fill in all Site Information boxes**

**Record any applicable notes**

**Sign and date the form**

**-Form is scanned and saved electronically; Record Group Number 169, Retention Schedule 10304**



UST # 11946 site visit 12/15/18























Scanned   
Verified

UST # 11946 Site Visit 12/17/18







UST #11946 site visit 12/20/18







C. Earl Hunter, Commissioner

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



FREDRICK N CECCHINI  
BROAD RIVER AMOCO  
4335 BROAD RIVER ROAD  
COLUMBIA SC 29210-4009

FEB 10 2011

Re: Cost Agreements for IGWA and Tier I Assessment  
Broad River Amoco, 4335 Broad River Road, Columbia, SC  
UST Permit # 11946; Cost Agreements # 40828 and 41024  
Release reported January 4, 2011  
Initial Groundwater Assessment Directive dated January 12, 2011  
Tier I Directive dated February 7, 2011  
SUPERB Application received February 7, 2011  
Richland County

Dear Mr. Cecchini:

The Underground Storage Tank (UST) Management Division of the South Carolina Department of Health and Environmental Control (SCDHEC) directed you to complete an Initial Groundwater Assessment (IGWA) and Tier I Assessment at the referenced facility. Based on receipt of the State Underground Petroleum Environmental Response Bank (SUPERB) Account application the referenced release is qualified to receive funding from the SUPERB Account. According to Division records, the release at the facility was reported to SCDHEC on January 4, 2011. In accordance with Section 44-2-40(D) of the SUPERB Act, you are responsible for the first \$25,000 of site rehabilitation costs. To insure that expenditures made toward rehabilitation apply to the \$25,000 deductible, the Division has pre-approved costs for implementing the IGWA and Tier I Assessment and assigned a cost agreements for tracking. By law, the SUPERB Account cannot compensate any costs that are not pre-approved.

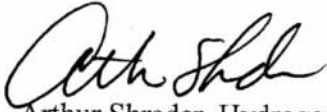
Cost agreement number 40828 has been approved in the amount of \$1,545.00 for implementation of the IGWA, and cost agreement number 41024 has been approved in the amount of \$11,230.00 for implementation of the Tier I Assessment. A copy of each of these approved cost agreements is enclosed. Upon receipt of a report of findings, and a completed invoice with all necessary supporting payment documentation, up to \$1,545.00 and \$11,230.00 will be applied towards the \$25,000 deductible. The total for the IGWA includes costs for completion up to 25 feet of permanent well footage and the Tier I includes costs for completion of up to 75 feet of permanent monitoring well footage. Additional monitoring well footage can be billed at the SUPERB allowable rate of \$38 per foot provided that the cost is pre-approved by the Division. Necessary supporting payment documentation is a signed and notarized statement from the site rehabilitation contractor indicating the amount paid for the scope of work. In lieu of a notarized statement, a copy of the check (front and back) to the rehabilitation contractor for the scope of work may be submitted with the invoice.



Mr. Cecchini  
Page 2

Please reference UST Permit number 11946 on all correspondence. If you have any questions, please contact me by phone at (803) 896-6669, by fax at (803) 896-6245, or by email at [shradeaa@dhec.sc.gov](mailto:shradeaa@dhec.sc.gov).

Sincerely,



Arthur Shrader, Hydrogeologist  
Assessment Section  
Underground Storage Tank Management Division  
Bureau of Land and Waste Management

enc: Two Approved Cost Agreements

cc: Enviro-Test Services, PO Box 2237, Irmo, SC 29063 (with enc.)  
Technical File (with enc.)

# Approved Cost Agreement 40828

Facility: 11946 BROAD RIVER AMOCO

SHRADEAA

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
21 INITIAL GROUNDWATER ASSESSMENT		IGWA	1.0000	1,545.00	1,545.00
				<b>Total Amount</b>	1,545.00

# Approved Cost Agreement 41024

Facility: 11946 BROAD RIVER AMOCO

SHRADEAA

PO Number:

<u>Task / Description</u>	<u>Categories</u>	<u>Item Description</u>	<u>Qty / Pct</u>	<u>Unit Price</u>	<u>Amount</u>
20 TIER I		TIER I	1.0000	11,230.00	11,230.00
<b>Total Amount</b>					11,230.00