REMEDIAL INVESTIGATION – WATER WELL SURVEY, LANDFILL GAS EVALUATION, AND COVER THICKNESS EVALUATION

Swannanoa Landfill
NCD980557987
Mountain Ridge Road
Swannanoa, North Carolina, Buncombe County
State Contract No: N10004S
Task Order: 7987DP-6

December 14, 2012
Revised January 9, 2013

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1.0 INTRODUCTION

Schnabel Engineering South, PC (Schnabel) is pleased to present our Remedial Investigation – Water Well Survey, Landfill Gas Evaluation, and Cover Thickness Evaluation Report for the Swannanoa Landfill (NCD980557987) located on Mountain Ridge Drive in Swannanoa, Buncombe County, North Carolina. This report was prepared in accordance with our revised Work Plan dated July 18, 2012 and authorized by the Pre-Regulatory Landfill Unit (Unit) under Task Order 7987DP-4. The field investigation was completed under approved Task Order 7987DP-5 and the preparation of this report completed under approved Task Order 7987DP-6. Field work completed during this investigation includes:

- Water well survey
- Installation, screening and sampling of landfill gas probes
- Landfill cover thickness evaluation
- Media sampling
- Site restoration

Samples were collected in accordance with Schnabel's approved Quality Assurance Standard Operating Procedures (SOPs) dated October 29, 2010. Collected air samples were compared to the July 2012 IHSB Residential Acceptable Soil-Gas Concentration Carcinogenic Target Risks. Reported groundwater concentrations were compared to the 15A NCAC 2L Groundwater Standards and Interim Maximum Allowable Concentrations.

Following the completion of the field investigation, site restoration activities were conducted. Ruts were made at both the main entrance and the access road by the Geoprobe™ rig and the vehicles used by field personnel. The subcontracted drilling firm first smoothed the soil to reduce the depth of the ruts then sod was placed in the ruts, and grass seed and mulch were added on top of the sod. Photos of the restoration efforts are included as Appendix E.

Deviations from the approved work plan are as follows:

- Gas Probes GP-6 and GP-16 were installed with a hand auger because of the steep slope in these areas. Refusal was encountered in both borings. The probes were not sealed with bentonite below five feet and will be abandoned.
- During the installation of probes GP-7, GP-9, and GP-10, a perched zone was encountered. The probes were installed at depths where the bottom was at least two feet above water. This did not allow for the probes to be sealed with bentonite seal below five feet. These probes will be abandoned.
- A gas sample was collected into a Summa canister at GP-13 instead of GP-2 as indicated in the work plan.

The Site Map (Figure 1) shows the Waste Disposal Area Boundary as identified by the November 2011 Contaminant Delineation Phase. Boring logs are included in Appendix A, and a table with the GPS coordinates of the borings and wells is included in Appendix D.

2.0 WATER WELL SURVEY

A water well survey was performed for properties located within 500 feet of the Waste Disposal Area Boundary. A table listing all of the properties was generated and faxed to the City of Asheville Water

Department for verification of properties being supplied municipal water. In addition, Schnabel observed each of the properties from public roadways and looked for well houses and/or water meters.

Table 1 lists forty-eight (48) properties that were identified as having a private well, using spring water, and/or not being serviced by municipal water. Figure 2 illustrates these properties and their proximities to the Waste Disposal Area.

3.0 LANDFILL GAS PROBES

3.1 Installation

A total of sixteen direct push landfill gas probes (GP-1 through GP-16) were installed by Elite Techniques on August 20 through 22, 2012 at previously agreed upon locations (Figure 1). Gas probes GP-1 through GP-12 were installed at various depths within the waste. Probe GP-13 was installed at the bottom of waste at a depth of 36 ft bgs. Probes GP-14 through GP-16 were installed at various depths outside of waste. Two probes, GP-6 and GP-16, were installed with a hand auger because of lack of access for the Geoprobe™ rig. Each probe was screened at least 2 feet above groundwater and sealed at least five feet below ground surface with the exception of GP-6, GP7, GP-9, GP-10, and GP-16. Those five gas probes were unable to be screened below 5 ft bgs due to the shallowness of the probe. Boring logs for all of the probes were completed and are included in Appendix B. Field notes regarding the supplemental borings are in the Appendix C.

The gas probes were constructed of flush joint threaded 1-inch diameter PVC riser with a 1-inch diameter 0.010-inch slot, 5-feet long pre-pack PVC screen. Filter sand sized for 0.010-inch slot screen was placed in the annular space around the screen to at least one foot above the top of the screen. Two feet of hydrated bentonite was placed on top of the filter pack. The remaining annular space was filled to the land surface with bentonite grout. The temporary gas probes were completed above grade with approximately three feet of 1-inch PVC riser above ground surface. The top of the riser was finished with an expansion plug, lock, and a steel protective casing. The gas probes will remain installed until further notice by the Unit. The gas probe construction details are included on the boring logs in Appendix A.

3.2 Gas Probe Screening and Results

Schnabel personnel collected landfill gas readings from the sixteen gas probes and MW-11 on August 23, 2012. Instrumentation used included a Landtec Gem™ 2000 (Manufacturer: CES Landtec, Serial Number: GM08087105) to screen for oxygen, carbon dioxide, methane in percent by volume, and hourly barometric pressure. Temperature and humidity were also recorded. This instrument was calibrated on August 16, 2012 by Mr. Andrew Briley of Pine Environmental Services and field calibrated by Mr. Danny Rawl of Schnabel on August 23, 2012. A MiniRae 2000 (Serial Number: 110-013461) was field calibrated by Mr. Danny Rawl on August 23, 2012 and was used to screen for total VOC (volatile organic compounds) concentration at each of the gas probes. Gas probe air screening occurred during a calm period and the barometric pressure was steady.

During the screening, a fitted cap made of the same material as the gas probe was placed on the probe. The cap has a brass connector sealed in the top of the cap. Teflon® tubing is used to connect the meters to the brass connector. The readings are recorded after they appear to stabilize.

It was noted that there was a rapid egression of air from gas probes GP-1 through GP-4, GP-7, GP-11, GP-12, and GP-13 during the air screening. At GP-13, a whistling sound occurred when replacing the cap back onto the gas probe.

Methane in percent by volume ranged from 0% to 100%, VOCs ranged from 0.0 to 7.2 ppm, carbon dioxide ranged from 2.1% to 48.7% by volume, and oxygen readings ranged from 0.01 to 19.7%. Refer to Table 2 and Figure 3 for the air screening concentrations. Field notes are located in Appendix B.

3.3 Gas Probe Sampling and Results

Air samples were collected from GP-13 on August 23, 2012. Before the air samples were collected, the connection between the gas probe and summa canister was tested for air leaks by attaching a helium canister (expiration date 01/21/13) to inert tubing which was then attached to the flow controller on the summa canister. The pressure gauge knob on the summa canister remained in the closed position during the test. Once all of the connections were made, helium from the canister was released into the tubing and a MGD-2000 helium leak detector (Serial Number: 041402) was used to search for possible air leaks. No helium leaks were detected along the connections.

Individually certified Summa canisters were used to collect the air samples for TO-15 analysis. A flow controller was attached to each canister and inert tubing lined with Teflon® was placed over the controller barb. The opposite end of the inert tubing was then attached to a nipple located on a removable cap on the gas probe. Once the attachments were made, the valve on the summa canister was opened, the initial gauge pressure was recorded, and the sampling process started. Each summa canister was allowed to draw in an air sample for 45 minutes. At the completion of the sampling, the final reading on the pressure gauge was recorded and the summa canister valve closed.

Compared to the July 2012 IHSB Residential Vapor Intrusion Screening Table, the samples from GP-13 exceeded the Residential Acceptable Soil-gas Concentration Carcinogenic Target Risks (residential and commercial) for the following constituents: 1,1-dichloroethane, 1,2,4-trimethylbenzene, 1,2-dichloropropane, benzene, cumene, dichlorodifluoromethane, ethylbenzene, m,p-xylenes, methylene chloride, n-hexane, tetrachloroethene, toluene, trichloroethene, vinyl chloride, o-xylenes, and total xylenes. Table 3 lists the analytical results for the air sampling of GP-13 for TO-15 as reported by Test America Laboratories. The laboratory analytical reports are provided as Appendix C. The Air Sample Concentration Map is included as Figure 4.

4.0 LANDFILL COVER THICKNESS EVALUATION

Forty borings were advanced on an approximate 100-foot grid across the entire Waste Disposal Area. Direct push technology was employed to collect cores in order to calculate the thickness of the landfill soil cover and to profile the characteristics of the soil. Borings were advanced to the top of waste. Some of the landfill cover thickness borings coincided with gas probe locations. In those locations, the landfill cover soil was profiled and thickness measured, and the borings were advanced into the waste for gas probe installation. Figure 5 illustrates the areas of the Waste Disposal Area that have 2-feet or less of landfill cover thickness. Boring logs are located in Appendix B.

5.0 MEDIA SAMPLE COLLECTION

5.1 Ground Water Sampling

A ground water sample and duplicate were collected from MW-11 after the well was purged. The well was purged dry after the first well volume using low-flow techniques. The well was allowed to recharge prior to sample collection. Field parameters were measured again at the time of sampling to ensure that the turbidity of the water was below 10 NTU. The water was put into the laboratory supplied containers labeled for metals and hexavalent chromium analyses first, and then the remaining sample containers

were filled. The location of MW-11 is illustrated on Figure 6. Ground water sampling records are included in Appendix C. Figure 7 illustrates all sampling media and the detected constituents.

5.2 Results

The sample collected from MW-11 exceeded the NC 2L Standard for 1,4-dichlorobenzene, benzene, and naphthalene. Refer to Table 4 for ground water analytical results and Appendix D for the laboratory analytical reports.

6.0 QUALITY ASSURANCE/QUALITY CONTROL

The laboratory analytical results were checked for completeness and accuracy prior to submittal to the Unit. Based on the completeness evaluation the laboratory data appears to be useable for this report.

6.1 QA/QC Sampling

A minimum of one duplicate sample was collected per matrix, per day. Ground water duplicate sample Dup-1 was collected from MW-11. Air duplicate sample DUP-2 was collected from GP-13.

6.2 QA/QC Results

Duplicate soil and groundwater samples had detected constituents and exceedences that are comparable to their respective parent sample. Duplicate sample results are provided in Table 3 and Table 4. The laboratory analytical reports with QA/QC results are provided in Appendix D.

7.0 INVESTIGATION DERIVED WASTE (IDW)

Investigation derived waste (IDW), including drill cuttings and purged and decontamination water generated as part of assessment activities, was placed back into the borings or poured onto the ground surface within the Waste Disposal Area footprint to percolate back into the ground. IDW was generated during the field investigation; however, none was placed into drums and stored onsite.

Table 1
Water Well Survey Results
Swannanoa Landfill
NCD980557987

WSW #	Well Address	PIN number	Owner	Owner Mailing Address
1	2555 US HIGHWAY 70	969930362400000	BLOSSMAN GAS INC	P.O. Box 1110, Ocean Springs, MS 39566
2	2557 US HIGHWAY 70	969930458600000	ASHEVILLE OIL COMPANY	P.O. Box 5377, Asheville, NC 28813
3	2565 US HIGHWAY 70	969930678000000	CURTIS MICHAEL J	391 Dillingham Circle, Asheville, NC 28805
4	2556 US HIGHWAY 70	969930867600000	BERRY ALVIN W & BERRY SADIE B	2556 US Hwy 70, Swannanoa, NC 28778
5	2573 US HIGHWAY 70	969930967400000	BERRY ALVIN W & BERRY SADIE B	2556 US Hwy 70, Swannanoa, NC 28778
6	2585 US HIGHWAY 70	969940256400000	STONEHOUSE CROSS LLC	2585 US Hwy 70, Swannanoa, NC 28778
7	471 OLD LYTLE COVE RD	969940837100000	NGL SUPPLY RETAIL LLC	6120 S. Yale, Suite 805, Tulsa OK 74136
8	464 OLD LYTLE COVE RD	969940408900000	GRANT RONALD L	P.O. Box 401, Swannanoa, NC 28778
9	452 OLD LYTLE COVE RD	969940312100000	RAWLS BOBBY LEON	P.O. Box 631, Swannanoa, NC 28779
10	448 OLD LYTLE COVE RD	969940118300000	GRANT ERNEST J	215 Booth Road, Chapel Hill, NC 27516
11	340 OLD LYTLE COVE RD	969930914700000	WHITE ELIZABETH STEPP	2 Martin Luther King Dr., Asheville, NC 28801
12	310 OLD LYTLE COVE RD	969920837600000	SHELTON RONALD	P.O. Box 543, Swannanoa, NC 28778
13	8 ASH GRAY LN	969920629900000	CALDWELL JAMES THOMAS & CALDWELL GLORIA	106 Harrison St., Swannanoa, NC 28778
14	127 CENTRAL AVE	969829368200000	ROPER GERALD F & ROPER ELIZABETH A	125 Central Avenue, Swannanoa, NC 28778
15	137 CENTRAL AVE	969829431900000	HARRIS THOMAS E & HARRIS VICKIE HOLCOMBE	40 Milksick Cove Rd, Candler, NC 28715
16	125 FOUNTAIN WAY	969829762800000	BURGESS EUGENE & BURGESS JEAN	125 Fountain Way, Swannanoa, NC 28778
17	126 FOUNTAIN WAY	969829564400000	WORLEY WM R & WORLEY IOMA E	130 Fountain Way, Swannanoa, NC 28778
18	214 FOUNTAIN WAY	969828893600000	ROBINSON JUDITH S	341 Shope Creek Rd., Asheville, NC 28805
19	220 FOUNTAIN WAY	969838181900000	SWANNANOA HEIGHTS BAPTIST CHURCH & BRIDGES WILLIE	P.O. Box 264, Swannanoa, NC 28779
20	229 FOUNTAIN WAY	969838363000000	DALTON ALBERT P (LE) & DALTON CAMILLA T (LE)	233 Fountain Way, Swannanoa, NC 28778
21	233 FOUNTAIN WAY	969838341900000	DALTON ALBERT P & DALTON CAMILLA T	233 Fountain Way, Swannanoa, NC 28778
22	306 FOUNTAIN WAY	969838028600000	HART ROBBIE D & HART PATRICIA P	306 Fountain Way, Swannanoa, NC 28778
23	310 FOUNTAIN WAY	969838009500000	KEMP DIANE	310 Fountain Way, Swannanoa, NC 28778
24	315 FOUNTAIN WAY	969838303600000	BRADLEY JAMES R	315 Fountain Way, Swannanoa, NC 28778
25	319 FOUNTAIN WAY	969837394100000	WILLIAMS IRENE HEIRS	148 Eastwood Ave, Swannanoa, NC 28778
26	FOUNTAIN WAY	969838404500000	PLEMMONS ROY ET AL	109 Charles Place, Cumming, GA 30040
27	FOUNTAIN WAY	969837499100000	PLEMMONS ROY ET AL	109 Charles Place, Cumming, GA 30040
28	231 FOUNTAIN WAY	969838535000000	CALLAHAN BARBARA D	231 Fountain Way, Swannanoa, NC 28778
29	22 SWANNANOA HEIGHTS DR	969838507500000	NORTON EVA MAE	P.O. Box 83, Swannanoa, NC 28779
30	133 HARRISON ST	969839045000000	WALLIN THOMAS J & WALLIN SHIRLEY M	133 Harrison St., Swannanoa, NC 28778
31	133 HARRISON ST	969839037300000	WALLIN THOMAS J & WALLIN SHIRLEY M	133 Harrison St., Swannanoa, NC 28778
32	204 HARRISON ST	969839021100000	RUIT THOMAS L & RUIT ROBIN M	206 Harrison St., Swannanoa, NC 28778
33	216 HARRISON ST	969839204300000	FLETCHER WALTER & FLETCHER RUBY	216 Harrison St., Swannanoa, NC 28778
34	220 HARRISON ST	969838297300000	FLETCHER WALTER & FLETCHER RUBY	216 Harrison St., Swannanoa, NC 28778
35	226 HARRISON ST	969838376800000	KIRCHNER DONALD E & KIRCHNER NANCY	226 Harrison St., Swannanoa, NC 28778
36	225 HARRISON ST	969838568300000	EARLEY ELAINE M & GINGER H HALL & FREDERICK S M &	P.O. Box 133, Swannanoa, NC 28779
37	227 HARRISON ST	969838557600000	EARLEY ELAINE M & GINGER H HALL & FREDERICK S M &	P.O. Box 133, Swannanoa, NC 28779
38	100 MOUNTAIN RIDGE DR	969848082200000	MOORE GUY P & MOORE JOYCE	P.O. Box 456, Swannanoa, NC 28779
39	102 MOUNTAIN RIDGE DR	969838870000000	PHELPS MELISSA HICKMAN & PHELPS RICK	P.O. Box 947, Swannanoa, NC 28779
40	101 MOUNTAIN RIDGE DR	969838701800000	NORTON CHARLES M & NORTON DOLLY N	P.O. Box 333, Swannanoa, NC 28779
41	99 MOUNTAIN RIDGE DR	969837782200000	NORTON CHARLES M & NORTON DOLLY N	P.O. Box 333, Swannanoa, NC 28779
42	499 DILLINGHAM PANOVIEW RD	969849366200000	DILLINGHAM DUDLEY & DILLINGHAM JESSIE	P.O. Box 953, Swannanoa, NC 28779
43	533 DILLINGHAM PANOVIEW RD	969849661000000	ROBERTS ALAN & CARTER REGINA ROBERTS	533 Dillingham Panoview Rd, Swannanoa, NC 28778

Table 1
Water Well Survey Results
Swannanoa Landfill
NCD980557987

WSW #	Well Address	PIN number	Owner	Owner Mailing Address
44	591 DILLINGHAM PANOVIEW RD	969849643200000	DILLINGHAM JAMES A (LE) & DILLINGHAM MARY M (LE)	591 Dillingham Panoview Rd, Swannanoa, NC 28778
45	545 DILLINGHAM PANOVIEW RD	969849748000000	LYTLE WILBERT & LYTLE MYRTLE D	545 Dillingham Panoview Rd, Swannanoa, NC 28778
46	551 DILLINGHAM PANOVIEW RD	969849934900000	GRANT ERNEST J	215 Booth Road, Chapel Hill, NC 27516
47	540 DILLINGHAM PANOVIEW RD	969849954700000	DILLINGHAM TONY C	3435 Royal Crest Dr., Charlotte, NC 28210
48	502 DILLINGHAM PANOVIEW RD	969859053400000	DILLINGHAM STEVE A & DILLINGHAM NORMA	562 Dillingham Panoview Rd, Swannanoa, NC 28778

Table 2
Gas Probe Screening Results
Swannanoa Landfill
NCD980557987

Gas Probe No.	Time	Barometric Pressure Reading (Hg)	Humidity	Oxygen (O_2) % Volume	Carbon Dioxide (CO_2) % Volume	Methane (CH_4) in % Volume	Total VOCs (ppm)
GP-1	950	27.69	93%	0.6	45.6	53.4	4.5
GP-2	1010	27.69	93%	1.0	43.2	53.2	0
GP-3	1015	27.69	93%	0.5	44.2	55	0
GP-4	1020	27.69	93%	6.8	26.5	32.6	0.5
GP-5	1057	27.73	82%	1.6	42	100	5.6
GP-6	1054	27.73	82%	1.9	39.9	53.8	0
GP-7	1051	27.73	93%	0.2	48.7	50.6	0
GP-8	1044	27.69	93%	0.2	44.9	54.6	0
GP-9	1115	27.73	82%	17.2	2.3	2.4	0
GP-10	1111	27.73	82%	19.1	3	1.8	7.2
GP-11	1005	27.69	93%	17.7	4.5	15.2	0.8
GP-12	1000	27.69	93%	0.2	45	54.6	1.9
GP-13	1030	27.69	93%	0.1	44	55.5	0.8
GP-14	1037	27.69	93%	1.0	38.9	58.2	0
GP-15	1017	27.69	93%	18.2	3.8	5.5	2.1
GP-16	1122	27.73	82%	19.7	2.1	0	0.8
MW-11	1102	27.73	82%	0.3	43.2	56.2	0

Notes:
1. Air flowing from GP-13 caused whistling sound when trying to put cap back on the probe. Can feel air flow with hand on GP-1 through 4, 7, 11, and 12
2. Gas probes screened on August 23, 2012
3. Temperature was 62° F during the gas probe screening.

Table 3
Gas Probe Analytical Results
Swannanoa Landfill
NCD980557987

	Sample ID:	**GP-13**	**DUP-2**	**TRIP BLANK**
	Sampled Date:	**08/23/2012**	**08/23/2012**	**08/23/2012**
	IHSB Residential Acceptable Soil-gas Concentration ug/m3 Carcinogenic Target Risk			
Air - GC/MS VOA By TO-15 (ug/m3)				
1,1-Dichloroethane	150	**820**	**820**	ND
1,2,4-Trimethylbenzene	14.6	**1200**	**1100**	ND
1,2-Dichloroethene, Total	NR	11000	10000	ND
1,2-Dichloropropane	8.4	**1600**	**1600**	ND
1,2-Dichlorotetrafluoroethane	NR	4800	4900	ND
1,3,5-Trimethylbenzene	NR	670	680	ND
2,2,4-Trimethylpentane	NR	1800	1700	1.1
4-Ethyltoluene	NR	550	ND	ND
Acetone	64,000	ND	ND	20
Benzene	31	**3100**	**2800**	1.2
Chloroethane	NR	660	670	ND
cis-1,2-Dichloroethene	NR	11000	10000	ND
Cumene	840	**960**	**940**	ND
Cyclohexane	NR	2200	2200	0.78
Dichlorodifluoromethane	200	**42000**	**42000**	ND
Ethylbenzene	97	**9800**	**9600**	1.1
Freon 22	NR	10000	10000	54
Isopropyl alcohol	NR	12000	12000	13
m,p-Xylene	200	**18000**	**18000**	3.8
Methyl Ethyl Ketone	10,400	5200	4600	3.6
Methylene Chloride	1,300	**4300**	**4400**	ND
n-Butane	NR	1900	1900	10
n-Heptane	NR	2900	2700	1.7
n-Hexane	1,460	**5200**	**5200**	3.3
n-Propylbenzene	NR	680	650	ND
Tetrachloroethene	83.4	**9300**	**8900**	ND
Toluene	10,400	**44000**	**43000**	8.4
Trichloroethene	4.2	**2300**	**2200**	ND
Trichlorofluoromethane	1,460	1100	1100	6.9
Vinyl chloride	16	**5000**	**5100**	ND
Xylene (total)	200	**23000**	**22000**	5.1
Xylene, o-	200	**4600**	**4600**	1.3

Notes:
ND - Not Detected
NR - Not Reported
Bold indicates that the IHSB Acceptable Soil-Gas Concentration Carcinogenic Target Risks were exceeded
ug/m3 - micrograms per cubic meter

Table 4
Ground Water Analytical Results
Swannanoa Landfill
NCD980557987

	Sample ID:	MW-11	Dup-1	TRIP BLANK
	Sampled Date:	08/22/2012	08/22/2012	08/22/2012
	NC 2L and IMAC Standards (ug/L)			
Metals By 6020A (ug/L)				
Nickel	100	35 B	36 B	~
General Chemistry By 7196A (ug/L)				
Chromium, hexavalent	NR	ND	ND	~
GC/MS VOA By 8260B (ug/L)				
1,2,4-Trichlorobenzene	70	0.33 J	0.38 J	ND
1,2-Dichlorobenzene	20	3.0	2.7	ND
1,2-Dichloropropane	0.6	0.28 J	0.29 J	ND
1,3-Dichlorobenzene	200	5.8	5.6	ND
1,4-Dichlorobenzene	6	**17**	**17**	ND
Acetone	6000	6.2 J	5.6 J	ND
Benzene	1	**6.6**	**6.3**	ND
Chlorobenzene	50	20	20	ND
Chloroethane	3000	3.5	3.5	ND
cis-1,2-Dichloroethene	60	0.15 J	0.15 J	ND
Cyclohexane	NR	ND	0.29 J	ND
Ethylbenzene	600	42	40	ND
Isopropylbenzene	70	1.7	1.6	ND
Methyl tert-butyl ether	20	0.85 J	0.84 J	ND
m-Xylene & p-Xylene	500	40	37	ND
o-Xylene	500	2.8	2.6	ND
Styrene	70	0.27 J	0.28 J	ND
Toluene	600	1.2	1.1	ND
Trichloroethene	3	0.16 J	0.14 J	ND
GC/MS Semi VOA By 8270D (ug/L)				
1,1'-Biphenyl	400	ND	0.58 J	~
2-Methylnaphthalene	30	3.2 J	4.1 J	~
3 & 4 Methylphenol	40	2.1 J	2.1 J	~
Benzaldehyde	700	1.9 J	2.3 J	~
Caprolactam	4000	45	41	~
Diethyl phthalate	6000	34	41	~
Naphthalene	6	**9.3 J**	**12**	~

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

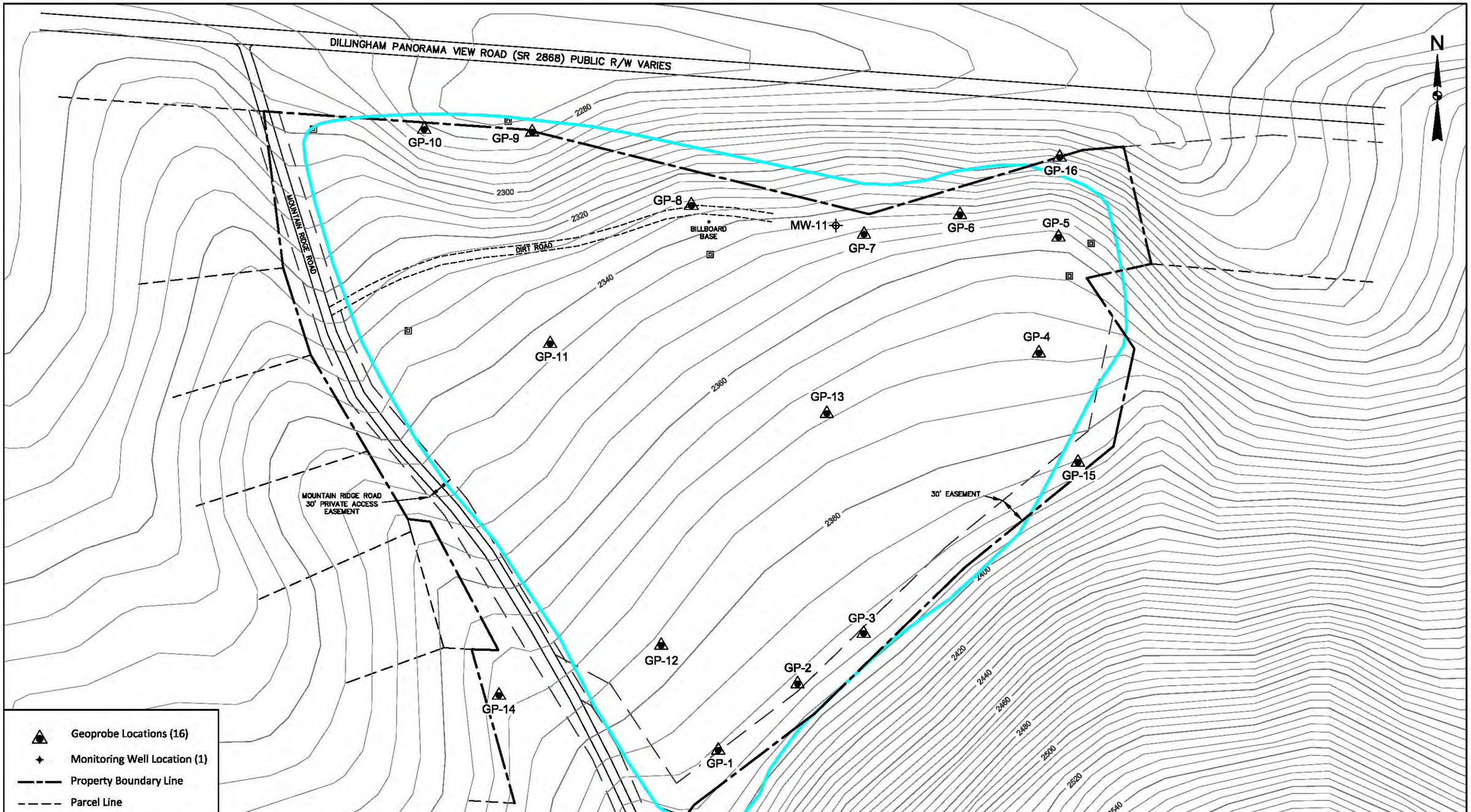
B - Compound was found in the blank and sample.

ug/L - micrograms/liter

ND - Not Detected

~ - Sample not analyzed

Bold concentration exceeds North Carolina 15A NCAC 2L and Interim Maximum Allowable Concentration (IMAC)



Geoprobe Locations (16)
Monitoring Well Location (1)
Property Boundary Line
Parcel Line
Estimated Waste Disposal Area Boundary
Legal Easement
Stormwater Basin
Topographic Contours Contour Interval = 4 Feet

Notes:
All sample locations based on GPS derived coordinates and not surveyed by a licensed surveyor.

Source for Base Map: Allied Associates, P.A.
Source for Topographic Contours: NCDOT GIS LIDAR March 2007
NC State Plane NAD83 Feet

SCALE: 1"=100'
0 100' 200'

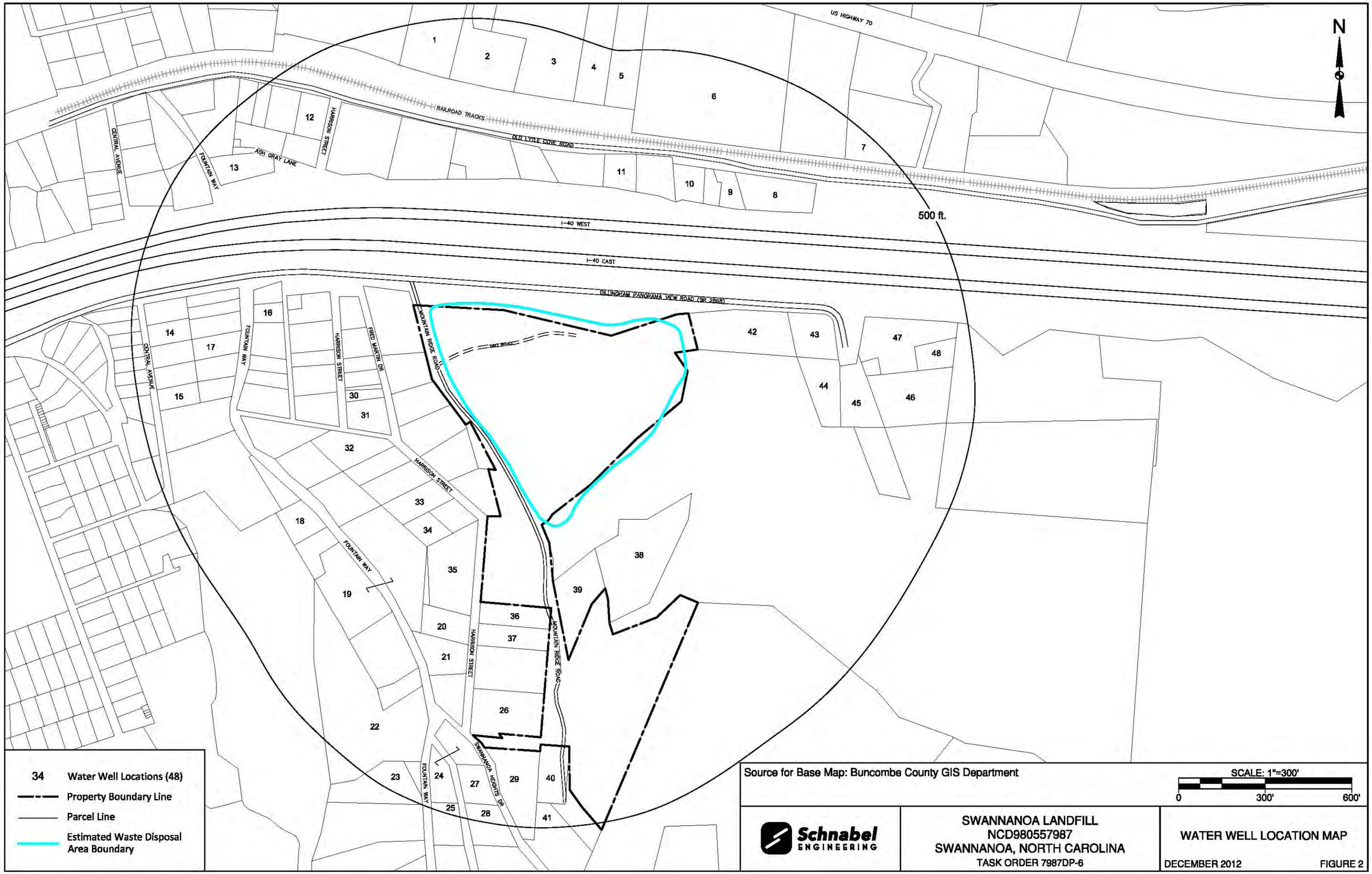
Schnabel ENGINEERING

SWANNANOA LANDFILL
NCD980557987
SWANNANOA, NORTH CAROLINA
TASK ORDER 7987DP-6

SITE MAP

DECEMBER 2012

FIGURE 1


N
US HIGHWAY 70
RAILROAD TRACKS
OLD LYTLE COVE ROAD
HARRISON STREET
ASH GRAY LANE
FOUNTAIN WAY
CENTRAL AVENUE
I-40 WEST
I-40 EAST
DILLINGHAM PANORAMA VIEW ROAD (SR 2868)
MOUNTAIN RIDGE ROAD
DECK ROAD
FRED MARTIN DR
SWANNANOA HEIGHTS DR
500 ft.
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3
4
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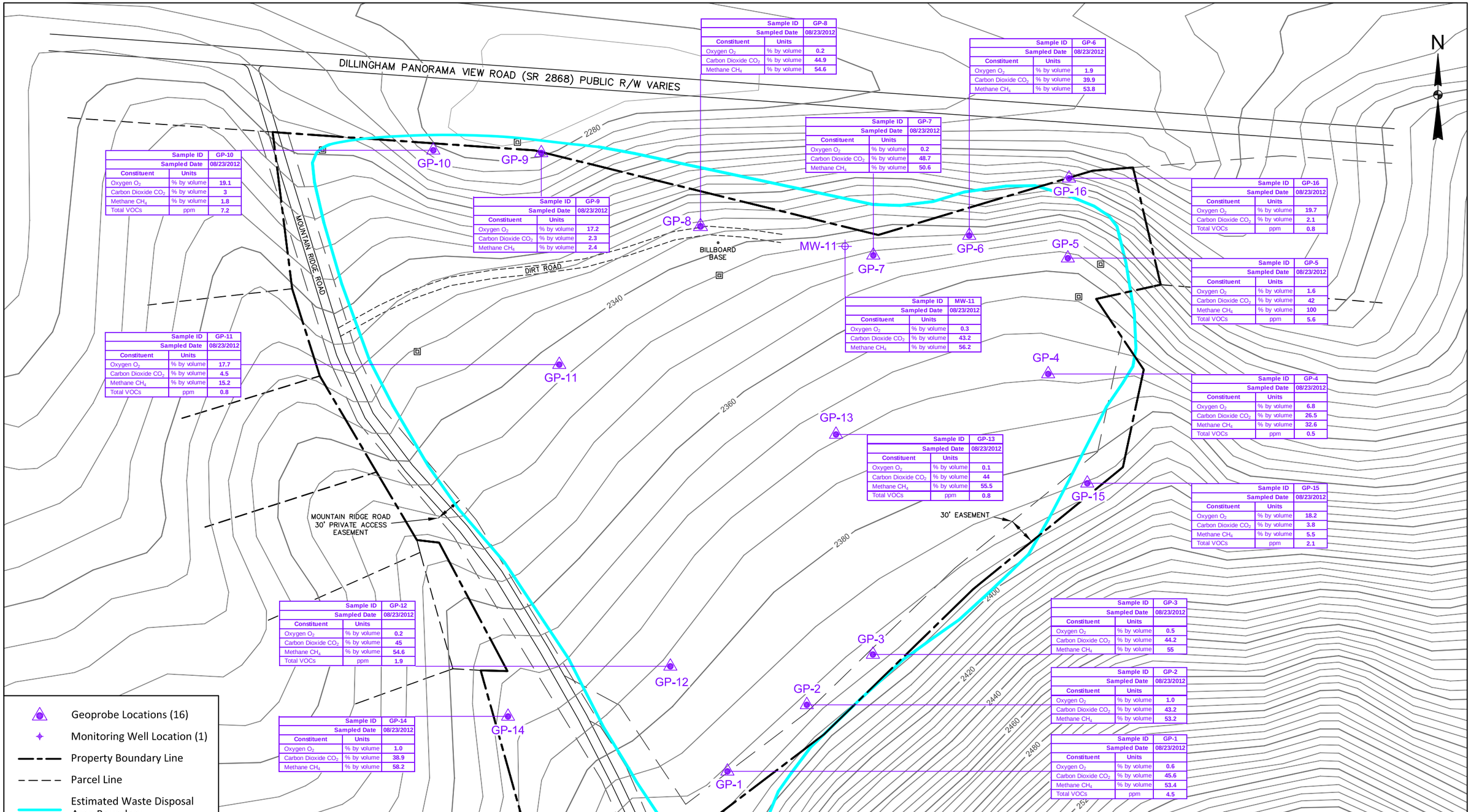
34 Water Well Locations (48)
Property Boundary Line
Parcel Line
Estimated Waste Disposal Area Boundary
Source for Base Map: Buncombe County GIS Department
SCALE: 1"=300'
0
300'
600'
Schnabel ENGINEERING
SWANNANOA LANDFILL
NCD980557987
SWANNANOA, NORTH CAROLINA
TASK ORDER 7987DP-6
WATER WELL LOCATION MAP
DECEMBER 2012
FIGURE 2



Sample ID	GP-8
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 0.2
Carbon Dioxide CO_2	% by volume 44.9
Methane CH_4	% by volume 54.6

Sample ID	GP-6
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 1.9
Carbon Dioxide CO_2	% by volume 39.9
Methane CH_4	% by volume 53.8

Sample ID	GP-7
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 0.2
Carbon Dioxide CO_2	% by volume 48.7
Methane CH_4	% by volume 50.6

Sample ID	GP-10
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 19.1
Carbon Dioxide CO_2	% by volume 3
Methane CH_4	% by volume 1.8
Total VOCs	ppm 7.2

Sample ID	GP-9
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 17.2
Carbon Dioxide CO_2	% by volume 2.3
Methane CH_4	% by volume 2.4

Sample ID	GP-16
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 19.7
Carbon Dioxide CO_2	% by volume 2.1
Total VOCs	ppm 0.8

Sample ID	GP-5
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 1.6
Carbon Dioxide CO_2	% by volume 42
Methane CH_4	% by volume 100
Total VOCs	ppm 5.6

Sample ID	MW-11
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 0.3
Carbon Dioxide CO_2	% by volume 43.2
Methane CH_4	% by volume 56.2

Sample ID	GP-11
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 17.7
Carbon Dioxide CO_2	% by volume 4.5
Methane CH_4	% by volume 15.2
Total VOCs	ppm 0.8

Sample ID	GP-4
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 6.8
Carbon Dioxide CO_2	% by volume 26.5
Methane CH_4	% by volume 32.6
Total VOCs	ppm 0.5

Sample ID	GP-13
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 0.1
Carbon Dioxide CO_2	% by volume 44
Methane CH_4	% by volume 55.5
Total VOCs	ppm 0.8

Sample ID	GP-15
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 18.2
Carbon Dioxide CO_2	% by volume 3.8
Methane CH_4	% by volume 5.5
Total VOCs	ppm 2.1

Sample ID	GP-12
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 0.2
Carbon Dioxide CO_2	% by volume 45
Methane CH_4	% by volume 54.6
Total VOCs	ppm 1.9

Sample ID	GP-3
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 0.5
Carbon Dioxide CO_2	% by volume 44.2
Methane CH_4	% by volume 55

Sample ID	GP-2
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 1.0
Carbon Dioxide CO_2	% by volume 43.2
Methane CH_4	% by volume 53.2

Sample ID	GP-14
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 1.0
Carbon Dioxide CO_2	% by volume 38.9
Methane CH_4	% by volume 58.2

Sample ID	GP-1
Sampled Date	08/23/2012
Constituent	Units
Oxygen O_2	% by volume 0.6
Carbon Dioxide CO_2	% by volume 45.6
Methane CH_4	% by volume 53.4
Total VOCs	ppm 4.5

- Geoprobe Locations (16)
- Monitoring Well Location (1)
- Property Boundary Line
- Parcel Line
- Estimated Waste Disposal Area Boundary
- Legal Easement
- Stormwater Basin
- Topographic Contours Contour Interval = 4 Feet
- 4.5 Gas Probe Screening Results

Notes:
All sample locations based on GPS derived coordinates and not surveyed by a licensed surveyor.
Only detected constituents are shown on map.

Source for Base Map: Allied Associates, P.A.
Source for Topographic Contours: NCDOT GIS LIDAR March 2007
NC State Plane NAD83 Feet

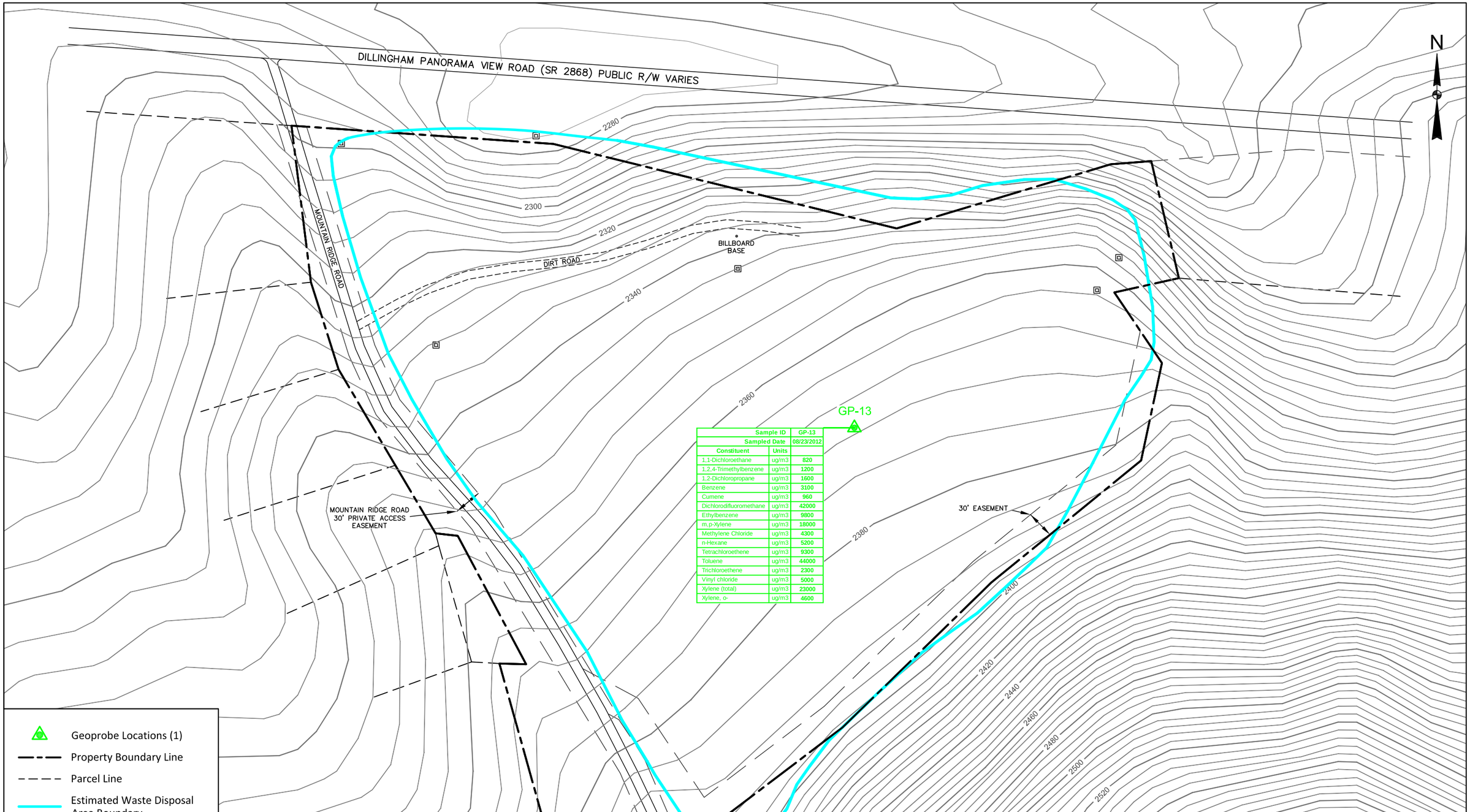
SCALE: 1"=100'
0 100' 200'

Schnabel ENGINEERING

DECEMBER 2012
NCD980557987
SWANNANOA, NORTH CAROLINA
TASK ORDER 7987DP-6

GAS PROBE SCREENING MAP

NOVEMBER 2012 FIGURE 3



Sample ID		GP-13
Sampled Date		08/23/2012
Constituent	Units	
1,1-Dichloroethane	ug/m3	820
1,2,4-Trimethylbenzene	ug/m3	1200
1,2-Dichloropropane	ug/m3	1600
Benzene	ug/m3	3100
Cumene	ug/m3	960
Dichlorodifluoromethane	ug/m3	42000
Ethylbenzene	ug/m3	9800
m,p-Xylene	ug/m3	18000
Methylene Chloride	ug/m3	4300
n-Hexane	ug/m3	5200
Tetrachloroethene	ug/m3	9300
Toluene	ug/m3	44000
Trichloroethene	ug/m3	2300
Vinyl chloride	ug/m3	5000
Xylene (total)	ug/m3	23000
Xylene, o-	ug/m3	4600

Geoprobe Locations (1)
Property Boundary Line
Parcel Line
Estimated Waste Disposal Area Boundary
Legal Easement
Stormwater Basin
Topographic Contours Contour Interval = 4 Feet
8200 Air Results

Notes:
All sample locations based on GPS derived coordinates and not surveyed by a licensed surveyor.
Only sampled locations shown on map.
Only detected constituents that exceed one or both of the IHSB Acceptable Soil-gas Concentration Carcinogenic Target Risk are shown on map.

Source for Base Map: Allied Associates, P.A.
Source for Topographic Contours: NCDOT GIS LIDAR March 2007
NC State Plane NAD83 Feet

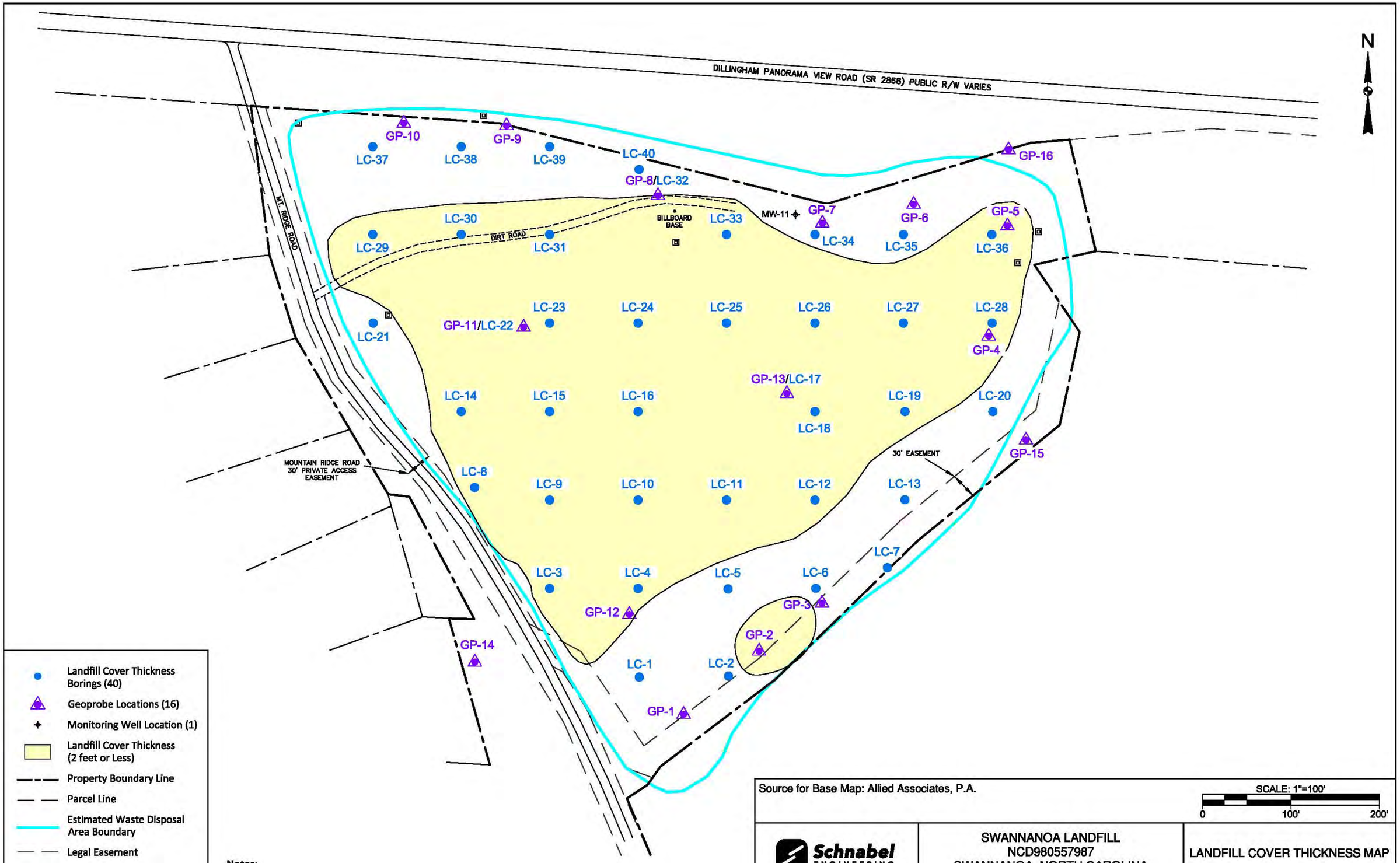
SCALE: 1"=100'
0 100' 200'

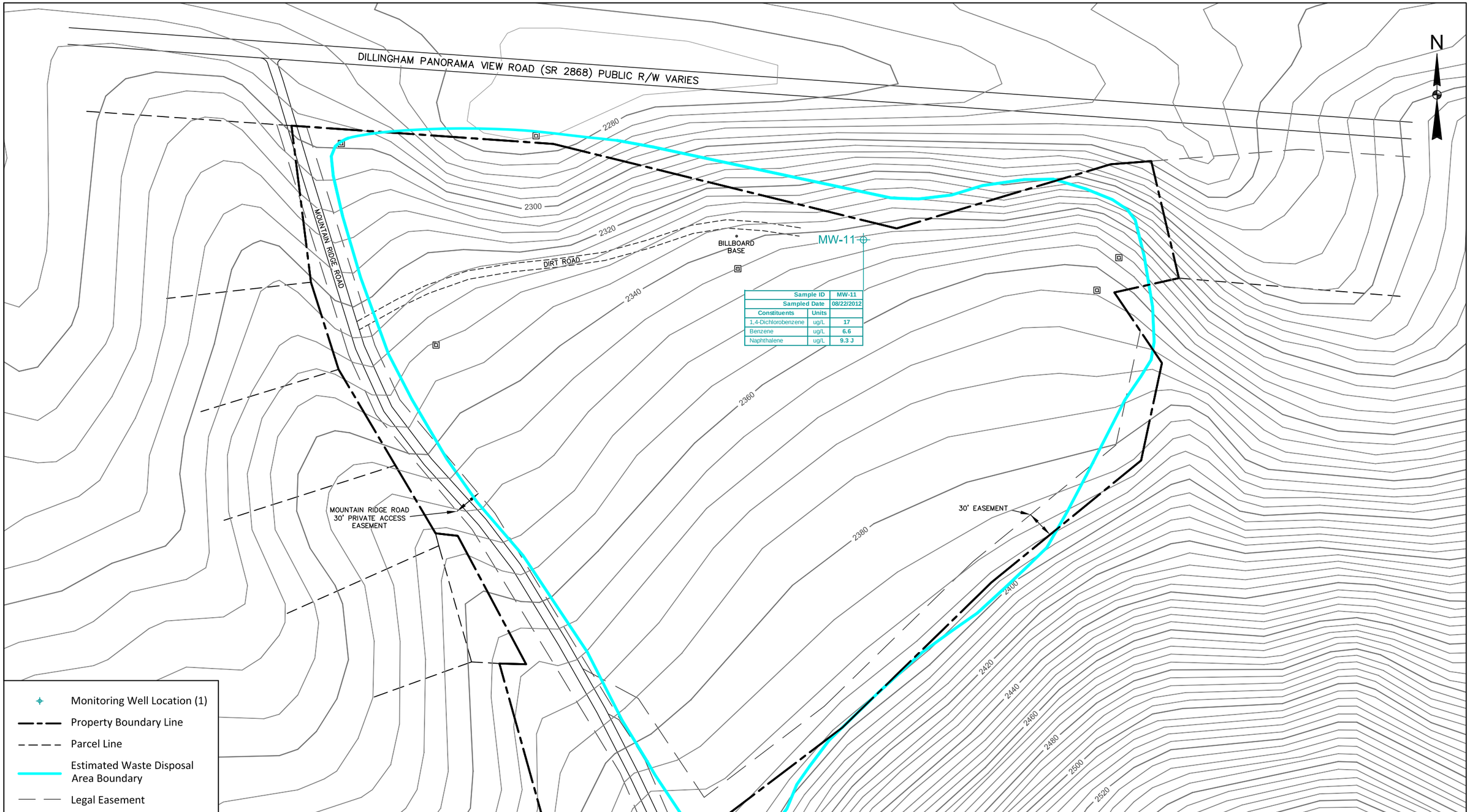
Schnabel ENGINEERING

SWANNANOA LANDFILL
NCD980557987
SWANNANOA, NORTH CAROLINA
TASK ORDER 7987DP-6

GAS PROBE SAMPLING MAP

DECEMBER 2012 FIGURE 4


N
DILLINGHAM PANORAMA VIEW ROAD (SR 2868) PUBLIC R/W VARIES
MT. RIDGE ROAD
DIRT ROAD
BILLBOARD BASE
MW-11
30' EASEMENT
MOUNTAIN RIDGE ROAD 30' PRIVATE ACCESS EASEMENT
GP-10
GP-9
GP-8/LC-32
GP-16
GP-7
GP-6
GP-5
GP-11/LC-22
GP-4
GP-13/LC-17
GP-15
GP-12
GP-3
GP-2
GP-14
GP-1
LC-37
LC-38
LC-39
LC-40
LC-30
LC-29
LC-31
LC-33
LC-34
LC-35
LC-36
LC-23
LC-24
LC-25
LC-26
LC-27
LC-28
LC-21
LC-14
LC-15
LC-16
LC-18
LC-19
LC-20
LC-8
LC-9
LC-10
LC-11
LC-12
LC-13
LC-7
LC-3
LC-4
LC-5
LC-6
LC-1
LC-2
Landfill Cover Thickness Borings (40)
Geoprobe Locations (16)
Monitoring Well Location (1)
Landfill Cover Thickness (2 feet or Less)
Property Boundary Line
Parcel Line
Estimated Waste Disposal Area Boundary
Legal Easement
Stormwater Basin
Notes:
All sample locations based on GPS derived coordinates and not surveyed by a licensed surveyor.
Source for Base Map: Allied Associates, P.A.
SCALE: 1"=100'
0
100'
200'
Schnabel ENGINEERING
SWANNANOA LANDFILL
NCD980557987
SWANNANOA, NORTH CAROLINA
TASK ORDER 7987DP-6
LANDFILL COVER THICKNESS MAP
DECEMBER 2012
FIGURE 5



Sample ID		MW-11
Sampled Date		08/22/2012
Constituents	Units	
1,4-Dichlorobenzene	ug/L	17
Benzene	ug/L	6.6
Naphthalene	ug/L	9.3 J

- Monitoring Well Location (1)
- Property Boundary Line
- Parcel Line
- Estimated Waste Disposal Area Boundary
- Legal Easement
- Stormwater Basin
- Topographic Contours Contour Interval = 4 Feet
- 17 Ground Water Results
- J All Laboratory Analytical Flags are defined in Tables

Notes:
All sample locations based on GPS derived coordinates and not surveyed by a licensed surveyor.
Only sampled locations shown on map.
Only detected constituents that exceed goals are shown on map.

Source for Base Map: Allied Associates, P.A.
Source for Topographic Contours: NCDOT GIS LIDAR March 2007
NC State Plane NAD83 Feet

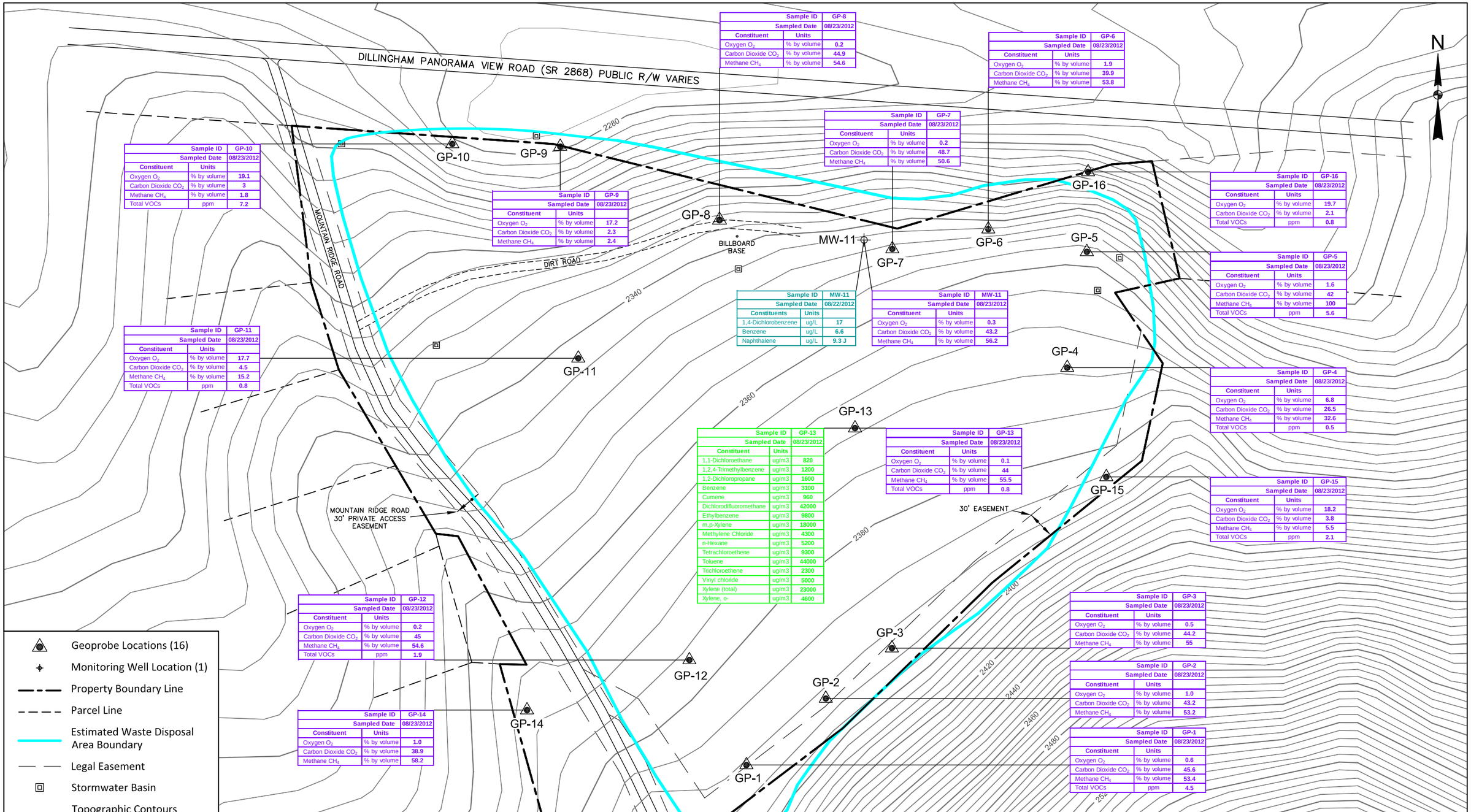
SCALE: 1"=100'
0 100' 200'

Schnabel ENGINEERING

SWANNANOA LANDFILL
NCD980557987
SWANNANOA, NORTH CAROLINA
TASK ORDER 7987DP-6

GROUND WATER CONCENTRATION MAP

DECEMBER 2012 FIGURE 6



Sample ID		GP-10
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	19.1
Carbon Dioxide CO_2	% by volume	3
Methane CH_4	% by volume	1.8
Total VOCs	ppm	7.2

Sample ID		GP-9
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	17.2
Carbon Dioxide CO_2	% by volume	2.3
Methane CH_4	% by volume	2.4

Sample ID		GP-8
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	0.2
Carbon Dioxide CO_2	% by volume	44.9
Methane CH_4	% by volume	54.6

Sample ID		GP-7
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	0.2
Carbon Dioxide CO_2	% by volume	48.7
Methane CH_4	% by volume	50.6

Sample ID		GP-6
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	1.9
Carbon Dioxide CO_2	% by volume	39.9
Methane CH_4	% by volume	53.8

Sample ID		GP-16
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	19.7
Carbon Dioxide CO_2	% by volume	2.1
Total VOCs	ppm	0.8

Sample ID		GP-5
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	1.6
Carbon Dioxide CO_2	% by volume	42
Methane CH_4	% by volume	100
Total VOCs	ppm	5.6

Sample ID		MW-11
Sampled Date		08/22/2012
Constituents	Units	
1,4-Dichlorobenzene	ug/L	17
Benzene	ug/L	6.6
Naphthalene	ug/L	9.3 J

Sample ID		MW-11
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	0.3
Carbon Dioxide CO_2	% by volume	43.2
Methane CH_4	% by volume	56.2

Sample ID		GP-11
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	17.7
Carbon Dioxide CO_2	% by volume	4.5
Methane CH_4	% by volume	15.2
Total VOCs	ppm	0.8

Sample ID		GP-4
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	6.8
Carbon Dioxide CO_2	% by volume	26.5
Methane CH_4	% by volume	32.6
Total VOCs	ppm	0.5

Sample ID		GP-13
Sampled Date		08/23/2012
Constituent	Units	
1,1-Dichloroethane	ug/m3	820
1,2,4-Trimethylbenzene	ug/m3	1200
1,2-Dichloropropane	ug/m3	1600
Benzene	ug/m3	3100
Cumene	ug/m3	960
Dichlorodifluoromethane	ug/m3	42000
Ethylbenzene	ug/m3	9800
m,p-Xylene	ug/m3	18000
Methylene Chloride	ug/m3	4300
n-Hexane	ug/m3	5200
Tetrachloroethene	ug/m3	9300
Toluene	ug/m3	44000
Trichloroethene	ug/m3	2300
Vinyl chloride	ug/m3	5000
Xylene (total)	ug/m3	23000
Xylene, o-	ug/m3	4600

Sample ID		GP-13
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	0.1
Carbon Dioxide CO_2	% by volume	44
Methane CH_4	% by volume	55.5
Total VOCs	ppm	0.8

Sample ID		GP-15
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	18.2
Carbon Dioxide CO_2	% by volume	3.8
Methane CH_4	% by volume	5.5
Total VOCs	ppm	2.1

Sample ID		GP-12
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	0.2
Carbon Dioxide CO_2	% by volume	45
Methane CH_4	% by volume	54.6
Total VOCs	ppm	1.9

Sample ID		GP-14
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	1.0
Carbon Dioxide CO_2	% by volume	38.9
Methane CH_4	% by volume	58.2

Sample ID		GP-3
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	0.5
Carbon Dioxide CO_2	% by volume	44.2
Methane CH_4	% by volume	55

Sample ID		GP-2
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	1.0
Carbon Dioxide CO_2	% by volume	43.2
Methane CH_4	% by volume	53.2

Sample ID		GP-1
Sampled Date		08/23/2012
Constituent	Units	
Oxygen O_2	% by volume	0.6
Carbon Dioxide CO_2	% by volume	45.6
Methane CH_4	% by volume	53.4
Total VOCs	ppm	4.5

Geoprobe Locations (16)

Monitoring Well Location (1)

Property Boundary Line

Parcel Line

Estimated Waste Disposal Area Boundary

Legal Easement

Stormwater Basin

Topographic Contours Contour Interval = 4 Feet

4.5 Gas Probe Screening Results

8200 Air Results

17 Ground Water Results

J All Laboratory Analytical Flags are defined in Tables

Notes:
All sample locations based on GPS derived coordinates and not surveyed by a licensed surveyor.
Only sampled locations shown on map.
Only detected constituents that exceed goals are shown on map.

Source for Base Map: Allied Associates, P.A.
Source for Topographic Contours: NCDOT GIS LIDAR March 2007
NC State Plane NAD83 Feet

SCALE: 1"=100'
0 100' 200'

Schnabel ENGINEERING

SWANNANOA LANDFILL
NCD980557987
SWANNANOA, NORTH CAROLINA
TASK ORDER 7987DP-6

CONTAMINANT SUMMARY MAP

DECEMBER 2012

FIGURE 7

Schnabel ENGINEERING — **GEO PROBE LOG**

Project: Swannanoa Landfill
Mt. Ridge Road
Swannanoa, North Carolina

Geo Probe Number: **GP-1/LC-1**
Contract Number: NCD980557987
Sheet: 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/20/12 **Finished:** 8/20/12

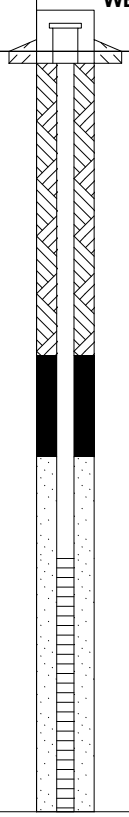
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 15.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.2	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 15 - 25% mica	ML						
4.6	SANDY SILT; moist, gray, estimated 5 - 10% mica, waste - fabric, glass, and wood	ML			5			
6.2	No recovery with direct push.							
					10			
15.0					15			



Bottom of Geo Probe at 15.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-2** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/20/12 **Finished:** 8/20/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil							
	SANDY SILT; moist, brown, estimated 5 - 10% mica	ML						
3.0								
3.5	SANDY SILT; estimated 15 - 25% mica	ML						
3.8		ML						
	SANDY SILT; moist, gray, estimated 15 - 25% mica, waste - fabric, glass, and wood. No recovery from 3.8 - 5				5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-3** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/20/12 **Finished:** 8/20/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
2.0	SANDY SILT; moist, gray, estimated 5 - 10% mica, waste - glass, insulation, and wood	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-4** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil							
	SANDY SILT; moist, brown, estimated 15 - 25% mica	ML						
2.0	SANDY SILT; moist, dark gray, estimated 5 - 10% mica, waste - insulation and flexible plastic.	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-5** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 15 - 25% mica	ML						
3.0	SANDY SILT; moist, gray, estimated 5 - 10% mica, waste - insulation, hard plastic, and flexible plastic.	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **GP-2/LC-6** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/20/12 **Finished:** 8/20/12

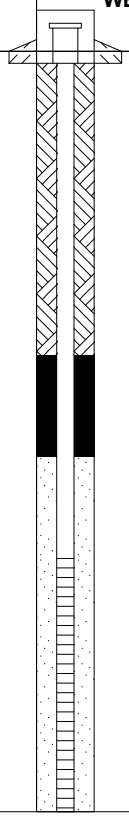
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 15.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.3	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
1.7	SANDY SILT; moist, gray, estimated 15 - 25% mica, waste - fabric, glass, hard plastic, flexible plastic, plastic sheeting, brick, rubber, foam, paper, and wood	ML			5 10 15			
15.0								



Bottom of Geo Probe at 15.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-7** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/20/12 **Finished:** 8/20/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
	SANDY SILT; moist, gray, estimated 15 - 25% mica	ML						
4.8		ML						
5.0	SANDY SILT; moist, dark gray, estimated 15 - 25% mica, waste - glass and wood				5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-8** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
	SANDY SILT; moist, brown, estimated 15 - 25% mica							
2.0	SANDY SILT; moist, light gray, estimated 5 - 10% mica, waste - insulation, styrofoam, and paper							
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number** GP-12/LC-9 **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

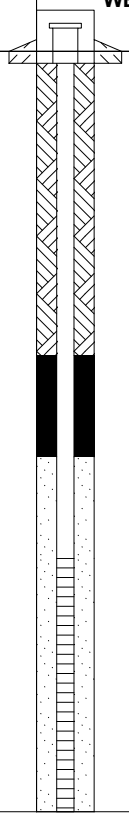
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 15.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.3	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
1.5	SANDY SILT; moist, light gray, estimated 5 - 10% mica, waste - glass syringes, rubber vial stoppers, plastic sheeting, paper, and brick	ML			5 10 15			
15.0								



Bottom of Geo Probe at 15.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-10** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
1.0	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
	SANDY SILT; moist, dark gray, estimated 15 - 25% mica, waste - brick, plastic sheeting, insulation, and glass	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-11** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 15 - 25% mica	ML						
2.0	SANDY SILT; moist, light gray, estimated 15 - 25% mica, waste - fabric, wood, and styrofoam	ML						
3.0	No recovery							
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-12** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Rootmat and topsoil							
1.5	SANDY SILT; moist, brown, estimated 15 - 25% mica	ML						
	SANDY SILT; moist, light gray, estimated 5 - 10% mica, waste - plastic sheeting, metal, and hard plastic	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING — **GEO PROBE LOG**

Project: Swannanoa Landfill
Mt. Ridge Road
Swannanoa, North Carolina

Geo Probe Number: GP-3/LC-13
Contract Number: NCD980557987
Sheet: 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/20/12 **Finished:** 8/20/12

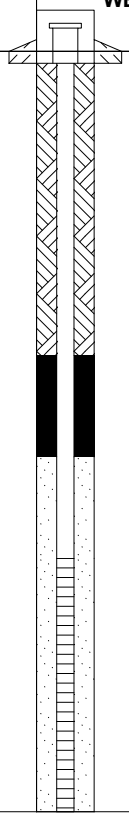
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 15.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.2	Rootmat and topsoil							
	SANDY SILT; moist, brown, estimated 15 - 25% mica	ML						
1.8	SANDY SILT; moist, gray, estimated 15 - 25% mica	ML						
4.5	SANDY SILT; moist, dark gray, estimated 5 - 10% mica, waste - insulation, fabric, paper, hard plastic, glass	ML			5			
10.0	No recovery				10			
15.0					15			



Bottom of Geo Probe at 15.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-14** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil							
1.0	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
	SANDY SILT; moist, gray, estimated 5 - 10% mica, waste - paper and plastic sheeting	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-15** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
1.5	SANDY SILT; moist, gray, estimated 15 - 25% mica, waste - hard plastic and steel wool	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-16** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
1.3	SANDY SILT; moist, brown, estimated 5 - 10% mica	ML						
	SANDY SILT; moist, light gray, estimated 5 - 10% mica, waste - glass and fabric	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	Project: Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	Geo Probe Number: GP-13/LC-17 Contract Number: NCD980557987 Sheet: 1 of 2

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

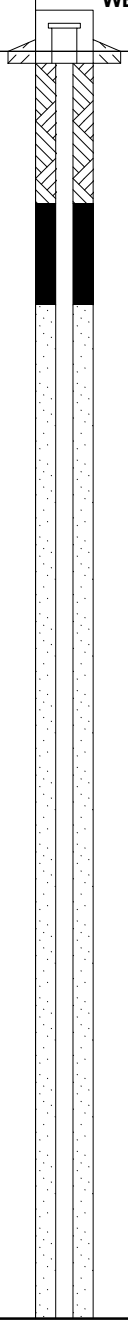
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 40.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.4	Rootmat and topsoil							
1.0	SANDY SILT; moist, brown, estimated 15 - 25% mica	ML						
	SANDY SILT WITH CLAY; moist, dark gray, Waste - fabric, plastic sheeting, hard plastic, metal, paper, particle board, carpet, newspaper.							
					5			
					10			
		ML						
					15			
					20			



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Schnabel ENGINEERING	GEO PROBE LOG	Project: Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	Geo Probe Number: GP-13/LC-17 Contract Number: NCD980557987 Sheet: 2 of 2

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
	SANDY SILT WITH CLAY; moist, dark gray, Waste - fabric, plastic sheeting, hard plastic, metal, paper, particle board, carpet, newspaper. *(continued)*	ML			30 35			
36.0	SILT; moist, light brown, estimated <5% mica, estimated <5% fine grained sand	ML						
40.0					40			

Bottom of Geo Probe at 40.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-18** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil							
	SANDY SILT; moist, brown, estimated 5 - 10% mica	ML						
2.0	SANDY SILT; moist, gray, estimated 15 - 25% mica, waste - glass and metal	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-19** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
	SANDY SILT; moist, brown, estimated 5 - 10% mica	ML						
2.5	SANDY SILT; moist, light gray, estimated 15 - 25% mica, waste - glass, plastic sheeting, and metal	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-20** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/20/12 **Finished:** 8/20/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
	SANDY SILT; moist, brown, estimated 15 - 25% mica	ML						
3.0	SANDY SILT; moist, gray, estimated 15 - 25% mica, waste - fabric, plastic sheeting, paper, fabric,and glass	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-21** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
2.5	SANDY SILT; moist, gray, estimated 15 - 25% mica, waste - plastic sheeting, wood, and metal	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	Project: Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	Geo Probe Number: **GP-11/LC-22** Contract Number: NCD980557987 Sheet: 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

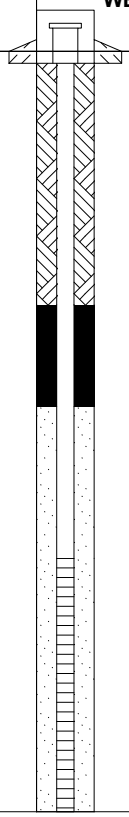
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 15.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.3	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
2.0	SANDY SILT; moist, gray, estimated 15 - 25% mica, waste - plastic sheeting, glass, styrofoam, and metal	ML			5			
					10			
15.0					15			



Bottom of Geo Probe at 15.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-23** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
1.0	SANDY SILT; moist, brown, estimated 5 - 10% mica	ML						
	SANDY SILT; moist, light gray, estimated 15 - 25% mica, waste - glass, plastic sheeting, wood chips, and metal	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-24** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
1.8	SANDY SILT; moist, gray, estimated 15 - 25% mica, waste - glass, flexible plastic, and metal	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-25** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
2.0	SANDY SILT; moist, gray, estimated 15 - 25% mica, waste - glass, plastic sheeting, wood chips, and metal	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-26** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
	SANDY SILT; moist, brown, estimated 5 - 10% mica	ML						
2.0	SANDY SILT; moist, gray, estimated 5 - 10% mica, waste - styrofoam and wood	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-27** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil	ML						
1.0	SANDY SILT; moist, light brown, estimated 5 - 10% mica	SW						
1.3	SILTY SAND, fine to coarse grained sand; moist, white	ML						
	SANDY SILT; moist, gray, estimated 15 - 25% mica, waste - plastic sheeting, paper, metal, and flexible plastic				5			
5.0								

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** GP-4/LC-28 **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/20/12 **Finished:** 8/20/12

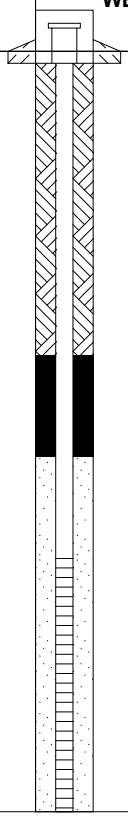
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 15.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.1	Rootmat and topsoil	ML						
0.7	SANDY SILT; moist, brown, estimated 15 - 25% mica							
	SANDY SILT; moist, gray, estimated 30 - 45% mica, waste - glass, wood, paper, gift wrap, and plastic sheeting.	ML			5			
6.2	POORLY GRADED SILTY SAND, medium to coarse grained sand; moist, white, estimated 5 - 10% mica, waste - glass, wood, paper, gift wrap, and plastic sheeting.	SP						
7.0	SILT; moist, greenish gray, estimated 30 - 45% mica, estimated <5% fine grained sand, waste - glass, wood, paper, gift wrap, and plastic sheeting.	ML			10			
12.5	POORLY GRADED SILTY SAND, medium to coarse grained sand; moist, white, estimated 5 - 10% mica, waste - glass, wood, paper, gift wrap, and plastic sheeting.	SP						
13.0	SILT; moist, greenish gray, estimated 30 - 45% mica, estimated <5% fine grained sand, waste - glass, wood, paper, gift wrap, and plastic sheeting.	ML			15			
15.0								



Bottom of Geo Probe at 15.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-29** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
1.0	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
	SANDY SILT; moist, light gray, estimated 5 - 10% mica, waste - glass, paper, and wood	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-30** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
1.0	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
	SANDY SILT; moist, light gray, estimated 5 - 10% mica, waste - plastic sheeting, glass, paper, and wood	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-31** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
1.0	SANDY SILT; moist, light brown, estimated 5 - 10% mica	ML						
	SANDY SILT; moist, light gray, estimated 5 - 10% mica, waste - glass, paper, and wood	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** GP-8/LC-32 **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

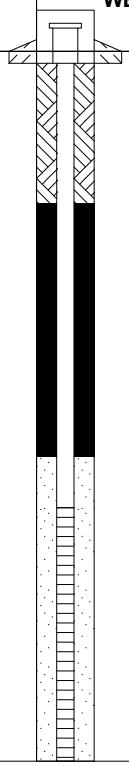
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 14.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.2	Rootmat and topsoil	FILL						
0.8	PROBABLE FILL, sampled as sandy lean clay with gravel; dry, red	ML						
1.5		SW						
2.0	SANDY SILT; moist, brown, estimated 5 - 10% mica							
	SILTY SAND, fine to medium grained sand; dry, white							
	SANDY SILT; moist, light gray, estimated 5 - 10% mica, waste - plastic sheeting, hard plastic, concrete, and wood	ML			5			
					10			
14.0								



Bottom of Geo Probe at 14.0 ft.
Auger refusal at 14.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-33** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
1.0	SANDY SILT; moist, brown, estimated 5 - 10% mica	ML						
	SANDY SILT; moist, light gray, estimated 5 - 10% mica, waste - plastic sheeting, glass, fabric, and wood	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** GP-7/LC-34 **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

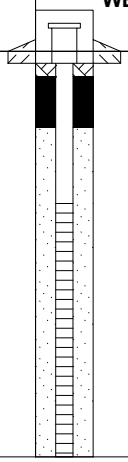
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 8.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.3	Forest litter, rootmat and topsoil							
1.5	SANDY SILT; moist, brown, estimated 15 - 25% mica							
	SANDY SILT; moist, gray, estimated <5% mica							
5.0	SANDY SILT; moist, gray, estimated <5% mica, waste - sawdust, wood chips, plastic sheeting, glass, cardboard, metal, and yarn				5			
8.0								



Bottom of Geo Probe at 8.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-35** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Rootmat and topsoil							
	SANDY SILT; moist, brown, estimated 5 - 10% mica	ML						
1.5	SANDY SILT; moist, gray, estimated 5 - 10% mica, waste - plastic sheeting, glass, and fabric	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** GP-5/LC-36 **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

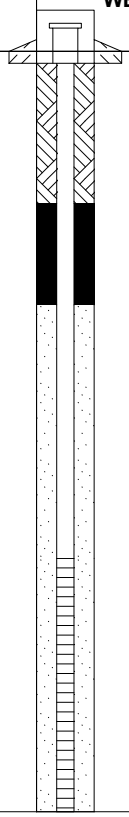
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 15.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.3	Forest litter, rootmat and topsoil							
1.0	SANDY SILT; moist, brown, estimated <5% mica	ML						
	SANDY SILT; moist, gray, estimated <5% mica, waste - paper, concrete, wood, carpet, and cardboard	ML			5			
7.0	No recovery.				10			
15.0					15			



Bottom of Geo Probe at 15.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** GP-10/LC-37 **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

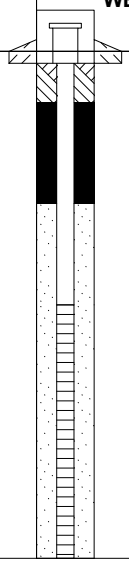
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 10.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.3	Forest litter, rootmat and topsoil	ML						
1.0	SANDY SILT; moist, light brown, estimated 15 - 25% mica							
	SANDY FAT CLAY; moist, light gray, estimated 15 - 25% mica	CH						
4.8	SANDY FAT CLAY; moist, light gray, estimated 15 - 25% mica, waste - plastic sheeting, fabric, and wood	CH			5			
10.0					10			



Bottom of Geo Probe at 10.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-38** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Forest litter, rootmat and topsoil							
	SANDY SILT; moist, dark gray, estimated 15 - 25% mica	ML						
3.0	SANDY SILT; moist, dark gray, estimated 15 - 25% mica, waste - plastic sheeting, glass, and wood.	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** GP-9/LC-39 **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

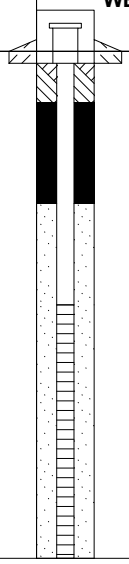
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 10.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.2	Forest litter, rootmat and topsoil							
	SANDY SAND; moist, brown, estimated 15 - 25% mica	ML						
3.0	SANDY SAND; moist, brown, estimated 15 - 25% mica, waste - plastic sheeting.							
		ML			5			
10.0					10			



Bottom of Geo Probe at 10.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **LC-40** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 5.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	Forest litter, rootmat and topsoil							
	SANDY SILT; moist, brown, estimated <5% mica	ML						
2.5	SANDY SAND; moist, dark gray, waste - plastic sheeting and glass	ML						
5.0					5			

Bottom of Geo Probe at 5.0 ft.
Boring terminated at selected depth.
Boring backfilled with cuttings upon completion.

Schnabel ENGINEERING	HAND AUGER LOG	Project: Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	Hand Auger Number: **GP-6** Contract Number: NCD980557987 Sheet: 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment:

Method: Hand Auger

Dates Started: 8/22/12 **Finished:** 8/22/12

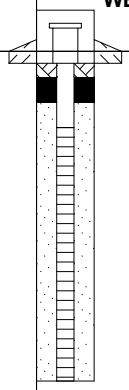
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 7.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.3	Forest litter, rootmat and topsoil							
	SANDY SILT; dry, light brown, estimated 15 - 25% mica	ML						
2.5	WASTE; moist, with silt							
		ML			5			
7.0								



Bottom of Hand Auger at 7.0 ft.
Auger refusal at 7.0 ft.
Boring terminated at auger refusal.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **GP-14** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/21/12 **Finished:** 8/21/12

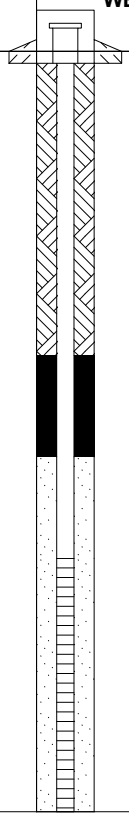
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 15.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.2	Rootmat and topsoil	ML						
1.0	SILT; dry, gray, trace sand, estimated 15 - 25% mica							
	SANDY SILT; moist, mottled red orange, estimated 30 - 45% mica	ML			5			
6.2	SILT; dry, mottled brownish orange with mottles of black, estimated 30 - 45% mica	PWR						
7.5	SILT; dry, gray, estimated 50 - 100% mica	ML						
8.5	SILT; dry, gray, trace sand, estimated 15 - 25% mica	ML			10			
15.0					15			



Bottom of Geo Probe at 15.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING	GEO PROBE LOG	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Geo Probe Number:** **GP-15** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment: Geoprobe 6620DT

Method: Direct Push,
Macrocore

Hammer Type:

Dates Started: 8/22/12 **Finished:** 8/22/12

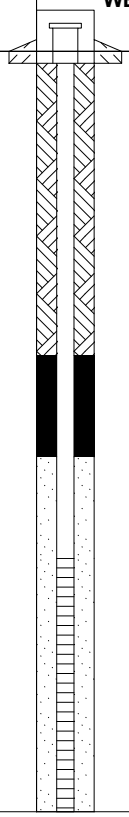
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 15.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.3	Forest litter, rootmat and topsoil							
	SANDY SILT; dry, light brown, estimated 15 - 25% mica	ML						
2.0	Change: Direct push refusal. Advanced boring using push point. No recovery. **REMARKS**: Direct push refusal. Switched to drive point.							
					5			
					10			
					15			



Bottom of Geo Probe at 15.0 ft.
Boring terminated at selected depth.
Temporary well installed upon completion.

Schnabel ENGINEERING **HAND AUGER LOG**	**Project:** Swannanoa Landfill Mt. Ridge Road Swannanoa, North Carolina	**Hand Auger Number:** **GP-16** **Contract Number:** NCD980557987 **Sheet:** 1 of 1

Contractor: Elite Techniques, Inc
Camden, South Carolina

Contractor Foreman: Dearal Rodgers

Schnabel Representative: M. Benchabbat

Equipment:

Method: Hand Auger

Dates Started: 8/22/12 **Finished:** 8/22/12

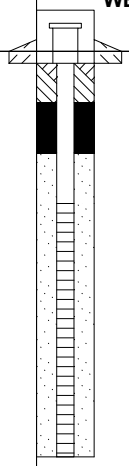
Location: See Location Plan

Ground Surface Elevation: **Total Depth:** 10.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	WELL
0.2	Forest litter, rootmat and topsoil							
	SANDY SILT; dry, light brown, estimated 5 - 10% mica	ML			5			
8.0	SANDY SILT WITH GRAVEL; dry, light brown, estimated 15 - 25% mica	ML						
10.0					10			



Bottom of Hand Auger at 10.0 ft.
Auger refusal at 10.0 ft.
Boring terminated at auger refusal.
Temporary well installed upon completion.

Schnabel ENGINEERING

DAILY FIELD REPORT FIELD FORM

Project:	SWANNANOA LANDFILL	**Date:**	8-20-12
Location:	SWANNANOA, NC	**Crew or Work Area:**	Benchabbat
Schnabel Project No.:	11619060.S1	**By:** MSB	**Date:** 8/20/12
Client Name:	NCDENR	**Checked:** MSB	**Date:** 9/5/12
Attachments:	logs / maps		

0830 - Benchabbat depart ~~site~~ MB G'boro office for site.
1100 - " arrive onsite w/ Elite Technologies
1210 - Mobilize to GP-1 MSB / LC-1
1250 - GP-1 MSB set @ 14.5'. fabric & plastic sheeting on SFA. ~~Se~~ 5' screen. Sand to 7.4' BGS. Bentonite to 5.4' BGS
1300 - LC-2. See log
1315 - Begin GP-2/LC-~~2~~. See log
1335 - Complete GP-2. Sand - 8' bgs. bentonite - 6' bgs
Waste from 1.6' BGS - 14' BGS
1340 - LC-7. See log. * Cover 4.5'
1400 - Begin GP-3 / LC-13. Waste begins 4.5' BGS. See Log.
Very hard layer @ 10' BGS. Set @ 15' BGS. Sand 8' BGS Bentonite 6' BGS
No recovery 10'-15'.
1430 - LC-20. See log.
1500 - Complete GP-4 15' BGS. 8' sand. 6' bentonite
1515 - LC-28. No waste. Offset. Waste 4.8' styrofoam & glass
1525 - LC-3. 2' cover. See log *
1545 - Benchabbat depart site. Drillers stay to finish installed GP's
1405 - Benchabbat arrive @ hotel

Onsite: M Benchabbat / Schnabel Eng.
D Rodgers & asst. / Elite Technologies

Schnabel ENGINEERING

DAILY FIELD REPORT FIELD FORM

(Page 1 of 2)

Project:	SWANNANOA LANDFILL	**Date:**	8-21-12
Location:	SWANNANOA, NC	**Crew or Work Area:**	Benchaslbat
Schnabel Project No.:	11619060.S1	**By:** MSB	**Date:** 8/21/12
Client Name:	NCDENR	**Checked:** MSB	**Date:** 9/5/12
Attachments:	log, Map		

0730 - Depart for Site
0745 - Arrive on site
0800 - Still having Trimble problems. ~~Begin LC-4.~~ MB
0830 - Begin LC-4. 2' waste
0840 - Begin LC-5 3' waste
0850 - Begin LC-12. 1.5' waste*. Plastic, Metal hard sheeting
0900 - Begin LC-11. Refusal @ 2.5' BGS. Offset 12". No recovery first hole. 2" cover. fabric, wood. Styrofoam. Only 3" recovery.
0910 - Begin LC-10. 1' cover. Brick, plastic, sheeting, insulation, glass
0920 - Begin GP-12/LC-9. 1.5' cover. Sand 1.5-1.7. Waste - brick, plastic sheeting, Medical waste, syringes, ~~top of~~ rubber vial stopper, plastic bags (8-10' BGS). Strong organic/fecal odor. paper. metal, hard plastic
GP-12 set @ 15' BGS. Sand to 8' BGS. Bentonite to 6' BGS
0950 - Begin LC-8. 2' cover. insulation, styrofoam, paper
1000 - Begin LC-14 - 1' cover. paper, plastic sheeting.
1005 - Begin LC-15 - 1.5' cover. steel wool, hard plastic. only 2.5' recovery
1015 - Begin LC-16. 16" cover. glass. fabric. only 2" recovery
GP-13/LC-17. Will put on steel protective casing. 1' cover. fabric, plastic sheeting, hard plastic, Refusal @ 5.5'. offset 12". papers, maybe legal dated 1971, 1976
carpet, newspaper, metal, particle board
No recovery 25-30' BGS b/c of fabric. Had to use a point to drill through.
Waste ends @ 36' BGS. Native soils from 36-40'
1205 - Screen 31'-36' BGS. Sand to 5' BGS. Bentonite to 3' BGS
MB
1320 - Begin LC-18 2' cover
1325 - Begin LC-19 2.5' cover
1335 - Begin LC-27 1' cover 4" sand.
1345 - Begin LC-26 2" cover
1350 - Begin LC-25' 2" cover

Schnabel ENGINEERING

DAILY FIELD REPORT FIELD FORM

(Continued)

Project:	SWANNANOA LANDFILL	**Date:**	8/21/12
Location:	SWANNANOA, NC	**Crew or Work Area:**	Benchabbat
Schnabel Project No.:	11619060.S1	**By:** MSB	**Date:** 8/21/12
Client Name:	NCDENR	**Checked:**	**Date:**
Attachments:			

1355 - Begin LC-24 20" Cover
1400 - Begin LC-23 12" cover
1410 - Begin GP-11 / LC-22 18" Cover. Water @ 11'
Off-Set 30' to NE. Likely a perched zone or the reported underground stream. 2' cover @ 2nd location.
Gasprobe set @ 15'. Sand to 7'. Bentonite to 5'
1500 - Begin LC-21. Cover 30"
1515 - Begin GP-14. Set @ 15' sand to 8'. bentonite to 6'
1545 - Benchabbat depart site
1420 - Benchabbat Arr @ hotel. Drillers stayed onsite to set permanent casings.

1hour follow-up paperwork in room.

MB

Persons onsite; Benchabbat, Rodgers, Chaz

Schnabel ENGINEERING

DAILY FIELD REPORT FIELD FORM

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Project:	SWANNANOA LANDFILL	**Date:**	8-22-12
Location:	SWANNANOA, NC	**Crew or Work Area:**	Benchabbat
Schnabel Project No.:	11619060.S1	**By:** MSB	**Date:** 8-22-12
Client Name:	NCDENR	**Checked:** MJB	**Date:** 8/23/12
Attachments:	logs, Maps		

0645 - Benchabbat onsite.
0705 - Drillers onsite.
0720 - Begin LC-29 Cover 1 foot
0730 - Begin LC-30 Cover 1'
0735 - Begin LC-31 Cover 1'
0745 - Begin GP-8/LC-32 Cover 2". Set @ 14' BGS MSB
Sand to 8'. Bentonite to 3' BGS.
0825 - Begin LC-33 Cover 1'
0835 Begin GP-7/LC-34. Cover 1.5' Terminated @ 15'
Very moist @ 13'. Left open to see if water comes in.
0905 - Begin LC-35 1.5' Cover
0915 - Begin GP-6/LC-36. Refusal @ 3'. Offset 2'. Cover 1'.
Set @ 5'. Sand to 5'. Bentonite to 3'
0945 - 5' water in GP-7. Abandoned hole. Redrilled. Terminated
@ 8' BGS Sand to 2' B-1'
1040 - Begin LC-38 - 3' cover.
1050 - Begin GP-10/LC-37. 4.8' cover. Very moist @ 10'. Set
probe @ 10'. No water. Sand to 3' BGS. Bentonite to 1'
1130 - Begin LC-40. 2.5' cover
1145 - Begin GP-9/LC-39. 3' Cover. Set probe @ 10' BGS.
Layer of waste @ 3' & 8.5' BGS. Very Moist @ 10'.
1000 - Raw1 onsite. Begins purging & Sampling MW-11

Didn't want to hit gw b/c of low elevation, so set probe GP-9
@ 10'. Screened in waste. Sand to 3'. Bentonite to 1'
1230 - Depart site for lunch / supplies
1315 - Back @ site. Begin locating probe locations w/
Trimble
1350 - Begin advancing GP-15. refusal @ 2' w/ Macrocore.
Switched to a point & drove to 15' BGS.
Sand to 8 B. to 6

Schnabel ENGINEERING

DAILY FIELD REPORT FIELD FORM

(Continued)

Project:	SWANNANOA LANDFILL	**Date:**	8/22/12
Location:	SWANNANOA, NC	**Crew or Work Area:**	Benchabbat / Rawl
Schnabel Project No.:	11619060.S1	**By:**	MSB
Client Name:	NCDENR	**Date:**	8/22/12
Attachments:	logs / Map	**Checked:**	
		Date:	

1525 - Begin GP-6 with hand auger. 7' refusal, waste from
MSB 2.5' - <7. Set @ 6.5' Sand to 1' 6" Bentonite. 6" grout
1610 - Begin GP-16. Hit rock / refusal @ 10
GP-16 set @ 8 Sand to 2.0. Bentonite to 1.0 BGS
1630 - Begin packing truck.
1700 - Benchabbat & Rawl depart site to take samples to FedEx
1800 - Arrival @ hotel

→ 1700 - Benchabbat stays onsite to talk to property owner while Rawl takes samples.

MSB

Persons onsite: Benchabbat, Rawl, Rodgers, Chas

Schnabel ENGINEERING

DAILY FIELD REPORT FIELD FORM

Project:	SWANNANOA LANDFILL	**Date:**	8·23·12
Location:	SWANNANOA, NC	**Crew or Work Area:**	Benchabbat / Rawl
Schnabel Project No.:	11619060.S1	**By:** MSB	**Date:** 8·23·12
Client Name:	NCDENR	**Checked:** MRG	**Date:** 8·24·12
Attachments:	logs / maps		

0730 - Benchabbat & Rawl onsite
0730 - Begin doing water well survey.
0930 - Begin setting up Summa canisters on GP-13.
0940 - Turn on canisters for GP-13 & Duplicate.
0950 - Begin screening gas probes
1025 - Turn off Summa canisters. Continue Air screening.
1300 - Go over site restoration w/ Elite techniques. Rawl & Benchabbat Depart Site.
1600 - Benchabbat in Greensboro to unload equipment.

MSB

Persons onsite: Benchabbat, Rawl, Rodgers, Chas

GAS PROBE
GAS PROBE
IDW STORAGE
INSTRUMENT

Schnabel ENGINEERING

EQUIPMENT CALIBRATION LOG FIELD FORM

Project: SWANNANOA LANDFILL
Location: SWANNANOA, NC
Schnabel Project No.: 11619060.S1
Client Name: NCDENR
Attachments:

Date: 8·22·12
By: MB **Date:** 8·22·12
Checked: MSB **Date:** 8/30/12
Log No: 1

Date	Time	Instrument	Serial Number	Calibrated	Checked
8/22/12	1000	451556	09B100823	yes	yes
8/22/12	1005	LAMOTTE 2020C	ME13162	yes	yes
8/23/12	0930	MGD2002 (leak detector)	041402	yes	yes
↓	0930	MiniRae 2000	110-013461	yes	yes
↓	0930	GEM 2000	gm 08087105	yes	yes

Comments: Calibrate all instruments according to manufacturers specifications. Bump test performed & successful. Temp @ time of calibration was 62° F & humidity was 93%

ISOBUTYLENE 100ppm - MiniRae - 99.2ppm
Helium - MGD2002 -
~~Methane~~ TNB

GAS PROBE SCREENING RECORD
GAS PROBE SAMPLING
NW SAMPLING
IDW STORAGE INVENTORY FORM
INSTRUMENT CALIBRATION LOG

Schnabel ENGINEERING — Gas Probe Screening Record

Project/Task # Swannanoa Landfill

Screening Date: 8-23 Screener: Benchabbat Signature: [signature]

Weather: 75° 62° sunny Barometric Pressure: Falling Rising (Steady) Wind Speed and Direction: <5 N

Instrument: MiniRae 2000 Instrument Serial Number: 110413461 Last Calibrated: _____

Instrument: Landtec 2000 Instrument Serial Number: gm08087105 Last Calibrated: _____

Instrument: _____ Instrument Serial Number: _____ Last Calibrated: _____

Gas Probe No.	Time	Barometric Pressure Reading (Hg)	Humidity	Oxygen (O_2)	Carbon Dioxide (CO_2)	Methane (CH_4) in %	Methane (CH_4) in % LEL	Hydrogen Sulfide (H_2S) in	Total VOCs (ppm)	Mercury (mg/m^3)
GP-1	0950	27.69	93%	0.6	45.6	53.4	NR	NR	4.5	NR
GP-2	1010	27.69	93%	1.0	43.2	53.2	NR	NR	0 ND	NR
GP-3	1015	27.69	93%	0.5	44.2	55.0	NR	NR	0	NR
GP-4	1020	27.69	93%	6.8	26.5	~~0.6~~ ND 32.6	NR	NR	3.5	NR
GP-5	1057	27.73	82%	1.6	46.0	>100	NR	NR	5.6	NR
GP-6	1054	27.73	82% 95%	1.9	39.9	53.8	NR	NR	0	NR
GP-7	1051	27.73	93%	0.2	48.7	50.6	NR	NR	0	NR
GP-8	1044	27.69	93%	0.2	44.9	54.6	NR	NR	0	NR
GP-9	1115	27.73	82%	17.2	2.3	2.4	NR	NR	0	NR
GP-11	1005	27.69	93%	17.7	4.5	15.2	NR	NR	0.8	NR
GP-10	1111	27.73	82%	19.1	3.0	1.8	NR	NR	7.2	NR
GP-12	1000	27.69	93%	0.2	45.0	54.6	NR	NR	1.9	NR
GP-13	1030	27.69	93%	0.01	44.0	55.5	NR	NR	0.8	NR
GP-14	1037	27.69	93%	1.0	38.9	58.2	NR	NR	0	NR
GP-15	1017	27.69	93%	18.2	3.8	5.5	NR	NR	2.1	NR
GP-16	1122	27.73	82%	19.9	2.1	0	NR	NR	0.8	NR
							NR	NR		NR
MW-1	1102	27.73	82%	0.3	43.2	56.2	NR	NR	0	NR
							NR	NR		NR
							NR	NR		NR
							NR	NR		NR
							NR	NR		NR
							NR	NR		NR
							NR	NR		NR
							NR	NR		NR
							NR	NR		NR
							NR	NR		NR
							NR	NR		NR
							NR	NR		NR
							NR	NR		NR

Page 1 of 1

Notes: NR = Not recorded

Air flowing out of GP-13 is high. Caused whistling when trying to put cap back on. Can feel air flow with hand on GP-1 through 4, 11, 12 & 7.

Schnabel ENGINEERING

GAS PROBE SAMPLING FIELD FORM

Project:	Swannanoa Landfill	**Crew:**	**Benchabbat and Rawl**		
Location:	Swannanoa, NC	**Date:**	8·23·12		
Schnabel Project No.:	11619060.S1	**By:**	Benchabbat	**Date:**	8·23·12
Client Name:	**NCDENR**	**Checked:**	[illegible]	**Date:**	9/5/12

Sampling Information

Gas Probe	Glass Tube (yes or no)	Tube Start Time	Tube Stop Time	Flow Rate m3/min or L/min		Summa Can (yes or no)	Can Start Time	Can Stop Time	Initial Pressure	Final Pressure	Summa Canister ID	Flow controller ID	Comments
GP-13	NO	NA	NA	NA		yes	0940	1025	-23	-4	3037	3840	
DUP-2	NO	NA	NA	NA		yes	0940	1025	-30	-8	2844	3114	

Supplemental Comments:

IDW STORAGE

SAMPLING GAS PROBE

Schnabel ENGINEERING

MONITORING WELL SAMPLING FIELD FORM

Project:	Swannanoa Landfill	**Well ID:**	MW-11
Location:	Swannanoa, NC	**Date:**	8·22·12
Schnabel Project No.:	11619060.S1	**Time Started:** 1105	**Time Ended:** 1230
Client Name:	NCDENR	**Weather Conditions:**	75° sunny
Field Personn	Benchabbat/Rawl	**Checked By:** MSB	**Date:** 8/30/12

Water Level measured from TOC (d_{swl}, feet):	18.15	Riser Pipe Diameter (r_c, inches):	2
Well Depth measured from TOC (d_w, feet):	20.28	Well Volume (gal) $V=0.041\ (r_c)^2\ (d_w-d_{swl})$:	0.35
Screened Interval from TOC (feet):	10 - 20	Note: TOC = Top of Open Riser Pipe	

Comments on Well Condition (riser pipe type, outer casing, lock, etc):

Purge Information

Purging Method: (put an **X** by one)	___Stainless Steel Bailer X Peristalic Pump ___ Grundfos Pump ___ Teflon Bailer ___Polyethylene Bailer ___ Bladder Pump ___ DC Pump ___ Other: Turb.-LaMotte ME 13162		
Purge Equipment/Serial No:	Pump #2	Monitoring Instrument/Serial No:	Y51556 / 09B100823
Purge Flow Rate (gpm):	0.12	Well Purged Dry (circle one):	Yes or No

Test Information	Initial	Test 1	Test 2	Test 3	Test 4	Test 5
Time (hr:min)	1105			1130		
Cumulative Volume Purged (gal)	NA			time of sample		
Water Level (ft from TOC) After Purging	18.15	Dry after 1st Volume		18.31		
Temperature (°C)	15.4			15.2		
pH (s.u.)	5.17			7.63		
Sheen/Color	cloudy			clear		
Odor	Yes- Waste			Waste		
Conductivity (µS/cm)	2255			2184		
Dissolved Oxygen (mg/L)	NR	NR	NR	NR	NR	NR
Redox (ORP)	NR	NR	NR	NR	NR	NR
Turbidity (NTU)	48.6			4.17		

Note: Fill in columns as appropriate based on project requirements. NR = Not Recorded; NA = Not Applicable.

Comments: Allowed to recharge for sampling. Turbidity @ time of metals sampling was 4.17

Sampling Information

Date: 8/22/12	Time Sampled: 1130	Field Personnel: Rawl / Benchabbat
Sampling Method: (put an **X** by one)	___Stainless Steel Bailer X Peristalic Pump ___ Grundfos Pump ___ Teflon Bailer ___Polyethylene Bailer ___ Bladder Pump ___ DC Pump ___ Other:	
QA/QC Samples Taken:	Yes - DUP-1 11:30	Sampling Flow Rate (gpm): 0.1
Turbidity Reduction Procedure (list type or none):	None	Field Filter Size: NA
Purge and Wait Time (hr:min):	25 min	Inorganic Decant Time (hr:min): NA

Comments:

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, Inc.
29 Washington Avenue, Unit A
Scarborough, ME 04074
Toll-free: (888) 779-PINE (7463)

Pine Environmental Services, Inc.

Instrument ID 10419
Description MINI RAE 2000
Calibrated 8/16/2012

Manufacturer Rae Systems
Model Number PGM7600
Serial Number/ Lot Number 110-013461
Location Maine
Department

State Certified
Status Pass
Temp °C 22
Humidity % 50

Calibration Specifications

Group # 1
Group Name Isobutylene
Stated Accy Pct of Reading

Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
100.00 / 100.00	PPM	100.00	PPM	100.00	100.00	0.00%	Pass

Test Instruments Used During the Calibration (As Of Cal Entry Date)

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
NC ISO 100 PPM 34L	NJ ISO 100 PPM 34L	American Gas Group	GP 11012	Lot 0207FF12		3/31/2016
NC ZERO AIR LOT 25111 2-14	NC Zero Air	Spec Air		025111		2/28/2014

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Andrew Briley

All instruments are calibrated by Pine Environmental Services, Inc. according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services, Inc. of any defect within 24 hours of receipt of equipment
Please call 866-960-7463 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, Inc.

92 North Main St, Building 20
Windsor, NJ 08561
Toll-free: (800) 301-9663

Pine Environmental Services, Inc.

Instrument ID 15768
Description Radiodetection MGD-2002 Multi-Gas Leak Locator
Calibrated 6/20/2012

Manufacturer	Radiodetection	**State Certified**	
Model Number	MGD-2002	**Status**	Pass
Serial Number/ Lot Number	041402	**Temp °C**	26
Location	New Jersey	**Humidity %**	47
Department			

Calibration Specifications

Group # 1
Group Name
Test Performed: Yes **As Found Result: Pass** **As Left Result: Pass**

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
NJ HELIUM UHP - 42016-01	NJ Helium Ultra High Purity	Spec Air		42016-01		1/1/2015

Notes about this calibration

Calibration Result Calibration Successful
Who Calibrated Juan Hernandez

All instruments are calibrated by Pine Environmental Services, Inc. according to the manufacturer's specifications, but it is the customer's responsibility to calibrate and maintain this unit in accordance with the manufacturer's specifications and/or the customer's own specific needs.

Notify Pine Environmental Services, Inc. of any defect within 24 hours of receipt of equipment
Please call 866-960-7463 for Technical Assistance

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, Inc.

8411 Garvey Drive, Suite 113
Raleigh, NC 27614
Toll-free: (866) 646-PINE (7463)

Pine Environmental Services, Inc.

Instrument ID 7224
Description Gem 2000
Calibrated 8/16/2012

Manufacturer CES Landtec
Model Number GEM2000
Serial Number/ Lot Number gm08087105
Location North Carolina
Department

State Certified
Status Pass
Temp °C 22
Humidity % 50

Calibration Specifications

Group # 1
Group Name Methane
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
50.00 / 50.00	%Volume	50.00	%Volume	50.00	50.00	0.00%	Pass

Group # 2
Group Name Carbon Dioxide
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
35.00 / 35.00	%Volume	35.00	%Volume	35.00	35.00	0.00%	Pass

Group # 3
Group Name Oxygen
Stated Accy Pct of Reading
Range Acc % 0.0000
Reading Acc % 3.0000
Plus/Minus 0.00

Nom In Val / In Val	In Type	Out Val	Out Type	Fnd As	Lft As	Dev%	Pass/Fail
20.90 / 20.90	%	20.90	%	20.90	20.90	0.00%	Pass

Test Instruments Used During the Calibration **(As Of Cal Entry Date)**

Test Standard ID	Description	Manufacturer	Model Number	Serial Number / Lot Number	Last Cal Date/ Opened Date	Next Cal Date / Expiration Date
NC 50 CH4/35 CO2 LOT 40298-05	NC 50 CH4/35 CO2	Spec Air	GP 12115	40298-05		10/31/2013
NC ZERO AIR LOT 25111 2-14	NC Zero Air	Spec Air		025111		2/28/2014

Notes about this calibration

INSTRUMENT CALIBRATION REPORT

Pine Environmental Services, Inc.

8411 Garvey Drive, Suite 113
Raleigh, NC 27614
Toll-free: (866) 646-PINE (7463)

Pine Environmental Services, Inc.

Instrument ID 7224
Description Gem 2000
Calibrated 8/16/2012

Calibration Result Calibration Successful
Who Calibrated Andrew Briley

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Please call 866-960-7463 for Technical Assistance

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-82259-1
Client Project/Site: Swannanoa LF NCD 980557987
Revision: 1

For:
Schnabel Engineering
104 Corporate Blvd., Suite 420
W. Columbia, South Carolina 29169

Attn: Ms. Misti Benchabbat

Authorized for release by:
10/18/2012 3:06:08 PM

Lidya Gulizia
Project Manager II
lidya.gulizia@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 680-82259-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Schnabel Engineering

Project: Swannanoa LF NCD 980557987

Report Number: 680-82259-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

The following acronyms are used in reporting tentatively identified compound (TIC) results and these are defined as follows:

RT - Retention Time (in minutes)
Dil Fac - Dilution Factor
D - Dilution

RECEIPT
The samples were received on 08/23/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 4.2 C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)
Samples MW-11 (680-82259-1), Dup-1 (680-82259-2) and TRIP BLANK (680-82259-3) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 09/01/2012 and 09/04/2012.

The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for batch 248593 exceeded control limits for the following analytes: methyl acetate. This analytes was biased high in both the LCS and LCSD but were not detected in the associated samples; therefore, the data has been reported.

No other difficulties were encountered during the volatiles analyses.

All other quality control parameters were within the acceptance limits.

SEMIVOLATILE ORGANIC COMPOUNDS (AQUEOUS)
Samples MW-11 (680-82259-1) and Dup-1 (680-82259-2) were analyzed for Semivolatile Organic Compounds (Aqueous) in accordance with EPA SW-846 Method 8270D. The samples were prepared on 08/24/2012 and analyzed on 08/28/2012.

A full list spike was utilized for this method. Due to the large number of spiked analytes, there is a high probability that one or more analytes will recover outside acceptance limits. The laboratory's SOP allows for 4 analytes to recover outside criteria for this method when a full list spike is utilized. The LCS associated with batch 247628 had 1 analyte outside control limits; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for batch 247628 was outside control limits. The associated

Job ID: 680-82259-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

laboratory control sample (LCS) recovery met acceptance criteria.

The following analytes have been identified, in the reference method and/or via historical data, to be poor and/or erratic performers: Famphur, 1,4-Napthaquinone, Methane sulfonate, Benzaldehyde, 1-naphthylamine, 2-naphthylamine, p-Dimethylamino azobenzene, p-phenylenediamine, a,a-dimethylphenethylamine, Methapyriline, 2-picoline (2-methylpyridine), 3,3'-dimethylbenzidine, 3,3'-dichlorobenzidine, Benzidine, Benzaldehyde, Benzoic acid, Dinoseb, Hexachlorophene, Hexachlorocyclopentadiene, o,o,o-triethylphosphoro-thioate. These analytes may have a %D >60% if the average %D of all the analytes in the continuing calibration verification (CCV) is 30%.

No other difficulties were encountered during the semivolatiles analyses.

All other quality control parameters were within the acceptance limits.

METALS (ICPMS)

Samples MW-11 (680-82259-1) and Dup-1 (680-82259-2) were analyzed for Metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 08/23/2012 and analyzed on 08/24/2012.

The method blank for preparation batch 247589 contained Nickel above 1/2 of the reporting limit (RL). The associated sample(s) contained detects for this analyte at concentrations greater than 10X the value found in the method blank; therefore, re-extraction and/or re-analysis of samples was not performed.

No other difficulties were encountered during the metals analyses.

All other quality control parameters were within the acceptance limits.

HEXAVALENT CHROMIUM

Samples MW-11 (680-82259-1) and Dup-1 (680-82259-2) were analyzed for hexavalent chromium in accordance with EPA SW-846 Method 7196A. The samples were analyzed on 08/23/2012.

To verify the absence of an interference, EPA Method 7196A requires the sample to be diluted until the matrix spike (MS) recovery is within 85-115%. For this reason, the following sample were diluted: Dup-1 (680-82259-2), MW-11 (680-82259-1). Elevated reporting limits (RLs) are provided.

The following sample(s) required a dilution which was performed outside of the analytical holding time: Dup-1 (680-82259-2), MW-11 (680-82259-1). Both sets of data are provided.

No difficulties were encountered during the hexavalent chromium analyses.

All quality control parameters were within the acceptance limits.

No analytical or quality issues were noted.

Sample Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-82259-1	MW-11	Water	08/22/12 11:30	08/23/12 09:53
680-82259-2	Dup-1	Water	08/22/12 11:30	08/23/12 09:53
680-82259-3	TRIP BLANK	Water	08/22/12 00:00	08/23/12 09:53

Method Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SAV
6020A	Metals (ICP/MS)	SW846	TAL SAV
7196A	Chromium, Hexavalent	SW846	TAL SAV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD exceeds the control limits

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD exceeds the control limits
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits
E	Result exceeded calibration range.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
F	MS or MSD exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Client Sample ID: MW-11 — Lab Sample ID: 680-82259-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	6.2	J	25	5.0	ug/L	1		8260B	Total/NA
Benzene	6.6		1.0	0.25	ug/L	1		8260B	Total/NA
Chlorobenzene	20		1.0	0.25	ug/L	1		8260B	Total/NA
Chloroethane	3.5		1.0	1.0	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.15	J	1.0	0.15	ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	3.0		1.0	0.21	ug/L	1		8260B	Total/NA
1,3-Dichlorobenzene	5.8		1.0	0.25	ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	17		1.0	0.28	ug/L	1		8260B	Total/NA
1,2-Dichloropropane	0.28	J	1.0	0.13	ug/L	1		8260B	Total/NA
Ethylbenzene	42		1.0	0.11	ug/L	1		8260B	Total/NA
Isopropylbenzene	1.7		1.0	0.10	ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	0.85	J	10	0.20	ug/L	1		8260B	Total/NA
m-Xylene & p-Xylene	40		2.0	0.20	ug/L	1		8260B	Total/NA
o-Xylene	2.8		1.0	0.25	ug/L	1		8260B	Total/NA
Styrene	0.27	J	1.0	0.11	ug/L	1		8260B	Total/NA
Toluene	1.2		1.0	0.33	ug/L	1		8260B	Total/NA
1,2,4-Trichlorobenzene	0.33	J	1.0	0.25	ug/L	1		8260B	Total/NA
Trichloroethene	0.16	J	1.0	0.13	ug/L	1		8260B	Total/NA
Benzaldehyde	1.9	J	9.9	1.1	ug/L	1		8270D	Total/NA
Caprolactam	45		9.9	0.78	ug/L	1		8270D	Total/NA
Diethyl phthalate	34		9.9	0.87	ug/L	1		8270D	Total/NA
2-Methylnaphthalene	3.2	J	9.9	0.77	ug/L	1		8270D	Total/NA
3 & 4 Methylphenol	2.1	J	9.9	1.3	ug/L	1		8270D	Total/NA
Naphthalene	9.3	J	9.9	0.70	ug/L	1		8270D	Total/NA
Nickel	35	B	1.0	0.40	ug/L	1		6020A	Total/NA

Client Sample ID: Dup-1 — Lab Sample ID: 680-82259-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	5.6	J	25	5.0	ug/L	1		8260B	Total/NA
Benzene	6.3		1.0	0.25	ug/L	1		8260B	Total/NA
Chlorobenzene	20		1.0	0.25	ug/L	1		8260B	Total/NA
Chloroethane	3.5		1.0	1.0	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.15	J	1.0	0.15	ug/L	1		8260B	Total/NA
Cyclohexane	0.29	J	1.0	0.25	ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	2.7		1.0	0.21	ug/L	1		8260B	Total/NA
1,3-Dichlorobenzene	5.6		1.0	0.25	ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	17		1.0	0.28	ug/L	1		8260B	Total/NA
1,2-Dichloropropane	0.29	J	1.0	0.13	ug/L	1		8260B	Total/NA
Ethylbenzene	40		1.0	0.11	ug/L	1		8260B	Total/NA
Isopropylbenzene	1.6		1.0	0.10	ug/L	1		8260B	Total/NA
Methyl tert-butyl ether	0.84	J	10	0.20	ug/L	1		8260B	Total/NA
m-Xylene & p-Xylene	37		2.0	0.20	ug/L	1		8260B	Total/NA
o-Xylene	2.6		1.0	0.25	ug/L	1		8260B	Total/NA
Styrene	0.28	J	1.0	0.11	ug/L	1		8260B	Total/NA
Toluene	1.1		1.0	0.33	ug/L	1		8260B	Total/NA
1,2,4-Trichlorobenzene	0.38	J	1.0	0.25	ug/L	1		8260B	Total/NA
Trichloroethene	0.14	J	1.0	0.13	ug/L	1		8260B	Total/NA
Benzaldehyde	2.3	J	9.6	1.1	ug/L	1		8270D	Total/NA
1,1'-Biphenyl	0.58	J	9.6	0.55	ug/L	1		8270D	Total/NA
Caprolactam	41		9.6	0.76	ug/L	1		8270D	Total/NA
Diethyl phthalate	41		9.6	0.84	ug/L	1		8270D	Total/NA
2-Methylnaphthalene	4.1	J	9.6	0.75	ug/L	1		8270D	Total/NA

Detection Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Client Sample ID: Dup-1 (Continued) — Lab Sample ID: 680-82259-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
3 & 4 Methylphenol	2.1	J	9.6	1.2	ug/L	1		8270D	Total/NA
Naphthalene	12		9.6	0.67	ug/L	1		8270D	Total/NA
Nickel	36	B	1.0	0.40	ug/L	1		6020A	Total/NA

Client Sample ID: TRIP BLANK — Lab Sample ID: 680-82259-3

No Detections

Client Sample Results

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Client Sample ID: MW-11

Date Collected: 08/22/12 11:30
Date Received: 08/23/12 09:53

Lab Sample ID: 680-82259-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**6.2**	**J**	25	5.0	ug/L			09/04/12 15:08	1
Benzene	**6.6**		1.0	0.25	ug/L			09/04/12 15:08	1
Bromochloromethane	ND		1.0	0.14	ug/L			09/04/12 15:08	1
Bromodichloromethane	ND		1.0	0.25	ug/L			09/04/12 15:08	1
Bromoform	ND		1.0	0.50	ug/L			09/04/12 15:08	1
Bromomethane	ND		1.0	0.80	ug/L			09/04/12 15:08	1
2-Butanone	ND		10	1.0	ug/L			09/04/12 15:08	1
Carbon disulfide	ND		2.0	0.60	ug/L			09/04/12 15:08	1
Carbon tetrachloride	ND		1.0	0.50	ug/L			09/04/12 15:08	1
Chlorobenzene	**20**		1.0	0.25	ug/L			09/04/12 15:08	1
Chloroethane	**3.5**		1.0	1.0	ug/L			09/04/12 15:08	1
Chloroform	ND		1.0	0.14	ug/L			09/04/12 15:08	1
Chloromethane	ND		1.0	0.33	ug/L			09/04/12 15:08	1
cis-1,2-Dichloroethene	**0.15**	**J**	1.0	0.15	ug/L			09/04/12 15:08	1
cis-1,3-Dichloropropene	ND		1.0	0.11	ug/L			09/04/12 15:08	1
Cyclohexane	ND		1.0	0.25	ug/L			09/04/12 15:08	1
Dibromochloromethane	ND		1.0	0.10	ug/L			09/04/12 15:08	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.44	ug/L			09/04/12 15:08	1
1,2-Dibromoethane	ND		1.0	0.25	ug/L			09/04/12 15:08	1
1,2-Dichlorobenzene	**3.0**		1.0	0.21	ug/L			09/04/12 15:08	1
1,3-Dichlorobenzene	**5.8**		1.0	0.25	ug/L			09/04/12 15:08	1
1,4-Dichlorobenzene	**17**		1.0	0.28	ug/L			09/04/12 15:08	1
Dichlorodifluoromethane	ND		1.0	0.25	ug/L			09/04/12 15:08	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			09/04/12 15:08	1
1,2-Dichloroethane	ND		1.0	0.10	ug/L			09/04/12 15:08	1
1,1-Dichloroethene	ND		1.0	0.11	ug/L			09/04/12 15:08	1
1,2-Dichloropropane	**0.28**	**J**	1.0	0.13	ug/L			09/04/12 15:08	1
1,4-Dioxane	ND		50	50	ug/L			09/04/12 15:08	1
Ethylbenzene	**42**		1.0	0.11	ug/L			09/04/12 15:08	1
2-Hexanone	ND		10	1.0	ug/L			09/04/12 15:08	1
Isopropylbenzene	**1.7**		1.0	0.10	ug/L			09/04/12 15:08	1
Methyl acetate	ND	*	1.0	0.19	ug/L			09/04/12 15:08	1
Methylcyclohexane	ND		1.0	0.10	ug/L			09/04/12 15:08	1
Methylene Chloride	ND		5.0	1.0	ug/L			09/04/12 15:08	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			09/04/12 15:08	1
Methyl tert-butyl ether	**0.85**	**J**	10	0.20	ug/L			09/04/12 15:08	1
m-Xylene & p-Xylene	**40**		2.0	0.20	ug/L			09/04/12 15:08	1
o-Xylene	**2.8**		1.0	0.25	ug/L			09/04/12 15:08	1
Styrene	**0.27**	**J**	1.0	0.11	ug/L			09/04/12 15:08	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.18	ug/L			09/04/12 15:08	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/04/12 15:08	1
Toluene	**1.2**		1.0	0.33	ug/L			09/04/12 15:08	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			09/04/12 15:08	1
trans-1,3-Dichloropropene	ND		1.0	0.21	ug/L			09/04/12 15:08	1
1,2,3-Trichlorobenzene	ND		1.0	0.35	ug/L			09/04/12 15:08	1
1,2,4-Trichlorobenzene	**0.33**	**J**	1.0	0.25	ug/L			09/04/12 15:08	1
1,1,1-Trichloroethane	ND		1.0	0.50	ug/L			09/04/12 15:08	1
1,1,2-Trichloroethane	ND		1.0	0.13	ug/L			09/04/12 15:08	1
Trichloroethene	**0.16**	**J**	1.0	0.13	ug/L			09/04/12 15:08	1
Trichlorofluoromethane	ND		1.0	0.25	ug/L			09/04/12 15:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.50	ug/L			09/04/12 15:08	1

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Client Sample ID: MW-11

Date Collected: 08/22/12 11:30
Date Received: 08/23/12 09:53

Lab Sample ID: 680-82259-1

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		1.0	0.18	ug/L			09/04/12 15:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*70 - 130*		*09/04/12 15:08*	*1*
Dibromofluoromethane	*105*		*70 - 130*		*09/04/12 15:08*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*09/04/12 15:08*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		9.9	0.76	ug/L		08/24/12 16:11	08/28/12 21:15	1
Acenaphthylene	ND		9.9	0.84	ug/L		08/24/12 16:11	08/28/12 21:15	1
Acetophenone	ND		9.9	0.57	ug/L		08/24/12 16:11	08/28/12 21:15	1
Anthracene	ND		9.9	0.69	ug/L		08/24/12 16:11	08/28/12 21:15	1
Atrazine	ND		9.9	1.2	ug/L		08/24/12 16:11	08/28/12 21:15	1
Benzaldehyde	**1.9**	**J**	9.9	1.1	ug/L		08/24/12 16:11	08/28/12 21:15	1
Benzo[a]anthracene	ND		9.9	0.55	ug/L		08/24/12 16:11	08/28/12 21:15	1
Benzo[a]pyrene	ND		9.9	0.71	ug/L		08/24/12 16:11	08/28/12 21:15	1
Benzo[b]fluoranthene	ND		9.9	2.6	ug/L		08/24/12 16:11	08/28/12 21:15	1
Benzo[g,h,i]perylene	ND		9.9	0.86	ug/L		08/24/12 16:11	08/28/12 21:15	1
Benzo[k]fluoranthene	ND		9.9	1.2	ug/L		08/24/12 16:11	08/28/12 21:15	1
1,1'-Biphenyl	ND		9.9	0.58	ug/L		08/24/12 16:11	08/28/12 21:15	1
Bis(2-chloroethoxy)methane	ND		9.9	0.93	ug/L		08/24/12 16:11	08/28/12 21:15	1
Bis(2-chloroethyl)ether	ND		9.9	1.1	ug/L		08/24/12 16:11	08/28/12 21:15	1
bis (2-chloroisopropyl) ether	ND		9.9	0.77	ug/L		08/24/12 16:11	08/28/12 21:15	1
Bis(2-ethylhexyl) phthalate	ND		9.9	1.6	ug/L		08/24/12 16:11	08/28/12 21:15	1
4-Bromophenyl phenyl ether	ND		9.9	0.76	ug/L		08/24/12 16:11	08/28/12 21:15	1
Butyl benzyl phthalate	ND		9.9	1.2	ug/L		08/24/12 16:11	08/28/12 21:15	1
Caprolactam	**45**		9.9	0.78	ug/L		08/24/12 16:11	08/28/12 21:15	1
Carbazole	ND		9.9	0.71	ug/L		08/24/12 16:11	08/28/12 21:15	1
4-Chloroaniline	ND	*	20	2.2	ug/L		08/24/12 16:11	08/28/12 21:15	1
4-Chloro-3-methylphenol	ND		9.9	0.99	ug/L		08/24/12 16:11	08/28/12 21:15	1
2-Chloronaphthalene	ND		9.9	0.79	ug/L		08/24/12 16:11	08/28/12 21:15	1
2-Chlorophenol	ND		9.9	0.86	ug/L		08/24/12 16:11	08/28/12 21:15	1
4-Chlorophenyl phenyl ether	ND		9.9	0.83	ug/L		08/24/12 16:11	08/28/12 21:15	1
Chrysene	ND		9.9	0.51	ug/L		08/24/12 16:11	08/28/12 21:15	1
Dibenz(a,h)anthracene	ND		9.9	0.99	ug/L		08/24/12 16:11	08/28/12 21:15	1
Dibenzofuran	ND		9.9	0.78	ug/L		08/24/12 16:11	08/28/12 21:15	1
3,3'-Dichlorobenzidine	ND		60	30	ug/L		08/24/12 16:11	08/28/12 21:15	1
2,4-Dichlorophenol	ND		9.9	1.1	ug/L		08/24/12 16:11	08/28/12 21:15	1
Diethyl phthalate	**34**		9.9	0.87	ug/L		08/24/12 16:11	08/28/12 21:15	1
2,4-Dimethylphenol	ND		9.9	4.0	ug/L		08/24/12 16:11	08/28/12 21:15	1
Dimethyl phthalate	ND		9.9	0.98	ug/L		08/24/12 16:11	08/28/12 21:15	1
Di-n-butyl phthalate	ND		9.9	0.82	ug/L		08/24/12 16:11	08/28/12 21:15	1
4,6-Dinitro-2-methylphenol	ND		50	9.9	ug/L		08/24/12 16:11	08/28/12 21:15	1
2,4-Dinitrophenol	ND		50	9.9	ug/L		08/24/12 16:11	08/28/12 21:15	1
2,4-Dinitrotoluene	ND		9.9	1.2	ug/L		08/24/12 16:11	08/28/12 21:15	1
2,6-Dinitrotoluene	ND		9.9	1.1	ug/L		08/24/12 16:11	08/28/12 21:15	1
Di-n-octyl phthalate	ND		9.9	1.4	ug/L		08/24/12 16:11	08/28/12 21:15	1
Fluoranthene	ND		9.9	0.74	ug/L		08/24/12 16:11	08/28/12 21:15	1
Fluorene	ND		9.9	0.95	ug/L		08/24/12 16:11	08/28/12 21:15	1
Hexachlorobenzene	ND		9.9	0.78	ug/L		08/24/12 16:11	08/28/12 21:15	1

Client Sample ID: MW-11

Date Collected: 08/22/12 11:30
Date Received: 08/23/12 09:53

Lab Sample ID: 680-82259-1

Matrix: Water

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobutadiene	ND		9.9	0.62	ug/L		08/24/12 16:11	08/28/12 21:15	1
Hexachlorocyclopentadiene	ND		9.9	2.5	ug/L		08/24/12 16:11	08/28/12 21:15	1
Hexachloroethane	ND		9.9	0.76	ug/L		08/24/12 16:11	08/28/12 21:15	1
Indeno[1,2,3-cd]pyrene	ND		9.9	0.99	ug/L		08/24/12 16:11	08/28/12 21:15	1
Isophorone	ND		9.9	0.89	ug/L		08/24/12 16:11	08/28/12 21:15	1
2-Methylnaphthalene	**3.2**	**J**	9.9	0.77	ug/L		08/24/12 16:11	08/28/12 21:15	1
2-Methylphenol	ND		9.9	0.88	ug/L		08/24/12 16:11	08/28/12 21:15	1
3 & 4 Methylphenol	**2.1**	**J**	9.9	1.3	ug/L		08/24/12 16:11	08/28/12 21:15	1
Naphthalene	**9.3**	**J**	9.9	0.70	ug/L		08/24/12 16:11	08/28/12 21:15	1
2-Nitroaniline	ND		50	1.3	ug/L		08/24/12 16:11	08/28/12 21:15	1
3-Nitroaniline	ND		50	5.0	ug/L		08/24/12 16:11	08/28/12 21:15	1
4-Nitroaniline	ND		50	5.0	ug/L		08/24/12 16:11	08/28/12 21:15	1
Nitrobenzene	ND		9.9	0.73	ug/L		08/24/12 16:11	08/28/12 21:15	1
2-Nitrophenol	ND		9.9	0.76	ug/L		08/24/12 16:11	08/28/12 21:15	1
4-Nitrophenol	ND		50	1.9	ug/L		08/24/12 16:11	08/28/12 21:15	1
N-Nitrosodi-n-propylamine	ND		9.9	0.72	ug/L		08/24/12 16:11	08/28/12 21:15	1
N-Nitrosodiphenylamine	ND		9.9	0.91	ug/L		08/24/12 16:11	08/28/12 21:15	1
Pentachlorophenol	ND		50	2.0	ug/L		08/24/12 16:11	08/28/12 21:15	1
Phenanthrene	ND		9.9	0.76	ug/L		08/24/12 16:11	08/28/12 21:15	1
Phenol	ND		9.9	0.82	ug/L		08/24/12 16:11	08/28/12 21:15	1
Pyrene	ND		9.9	0.63	ug/L		08/24/12 16:11	08/28/12 21:15	1
1,2,4,5-Tetrachlorobenzene	ND		9.9	0.76	ug/L		08/24/12 16:11	08/28/12 21:15	1
2,3,4,6-Tetrachlorophenol	ND		9.9	0.72	ug/L		08/24/12 16:11	08/28/12 21:15	1
2,4,5-Trichlorophenol	ND		9.9	1.2	ug/L		08/24/12 16:11	08/28/12 21:15	1
2,4,6-Trichlorophenol	ND		9.9	0.84	ug/L		08/24/12 16:11	08/28/12 21:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*63*		*38 - 130*	*08/24/12 16:11*	*08/28/12 21:15*	*1*
2-Fluorophenol (Surr)	*60*		*25 - 130*	*08/24/12 16:11*	*08/28/12 21:15*	*1*
Nitrobenzene-d5 (Surr)	*70*		*39 - 130*	*08/24/12 16:11*	*08/28/12 21:15*	*1*
Phenol-d5 (Surr)	*64*		*25 - 130*	*08/24/12 16:11*	*08/28/12 21:15*	*1*
Terphenyl-d14 (Surr)	*45*		*10 - 143*	*08/24/12 16:11*	*08/28/12 21:15*	*1*
2,4,6-Tribromophenol (Surr)	*93*		*31 - 141*	*08/24/12 16:11*	*08/28/12 21:15*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	**35**	**B**	1.0	0.40	ug/L		08/23/12 14:14	08/24/12 20:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		10	3.0	ug/L			08/23/12 11:19	1

General Chemistry - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND	H	10000	3000	ug/L			08/23/12 13:07	1000

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Client Sample ID: Dup-1

Lab Sample ID: 680-82259-2

Date Collected: 08/22/12 11:30
Matrix: Water
Date Received: 08/23/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**5.6**	**J**	25	5.0	ug/L			09/04/12 15:37	1
Benzene	**6.3**		1.0	0.25	ug/L			09/04/12 15:37	1
Bromochloromethane	ND		1.0	0.14	ug/L			09/04/12 15:37	1
Bromodichloromethane	ND		1.0	0.25	ug/L			09/04/12 15:37	1
Bromoform	ND		1.0	0.50	ug/L			09/04/12 15:37	1
Bromomethane	ND		1.0	0.80	ug/L			09/04/12 15:37	1
2-Butanone	ND		10	1.0	ug/L			09/04/12 15:37	1
Carbon disulfide	ND		2.0	0.60	ug/L			09/04/12 15:37	1
Carbon tetrachloride	ND		1.0	0.50	ug/L			09/04/12 15:37	1
Chlorobenzene	**20**		1.0	0.25	ug/L			09/04/12 15:37	1
Chloroethane	**3.5**		1.0	1.0	ug/L			09/04/12 15:37	1
Chloroform	ND		1.0	0.14	ug/L			09/04/12 15:37	1
Chloromethane	ND		1.0	0.33	ug/L			09/04/12 15:37	1
cis-1,2-Dichloroethene	**0.15**	**J**	1.0	0.15	ug/L			09/04/12 15:37	1
cis-1,3-Dichloropropene	ND		1.0	0.11	ug/L			09/04/12 15:37	1
Cyclohexane	**0.29**	**J**	1.0	0.25	ug/L			09/04/12 15:37	1
Dibromochloromethane	ND		1.0	0.10	ug/L			09/04/12 15:37	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.44	ug/L			09/04/12 15:37	1
1,2-Dibromoethane	ND		1.0	0.25	ug/L			09/04/12 15:37	1
1,2-Dichlorobenzene	**2.7**		1.0	0.21	ug/L			09/04/12 15:37	1
1,3-Dichlorobenzene	**5.6**		1.0	0.25	ug/L			09/04/12 15:37	1
1,4-Dichlorobenzene	**17**		1.0	0.28	ug/L			09/04/12 15:37	1
Dichlorodifluoromethane	ND		1.0	0.25	ug/L			09/04/12 15:37	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			09/04/12 15:37	1
1,2-Dichloroethane	ND		1.0	0.10	ug/L			09/04/12 15:37	1
1,1-Dichloroethene	ND		1.0	0.11	ug/L			09/04/12 15:37	1
1,2-Dichloropropane	**0.29**	**J**	1.0	0.13	ug/L			09/04/12 15:37	1
1,4-Dioxane	ND		50	50	ug/L			09/04/12 15:37	1
Ethylbenzene	**40**		1.0	0.11	ug/L			09/04/12 15:37	1
2-Hexanone	ND		10	1.0	ug/L			09/04/12 15:37	1
Isopropylbenzene	**1.6**		1.0	0.10	ug/L			09/04/12 15:37	1
Methyl acetate	ND	*	1.0	0.19	ug/L			09/04/12 15:37	1
Methylcyclohexane	ND		1.0	0.10	ug/L			09/04/12 15:37	1
Methylene Chloride	ND		5.0	1.0	ug/L			09/04/12 15:37	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			09/04/12 15:37	1
Methyl tert-butyl ether	**0.84**	**J**	10	0.20	ug/L			09/04/12 15:37	1
m-Xylene & p-Xylene	**37**		2.0	0.20	ug/L			09/04/12 15:37	1
o-Xylene	**2.6**		1.0	0.25	ug/L			09/04/12 15:37	1
Styrene	**0.28**	**J**	1.0	0.11	ug/L			09/04/12 15:37	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.18	ug/L			09/04/12 15:37	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/04/12 15:37	1
Toluene	**1.1**		1.0	0.33	ug/L			09/04/12 15:37	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			09/04/12 15:37	1
trans-1,3-Dichloropropene	ND		1.0	0.21	ug/L			09/04/12 15:37	1
1,2,3-Trichlorobenzene	ND		1.0	0.35	ug/L			09/04/12 15:37	1
1,2,4-Trichlorobenzene	**0.38**	**J**	1.0	0.25	ug/L			09/04/12 15:37	1
1,1,1-Trichloroethane	ND		1.0	0.50	ug/L			09/04/12 15:37	1
1,1,2-Trichloroethane	ND		1.0	0.13	ug/L			09/04/12 15:37	1
Trichloroethene	**0.14**	**J**	1.0	0.13	ug/L			09/04/12 15:37	1
Trichlorofluoromethane	ND		1.0	0.25	ug/L			09/04/12 15:37	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.50	ug/L			09/04/12 15:37	1

Client Sample ID: Dup-1

Date Collected: 08/22/12 11:30
Date Received: 08/23/12 09:53

Lab Sample ID: 680-82259-2

Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		1.0	0.18	ug/L			09/04/12 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*70 - 130*		*09/04/12 15:37*	*1*
Dibromofluoromethane	*105*		*70 - 130*		*09/04/12 15:37*	*1*
Toluene-d8 (Surr)	*101*		*70 - 130*		*09/04/12 15:37*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		9.6	0.73	ug/L		08/24/12 16:11	08/28/12 21:43	1
Acenaphthylene	ND		9.6	0.81	ug/L		08/24/12 16:11	08/28/12 21:43	1
Acetophenone	ND		9.6	0.55	ug/L		08/24/12 16:11	08/28/12 21:43	1
Anthracene	ND		9.6	0.66	ug/L		08/24/12 16:11	08/28/12 21:43	1
Atrazine	ND		9.6	1.1	ug/L		08/24/12 16:11	08/28/12 21:43	1
Benzaldehyde	**2.3**	**J**	9.6	1.1	ug/L		08/24/12 16:11	08/28/12 21:43	1
Benzo[a]anthracene	ND		9.6	0.53	ug/L		08/24/12 16:11	08/28/12 21:43	1
Benzo[a]pyrene	ND		9.6	0.68	ug/L		08/24/12 16:11	08/28/12 21:43	1
Benzo[b]fluoranthene	ND		9.6	2.5	ug/L		08/24/12 16:11	08/28/12 21:43	1
Benzo[g,h,i]perylene	ND		9.6	0.83	ug/L		08/24/12 16:11	08/28/12 21:43	1
Benzo[k]fluoranthene	ND		9.6	1.1	ug/L		08/24/12 16:11	08/28/12 21:43	1
1,1'-Biphenyl	**0.58**	**J**	9.6	0.55	ug/L		08/24/12 16:11	08/28/12 21:43	1
Bis(2-chloroethoxy)methane	ND		9.6	0.90	ug/L		08/24/12 16:11	08/28/12 21:43	1
Bis(2-chloroethyl)ether	ND		9.6	1.1	ug/L		08/24/12 16:11	08/28/12 21:43	1
bis (2-chloroisopropyl) ether	ND		9.6	0.75	ug/L		08/24/12 16:11	08/28/12 21:43	1
Bis(2-ethylhexyl) phthalate	ND		9.6	1.5	ug/L		08/24/12 16:11	08/28/12 21:43	1
4-Bromophenyl phenyl ether	ND		9.6	0.74	ug/L		08/24/12 16:11	08/28/12 21:43	1
Butyl benzyl phthalate	ND		9.6	1.1	ug/L		08/24/12 16:11	08/28/12 21:43	1
Caprolactam	**41**		9.6	0.76	ug/L		08/24/12 16:11	08/28/12 21:43	1
Carbazole	ND		9.6	0.68	ug/L		08/24/12 16:11	08/28/12 21:43	1
4-Chloroaniline	ND	*	19	2.1	ug/L		08/24/12 16:11	08/28/12 21:43	1
4-Chloro-3-methylphenol	ND		9.6	0.96	ug/L		08/24/12 16:11	08/28/12 21:43	1
2-Chloronaphthalene	ND		9.6	0.77	ug/L		08/24/12 16:11	08/28/12 21:43	1
2-Chlorophenol	ND		9.6	0.83	ug/L		08/24/12 16:11	08/28/12 21:43	1
4-Chlorophenyl phenyl ether	ND		9.6	0.80	ug/L		08/24/12 16:11	08/28/12 21:43	1
Chrysene	ND		9.6	0.49	ug/L		08/24/12 16:11	08/28/12 21:43	1
Dibenz(a,h)anthracene	ND		9.6	0.96	ug/L		08/24/12 16:11	08/28/12 21:43	1
Dibenzofuran	ND		9.6	0.76	ug/L		08/24/12 16:11	08/28/12 21:43	1
3,3'-Dichlorobenzidine	ND		57	29	ug/L		08/24/12 16:11	08/28/12 21:43	1
2,4-Dichlorophenol	ND		9.6	1.1	ug/L		08/24/12 16:11	08/28/12 21:43	1
Diethyl phthalate	**41**		9.6	0.84	ug/L		08/24/12 16:11	08/28/12 21:43	1
2,4-Dimethylphenol	ND		9.6	3.8	ug/L		08/24/12 16:11	08/28/12 21:43	1
Dimethyl phthalate	ND		9.6	0.95	ug/L		08/24/12 16:11	08/28/12 21:43	1
Di-n-butyl phthalate	ND		9.6	0.79	ug/L		08/24/12 16:11	08/28/12 21:43	1
4,6-Dinitro-2-methylphenol	ND		48	9.6	ug/L		08/24/12 16:11	08/28/12 21:43	1
2,4-Dinitrophenol	ND		48	9.6	ug/L		08/24/12 16:11	08/28/12 21:43	1
2,4-Dinitrotoluene	ND		9.6	1.1	ug/L		08/24/12 16:11	08/28/12 21:43	1
2,6-Dinitrotoluene	ND		9.6	1.1	ug/L		08/24/12 16:11	08/28/12 21:43	1
Di-n-octyl phthalate	ND		9.6	1.3	ug/L		08/24/12 16:11	08/28/12 21:43	1
Fluoranthene	ND		9.6	0.71	ug/L		08/24/12 16:11	08/28/12 21:43	1
Fluorene	ND		9.6	0.92	ug/L		08/24/12 16:11	08/28/12 21:43	1
Hexachlorobenzene	ND		9.6	0.76	ug/L		08/24/12 16:11	08/28/12 21:43	1

Client Sample ID: Dup-1

Lab Sample ID: 680-82259-2

Date Collected: 08/22/12 11:30

Matrix: Water

Date Received: 08/23/12 09:53

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobutadiene	ND		9.6	0.59	ug/L		08/24/12 16:11	08/28/12 21:43	1
Hexachlorocyclopentadiene	ND		9.6	2.4	ug/L		08/24/12 16:11	08/28/12 21:43	1
Hexachloroethane	ND		9.6	0.73	ug/L		08/24/12 16:11	08/28/12 21:43	1
Indeno[1,2,3-cd]pyrene	ND		9.6	0.96	ug/L		08/24/12 16:11	08/28/12 21:43	1
Isophorone	ND		9.6	0.86	ug/L		08/24/12 16:11	08/28/12 21:43	1
2-Methylnaphthalene	**4.1**	**J**	9.6	0.75	ug/L		08/24/12 16:11	08/28/12 21:43	1
2-Methylphenol	ND		9.6	0.85	ug/L		08/24/12 16:11	08/28/12 21:43	1
3 & 4 Methylphenol	**2.1**	**J**	9.6	1.2	ug/L		08/24/12 16:11	08/28/12 21:43	1
Naphthalene	**12**		9.6	0.67	ug/L		08/24/12 16:11	08/28/12 21:43	1
2-Nitroaniline	ND		48	1.2	ug/L		08/24/12 16:11	08/28/12 21:43	1
3-Nitroaniline	ND		48	4.8	ug/L		08/24/12 16:11	08/28/12 21:43	1
4-Nitroaniline	ND		48	4.8	ug/L		08/24/12 16:11	08/28/12 21:43	1
Nitrobenzene	ND		9.6	0.70	ug/L		08/24/12 16:11	08/28/12 21:43	1
2-Nitrophenol	ND		9.6	0.73	ug/L		08/24/12 16:11	08/28/12 21:43	1
4-Nitrophenol	ND		48	1.8	ug/L		08/24/12 16:11	08/28/12 21:43	1
N-Nitrosodi-n-propylamine	ND		9.6	0.69	ug/L		08/24/12 16:11	08/28/12 21:43	1
N-Nitrosodiphenylamine	ND		9.6	0.88	ug/L		08/24/12 16:11	08/28/12 21:43	1
Pentachlorophenol	ND		48	1.9	ug/L		08/24/12 16:11	08/28/12 21:43	1
Phenanthrene	ND		9.6	0.74	ug/L		08/24/12 16:11	08/28/12 21:43	1
Phenol	ND		9.6	0.79	ug/L		08/24/12 16:11	08/28/12 21:43	1
Pyrene	ND		9.6	0.60	ug/L		08/24/12 16:11	08/28/12 21:43	1
1,2,4,5-Tetrachlorobenzene	ND		9.6	0.73	ug/L		08/24/12 16:11	08/28/12 21:43	1
2,3,4,6-Tetrachlorophenol	ND		9.6	0.69	ug/L		08/24/12 16:11	08/28/12 21:43	1
2,4,5-Trichlorophenol	ND		9.6	1.1	ug/L		08/24/12 16:11	08/28/12 21:43	1
2,4,6-Trichlorophenol	ND		9.6	0.81	ug/L		08/24/12 16:11	08/28/12 21:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*73*		*38 - 130*	*08/24/12 16:11*	*08/28/12 21:43*	*1*
2-Fluorophenol (Surr)	*67*		*25 - 130*	*08/24/12 16:11*	*08/28/12 21:43*	*1*
Nitrobenzene-d5 (Surr)	*80*		*39 - 130*	*08/24/12 16:11*	*08/28/12 21:43*	*1*
Phenol-d5 (Surr)	*72*		*25 - 130*	*08/24/12 16:11*	*08/28/12 21:43*	*1*
Terphenyl-d14 (Surr)	*33*		*10 - 143*	*08/24/12 16:11*	*08/28/12 21:43*	*1*
2,4,6-Tribromophenol (Surr)	*105*		*31 - 141*	*08/24/12 16:11*	*08/28/12 21:43*	*1*

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	**36**	**B**	1.0	0.40	ug/L		08/23/12 14:14	08/24/12 20:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		10	3.0	ug/L			08/23/12 11:19	1

General Chemistry - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND	H	10000	3000	ug/L			08/23/12 13:07	1000

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-82259-3

Date Collected: 08/22/12 00:00
Matrix: Water
Date Received: 08/23/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		25	5.0	ug/L			09/01/12 17:01	1
Benzene	ND		1.0	0.25	ug/L			09/01/12 17:01	1
Bromochloromethane	ND		1.0	0.14	ug/L			09/01/12 17:01	1
Bromodichloromethane	ND		1.0	0.25	ug/L			09/01/12 17:01	1
Bromoform	ND		1.0	0.50	ug/L			09/01/12 17:01	1
Bromomethane	ND		1.0	0.80	ug/L			09/01/12 17:01	1
2-Butanone	ND		10	1.0	ug/L			09/01/12 17:01	1
Carbon disulfide	ND		2.0	0.60	ug/L			09/01/12 17:01	1
Carbon tetrachloride	ND		1.0	0.50	ug/L			09/01/12 17:01	1
Chlorobenzene	ND		1.0	0.25	ug/L			09/01/12 17:01	1
Chloroethane	ND		1.0	1.0	ug/L			09/01/12 17:01	1
Chloroform	ND		1.0	0.14	ug/L			09/01/12 17:01	1
Chloromethane	ND		1.0	0.33	ug/L			09/01/12 17:01	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			09/01/12 17:01	1
cis-1,3-Dichloropropene	ND		1.0	0.11	ug/L			09/01/12 17:01	1
Cyclohexane	ND		1.0	0.25	ug/L			09/01/12 17:01	1
Dibromochloromethane	ND		1.0	0.10	ug/L			09/01/12 17:01	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.44	ug/L			09/01/12 17:01	1
1,2-Dibromoethane	ND		1.0	0.25	ug/L			09/01/12 17:01	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			09/01/12 17:01	1
1,3-Dichlorobenzene	ND		1.0	0.25	ug/L			09/01/12 17:01	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			09/01/12 17:01	1
Dichlorodifluoromethane	ND		1.0	0.25	ug/L			09/01/12 17:01	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			09/01/12 17:01	1
1,2-Dichloroethane	ND		1.0	0.10	ug/L			09/01/12 17:01	1
1,1-Dichloroethene	ND		1.0	0.11	ug/L			09/01/12 17:01	1
1,2-Dichloropropane	ND		1.0	0.13	ug/L			09/01/12 17:01	1
1,4-Dioxane	ND		50	50	ug/L			09/01/12 17:01	1
Ethylbenzene	ND		1.0	0.11	ug/L			09/01/12 17:01	1
2-Hexanone	ND		10	1.0	ug/L			09/01/12 17:01	1
Isopropylbenzene	ND		1.0	0.10	ug/L			09/01/12 17:01	1
Methyl acetate	ND		1.0	0.19	ug/L			09/01/12 17:01	1
Methylcyclohexane	ND		1.0	0.10	ug/L			09/01/12 17:01	1
Methylene Chloride	ND		5.0	1.0	ug/L			09/01/12 17:01	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			09/01/12 17:01	1
Methyl tert-butyl ether	ND		10	0.20	ug/L			09/01/12 17:01	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/L			09/01/12 17:01	1
o-Xylene	ND		1.0	0.25	ug/L			09/01/12 17:01	1
Styrene	ND		1.0	0.11	ug/L			09/01/12 17:01	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.18	ug/L			09/01/12 17:01	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/01/12 17:01	1
Toluene	ND		1.0	0.33	ug/L			09/01/12 17:01	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			09/01/12 17:01	1
trans-1,3-Dichloropropene	ND		1.0	0.21	ug/L			09/01/12 17:01	1
1,2,3-Trichlorobenzene	ND		1.0	0.35	ug/L			09/01/12 17:01	1
1,2,4-Trichlorobenzene	ND		1.0	0.25	ug/L			09/01/12 17:01	1
1,1,1-Trichloroethane	ND		1.0	0.50	ug/L			09/01/12 17:01	1
1,1,2-Trichloroethane	ND		1.0	0.13	ug/L			09/01/12 17:01	1
Trichloroethene	ND		1.0	0.13	ug/L			09/01/12 17:01	1
Trichlorofluoromethane	ND		1.0	0.25	ug/L			09/01/12 17:01	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.50	ug/L			09/01/12 17:01	1

Client Sample Results

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-82259-3

Date Collected: 08/22/12 00:00

Matrix: Water

Date Received: 08/23/12 09:53

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		1.0	0.18	ug/L			09/01/12 17:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*96*		*70 - 130*		*09/01/12 17:01*	*1*
Dibromofluoromethane	*110*		*70 - 130*		*09/01/12 17:01*	*1*
Toluene-d8 (Surr)	*102*		*70 - 130*		*09/01/12 17:01*	*1*

Surrogate Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
680-82259-1	MW-11	97	105	100
680-82259-2	Dup-1	97	105	101
680-82259-3	TRIP BLANK	96	110	102
LCS 680-248520/4	Lab Control Sample	107	106	106
LCS 680-248593/4	Lab Control Sample	106	105	105
LCSD 680-248520/5	Lab Control Sample Dup	110	105	108
LCSD 680-248593/5	Lab Control Sample Dup	104	105	104
MB 680-248520/6	Method Blank	94	110	99
MB 680-248593/6	Method Blank	97	106	99

Surrogate Legend

BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	NBZ	PHL	TPH	TBP
Lab Sample ID	Client Sample ID	(38-130)	(25-130)	(39-130)	(25-130)	(10-143)	(31-141)
680-82259-1	MW-11	63	60	70	64	45	93
680-82259-1 MS	MW-11	53	54	63	52	35	73
680-82259-1 MSD	MW-11	66	70	89	64	30	88
680-82259-2	Dup-1	73	67	80	72	33	105
LCS 680-247628/4-A	Lab Control Sample	80	78	86	74	89	99
LCS 680-247628/7-A	Lab Control Sample	83	86	94	86	61	107
LCSD 680-247628/8-A	Lab Control Sample Dup	83	84	91	84	62	106
MB 680-247628/3-A	Method Blank	87	85	95	80	95	101

Surrogate Legend

FBP = 2-Fluorobiphenyl
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-248520/6
Matrix: Water
Analysis Batch: 248520

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		25	5.0	ug/L			09/01/12 16:03	1
Benzene	ND		1.0	0.25	ug/L			09/01/12 16:03	1
Bromochloromethane	ND		1.0	0.14	ug/L			09/01/12 16:03	1
Bromodichloromethane	ND		1.0	0.25	ug/L			09/01/12 16:03	1
Bromoform	ND		1.0	0.50	ug/L			09/01/12 16:03	1
Bromomethane	ND		1.0	0.80	ug/L			09/01/12 16:03	1
2-Butanone	ND		10	1.0	ug/L			09/01/12 16:03	1
Carbon disulfide	ND		2.0	0.60	ug/L			09/01/12 16:03	1
Carbon tetrachloride	ND		1.0	0.50	ug/L			09/01/12 16:03	1
Chlorobenzene	ND		1.0	0.25	ug/L			09/01/12 16:03	1
Chloroethane	ND		1.0	1.0	ug/L			09/01/12 16:03	1
Chloroform	ND		1.0	0.14	ug/L			09/01/12 16:03	1
Chloromethane	ND		1.0	0.33	ug/L			09/01/12 16:03	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			09/01/12 16:03	1
cis-1,3-Dichloropropene	ND		1.0	0.11	ug/L			09/01/12 16:03	1
Cyclohexane	ND		1.0	0.25	ug/L			09/01/12 16:03	1
Dibromochloromethane	ND		1.0	0.10	ug/L			09/01/12 16:03	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.44	ug/L			09/01/12 16:03	1
1,2-Dibromoethane	ND		1.0	0.25	ug/L			09/01/12 16:03	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			09/01/12 16:03	1
1,3-Dichlorobenzene	ND		1.0	0.25	ug/L			09/01/12 16:03	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			09/01/12 16:03	1
Dichlorodifluoromethane	ND		1.0	0.25	ug/L			09/01/12 16:03	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			09/01/12 16:03	1
1,2-Dichloroethane	ND		1.0	0.10	ug/L			09/01/12 16:03	1
1,1-Dichloroethene	ND		1.0	0.11	ug/L			09/01/12 16:03	1
1,2-Dichloropropane	ND		1.0	0.13	ug/L			09/01/12 16:03	1
1,4-Dioxane	ND		50	50	ug/L			09/01/12 16:03	1
Ethylbenzene	ND		1.0	0.11	ug/L			09/01/12 16:03	1
2-Hexanone	ND		10	1.0	ug/L			09/01/12 16:03	1
Isopropylbenzene	ND		1.0	0.10	ug/L			09/01/12 16:03	1
Methyl acetate	ND		1.0	0.19	ug/L			09/01/12 16:03	1
Methylcyclohexane	ND		1.0	0.10	ug/L			09/01/12 16:03	1
Methylene Chloride	ND		5.0	1.0	ug/L			09/01/12 16:03	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			09/01/12 16:03	1
Methyl tert-butyl ether	ND		10	0.20	ug/L			09/01/12 16:03	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/L			09/01/12 16:03	1
o-Xylene	ND		1.0	0.25	ug/L			09/01/12 16:03	1
Styrene	ND		1.0	0.11	ug/L			09/01/12 16:03	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.18	ug/L			09/01/12 16:03	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/01/12 16:03	1
Toluene	ND		1.0	0.33	ug/L			09/01/12 16:03	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			09/01/12 16:03	1
trans-1,3-Dichloropropene	ND		1.0	0.21	ug/L			09/01/12 16:03	1
1,2,3-Trichlorobenzene	ND		1.0	0.35	ug/L			09/01/12 16:03	1
1,2,4-Trichlorobenzene	ND		1.0	0.25	ug/L			09/01/12 16:03	1
1,1,1-Trichloroethane	ND		1.0	0.50	ug/L			09/01/12 16:03	1
1,1,2-Trichloroethane	ND		1.0	0.13	ug/L			09/01/12 16:03	1
Trichloroethene	ND		1.0	0.13	ug/L			09/01/12 16:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-248520/6
Matrix: Water
Analysis Batch: 248520

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	ND		1.0	0.25	ug/L			09/01/12 16:03	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.50	ug/L			09/01/12 16:03	1
Vinyl chloride	ND		1.0	0.18	ug/L			09/01/12 16:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*94*		*70 - 130*		*09/01/12 16:03*	*1*
Dibromofluoromethane	*110*		*70 - 130*		*09/01/12 16:03*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*09/01/12 16:03*	*1*

Lab Sample ID: LCS 680-248520/4
Matrix: Water
Analysis Batch: 248520

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	100	109		ug/L		109	26 - 180
Benzene	50.0	53.8		ug/L		108	70 - 130
Bromochloromethane	50.0	55.5		ug/L		111	70 - 130
Bromodichloromethane	50.0	47.4		ug/L		95	70 - 130
Bromoform	50.0	52.3		ug/L		105	70 - 130
Bromomethane	50.0	21.8		ug/L		44	23 - 165
2-Butanone	100	115		ug/L		115	49 - 172
Carbon disulfide	50.0	60.7		ug/L		121	54 - 132
Carbon tetrachloride	50.0	44.5		ug/L		89	70 - 130
Chlorobenzene	50.0	51.1		ug/L		102	70 - 130
Chloroethane	50.0	37.2		ug/L		74	56 - 152
Chloroform	50.0	54.4		ug/L		109	70 - 130
Chloromethane	50.0	46.5		ug/L		93	70 - 130
cis-1,2-Dichloroethene	50.0	53.4		ug/L		107	70 - 130
cis-1,3-Dichloropropene	50.0	48.6		ug/L		97	70 - 130
Cyclohexane	50.0	56.1		ug/L		112	70 - 132
Dibromochloromethane	50.0	45.3		ug/L		91	70 - 130
1,2-Dibromo-3-Chloropropane	50.0	45.3		ug/L		91	70 - 130
1,2-Dibromoethane	50.0	54.4		ug/L		109	70 - 130
1,2-Dichlorobenzene	50.0	53.3		ug/L		107	70 - 130
1,3-Dichlorobenzene	50.0	52.4		ug/L		105	70 - 130
1,4-Dichlorobenzene	50.0	52.3		ug/L		105	70 - 130
Dichlorodifluoromethane	50.0	48.8		ug/L		98	44 - 146
1,1-Dichloroethane	50.0	55.4		ug/L		111	70 - 130
1,2-Dichloroethane	50.0	50.0		ug/L		100	70 - 130
1,1-Dichloroethene	50.0	54.5		ug/L		109	66 - 131
1,2-Dichloropropane	50.0	54.4		ug/L		109	70 - 130
1,4-Dioxane	500	586		ug/L		117	50 - 150
Ethylbenzene	50.0	53.3		ug/L		107	70 - 130
2-Hexanone	100	116		ug/L		116	42 - 185
Isopropylbenzene	50.0	46.9		ug/L		94	70 - 130
Methyl acetate	50.0	63.2		ug/L		126	70 - 130
Methylcyclohexane	50.0	57.4		ug/L		115	70 - 134
Methylene Chloride	50.0	51.7		ug/L		103	67 - 130
4-Methyl-2-pentanone	100	118		ug/L		118	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-248520/4
Matrix: Water
Analysis Batch: 248520

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl tert-butyl ether	100	107		ug/L		107	64 - 131
m-Xylene & p-Xylene	100	107		ug/L		107	70 - 130
o-Xylene	50.0	54.0		ug/L		108	70 - 130
Styrene	50.0	55.4		ug/L		111	70 - 130
1,1,2,2-Tetrachloroethane	50.0	55.8		ug/L		112	70 - 130
Tetrachloroethene	50.0	50.1		ug/L		100	70 - 130
Toluene	50.0	54.7		ug/L		109	70 - 130
trans-1,2-Dichloroethene	50.0	54.3		ug/L		109	70 - 130
trans-1,3-Dichloropropene	50.0	47.5		ug/L		95	70 - 130
1,2,3-Trichlorobenzene	50.0	55.1		ug/L		110	70 - 130
1,2,4-Trichlorobenzene	50.0	53.8		ug/L		108	65 - 130
1,1,1-Trichloroethane	50.0	46.0		ug/L		92	70 - 130
1,1,2-Trichloroethane	50.0	55.3		ug/L		111	70 - 130
Trichloroethene	50.0	51.7		ug/L		103	70 - 130
Trichlorofluoromethane	50.0	42.2		ug/L		84	55 - 156
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	52.2		ug/L		104	60 - 135
Vinyl chloride	25.0	21.8		ug/L		87	67 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*107*		*70 - 130*
Dibromofluoromethane	*106*		*70 - 130*
Toluene-d8 (Surr)	*106*		*70 - 130*

Lab Sample ID: LCSD 680-248520/5
Matrix: Water
Analysis Batch: 248520

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	100	111		ug/L		111	26 - 180	2	50
Benzene	50.0	55.2		ug/L		110	70 - 130	3	30
Bromochloromethane	50.0	54.9		ug/L		110	70 - 130	1	30
Bromodichloromethane	50.0	48.7		ug/L		97	70 - 130	3	30
Bromoform	50.0	53.3		ug/L		107	70 - 130	2	30
Bromomethane	50.0	24.3		ug/L		49	23 - 165	11	50
2-Butanone	100	119		ug/L		119	49 - 172	4	30
Carbon disulfide	50.0	60.3		ug/L		121	54 - 132	1	30
Carbon tetrachloride	50.0	44.8		ug/L		90	70 - 130	1	30
Chlorobenzene	50.0	52.2		ug/L		104	70 - 130	2	30
Chloroethane	50.0	36.0		ug/L		72	56 - 152	3	40
Chloroform	50.0	54.9		ug/L		110	70 - 130	1	30
Chloromethane	50.0	46.0		ug/L		92	70 - 130	1	30
cis-1,2-Dichloroethene	50.0	54.5		ug/L		109	70 - 130	2	30
cis-1,3-Dichloropropene	50.0	50.8		ug/L		102	70 - 130	4	30
Cyclohexane	50.0	57.3		ug/L		115	70 - 132	2	30
Dibromochloromethane	50.0	46.5		ug/L		93	70 - 130	3	50
1,2-Dibromo-3-Chloropropane	50.0	45.9		ug/L		92	70 - 130	1	50
1,2-Dibromoethane	50.0	56.6		ug/L		113	70 - 130	4	30
1,2-Dichlorobenzene	50.0	54.5		ug/L		109	70 - 130	2	30
1,3-Dichlorobenzene	50.0	53.5		ug/L		107	70 - 130	2	30

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-248520/5
Matrix: Water
Analysis Batch: 248520

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dichlorobenzene	50.0	54.0		ug/L		108	70 - 130	3	30
Dichlorodifluoromethane	50.0	49.1		ug/L		98	44 - 146	1	50
1,1-Dichloroethane	50.0	55.6		ug/L		111	70 - 130	0	30
1,2-Dichloroethane	50.0	50.8		ug/L		102	70 - 130	2	30
1,1-Dichloroethene	50.0	54.2		ug/L		108	66 - 131	0	30
1,2-Dichloropropane	50.0	55.4		ug/L		111	70 - 130	2	30
1,4-Dioxane	500	622		ug/L		124	50 - 150	6	50
Ethylbenzene	50.0	54.7		ug/L		109	70 - 130	3	30
2-Hexanone	100	122		ug/L		122	42 - 185	5	30
Isopropylbenzene	50.0	47.9		ug/L		96	70 - 130	2	30
Methyl acetate	50.0	63.8		ug/L		128	70 - 130	1	30
Methylcyclohexane	50.0	58.4		ug/L		117	70 - 134	2	30
Methylene Chloride	50.0	52.7		ug/L		105	67 - 130	2	30
4-Methyl-2-pentanone	100	122		ug/L		122	70 - 130	4	30
Methyl tert-butyl ether	100	109		ug/L		109	64 - 131	2	30
m-Xylene & p-Xylene	100	108		ug/L		108	70 - 130	1	30
o-Xylene	50.0	55.9		ug/L		112	70 - 130	3	30
Styrene	50.0	55.7		ug/L		111	70 - 130	1	30
1,1,2,2-Tetrachloroethane	50.0	56.5		ug/L		113	70 - 130	1	30
Tetrachloroethene	50.0	51.0		ug/L		102	70 - 130	2	30
Toluene	50.0	55.5		ug/L		111	70 - 130	1	30
trans-1,2-Dichloroethene	50.0	54.4		ug/L		109	70 - 130	0	30
trans-1,3-Dichloropropene	50.0	49.1		ug/L		98	70 - 130	3	50
1,2,3-Trichlorobenzene	50.0	56.1		ug/L		112	70 - 130	2	30
1,2,4-Trichlorobenzene	50.0	55.6		ug/L		111	65 - 130	3	30
1,1,1-Trichloroethane	50.0	46.9		ug/L		94	70 - 130	2	30
1,1,2-Trichloroethane	50.0	56.8		ug/L		114	70 - 130	3	30
Trichloroethene	50.0	53.6		ug/L		107	70 - 130	4	30
Trichlorofluoromethane	50.0	41.6		ug/L		83	55 - 156	1	30
1,1,2-Trichloro-1,2,2-trifluoroetha ne	50.0	51.4		ug/L		103	60 - 135	2	30
Vinyl chloride	25.0	21.5		ug/L		86	67 - 134	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*110*		*70 - 130*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8 (Surr)	*108*		*70 - 130*

Lab Sample ID: MB 680-248593/6
Matrix: Water
Analysis Batch: 248593

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		25	5.0	ug/L			09/04/12 12:07	1
Benzene	ND		1.0	0.25	ug/L			09/04/12 12:07	1
Bromochloromethane	ND		1.0	0.14	ug/L			09/04/12 12:07	1
Bromodichloromethane	ND		1.0	0.25	ug/L			09/04/12 12:07	1
Bromoform	ND		1.0	0.50	ug/L			09/04/12 12:07	1
Bromomethane	ND		1.0	0.80	ug/L			09/04/12 12:07	1
2-Butanone	ND		10	1.0	ug/L			09/04/12 12:07	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-248593/6
Matrix: Water
Analysis Batch: 248593

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon disulfide	ND		2.0	0.60	ug/L			09/04/12 12:07	1
Carbon tetrachloride	ND		1.0	0.50	ug/L			09/04/12 12:07	1
Chlorobenzene	ND		1.0	0.25	ug/L			09/04/12 12:07	1
Chloroethane	ND		1.0	1.0	ug/L			09/04/12 12:07	1
Chloroform	ND		1.0	0.14	ug/L			09/04/12 12:07	1
Chloromethane	ND		1.0	0.33	ug/L			09/04/12 12:07	1
cis-1,2-Dichloroethene	ND		1.0	0.15	ug/L			09/04/12 12:07	1
cis-1,3-Dichloropropene	ND		1.0	0.11	ug/L			09/04/12 12:07	1
Cyclohexane	ND		1.0	0.25	ug/L			09/04/12 12:07	1
Dibromochloromethane	ND		1.0	0.10	ug/L			09/04/12 12:07	1
1,2-Dibromo-3-Chloropropane	ND		1.0	0.44	ug/L			09/04/12 12:07	1
1,2-Dibromoethane	ND		1.0	0.25	ug/L			09/04/12 12:07	1
1,2-Dichlorobenzene	ND		1.0	0.21	ug/L			09/04/12 12:07	1
1,3-Dichlorobenzene	ND		1.0	0.25	ug/L			09/04/12 12:07	1
1,4-Dichlorobenzene	ND		1.0	0.28	ug/L			09/04/12 12:07	1
Dichlorodifluoromethane	ND		1.0	0.25	ug/L			09/04/12 12:07	1
1,1-Dichloroethane	ND		1.0	0.25	ug/L			09/04/12 12:07	1
1,2-Dichloroethane	ND		1.0	0.10	ug/L			09/04/12 12:07	1
1,1-Dichloroethene	ND		1.0	0.11	ug/L			09/04/12 12:07	1
1,2-Dichloropropane	ND		1.0	0.13	ug/L			09/04/12 12:07	1
1,4-Dioxane	ND		50	50	ug/L			09/04/12 12:07	1
Ethylbenzene	ND		1.0	0.11	ug/L			09/04/12 12:07	1
2-Hexanone	ND		10	1.0	ug/L			09/04/12 12:07	1
Isopropylbenzene	ND		1.0	0.10	ug/L			09/04/12 12:07	1
Methyl acetate	ND		1.0	0.19	ug/L			09/04/12 12:07	1
Methylcyclohexane	ND		1.0	0.10	ug/L			09/04/12 12:07	1
Methylene Chloride	ND		5.0	1.0	ug/L			09/04/12 12:07	1
4-Methyl-2-pentanone	ND		10	1.0	ug/L			09/04/12 12:07	1
Methyl tert-butyl ether	ND		10	0.20	ug/L			09/04/12 12:07	1
m-Xylene & p-Xylene	ND		2.0	0.20	ug/L			09/04/12 12:07	1
o-Xylene	ND		1.0	0.25	ug/L			09/04/12 12:07	1
Styrene	ND		1.0	0.11	ug/L			09/04/12 12:07	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.18	ug/L			09/04/12 12:07	1
Tetrachloroethene	ND		1.0	0.15	ug/L			09/04/12 12:07	1
Toluene	ND		1.0	0.33	ug/L			09/04/12 12:07	1
trans-1,2-Dichloroethene	ND		1.0	0.20	ug/L			09/04/12 12:07	1
trans-1,3-Dichloropropene	ND		1.0	0.21	ug/L			09/04/12 12:07	1
1,2,3-Trichlorobenzene	ND		1.0	0.35	ug/L			09/04/12 12:07	1
1,2,4-Trichlorobenzene	ND		1.0	0.25	ug/L			09/04/12 12:07	1
1,1,1-Trichloroethane	ND		1.0	0.50	ug/L			09/04/12 12:07	1
1,1,2-Trichloroethane	ND		1.0	0.13	ug/L			09/04/12 12:07	1
Trichloroethene	ND		1.0	0.13	ug/L			09/04/12 12:07	1
Trichlorofluoromethane	ND		1.0	0.25	ug/L			09/04/12 12:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		1.0	0.50	ug/L			09/04/12 12:07	1
Vinyl chloride	ND		1.0	0.18	ug/L			09/04/12 12:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene	*97*		*70 - 130*		*09/04/12 12:07*	*1*
Dibromofluoromethane	*106*		*70 - 130*		*09/04/12 12:07*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-248593/6
Matrix: Water
Analysis Batch: 248593

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	99		70 - 130		09/04/12 12:07	1

Lab Sample ID: LCS 680-248593/4
Matrix: Water
Analysis Batch: 248593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	100	105		ug/L		105	26 - 180
Benzene	50.0	56.8		ug/L		114	70 - 130
Bromochloromethane	50.0	56.8		ug/L		114	70 - 130
Bromodichloromethane	50.0	60.4		ug/L		121	70 - 130
Bromoform	50.0	54.5		ug/L		109	70 - 130
Bromomethane	50.0	24.0		ug/L		48	23 - 165
2-Butanone	100	111		ug/L		111	49 - 172
Carbon disulfide	50.0	53.4		ug/L		107	54 - 132
Carbon tetrachloride	50.0	46.2		ug/L		92	70 - 130
Chlorobenzene	50.0	52.6		ug/L		105	70 - 130
Chloroethane	50.0	46.3		ug/L		93	56 - 152
Chloroform	50.0	58.9		ug/L		118	70 - 130
Chloromethane	50.0	47.9		ug/L		96	70 - 130
cis-1,2-Dichloroethene	50.0	56.3		ug/L		113	70 - 130
cis-1,3-Dichloropropene	50.0	51.8		ug/L		104	70 - 130
Cyclohexane	50.0	54.8		ug/L		110	70 - 132
Dibromochloromethane	50.0	48.8		ug/L		98	70 - 130
1,2-Dibromo-3-Chloropropane	50.0	43.3		ug/L		87	70 - 130
1,2-Dibromoethane	50.0	54.9		ug/L		110	70 - 130
1,2-Dichlorobenzene	50.0	52.5		ug/L		105	70 - 130
1,3-Dichlorobenzene	50.0	52.8		ug/L		106	70 - 130
1,4-Dichlorobenzene	50.0	52.8		ug/L		106	70 - 130
Dichlorodifluoromethane	50.0	56.5		ug/L		113	44 - 146
1,1-Dichloroethane	50.0	55.2		ug/L		110	70 - 130
1,2-Dichloroethane	50.0	48.5		ug/L		97	70 - 130
1,1-Dichloroethene	50.0	55.4		ug/L		111	66 - 131
1,2-Dichloropropane	50.0	56.0		ug/L		112	70 - 130
1,4-Dioxane	500	631		ug/L		126	50 - 150
Ethylbenzene	50.0	53.4		ug/L		107	70 - 130
2-Hexanone	100	109		ug/L		109	42 - 185
Isopropylbenzene	50.0	46.2		ug/L		92	70 - 130
Methyl acetate	50.0	70.9	*	ug/L		142	70 - 130
Methylcyclohexane	50.0	58.8		ug/L		118	70 - 134
Methylene Chloride	50.0	53.8		ug/L		108	67 - 130
4-Methyl-2-pentanone	100	112		ug/L		112	70 - 130
Methyl tert-butyl ether	100	106		ug/L		106	64 - 131
m-Xylene & p-Xylene	100	106		ug/L		106	70 - 130
o-Xylene	50.0	46.6		ug/L		93	70 - 130
Styrene	50.0	48.0		ug/L		96	70 - 130
1,1,2,2-Tetrachloroethane	50.0	52.6		ug/L		105	70 - 130
Tetrachloroethene	50.0	51.0		ug/L		102	70 - 130
Toluene	50.0	56.4		ug/L		113	70 - 130

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-248593/4
Matrix: Water
Analysis Batch: 248593

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
trans-1,2-Dichloroethene	50.0	54.0		ug/L		108	70 - 130
trans-1,3-Dichloropropene	50.0	50.7		ug/L		101	70 - 130
1,2,3-Trichlorobenzene	50.0	52.7		ug/L		105	70 - 130
1,2,4-Trichlorobenzene	50.0	53.6		ug/L		107	65 - 130
1,1,1-Trichloroethane	50.0	46.3		ug/L		93	70 - 130
1,1,2-Trichloroethane	50.0	53.6		ug/L		107	70 - 130
Trichloroethene	50.0	50.0		ug/L		100	70 - 130
Trichlorofluoromethane	50.0	56.7		ug/L		113	55 - 156
1,1,2-Trichloro-1,2,2-trifluoroetha ne	50.0	62.9		ug/L		126	60 - 135
Vinyl chloride	25.0	24.8		ug/L		99	67 - 134

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene	*106*		*70 - 130*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8 (Surr)	*105*		*70 - 130*

Lab Sample ID: LCSD 680-248593/5
Matrix: Water
Analysis Batch: 248593

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	100	107		ug/L		107	26 - 180	3	50
Benzene	50.0	56.6		ug/L		113	70 - 130	0	30
Bromochloromethane	50.0	56.5		ug/L		113	70 - 130	1	30
Bromodichloromethane	50.0	59.7		ug/L		119	70 - 130	1	30
Bromoform	50.0	53.2		ug/L		106	70 - 130	2	30
Bromomethane	50.0	25.3		ug/L		51	23 - 165	6	50
2-Butanone	100	111		ug/L		111	49 - 172	1	30
Carbon disulfide	50.0	52.9		ug/L		106	54 - 132	1	30
Carbon tetrachloride	50.0	45.0		ug/L		90	70 - 130	3	30
Chlorobenzene	50.0	51.6		ug/L		103	70 - 130	2	30
Chloroethane	50.0	46.5		ug/L		93	56 - 152	0	40
Chloroform	50.0	58.4		ug/L		117	70 - 130	1	30
Chloromethane	50.0	46.5		ug/L		93	70 - 130	3	30
cis-1,2-Dichloroethene	50.0	56.2		ug/L		112	70 - 130	0	30
cis-1,3-Dichloropropene	50.0	51.0		ug/L		102	70 - 130	2	30
Cyclohexane	50.0	53.2		ug/L		106	70 - 132	3	30
Dibromochloromethane	50.0	48.1		ug/L		96	70 - 130	1	50
1,2-Dibromo-3-Chloropropane	50.0	41.8		ug/L		84	70 - 130	3	50
1,2-Dibromoethane	50.0	53.5		ug/L		107	70 - 130	3	30
1,2-Dichlorobenzene	50.0	51.7		ug/L		103	70 - 130	2	30
1,3-Dichlorobenzene	50.0	51.9		ug/L		104	70 - 130	2	30
1,4-Dichlorobenzene	50.0	51.8		ug/L		104	70 - 130	2	30
Dichlorodifluoromethane	50.0	56.0		ug/L		112	44 - 146	1	50
1,1-Dichloroethane	50.0	54.3		ug/L		109	70 - 130	2	30
1,2-Dichloroethane	50.0	46.5		ug/L		93	70 - 130	4	30
1,1-Dichloroethene	50.0	54.4		ug/L		109	66 - 131	2	30
1,2-Dichloropropane	50.0	54.9		ug/L		110	70 - 130	2	30
1,4-Dioxane	500	659		ug/L		132	50 - 150	4	50

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 680-248593/5
Matrix: Water
Analysis Batch: 248593

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	50.0	52.3		ug/L		105	70 - 130	2	30
2-Hexanone	100	107		ug/L		107	42 - 185	1	30
Isopropylbenzene	50.0	45.3		ug/L		91	70 - 130	2	30
Methyl acetate	50.0	70.4	*	ug/L		141	70 - 130	1	30
Methylcyclohexane	50.0	58.8		ug/L		118	70 - 134	0	30
Methylene Chloride	50.0	53.7		ug/L		107	67 - 130	0	30
4-Methyl-2-pentanone	100	111		ug/L		111	70 - 130	1	30
Methyl tert-butyl ether	100	106		ug/L		106	64 - 131	0	30
m-Xylene & p-Xylene	100	105		ug/L		105	70 - 130	1	30
o-Xylene	50.0	46.5		ug/L		93	70 - 130	0	30
Styrene	50.0	47.2		ug/L		94	70 - 130	2	30
1,1,2,2-Tetrachloroethane	50.0	51.3		ug/L		103	70 - 130	3	30
Tetrachloroethene	50.0	50.5		ug/L		101	70 - 130	1	30
Toluene	50.0	54.8		ug/L		110	70 - 130	3	30
trans-1,2-Dichloroethene	50.0	53.7		ug/L		107	70 - 130	1	30
trans-1,3-Dichloropropene	50.0	49.5		ug/L		99	70 - 130	2	50
1,2,3-Trichlorobenzene	50.0	52.2		ug/L		104	70 - 130	1	30
1,2,4-Trichlorobenzene	50.0	53.0		ug/L		106	65 - 130	1	30
1,1,1-Trichloroethane	50.0	45.1		ug/L		90	70 - 130	3	30
1,1,2-Trichloroethane	50.0	52.7		ug/L		105	70 - 130	2	30
Trichloroethene	50.0	49.3		ug/L		99	70 - 130	1	30
Trichlorofluoromethane	50.0	54.7		ug/L		109	55 - 156	3	30
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	61.3		ug/L		123	60 - 135	3	30
Vinyl chloride	25.0	24.1		ug/L		96	67 - 134	3	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene	*104*		*70 - 130*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8 (Surr)	*104*		*70 - 130*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-247628/3-A
Matrix: Water
Analysis Batch: 248194

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 247628

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		10	0.76	ug/L		08/24/12 16:11	08/28/12 15:53	1
Acenaphthylene	ND		10	0.85	ug/L		08/24/12 16:11	08/28/12 15:53	1
Acetophenone	ND		10	0.57	ug/L		08/24/12 16:11	08/28/12 15:53	1
Anthracene	ND		10	0.69	ug/L		08/24/12 16:11	08/28/12 15:53	1
Atrazine	ND		10	1.2	ug/L		08/24/12 16:11	08/28/12 15:53	1
Benzaldehyde	ND		10	1.1	ug/L		08/24/12 16:11	08/28/12 15:53	1
Benzo[a]anthracene	ND		10	0.55	ug/L		08/24/12 16:11	08/28/12 15:53	1
Benzo[a]pyrene	ND		10	0.71	ug/L		08/24/12 16:11	08/28/12 15:53	1
Benzo[b]fluoranthene	ND		10	2.6	ug/L		08/24/12 16:11	08/28/12 15:53	1
Benzo[g,h,i]perylene	ND		10	0.87	ug/L		08/24/12 16:11	08/28/12 15:53	1
Benzo[k]fluoranthene	ND		10	1.2	ug/L		08/24/12 16:11	08/28/12 15:53	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-247628/3-A
Matrix: Water
Analysis Batch: 248194

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 247628

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1'-Biphenyl	ND		10	0.58	ug/L		08/24/12 16:11	08/28/12 15:53	1
Bis(2-chloroethoxy)methane	ND		10	0.94	ug/L		08/24/12 16:11	08/28/12 15:53	1
Bis(2-chloroethyl)ether	ND		10	1.1	ug/L		08/24/12 16:11	08/28/12 15:53	1
bis (2-chloroisopropyl) ether	ND		10	0.78	ug/L		08/24/12 16:11	08/28/12 15:53	1
Bis(2-ethylhexyl) phthalate	ND		10	1.6	ug/L		08/24/12 16:11	08/28/12 15:53	1
4-Bromophenyl phenyl ether	ND		10	0.77	ug/L		08/24/12 16:11	08/28/12 15:53	1
Butyl benzyl phthalate	ND		10	1.2	ug/L		08/24/12 16:11	08/28/12 15:53	1
Caprolactam	ND		10	0.79	ug/L		08/24/12 16:11	08/28/12 15:53	1
Carbazole	ND		10	0.71	ug/L		08/24/12 16:11	08/28/12 15:53	1
4-Chloroaniline	ND		20	2.2	ug/L		08/24/12 16:11	08/28/12 15:53	1
4-Chloro-3-methylphenol	ND		10	1.0	ug/L		08/24/12 16:11	08/28/12 15:53	1
2-Chloronaphthalene	ND		10	0.80	ug/L		08/24/12 16:11	08/28/12 15:53	1
2-Chlorophenol	ND		10	0.87	ug/L		08/24/12 16:11	08/28/12 15:53	1
4-Chlorophenyl phenyl ether	ND		10	0.84	ug/L		08/24/12 16:11	08/28/12 15:53	1
Chrysene	ND		10	0.51	ug/L		08/24/12 16:11	08/28/12 15:53	1
Dibenz(a,h)anthracene	ND		10	1.0	ug/L		08/24/12 16:11	08/28/12 15:53	1
Dibenzofuran	ND		10	0.79	ug/L		08/24/12 16:11	08/28/12 15:53	1
3,3'-Dichlorobenzidine	ND		60	30	ug/L		08/24/12 16:11	08/28/12 15:53	1
2,4-Dichlorophenol	ND		10	1.1	ug/L		08/24/12 16:11	08/28/12 15:53	1
Diethyl phthalate	ND		10	0.88	ug/L		08/24/12 16:11	08/28/12 15:53	1
2,4-Dimethylphenol	ND		10	4.0	ug/L		08/24/12 16:11	08/28/12 15:53	1
Dimethyl phthalate	ND		10	0.99	ug/L		08/24/12 16:11	08/28/12 15:53	1
Di-n-butyl phthalate	ND		10	0.83	ug/L		08/24/12 16:11	08/28/12 15:53	1
4,6-Dinitro-2-methylphenol	ND		50	10	ug/L		08/24/12 16:11	08/28/12 15:53	1
2,4-Dinitrophenol	ND		50	10	ug/L		08/24/12 16:11	08/28/12 15:53	1
2,4-Dinitrotoluene	ND		10	1.2	ug/L		08/24/12 16:11	08/28/12 15:53	1
2,6-Dinitrotoluene	ND		10	1.1	ug/L		08/24/12 16:11	08/28/12 15:53	1
Di-n-octyl phthalate	ND		10	1.4	ug/L		08/24/12 16:11	08/28/12 15:53	1
Fluoranthene	ND		10	0.74	ug/L		08/24/12 16:11	08/28/12 15:53	1
Fluorene	ND		10	0.96	ug/L		08/24/12 16:11	08/28/12 15:53	1
Hexachlorobenzene	ND		10	0.79	ug/L		08/24/12 16:11	08/28/12 15:53	1
Hexachlorobutadiene	ND		10	0.62	ug/L		08/24/12 16:11	08/28/12 15:53	1
Hexachlorocyclopentadiene	ND		10	2.5	ug/L		08/24/12 16:11	08/28/12 15:53	1
Hexachloroethane	ND		10	0.76	ug/L		08/24/12 16:11	08/28/12 15:53	1
Indeno[1,2,3-cd]pyrene	ND		10	1.0	ug/L		08/24/12 16:11	08/28/12 15:53	1
Isophorone	ND		10	0.90	ug/L		08/24/12 16:11	08/28/12 15:53	1
2-Methylnaphthalene	ND		10	0.78	ug/L		08/24/12 16:11	08/28/12 15:53	1
2-Methylphenol	ND		10	0.89	ug/L		08/24/12 16:11	08/28/12 15:53	1
3 & 4 Methylphenol	ND		10	1.3	ug/L		08/24/12 16:11	08/28/12 15:53	1
Naphthalene	ND		10	0.70	ug/L		08/24/12 16:11	08/28/12 15:53	1
2-Nitroaniline	ND		50	1.3	ug/L		08/24/12 16:11	08/28/12 15:53	1
3-Nitroaniline	ND		50	5.0	ug/L		08/24/12 16:11	08/28/12 15:53	1
4-Nitroaniline	ND		50	5.0	ug/L		08/24/12 16:11	08/28/12 15:53	1
Nitrobenzene	ND		10	0.73	ug/L		08/24/12 16:11	08/28/12 15:53	1
2-Nitrophenol	ND		10	0.76	ug/L		08/24/12 16:11	08/28/12 15:53	1
4-Nitrophenol	ND		50	1.9	ug/L		08/24/12 16:11	08/28/12 15:53	1
N-Nitrosodi-n-propylamine	ND		10	0.72	ug/L		08/24/12 16:11	08/28/12 15:53	1
N-Nitrosodiphenylamine	ND		10	0.92	ug/L		08/24/12 16:11	08/28/12 15:53	1
Pentachlorophenol	ND		50	2.0	ug/L		08/24/12 16:11	08/28/12 15:53	1
Phenanthrene	ND		10	0.77	ug/L		08/24/12 16:11	08/28/12 15:53	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-247628/3-A
Matrix: Water
Analysis Batch: 248194

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 247628

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phenol	ND		10	0.83	ug/L		08/24/12 16:11	08/28/12 15:53	1
Pyrene	ND		10	0.63	ug/L		08/24/12 16:11	08/28/12 15:53	1
1,2,4,5-Tetrachlorobenzene	ND		10	0.76	ug/L		08/24/12 16:11	08/28/12 15:53	1
2,3,4,6-Tetrachlorophenol	ND		10	0.72	ug/L		08/24/12 16:11	08/28/12 15:53	1
2,4,5-Trichlorophenol	ND		10	1.2	ug/L		08/24/12 16:11	08/28/12 15:53	1
2,4,6-Trichlorophenol	ND		10	0.85	ug/L		08/24/12 16:11	08/28/12 15:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl	*87*		*38 - 130*	*08/24/12 16:11*	*08/28/12 15:53*	*1*
2-Fluorophenol (Surr)	*85*		*25 - 130*	*08/24/12 16:11*	*08/28/12 15:53*	*1*
Nitrobenzene-d5 (Surr)	*95*		*39 - 130*	*08/24/12 16:11*	*08/28/12 15:53*	*1*
Phenol-d5 (Surr)	*80*		*25 - 130*	*08/24/12 16:11*	*08/28/12 15:53*	*1*
Terphenyl-d14 (Surr)	*95*		*10 - 143*	*08/24/12 16:11*	*08/28/12 15:53*	*1*
2,4,6-Tribromophenol (Surr)	*101*		*31 - 141*	*08/24/12 16:11*	*08/28/12 15:53*	*1*

Lab Sample ID: LCS 680-247628/4-A
Matrix: Water
Analysis Batch: 248194

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 247628

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	100	75.9		ug/L		76	55 - 130
Acenaphthylene	100	82.9		ug/L		83	60 - 130
Acetophenone	100	79.4		ug/L		79	54 - 130
Anthracene	100	79.1		ug/L		79	61 - 130
Atrazine	100	83.2		ug/L		83	66 - 130
Benzaldehyde	100	111	E	ug/L		111	59 - 142
Benzo[a]anthracene	100	86.5		ug/L		86	58 - 130
Benzo[a]pyrene	100	84.8		ug/L		85	61 - 130
Benzo[b]fluoranthene	100	94.2		ug/L		94	51 - 130
Benzo[g,h,i]perylene	100	83.4		ug/L		83	54 - 130
Benzo[k]fluoranthene	100	72.5		ug/L		72	53 - 130
1,1'-Biphenyl	100	76.0		ug/L		76	54 - 130
Bis(2-chloroethoxy)methane	100	87.0		ug/L		87	64 - 130
Bis(2-chloroethyl)ether	100	89.4		ug/L		89	56 - 130
bis (2-chloroisopropyl) ether	100	78.1		ug/L		78	55 - 130
Bis(2-ethylhexyl) phthalate	100	85.2		ug/L		85	62 - 130
4-Bromophenyl phenyl ether	100	87.5		ug/L		87	61 - 130
Butyl benzyl phthalate	100	89.3		ug/L		89	66 - 130
Caprolactam	100	58.0		ug/L		58	34 - 130
Carbazole	100	84.8		ug/L		85	67 - 130
4-Chloroaniline	100	39.7	*	ug/L		40	42 - 130
4-Chloro-3-methylphenol	100	80.4		ug/L		80	60 - 130
2-Chloronaphthalene	100	72.7		ug/L		73	53 - 130
2-Chlorophenol	100	76.9		ug/L		77	57 - 130
4-Chlorophenyl phenyl ether	100	81.8		ug/L		82	57 - 130
Chrysene	100	81.8		ug/L		82	59 - 130
Dibenz(a,h)anthracene	100	83.0		ug/L		83	55 - 130
Dibenzofuran	100	74.5		ug/L		75	58 - 130
3,3'-Dichlorobenzidine	100	50.5	J	ug/L		50	27 - 130

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-247628/4-A
Matrix: Water
Analysis Batch: 248194

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 247628

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-Dichlorophenol	100	79.6		ug/L		80	54 - 130
Diethyl phthalate	100	88.3		ug/L		88	70 - 130
2,4-Dimethylphenol	100	68.5		ug/L		68	40 - 130
Dimethyl phthalate	100	87.6		ug/L		88	69 - 130
Di-n-butyl phthalate	100	85.6		ug/L		86	66 - 130
4,6-Dinitro-2-methylphenol	100	94.3		ug/L		94	45 - 134
2,4-Dinitrophenol	100	96.5		ug/L		96	20 - 165
2,4-Dinitrotoluene	100	80.7		ug/L		81	63 - 130
2,6-Dinitrotoluene	100	86.0		ug/L		86	65 - 130
Di-n-octyl phthalate	100	86.5		ug/L		87	64 - 130
Fluoranthene	100	81.7		ug/L		82	56 - 130
Fluorene	100	82.3		ug/L		82	61 - 130
Hexachlorobenzene	100	78.5		ug/L		78	52 - 130
Hexachlorobutadiene	100	70.9		ug/L		71	36 - 130
Hexachlorocyclopentadiene	100	54.4		ug/L		54	10 - 130
Hexachloroethane	100	62.4		ug/L		62	39 - 130
Indeno[1,2,3-cd]pyrene	100	87.0		ug/L		87	47 - 130
Isophorone	100	79.2		ug/L		79	59 - 130
2-Methylnaphthalene	100	74.6		ug/L		75	52 - 130
2-Methylphenol	100	75.7		ug/L		76	55 - 130
3 & 4 Methylphenol	100	71.1		ug/L		71	35 - 130
Naphthalene	100	74.3		ug/L		74	50 - 130
2-Nitroaniline	100	88.4		ug/L		88	60 - 130
3-Nitroaniline	100	68.4		ug/L		68	54 - 130
4-Nitroaniline	100	76.1		ug/L		76	54 - 130
Nitrobenzene	100	76.8		ug/L		77	56 - 130
2-Nitrophenol	100	82.7		ug/L		83	54 - 130
4-Nitrophenol	100	75.0		ug/L		75	38 - 130
N-Nitrosodi-n-propylamine	100	86.3		ug/L		86	64 - 130
N-Nitrosodiphenylamine	100	87.6		ug/L		88	68 - 130
Pentachlorophenol	100	86.8		ug/L		87	42 - 138
Phenanthrene	100	82.8		ug/L		83	62 - 130
Phenol	100	66.6		ug/L		67	29 - 130
Pyrene	100	85.0		ug/L		85	60 - 130
2,4,5-Trichlorophenol	100	83.5		ug/L		84	61 - 130
2,4,6-Trichlorophenol	100	85.9		ug/L		86	57 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*80*		*38 - 130*
2-Fluorophenol (Surr)	*78*		*25 - 130*
Nitrobenzene-d5 (Surr)	*86*		*39 - 130*
Phenol-d5 (Surr)	*74*		*25 - 130*
Terphenyl-d14 (Surr)	*89*		*10 - 143*
2,4,6-Tribromophenol (Surr)	*99*		*31 - 141*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-247628/7-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 248194 — **Prep Batch: 247628**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4,5-Tetrachlorobenzene	100	82.1		ug/L		82	51 - 130
2,3,4,6-Tetrachlorophenol	100	102		ug/L		102	64 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl	*83*		*38 - 130*
2-Fluorophenol (Surr)	*86*		*25 - 130*
Nitrobenzene-d5 (Surr)	*94*		*39 - 130*
Phenol-d5 (Surr)	*86*		*25 - 130*
Terphenyl-d14 (Surr)	*61*		*10 - 143*
2,4,6-Tribromophenol (Surr)	*107*		*31 - 141*

Lab Sample ID: LCSD 680-247628/8-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 248194 — **Prep Batch: 247628**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4,5-Tetrachlorobenzene	100	85.4		ug/L		85	51 - 130	4	50
2,3,4,6-Tetrachlorophenol	100	103		ug/L		103	64 - 130	1	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl	*83*		*38 - 130*
2-Fluorophenol (Surr)	*84*		*25 - 130*
Nitrobenzene-d5 (Surr)	*91*		*39 - 130*
Phenol-d5 (Surr)	*84*		*25 - 130*
Terphenyl-d14 (Surr)	*62*		*10 - 143*
2,4,6-Tribromophenol (Surr)	*106*		*31 - 141*

Lab Sample ID: 680-82259-1 MS — **Client Sample ID: MW-11**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 248194 — **Prep Batch: 247628**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		98.8	53.6	F	ug/L		54	55 - 130
Acenaphthylene	ND		98.8	57.8	F	ug/L		59	60 - 130
Acetophenone	ND		98.8	58.2		ug/L		59	54 - 130
Anthracene	ND		98.8	58.9	F	ug/L		60	61 - 130
Atrazine	ND		98.8	51.0	F	ug/L		52	66 - 130
Benzaldehyde	1.9	J	98.8	74.4		ug/L		73	59 - 142
Benzo[a]anthracene	ND		98.8	54.7	F	ug/L		55	58 - 130
Benzo[a]pyrene	ND		98.8	61.0		ug/L		62	61 - 130
Benzo[b]fluoranthene	ND		98.8	69.3		ug/L		70	51 - 130
Benzo[g,h,i]perylene	ND		98.8	59.0		ug/L		60	54 - 130
Benzo[k]fluoranthene	ND		98.8	48.8	F	ug/L		49	53 - 130
1,1'-Biphenyl	ND		98.8	52.6	F	ug/L		53	54 - 130
Bis(2-chloroethoxy)methane	ND		98.8	63.1		ug/L		64	64 - 130
Bis(2-chloroethyl)ether	ND		98.8	64.3		ug/L		65	56 - 130
bis (2-chloroisopropyl) ether	ND		98.8	57.9		ug/L		59	55 - 130
Bis(2-ethylhexyl) phthalate	ND		98.8	62.2		ug/L		63	62 - 130
4-Bromophenyl phenyl ether	ND		98.8	62.2		ug/L		63	61 - 130

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-82259-1 MS
Matrix: Water
Analysis Batch: 248194

Client Sample ID: MW-11
Prep Type: Total/NA
Prep Batch: 247628

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Butyl benzyl phthalate	ND		98.8	66.3		ug/L		67	66 - 130
Caprolactam	45		98.8	90.1		ug/L		46	34 - 130
Carbazole	ND		98.8	61.8	F	ug/L		63	67 - 130
4-Chloroaniline	ND	*	98.8	22.2	F	ug/L		23	42 - 130
4-Chloro-3-methylphenol	ND		98.8	68.5		ug/L		69	60 - 130
2-Chloronaphthalene	ND		98.8	50.3	F	ug/L		51	53 - 130
2-Chlorophenol	ND		98.8	54.0	F	ug/L		55	57 - 130
4-Chlorophenyl phenyl ether	ND		98.8	56.1		ug/L		57	57 - 130
Chrysene	ND		98.8	52.3	F	ug/L		53	59 - 130
Dibenz(a,h)anthracene	ND		98.8	59.0		ug/L		60	55 - 130
Dibenzofuran	ND		98.8	53.9	F	ug/L		55	58 - 130
3,3'-Dichlorobenzidine	ND		98.8	ND	F	ug/L		0	27 - 130
2,4-Dichlorophenol	ND		98.8	56.0		ug/L		57	54 - 130
Diethyl phthalate	34		98.8	89.0	F	ug/L		55	70 - 130
2,4-Dimethylphenol	ND		98.8	58.8		ug/L		59	40 - 130
Dimethyl phthalate	ND		98.8	60.8	F	ug/L		62	69 - 130
Di-n-butyl phthalate	ND		98.8	61.7	F	ug/L		62	66 - 130
4,6-Dinitro-2-methylphenol	ND		98.8	72.4		ug/L		73	45 - 134
2,4-Dinitrophenol	ND		98.8	81.1		ug/L		82	20 - 165
2,4-Dinitrotoluene	ND		98.8	61.0	F	ug/L		62	63 - 130
2,6-Dinitrotoluene	ND		98.8	63.7	F	ug/L		64	65 - 130
Di-n-octyl phthalate	ND		98.8	63.9		ug/L		65	64 - 130
Fluoranthene	ND		98.8	60.8		ug/L		62	56 - 130
Fluorene	ND		98.8	58.5	F	ug/L		59	61 - 130
Hexachlorobenzene	ND		98.8	49.6	F	ug/L		50	52 - 130
Hexachlorobutadiene	ND		98.8	49.9		ug/L		50	36 - 130
Hexachlorocyclopentadiene	ND		98.8	39.4		ug/L		40	10 - 130
Hexachloroethane	ND		98.8	44.2		ug/L		45	39 - 130
Indeno[1,2,3-cd]pyrene	ND		98.8	59.9		ug/L		61	47 - 130
Isophorone	ND		98.8	64.9		ug/L		66	59 - 130
2-Methylnaphthalene	3.2	J	98.8	55.2		ug/L		53	52 - 130
2-Methylphenol	ND		98.8	55.7		ug/L		56	55 - 130
3 & 4 Methylphenol	2.1	J	98.8	55.3		ug/L		54	35 - 130
Naphthalene	9.3	J	98.8	62.5		ug/L		54	50 - 130
2-Nitroaniline	ND		98.8	64.1		ug/L		65	60 - 130
3-Nitroaniline	ND		98.8	44.0	J F	ug/L		45	54 - 130
4-Nitroaniline	ND		98.8	44.5	J F	ug/L		45	54 - 130
Nitrobenzene	ND		98.8	59.6		ug/L		60	56 - 130
2-Nitrophenol	ND		98.8	61.0		ug/L		62	54 - 130
4-Nitrophenol	ND		98.8	52.7		ug/L		53	38 - 130
N-Nitrosodi-n-propylamine	ND		98.8	61.2	F	ug/L		62	64 - 130
N-Nitrosodiphenylamine	ND		98.8	65.9	F	ug/L		67	68 - 130
Pentachlorophenol	ND		98.8	83.0		ug/L		84	42 - 138
Phenanthrene	ND		98.8	57.4	F	ug/L		58	62 - 130
Phenol	ND		98.8	52.5		ug/L		53	29 - 130
Pyrene	ND		98.8	62.7		ug/L		64	60 - 130
2,4,5-Trichlorophenol	ND		98.8	63.1		ug/L		64	61 - 130
2,4,6-Trichlorophenol	ND		98.8	59.2		ug/L		60	57 - 130

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-82259-1 MS
Matrix: Water
Analysis Batch: 248194

Client Sample ID: MW-11
Prep Type: Total/NA
Prep Batch: 247628

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorobiphenyl	*53*		*38 - 130*
2-Fluorophenol (Surr)	*54*		*25 - 130*
Nitrobenzene-d5 (Surr)	*63*		*39 - 130*
Phenol-d5 (Surr)	*52*		*25 - 130*
Terphenyl-d14 (Surr)	*35*		*10 - 143*
2,4,6-Tribromophenol (Surr)	*73*		*31 - 141*

Lab Sample ID: 680-82259-1 MSD
Matrix: Water
Analysis Batch: 248194

Client Sample ID: MW-11
Prep Type: Total/NA
Prep Batch: 247628

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		92.9	59.9		ug/L		64	55 - 130	11	50
Acenaphthylene	ND		92.9	65.8		ug/L		71	60 - 130	13	50
Acetophenone	ND		92.9	64.7		ug/L		70	54 - 130	11	50
Anthracene	ND		92.9	65.4		ug/L		70	61 - 130	10	50
Atrazine	ND		92.9	45.2	F	ug/L		49	66 - 130	12	50
Benzaldehyde	1.9	J	92.9	64.1		ug/L		67	59 - 142	15	50
Benzo[a]anthracene	ND		92.9	55.5		ug/L		60	58 - 130	1	50
Benzo[a]pyrene	ND		92.9	56.8		ug/L		61	61 - 130	7	50
Benzo[b]fluoranthene	ND		92.9	62.2		ug/L		67	51 - 130	11	50
Benzo[g,h,i]perylene	ND		92.9	56.2		ug/L		61	54 - 130	5	50
Benzo[k]fluoranthene	ND		92.9	51.5		ug/L		55	53 - 130	5	50
1,1'-Biphenyl	ND		92.9	59.4		ug/L		64	54 - 130	12	50
Bis(2-chloroethoxy)methane	ND		92.9	69.7		ug/L		75	64 - 130	10	50
Bis(2-chloroethyl)ether	ND		92.9	70.9		ug/L		76	56 - 130	10	50
bis (2-chloroisopropyl) ether	ND		92.9	65.8		ug/L		71	55 - 130	13	50
Bis(2-ethylhexyl) phthalate	ND		92.9	61.9		ug/L		67	62 - 130	1	50
4-Bromophenyl phenyl ether	ND		92.9	69.1		ug/L		74	61 - 130	10	50
Butyl benzyl phthalate	ND		92.9	68.1		ug/L		73	66 - 130	3	50
Caprolactam	45		92.9	70.8	F	ug/L		28	34 - 130	24	50
Carbazole	ND		92.9	63.0		ug/L		68	67 - 130	2	50
4-Chloroaniline	ND	*	92.9	8.94	J F	ug/L		10	42 - 130	85	50
4-Chloro-3-methylphenol	ND		92.9	75.5		ug/L		81	60 - 130	10	50
2-Chloronaphthalene	ND		92.9	57.7		ug/L		62	53 - 130	14	50
2-Chlorophenol	ND		92.9	62.7		ug/L		67	57 - 130	15	50
4-Chlorophenyl phenyl ether	ND		92.9	63.7		ug/L		69	57 - 130	13	50
Chrysene	ND		92.9	54.8		ug/L		59	59 - 130	5	50
Dibenz(a,h)anthracene	ND		92.9	57.2		ug/L		62	55 - 130	3	50
Dibenzofuran	ND		92.9	60.6		ug/L		65	58 - 130	12	50
3,3'-Dichlorobenzidine	ND		92.9	ND	F	ug/L		0	27 - 130	NC	50
2,4-Dichlorophenol	ND		92.9	63.8		ug/L		69	54 - 130	13	50
Diethyl phthalate	34		92.9	98.9		ug/L		70	70 - 130	11	50
2,4-Dimethylphenol	ND		92.9	65.5		ug/L		71	40 - 130	11	50
Dimethyl phthalate	ND		92.9	69.4		ug/L		75	69 - 130	13	50
Di-n-butyl phthalate	ND		92.9	66.3		ug/L		71	66 - 130	7	50
4,6-Dinitro-2-methylphenol	ND		92.9	80.0		ug/L		86	45 - 134	10	50
2,4-Dinitrophenol	ND		92.9	86.9		ug/L		94	20 - 165	7	50
2,4-Dinitrotoluene	ND		92.9	68.7		ug/L		74	63 - 130	12	50

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-82259-1 MSD — **Client Sample ID: MW-11**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 248194 — **Prep Batch: 247628**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,6-Dinitrotoluene	ND		92.9	68.6		ug/L		74	65 - 130	7	50
Di-n-octyl phthalate	ND		92.9	63.3		ug/L		68	64 - 130	1	50
Fluoranthene	ND		92.9	62.7		ug/L		68	56 - 130	3	50
Fluorene	ND		92.9	66.7		ug/L		72	61 - 130	13	50
Hexachlorobenzene	ND		92.9	55.1		ug/L		59	52 - 130	11	50
Hexachlorobutadiene	ND		92.9	53.9		ug/L		58	36 - 130	8	50
Hexachlorocyclopentadiene	ND		92.9	46.1		ug/L		50	10 - 130	16	50
Hexachloroethane	ND		92.9	48.0		ug/L		52	39 - 130	8	50
Indeno[1,2,3-cd]pyrene	ND		92.9	58.3		ug/L		63	47 - 130	3	50
Isophorone	ND		92.9	73.1		ug/L		79	59 - 130	12	50
2-Methylnaphthalene	3.2	J	92.9	61.8		ug/L		63	52 - 130	11	50
2-Methylphenol	ND		92.9	62.4		ug/L		67	55 - 130	11	50
3 & 4 Methylphenol	2.1	J	92.9	61.0		ug/L		63	35 - 130	10	50
Naphthalene	9.3	J	92.9	68.2		ug/L		63	50 - 130	9	50
2-Nitroaniline	ND		92.9	70.8		ug/L		76	60 - 130	10	50
3-Nitroaniline	ND		92.9	26.3	J F	ug/L		28	54 - 130	50	50
4-Nitroaniline	ND		92.9	38.1	J F	ug/L		41	54 - 130	16	50
Nitrobenzene	ND		92.9	70.8		ug/L		76	56 - 130	17	50
2-Nitrophenol	ND		92.9	68.8		ug/L		74	54 - 130	12	50
4-Nitrophenol	ND		92.9	58.3		ug/L		63	38 - 130	10	50
N-Nitrosodi-n-propylamine	ND		92.9	69.6		ug/L		75	64 - 130	13	50
N-Nitrosodiphenylamine	ND		92.9	66.6		ug/L		72	68 - 130	1	50
Pentachlorophenol	ND		92.9	86.5		ug/L		93	42 - 138	4	50
Phenanthrene	ND		92.9	65.3		ug/L		70	62 - 130	13	50
Phenol	ND		92.9	57.3		ug/L		62	29 - 130	9	50
Pyrene	ND		92.9	67.0		ug/L		72	60 - 130	7	50
2,4,5-Trichlorophenol	ND		92.9	71.3		ug/L		77	61 - 130	12	50
2,4,6-Trichlorophenol	ND		92.9	67.8		ug/L		73	57 - 130	14	50

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorobiphenyl	*66*		*38 - 130*
2-Fluorophenol (Surr)	*70*		*25 - 130*
Nitrobenzene-d5 (Surr)	*89*		*39 - 130*
Phenol-d5 (Surr)	*64*		*25 - 130*
Terphenyl-d14 (Surr)	*30*		*10 - 143*
2,4,6-Tribromophenol (Surr)	*88*		*31 - 141*

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 680-247589/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 247812 — **Prep Batch: 247589**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nickel	0.636	J	1.0	0.40	ug/L		08/23/12 14:14	08/24/12 19:53	1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 680-247589/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 247812 — **Prep Batch: 247589**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nickel			20.0	18.9		ug/L		94	75 - 125		

Lab Sample ID: 680-82259-1 MS — **Client Sample ID: MW-11**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 247812 — **Prep Batch: 247589**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nickel	35	B	20.0	52.9		ug/L		90	75 - 125		

Lab Sample ID: 680-82259-1 MSD — **Client Sample ID: MW-11**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 247812 — **Prep Batch: 247589**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nickel	35	B	20.0	52.2		ug/L		87	75 - 125	1	20

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 680-249502/2 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 249502

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		10	3.0	ug/L			08/23/12 11:19	1

Lab Sample ID: LCS 680-249502/1 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 249502

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			200	193		ug/L		97	85 - 115		

Lab Sample ID: 680-82259-1 MS — **Client Sample ID: MW-11**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 249502

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent	ND		100	ND	F	ug/L		0	85 - 115		

Lab Sample ID: 680-82259-1 MSD — **Client Sample ID: MW-11**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 249502

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		100	ND	F	ug/L		0	85 - 115	NC	20

Method: 7196A - Chromium, Hexavalent - DL

Lab Sample ID: 680-82259-1 MS
Matrix: Water
Analysis Batch: 249502

Client Sample ID: MW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent - DL	ND	H	100000	192000	F	ug/L		192	85 - 115		

Lab Sample ID: 680-82259-1 MSD
Matrix: Water
Analysis Batch: 249502

Client Sample ID: MW-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent - DL	ND	H	100000	193000	F	ug/L		193	85 - 115	0	20

Lab Sample ID: 680-82259-2 MS
Matrix: Water
Analysis Batch: 249502

Client Sample ID: Dup-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent - DL	ND	H	100000	191000	F	ug/L		191	85 - 115		

Lab Sample ID: 680-82259-2 MSD
Matrix: Water
Analysis Batch: 249502

Client Sample ID: Dup-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent - DL	ND	H	100000	192000	F	ug/L		192	85 - 115	0	20

QC Association Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

GC/MS VOA

Analysis Batch: 248520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-3	TRIP BLANK	Total/NA	Water	8260B	
LCS 680-248520/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-248520/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-248520/6	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 248593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-1	MW-11	Total/NA	Water	8260B	
680-82259-2	Dup-1	Total/NA	Water	8260B	
LCS 680-248593/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-248593/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-248593/6	Method Blank	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 247628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-1	MW-11	Total/NA	Water	3520C	
680-82259-1 MS	MW-11	Total/NA	Water	3520C	
680-82259-1 MSD	MW-11	Total/NA	Water	3520C	
680-82259-2	Dup-1	Total/NA	Water	3520C	
LCS 680-247628/4-A	Lab Control Sample	Total/NA	Water	3520C	
LCS 680-247628/7-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 680-247628/8-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 680-247628/3-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 248194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-1	MW-11	Total/NA	Water	8270D	247628
680-82259-1 MS	MW-11	Total/NA	Water	8270D	247628
680-82259-1 MSD	MW-11	Total/NA	Water	8270D	247628
680-82259-2	Dup-1	Total/NA	Water	8270D	247628
LCS 680-247628/4-A	Lab Control Sample	Total/NA	Water	8270D	247628
LCS 680-247628/7-A	Lab Control Sample	Total/NA	Water	8270D	247628
LCSD 680-247628/8-A	Lab Control Sample Dup	Total/NA	Water	8270D	247628
MB 680-247628/3-A	Method Blank	Total/NA	Water	8270D	247628

Metals

Prep Batch: 247589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-1	MW-11	Total/NA	Water	3030C	
680-82259-1 MS	MW-11	Total/NA	Water	3030C	
680-82259-1 MSD	MW-11	Total/NA	Water	3030C	
680-82259-2	Dup-1	Total/NA	Water	3030C	
LCS 680-247589/2-A	Lab Control Sample	Total/NA	Water	3030C	
MB 680-247589/1-A	Method Blank	Total/NA	Water	3030C	

Analysis Batch: 247812

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-1	MW-11	Total/NA	Water	6020A	247589
680-82259-1 MS	MW-11	Total/NA	Water	6020A	247589

Metals (Continued)

Analysis Batch: 247812 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-1 MSD	MW-11	Total/NA	Water	6020A	247589
680-82259-2	Dup-1	Total/NA	Water	6020A	247589
LCS 680-247589/2-A	Lab Control Sample	Total/NA	Water	6020A	247589
MB 680-247589/1-A	Method Blank	Total/NA	Water	6020A	247589

General Chemistry

Analysis Batch: 249502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-1 - DL	MW-11	Total/NA	Water	7196A	
680-82259-1	MW-11	Total/NA	Water	7196A	
680-82259-1 MS - DL	MW-11	Total/NA	Water	7196A	
680-82259-1 MS	MW-11	Total/NA	Water	7196A	
680-82259-1 MSD - DL	MW-11	Total/NA	Water	7196A	
680-82259-1 MSD	MW-11	Total/NA	Water	7196A	
680-82259-2 - DL	Dup-1	Total/NA	Water	7196A	
680-82259-2	Dup-1	Total/NA	Water	7196A	
680-82259-2 MS - DL	Dup-1	Total/NA	Water	7196A	
680-82259-2 MSD - DL	Dup-1	Total/NA	Water	7196A	
LCS 680-249502/1	Lab Control Sample	Total/NA	Water	7196A	
MB 680-249502/2	Method Blank	Total/NA	Water	7196A	

Lab Chronicle

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Client Sample ID: MW-11

Lab Sample ID: 680-82259-1
Date Collected: 08/22/12 11:30
Matrix: Water
Date Received: 08/23/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	248593	09/04/12 15:08	JD	TAL SAV
Total/NA	Prep	3520C			247628	08/24/12 16:11	RBS	TAL SAV
Total/NA	Analysis	8270D		1	248194	08/28/12 21:15	MJC	TAL SAV
Total/NA	Prep	3030C			247589	08/23/12 14:14	VHB	TAL SAV
Total/NA	Analysis	6020A		1	247812	08/24/12 20:06	RAM	TAL SAV
Total/NA	Analysis	7196A	DL	1000	249502	08/23/12 13:07	JR	TAL SAV
Total/NA	Analysis	7196A		1	249502	08/23/12 11:19	JR	TAL SAV

Client Sample ID: Dup-1

Lab Sample ID: 680-82259-2
Date Collected: 08/22/12 11:30
Matrix: Water
Date Received: 08/23/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	248593	09/04/12 15:37	JD	TAL SAV
Total/NA	Prep	3520C			247628	08/24/12 16:11	RBS	TAL SAV
Total/NA	Analysis	8270D		1	248194	08/28/12 21:43	MJC	TAL SAV
Total/NA	Prep	3030C			247589	08/23/12 14:14	VHB	TAL SAV
Total/NA	Analysis	6020A		1	247812	08/24/12 20:39	RAM	TAL SAV
Total/NA	Analysis	7196A	DL	1000	249502	08/23/12 13:07	JR	TAL SAV
Total/NA	Analysis	7196A		1	249502	08/23/12 11:19	JR	TAL SAV

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-82259-3
Date Collected: 08/22/12 00:00
Matrix: Water
Date Received: 08/23/12 09:53

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	248520	09/01/12 17:01	JD	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Serial Number 56835

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404

Website: www.testamericainc.com
Phone: (912) 354-7858
Fax: (912) 352-0165

Alternate Laboratory Name/Location
Phone:
Fax:

PROJECT REFERENCE NCD 980557987 NONCD	PROJECT NO. 116190 60.51	PROJECT LOCATION (STATE) N.C.	PAGE 1 OF 1
TAL (LAB) PROJECT MANAGER Lidya	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ☒ DATE DUE
CLIENT (SITE) PM Misti Benchabbat	CLIENT PHONE 919 2193244	CLIENT FAX	EXPEDITED REPORT DELIVERY (SURCHARGE) ○ DATE DUE
CLIENT NAME Schnabel Eng.	CLIENT E-MAIL mbenchabbat@schnabel-eng.com		
CLIENT ADDRESS 10 Corp Blvd Ste 420			
COMPANY CONTRACTING THIS WORK (if applicable) NCDENR			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	6020A Nickel (HNO3)	8260 VOC (HCL)	8270D S.VOC (none)	7196A Crt6 (none)							REMARKS
8-22-12	1130	MW-11	G	✓				1	3	2	1							
8-22-12	1130	Dup.-1	G	✓				1	3	2	1							
		TRIP BLANK		✓					2									071512 Lot No.

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
[signature]	8/23/12	1800						
RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	8/24/12	0933	YES ○ NO ○		680-82259	4.2°C

TAL 8240-680 (1008)

Login Sample Receipt Checklist

Client: Schnabel Engineering

Job Number: 680-82259-1

Login Number: 82259
List Number: 1
Creator: Conner, Keaton

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.2 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	RECEIVED 1 LITER AMBER Dup BROKEN
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	Dup metals (HNO3) pH >2; lab to acidify
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	Insufficient volume received for MS/MSD.
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF NCD 980557987

TestAmerica Job ID: 680-82259-1

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-12
USDA	Federal		SAV 3-04	04-07-14
Vermont	State Program	1	87052	11-16-12
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-82259-2
Client Project/Site: Swannanoa LF Air NCD 980557987

For:
Schnabel Engineering
104 Corporate Blvd., Suite 420
W. Columbia, South Carolina 29169

Attn: Ms. Misti Benchabbat

Authorized for release by:
9/12/2012 2:09:35 PM

Lidya Gulizia
Project Manager II
lidya.gulizia@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Job ID: 680-82259-2

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Schnabel Engineering

Project: Swannanoa LF Air NCD 980557987

Report Number: 680-82259-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

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

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 08/24/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 4.2 C.

HELIUM
Samples TRIP BLANK (680-82259-4), GP-13 (680-82259-5) and DUP-2 (680-82259-6) were analyzed for Helium in accordance with ASTM D1946 (MOD). The samples were analyzed on 09/05/2012.

Samples GP-13 (680-82259-5)[1.8X] and DUP-2 (680-82259-6)[1.8X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the Helium analyses.

All quality control parameters were within the acceptance limits.

VOLATILE ORGANIC COMPOUNDS
Samples TRIP BLANK (680-82259-4), GP-13 (680-82259-5) and DUP-2 (680-82259-6) were analyzed for Volatile Organic Compounds in accordance with EPA Method TO-15. The samples were analyzed on 09/06/2012 and 09/07/2012.

Samples GP-13 (680-82259-5)[481X] and DUP-2 (680-82259-6)[440X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the VOC analyses.

All quality control parameters were within the acceptance limits.

Sample Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-82259-4	TRIP BLANK	Air	08/23/12 00:00	08/24/12 08:48
680-82259-5	GP-13	Air	08/23/12 10:05	08/24/12 08:48
680-82259-6	DUP-2	Air	08/23/12 10:25	08/24/12 08:48

Method Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Method	Method Description	Protocol	Laboratory
D1946	Fixed Gases (Helium)	ASTM	TAL BUR
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL BUR

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-82259-4

Date Collected: 08/23/12 00:00
Matrix: Air
Date Received: 08/24/12 08:48
Sample Container: Summa Canister 6L

Method: D1946 - Fixed Gases (Helium)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Helium	ND		0.17	0.17	% v/v			09/05/12 16:23	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**8.3**		5.0	5.0	ppb v/v			09/06/12 03:35	1
Benzene	**0.37**		0.20	0.20	ppb v/v			09/06/12 03:35	1
Benzyl chloride	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Bromodichloromethane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Bromoethene(Vinyl Bromide)	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Bromoform	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Bromomethane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,3-Butadiene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Carbon disulfide	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
Carbon tetrachloride	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Chlorobenzene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Chloroethane	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
Chloroform	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Chloromethane	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
3-Chloropropene	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
2-Chlorotoluene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
cis-1,2-Dichloroethene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
cis-1,3-Dichloropropene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Cumene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Cyclohexane	**0.23**		0.20	0.20	ppb v/v			09/06/12 03:35	1
Dibromochloromethane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,2-Dibromoethane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,2-Dichlorobenzene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,3-Dichlorobenzene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,4-Dichlorobenzene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Dichlorodifluoromethane	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
1,1-Dichloroethane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,2-Dichloroethane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,1-Dichloroethene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,2-Dichloroethene, Total	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,2-Dichloropropane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,2-Dichlorotetrafluoroethane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,4-Dioxane	ND		5.0	5.0	ppb v/v			09/06/12 03:35	1
Ethylbenzene	**0.25**		0.20	0.20	ppb v/v			09/06/12 03:35	1
4-Ethyltoluene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Freon 22	**15**		0.50	0.50	ppb v/v			09/06/12 03:35	1
Freon TF	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Hexachlorobutadiene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Isopropyl alcohol	**5.5**		5.0	5.0	ppb v/v			09/06/12 03:35	1
4-Isopropyltoluene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Methyl Butyl Ketone (2-Hexanone)	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
Methylene Chloride	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
Methyl Ethyl Ketone	**1.2**		0.50	0.50	ppb v/v			09/06/12 03:35	1
methyl isobutyl ketone	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
Methyl methacrylate	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
Methyl tert-butyl ether	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1

Client Sample Results

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-82259-4

Date Collected: 08/23/12 00:00
Matrix: Air
Date Received: 08/24/12 08:48
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	**0.88**		0.50	0.50	ppb v/v			09/06/12 03:35	1
Naphthalene	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
n-Butane	**4.3**		0.50	0.50	ppb v/v			09/06/12 03:35	1
n-Butylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
n-Heptane	**0.41**		0.20	0.20	ppb v/v			09/06/12 03:35	1
n-Hexane	**0.93**		0.20	0.20	ppb v/v			09/06/12 03:35	1
n-Propylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
sec-Butylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Styrene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
tert-Butyl alcohol	ND		5.0	5.0	ppb v/v			09/06/12 03:35	1
tert-Butylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,1,2,2-Tetrachloroethane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Tetrachloroethene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Tetrahydrofuran	ND		5.0	5.0	ppb v/v			09/06/12 03:35	1
Toluene	**2.2**		0.20	0.20	ppb v/v			09/06/12 03:35	1
trans-1,2-Dichloroethene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
trans-1,3-Dichloropropene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,2,4-Trichlorobenzene	ND		0.50	0.50	ppb v/v			09/06/12 03:35	1
1,1,1-Trichloroethane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,1,2-Trichloroethane	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Trichloroethene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Trichlorofluoromethane	**1.2**		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,2,4-Trimethylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
1,3,5-Trimethylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
2,2,4-Trimethylpentane	**0.23**		0.20	0.20	ppb v/v			09/06/12 03:35	1
Vinyl chloride	ND		0.20	0.20	ppb v/v			09/06/12 03:35	1
Xylene, o-	**0.29**		0.20	0.20	ppb v/v			09/06/12 03:35	1
Xylene (total)	**1.2**		0.20	0.20	ppb v/v			09/06/12 03:35	1

Client Sample Results

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Client Sample ID: GP-13

Lab Sample ID: 680-82259-5

Date Collected: 08/23/12 10:05
Matrix: Air
Date Received: 08/24/12 08:48
Sample Container: Summa Canister 6L

Method: D1946 - Fixed Gases (Helium)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Helium	ND		0.31	0.31	% v/v			09/05/12 16:18	1.8

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		2400	2400	ppb v/v			09/07/12 00:00	481
Benzene	**970**		96	96	ppb v/v			09/07/12 00:00	481
Benzyl chloride	ND		96	96	ppb v/v			09/07/12 00:00	481
Bromodichloromethane	ND		96	96	ppb v/v			09/07/12 00:00	481
Bromoethene(Vinyl Bromide)	ND		96	96	ppb v/v			09/07/12 00:00	481
Bromoform	ND		96	96	ppb v/v			09/07/12 00:00	481
Bromomethane	ND		96	96	ppb v/v			09/07/12 00:00	481
1,3-Butadiene	ND		96	96	ppb v/v			09/07/12 00:00	481
Carbon disulfide	ND		240	240	ppb v/v			09/07/12 00:00	481
Carbon tetrachloride	ND		96	96	ppb v/v			09/07/12 00:00	481
Chlorobenzene	ND		96	96	ppb v/v			09/07/12 00:00	481
Chloroethane	**250**		240	240	ppb v/v			09/07/12 00:00	481
Chloroform	ND		96	96	ppb v/v			09/07/12 00:00	481
Chloromethane	ND		240	240	ppb v/v			09/07/12 00:00	481
3-Chloropropene	ND		240	240	ppb v/v			09/07/12 00:00	481
2-Chlorotoluene	ND		96	96	ppb v/v			09/07/12 00:00	481
cis-1,2-Dichloroethene	**2700**		96	96	ppb v/v			09/07/12 00:00	481
cis-1,3-Dichloropropene	ND		96	96	ppb v/v			09/07/12 00:00	481
Cumene	**190**		96	96	ppb v/v			09/07/12 00:00	481
Cyclohexane	**640**		96	96	ppb v/v			09/07/12 00:00	481
Dibromochloromethane	ND		96	96	ppb v/v			09/07/12 00:00	481
1,2-Dibromoethane	ND		96	96	ppb v/v			09/07/12 00:00	481
1,2-Dichlorobenzene	ND		96	96	ppb v/v			09/07/12 00:00	481
1,3-Dichlorobenzene	ND		96	96	ppb v/v			09/07/12 00:00	481
1,4-Dichlorobenzene	ND		96	96	ppb v/v			09/07/12 00:00	481
Dichlorodifluoromethane	**8400**		240	240	ppb v/v			09/07/12 00:00	481
1,1-Dichloroethane	**200**		96	96	ppb v/v			09/07/12 00:00	481
1,2-Dichloroethane	ND		96	96	ppb v/v			09/07/12 00:00	481
1,1-Dichloroethene	ND		96	96	ppb v/v			09/07/12 00:00	481
1,2-Dichloroethene, Total	**2700**		96	96	ppb v/v			09/07/12 00:00	481
1,2-Dichloropropane	**350**		96	96	ppb v/v			09/07/12 00:00	481
1,2-Dichlorotetrafluoroethane	**690**		96	96	ppb v/v			09/07/12 00:00	481
1,4-Dioxane	ND		2400	2400	ppb v/v			09/07/12 00:00	481
Ethylbenzene	**2200**		96	96	ppb v/v			09/07/12 00:00	481
4-Ethyltoluene	**110**		96	96	ppb v/v			09/07/12 00:00	481
Freon 22	**2900**		240	240	ppb v/v			09/07/12 00:00	481
Freon TF	ND		96	96	ppb v/v			09/07/12 00:00	481
Hexachlorobutadiene	ND		96	96	ppb v/v			09/07/12 00:00	481
Isopropyl alcohol	**4900**		2400	2400	ppb v/v			09/07/12 00:00	481
4-Isopropyltoluene	ND		96	96	ppb v/v			09/07/12 00:00	481
Methyl Butyl Ketone (2-Hexanone)	ND		240	240	ppb v/v			09/07/12 00:00	481
Methylene Chloride	**1200**		240	240	ppb v/v			09/07/12 00:00	481
Methyl Ethyl Ketone	**1700**		240	240	ppb v/v			09/07/12 00:00	481
methyl isobutyl ketone	ND		240	240	ppb v/v			09/07/12 00:00	481
Methyl methacrylate	ND		240	240	ppb v/v			09/07/12 00:00	481
Methyl tert-butyl ether	ND		96	96	ppb v/v			09/07/12 00:00	481

Client Sample Results

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Client Sample ID: GP-13

Lab Sample ID: 680-82259-5

Date Collected: 08/23/12 10:05
Matrix: Air
Date Received: 08/24/12 08:48
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	**4200**		240	240	ppb v/v			09/07/12 00:00	481
Naphthalene	ND		240	240	ppb v/v			09/07/12 00:00	481
n-Butane	**800**		240	240	ppb v/v			09/07/12 00:00	481
n-Butylbenzene	ND		96	96	ppb v/v			09/07/12 00:00	481
n-Heptane	**700**		96	96	ppb v/v			09/07/12 00:00	481
n-Hexane	**1500**		96	96	ppb v/v			09/07/12 00:00	481
n-Propylbenzene	**140**		96	96	ppb v/v			09/07/12 00:00	481
sec-Butylbenzene	ND		96	96	ppb v/v			09/07/12 00:00	481
Styrene	ND		96	96	ppb v/v			09/07/12 00:00	481
tert-Butyl alcohol	ND		2400	2400	ppb v/v			09/07/12 00:00	481
tert-Butylbenzene	ND		96	96	ppb v/v			09/07/12 00:00	481
1,1,2,2-Tetrachloroethane	ND		96	96	ppb v/v			09/07/12 00:00	481
Tetrachloroethene	**1400**		96	96	ppb v/v			09/07/12 00:00	481
Tetrahydrofuran	ND		2400	2400	ppb v/v			09/07/12 00:00	481
Toluene	**12000**		96	96	ppb v/v			09/07/12 00:00	481
trans-1,2-Dichloroethene	ND		96	96	ppb v/v			09/07/12 00:00	481
trans-1,3-Dichloropropene	ND		96	96	ppb v/v			09/07/12 00:00	481
1,2,4-Trichlorobenzene	ND		240	240	ppb v/v			09/07/12 00:00	481
1,1,1-Trichloroethane	ND		96	96	ppb v/v			09/07/12 00:00	481
1,1,2-Trichloroethane	ND		96	96	ppb v/v			09/07/12 00:00	481
Trichloroethene	**430**		96	96	ppb v/v			09/07/12 00:00	481
Trichlorofluoromethane	**200**		96	96	ppb v/v			09/07/12 00:00	481
1,2,4-Trimethylbenzene	**240**		96	96	ppb v/v			09/07/12 00:00	481
1,3,5-Trimethylbenzene	**140**		96	96	ppb v/v			09/07/12 00:00	481
2,2,4-Trimethylpentane	**390**		96	96	ppb v/v			09/07/12 00:00	481
Vinyl chloride	**2000**		96	96	ppb v/v			09/07/12 00:00	481
Xylene, o-	**1100**		96	96	ppb v/v			09/07/12 00:00	481
Xylene (total)	**5300**		96	96	ppb v/v			09/07/12 00:00	481

Client Sample Results

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Client Sample ID: DUP-2

Lab Sample ID: 680-82259-6

Date Collected: 08/23/12 10:25
Matrix: Air
Date Received: 08/24/12 08:48
Sample Container: Summa Canister 6L

Method: D1946 - Fixed Gases (Helium)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Helium	ND		0.31	0.31	% v/v			09/05/12 16:28	1.8

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		2200	2200	ppb v/v			09/07/12 00:53	440
Benzene	**890**		88	88	ppb v/v			09/07/12 00:53	440
Benzyl chloride	ND		88	88	ppb v/v			09/07/12 00:53	440
Bromodichloromethane	ND		88	88	ppb v/v			09/07/12 00:53	440
Bromoethene(Vinyl Bromide)	ND		88	88	ppb v/v			09/07/12 00:53	440
Bromoform	ND		88	88	ppb v/v			09/07/12 00:53	440
Bromomethane	ND		88	88	ppb v/v			09/07/12 00:53	440
1,3-Butadiene	ND		88	88	ppb v/v			09/07/12 00:53	440
Carbon disulfide	ND		220	220	ppb v/v			09/07/12 00:53	440
Carbon tetrachloride	ND		88	88	ppb v/v			09/07/12 00:53	440
Chlorobenzene	ND		88	88	ppb v/v			09/07/12 00:53	440
Chloroethane	**250**		220	220	ppb v/v			09/07/12 00:53	440
Chloroform	ND		88	88	ppb v/v			09/07/12 00:53	440
Chloromethane	ND		220	220	ppb v/v			09/07/12 00:53	440
3-Chloropropene	ND		220	220	ppb v/v			09/07/12 00:53	440
2-Chlorotoluene	ND		88	88	ppb v/v			09/07/12 00:53	440
cis-1,2-Dichloroethene	**2600**		88	88	ppb v/v			09/07/12 00:53	440
cis-1,3-Dichloropropene	ND		88	88	ppb v/v			09/07/12 00:53	440
Cumene	**190**		88	88	ppb v/v			09/07/12 00:53	440
Cyclohexane	**630**		88	88	ppb v/v			09/07/12 00:53	440
Dibromochloromethane	ND		88	88	ppb v/v			09/07/12 00:53	440
1,2-Dibromoethane	ND		88	88	ppb v/v			09/07/12 00:53	440
1,2-Dichlorobenzene	ND		88	88	ppb v/v			09/07/12 00:53	440
1,3-Dichlorobenzene	ND		88	88	ppb v/v			09/07/12 00:53	440
1,4-Dichlorobenzene	ND		88	88	ppb v/v			09/07/12 00:53	440
Dichlorodifluoromethane	**8500**		220	220	ppb v/v			09/07/12 00:53	440
1,1-Dichloroethane	**200**		88	88	ppb v/v			09/07/12 00:53	440
1,2-Dichloroethane	ND		88	88	ppb v/v			09/07/12 00:53	440
1,1-Dichloroethene	ND		88	88	ppb v/v			09/07/12 00:53	440
1,2-Dichloroethene, Total	**2600**		88	88	ppb v/v			09/07/12 00:53	440
1,2-Dichloropropane	**340**		88	88	ppb v/v			09/07/12 00:53	440
1,2-Dichlorotetrafluoroethane	**700**		88	88	ppb v/v			09/07/12 00:53	440
1,4-Dioxane	ND		2200	2200	ppb v/v			09/07/12 00:53	440
Ethylbenzene	**2200**		88	88	ppb v/v			09/07/12 00:53	440
4-Ethyltoluene	ND		88	88	ppb v/v			09/07/12 00:53	440
Freon 22	**2900**		220	220	ppb v/v			09/07/12 00:53	440
Freon TF	ND		88	88	ppb v/v			09/07/12 00:53	440
Hexachlorobutadiene	ND		88	88	ppb v/v			09/07/12 00:53	440
Isopropyl alcohol	**4700**		2200	2200	ppb v/v			09/07/12 00:53	440
4-Isopropyltoluene	ND		88	88	ppb v/v			09/07/12 00:53	440
Methyl Butyl Ketone (2-Hexanone)	ND		220	220	ppb v/v			09/07/12 00:53	440
Methylene Chloride	**1300**		220	220	ppb v/v			09/07/12 00:53	440
Methyl Ethyl Ketone	**1600**		220	220	ppb v/v			09/07/12 00:53	440
methyl isobutyl ketone	ND		220	220	ppb v/v			09/07/12 00:53	440
Methyl methacrylate	ND		220	220	ppb v/v			09/07/12 00:53	440
Methyl tert-butyl ether	ND		88	88	ppb v/v			09/07/12 00:53	440

Client Sample Results

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Client Sample ID: DUP-2

Lab Sample ID: 680-82259-6

Date Collected: 08/23/12 10:25
Matrix: Air
Date Received: 08/24/12 08:48
Sample Container: Summa Canister 6L

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylene	**4100**		220	220	ppb v/v			09/07/12 00:53	440
Naphthalene	ND		220	220	ppb v/v			09/07/12 00:53	440
n-Butane	**800**		220	220	ppb v/v			09/07/12 00:53	440
n-Butylbenzene	ND		88	88	ppb v/v			09/07/12 00:53	440
n-Heptane	**660**		88	88	ppb v/v			09/07/12 00:53	440
n-Hexane	**1500**		88	88	ppb v/v			09/07/12 00:53	440
n-Propylbenzene	**130**		88	88	ppb v/v			09/07/12 00:53	440
sec-Butylbenzene	ND		88	88	ppb v/v			09/07/12 00:53	440
Styrene	ND		88	88	ppb v/v			09/07/12 00:53	440
tert-Butyl alcohol	ND		2200	2200	ppb v/v			09/07/12 00:53	440
tert-Butylbenzene	ND		88	88	ppb v/v			09/07/12 00:53	440
1,1,2,2-Tetrachloroethane	ND		88	88	ppb v/v			09/07/12 00:53	440
Tetrachloroethene	**1300**		88	88	ppb v/v			09/07/12 00:53	440
Tetrahydrofuran	ND		2200	2200	ppb v/v			09/07/12 00:53	440
Toluene	**11000**		88	88	ppb v/v			09/07/12 00:53	440
trans-1,2-Dichloroethene	ND		88	88	ppb v/v			09/07/12 00:53	440
trans-1,3-Dichloropropene	ND		88	88	ppb v/v			09/07/12 00:53	440
1,2,4-Trichlorobenzene	ND		220	220	ppb v/v			09/07/12 00:53	440
1,1,1-Trichloroethane	ND		88	88	ppb v/v			09/07/12 00:53	440
1,1,2-Trichloroethane	ND		88	88	ppb v/v			09/07/12 00:53	440
Trichloroethene	**400**		88	88	ppb v/v			09/07/12 00:53	440
Trichlorofluoromethane	**190**		88	88	ppb v/v			09/07/12 00:53	440
1,2,4-Trimethylbenzene	**230**		88	88	ppb v/v			09/07/12 00:53	440
1,3,5-Trimethylbenzene	**140**		88	88	ppb v/v			09/07/12 00:53	440
2,2,4-Trimethylpentane	**360**		88	88	ppb v/v			09/07/12 00:53	440
Vinyl chloride	**2000**		88	88	ppb v/v			09/07/12 00:53	440
Xylene, o-	**1100**		88	88	ppb v/v			09/07/12 00:53	440
Xylene (total)	**5200**		88	88	ppb v/v			09/07/12 00:53	440

Method: D1946 - Fixed Gases (Helium)

Lab Sample ID: MB 200-44538/3
Matrix: Air
Analysis Batch: 44538

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Helium	ND		0.17	0.17	% v/v			09/05/12 15:47	1

Lab Sample ID: LCS 200-44538/2
Matrix: Air
Analysis Batch: 44538

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Helium	5.00	5.06		% v/v		101	70 - 130

Method: TO-15 - Volatile Organic Compounds in Ambient Air

Lab Sample ID: MB 200-44527/4
Matrix: Air
Analysis Batch: 44527

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0	5.0	ppb v/v			09/05/12 12:38	1
Benzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Benzyl chloride	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Bromodichloromethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Bromoethene(Vinyl Bromide)	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Bromoform	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Bromomethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,3-Butadiene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Carbon disulfide	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
Carbon tetrachloride	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Chlorobenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Chloroethane	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
Chloroform	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Chloromethane	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
3-Chloropropene	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
2-Chlorotoluene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
cis-1,2-Dichloroethene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
cis-1,3-Dichloropropene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Cumene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Cyclohexane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Dibromochloromethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,2-Dibromoethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,2-Dichlorobenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,3-Dichlorobenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,4-Dichlorobenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Dichlorodifluoromethane	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
1,1-Dichloroethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,2-Dichloroethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,1-Dichloroethene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,2-Dichloroethene, Total	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,2-Dichloropropane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,2-Dichlorotetrafluoroethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,4-Dioxane	ND		5.0	5.0	ppb v/v			09/05/12 12:38	1
Ethylbenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 200-44527/4
Matrix: Air
Analysis Batch: 44527

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Ethyltoluene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Freon 22	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
Freon TF	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Hexachlorobutadiene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Isopropyl alcohol	ND		5.0	5.0	ppb v/v			09/05/12 12:38	1
4-Isopropyltoluene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Methyl Butyl Ketone (2-Hexanone)	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
Methylene Chloride	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
Methyl Ethyl Ketone	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
methyl isobutyl ketone	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
Methyl methacrylate	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
Methyl tert-butyl ether	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
m,p-Xylene	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
Naphthalene	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
n-Butane	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
n-Butylbenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
n-Heptane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
n-Hexane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
n-Propylbenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
sec-Butylbenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Styrene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
tert-Butyl alcohol	ND		5.0	5.0	ppb v/v			09/05/12 12:38	1
tert-Butylbenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,1,2,2-Tetrachloroethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Tetrachloroethene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Tetrahydrofuran	ND		5.0	5.0	ppb v/v			09/05/12 12:38	1
Toluene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
trans-1,2-Dichloroethene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
trans-1,3-Dichloropropene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,2,4-Trichlorobenzene	ND		0.50	0.50	ppb v/v			09/05/12 12:38	1
1,1,1-Trichloroethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,1,2-Trichloroethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Trichloroethene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Trichlorofluoromethane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,2,4-Trimethylbenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
1,3,5-Trimethylbenzene	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
2,2,4-Trimethylpentane	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Vinyl chloride	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Xylene, o-	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1
Xylene (total)	ND		0.20	0.20	ppb v/v			09/05/12 12:38	1

Lab Sample ID: LCS 200-44527/3
Matrix: Air
Analysis Batch: 44527

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	10.0	11.0		ppb v/v		110	70 - 130
Benzene	10.0	8.40		ppb v/v		84	70 - 130
Benzyl chloride	10.0	9.37		ppb v/v		94	70 - 130
Bromodichloromethane	10.0	9.71		ppb v/v		97	70 - 130

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 200-44527/3
Matrix: Air
Analysis Batch: 44527

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromoethene(Vinyl Bromide)	10.0	9.05		ppb v/v		91	70 - 130
Bromoform	10.0	11.1		ppb v/v		111	70 - 130
Bromomethane	10.0	8.30		ppb v/v		83	70 - 130
1,3-Butadiene	10.0	8.27		ppb v/v		83	70 - 130
Carbon disulfide	10.0	8.35		ppb v/v		84	70 - 130
Carbon tetrachloride	10.0	9.45		ppb v/v		95	70 - 130
Chlorobenzene	10.0	9.07		ppb v/v		91	70 - 130
Chloroethane	10.0	8.17		ppb v/v		82	70 - 130
Chloroform	10.0	9.65		ppb v/v		96	70 - 130
Chloromethane	10.0	7.94		ppb v/v		79	70 - 130
3-Chloropropene	10.0	8.69		ppb v/v		87	70 - 130
2-Chlorotoluene	10.0	9.47		ppb v/v		95	70 - 130
cis-1,2-Dichloroethene	10.0	9.11		ppb v/v		91	70 - 130
cis-1,3-Dichloropropene	10.0	8.90		ppb v/v		89	70 - 130
Cumene	10.0	9.40		ppb v/v		94	70 - 130
Cyclohexane	10.0	8.63		ppb v/v		86	70 - 130
Dibromochloromethane	10.0	10.6		ppb v/v		106	70 - 130
1,2-Dibromoethane	10.0	9.63		ppb v/v		96	70 - 130
1,2-Dichlorobenzene	10.0	9.36		ppb v/v		94	70 - 130
1,3-Dichlorobenzene	10.0	9.32		ppb v/v		93	70 - 130
1,4-Dichlorobenzene	10.0	9.40		ppb v/v		94	70 - 130
Dichlorodifluoromethane	10.0	10.1		ppb v/v		101	70 - 130
1,1-Dichloroethane	10.0	8.65		ppb v/v		86	70 - 130
1,2-Dichloroethane	10.0	9.35		ppb v/v		94	70 - 130
1,1-Dichloroethene	10.0	9.31		ppb v/v		93	70 - 130
1,2-Dichloropropane	10.0	8.10		ppb v/v		81	70 - 130
1,2-Dichlorotetrafluoroethane	10.0	9.09		ppb v/v		91	70 - 130
1,4-Dioxane	10.0	7.59		ppb v/v		76	70 - 130
Ethylbenzene	10.0	8.83		ppb v/v		88	70 - 130
4-Ethyltoluene	10.0	9.81		ppb v/v		98	70 - 130
Freon 22	10.0	9.28		ppb v/v		93	70 - 130
Freon TF	10.0	9.70		ppb v/v		97	70 - 130
Hexachlorobutadiene	10.0	11.1		ppb v/v		112	70 - 130
Isopropyl alcohol	10.0	8.12		ppb v/v		81	70 - 130
4-Isopropyltoluene	10.0	9.96		ppb v/v		100	70 - 130
Methyl Butyl Ketone (2-Hexanone)	10.0	8.58		ppb v/v		86	70 - 130
Methylene Chloride	10.0	8.95		ppb v/v		90	70 - 130
Methyl Ethyl Ketone	10.0	9.25		ppb v/v		93	70 - 130
methyl isobutyl ketone	10.0	8.50		ppb v/v		85	70 - 130
Methyl methacrylate	10.0	8.46		ppb v/v		85	70 - 130
Methyl tert-butyl ether	10.0	9.22		ppb v/v		92	70 - 130
m,p-Xylene	20.0	17.6		ppb v/v		88	70 - 130
Naphthalene	10.0	9.72		ppb v/v		97	70 - 130
n-Butane	10.0	7.87		ppb v/v		79	70 - 130
n-Butylbenzene	10.0	9.79		ppb v/v		98	70 - 130
n-Heptane	10.0	7.84		ppb v/v		78	70 - 130
n-Hexane	10.0	8.29		ppb v/v		83	70 - 130
n-Propylbenzene	10.0	9.21		ppb v/v		92	70 - 130
sec-Butylbenzene	10.0	9.43		ppb v/v		94	70 - 130

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 200-44527/3
Matrix: Air
Analysis Batch: 44527

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Styrene	10.0	9.19		ppb v/v		92	70 - 130
tert-Butyl alcohol	10.0	8.48		ppb v/v		85	70 - 130
tert-Butylbenzene	10.0	9.62		ppb v/v		96	70 - 130
1,1,2,2-Tetrachloroethane	10.0	8.39		ppb v/v		84	70 - 130
Tetrachloroethene	10.0	9.45		ppb v/v		95	70 - 130
Tetrahydrofuran	10.0	7.66		ppb v/v		77	70 - 130
Toluene	10.0	8.81		ppb v/v		88	70 - 130
trans-1,2-Dichloroethene	10.0	8.66		ppb v/v		87	70 - 130
trans-1,3-Dichloropropene	10.0	9.26		ppb v/v		93	70 - 130
1,2,4-Trichlorobenzene	10.0	9.45		ppb v/v		95	70 - 130
1,1,1-Trichloroethane	10.0	9.35		ppb v/v		94	70 - 130
1,1,2-Trichloroethane	10.0	8.41		ppb v/v		84	70 - 130
Trichloroethene	10.0	8.39		ppb v/v		84	70 - 130
Trichlorofluoromethane	10.0	9.82		ppb v/v		98	70 - 130
1,2,4-Trimethylbenzene	10.0	9.33		ppb v/v		93	70 - 130
1,3,5-Trimethylbenzene	10.0	9.34		ppb v/v		93	70 - 130
2,2,4-Trimethylpentane	10.0	8.11		ppb v/v		81	70 - 130
Vinyl chloride	10.0	7.62		ppb v/v		76	70 - 130
Xylene, o-	10.0	8.83		ppb v/v		88	70 - 130

Lab Sample ID: MB 200-44597/6
Matrix: Air
Analysis Batch: 44597

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		5.0	5.0	ppb v/v			09/06/12 21:22	1
Benzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Benzyl chloride	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Bromodichloromethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Bromoethene(Vinyl Bromide)	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Bromoform	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Bromomethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,3-Butadiene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Carbon disulfide	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
Carbon tetrachloride	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Chlorobenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Chloroethane	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
Chloroform	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Chloromethane	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
3-Chloropropene	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
2-Chlorotoluene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
cis-1,2-Dichloroethene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
cis-1,3-Dichloropropene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Cumene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Cyclohexane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Dibromochloromethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,2-Dibromoethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,2-Dichlorobenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,3-Dichlorobenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,4-Dichlorobenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: MB 200-44597/6
Matrix: Air
Analysis Batch: 44597

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
1,1-Dichloroethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,2-Dichloroethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,1-Dichloroethene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,2-Dichloroethene, Total	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,2-Dichloropropane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,2-Dichlorotetrafluoroethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,4-Dioxane	ND		5.0	5.0	ppb v/v			09/06/12 21:22	1
Ethylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
4-Ethyltoluene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Freon 22	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
Freon TF	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Hexachlorobutadiene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Isopropyl alcohol	ND		5.0	5.0	ppb v/v			09/06/12 21:22	1
4-Isopropyltoluene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Methyl Butyl Ketone (2-Hexanone)	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
Methylene Chloride	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
Methyl Ethyl Ketone	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
methyl isobutyl ketone	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
Methyl methacrylate	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
Methyl tert-butyl ether	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
m,p-Xylene	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
Naphthalene	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
n-Butane	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
n-Butylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
n-Heptane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
n-Hexane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
n-Propylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
sec-Butylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Styrene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
tert-Butyl alcohol	ND		5.0	5.0	ppb v/v			09/06/12 21:22	1
tert-Butylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,1,2,2-Tetrachloroethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Tetrachloroethene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Tetrahydrofuran	ND		5.0	5.0	ppb v/v			09/06/12 21:22	1
Toluene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
trans-1,2-Dichloroethene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
trans-1,3-Dichloropropene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,2,4-Trichlorobenzene	ND		0.50	0.50	ppb v/v			09/06/12 21:22	1
1,1,1-Trichloroethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,1,2-Trichloroethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Trichloroethene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Trichlorofluoromethane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,2,4-Trimethylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
1,3,5-Trimethylbenzene	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
2,2,4-Trimethylpentane	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Vinyl chloride	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Xylene, o-	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1
Xylene (total)	ND		0.20	0.20	ppb v/v			09/06/12 21:22	1

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 200-44597/5
Matrix: Air
Analysis Batch: 44597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	10.0	11.9		ppb v/v		119	70 - 130
Benzene	10.0	9.15		ppb v/v		92	70 - 130
Benzyl chloride	10.0	9.20		ppb v/v		92	70 - 130
Bromodichloromethane	10.0	10.0		ppb v/v		100	70 - 130
Bromoethene(Vinyl Bromide)	10.0	9.16		ppb v/v		92	70 - 130
Bromoform	10.0	10.1		ppb v/v		101	70 - 130
Bromomethane	10.0	8.72		ppb v/v		87	70 - 130
1,3-Butadiene	10.0	9.16		ppb v/v		92	70 - 130
Carbon disulfide	10.0	9.00		ppb v/v		90	70 - 130
Carbon tetrachloride	10.0	9.53		ppb v/v		95	70 - 130
Chlorobenzene	10.0	8.94		ppb v/v		89	70 - 130
Chloroethane	10.0	8.92		ppb v/v		89	70 - 130
Chloroform	10.0	9.82		ppb v/v		98	70 - 130
Chloromethane	10.0	8.90		ppb v/v		89	70 - 130
3-Chloropropene	10.0	9.63		ppb v/v		96	70 - 130
2-Chlorotoluene	10.0	9.39		ppb v/v		94	70 - 130
cis-1,2-Dichloroethene	10.0	9.37		ppb v/v		94	70 - 130
cis-1,3-Dichloropropene	10.0	9.49		ppb v/v		95	70 - 130
Cumene	10.0	9.17		ppb v/v		92	70 - 130
Cyclohexane	10.0	9.17		ppb v/v		92	70 - 130
Dibromochloromethane	10.0	10.2		ppb v/v		102	70 - 130
1,2-Dibromoethane	10.0	9.59		ppb v/v		96	70 - 130
1,2-Dichlorobenzene	10.0	8.70		ppb v/v		87	70 - 130
1,3-Dichlorobenzene	10.0	8.69		ppb v/v		87	70 - 130
1,4-Dichlorobenzene	10.0	8.68		ppb v/v		87	70 - 130
Dichlorodifluoromethane	10.0	10.3		ppb v/v		103	70 - 130
1,1-Dichloroethane	10.0	9.21		ppb v/v		92	70 - 130
1,2-Dichloroethane	10.0	9.66		ppb v/v		97	70 - 130
1,1-Dichloroethene	10.0	9.54		ppb v/v		95	70 - 130
1,2-Dichloropropane	10.0	8.94		ppb v/v		89	70 - 130
1,2-Dichlorotetrafluoroethane	10.0	9.42		ppb v/v		94	70 - 130
1,4-Dioxane	10.0	8.38		ppb v/v		84	70 - 130
Ethylbenzene	10.0	8.84		ppb v/v		88	70 - 130
4-Ethyltoluene	10.0	9.64		ppb v/v		96	70 - 130
Freon 22	10.0	9.79		ppb v/v		98	70 - 130
Freon TF	10.0	9.85		ppb v/v		99	70 - 130
Hexachlorobutadiene	10.0	9.75		ppb v/v		98	70 - 130
Isopropyl alcohol	10.0	8.92		ppb v/v		89	70 - 130
4-Isopropyltoluene	10.0	9.70		ppb v/v		97	70 - 130
Methyl Butyl Ketone (2-Hexanone)	10.0	9.31		ppb v/v		93	70 - 130
Methylene Chloride	10.0	9.87		ppb v/v		99	70 - 130
Methyl Ethyl Ketone	10.0	9.94		ppb v/v		99	70 - 130
methyl isobutyl ketone	10.0	9.54		ppb v/v		95	70 - 130
Methyl methacrylate	10.0	9.31		ppb v/v		93	70 - 130
Methyl tert-butyl ether	10.0	9.57		ppb v/v		96	70 - 130
m,p-Xylene	20.0	17.4		ppb v/v		87	70 - 130
Naphthalene	10.0	9.12		ppb v/v		91	70 - 130
n-Butane	10.0	8.82		ppb v/v		88	70 - 130
n-Butylbenzene	10.0	9.89		ppb v/v		99	70 - 130

Method: TO-15 - Volatile Organic Compounds in Ambient Air (Continued)

Lab Sample ID: LCS 200-44597/5
Matrix: Air
Analysis Batch: 44597

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
n-Heptane	10.0	8.98		ppb v/v		90	70 - 130
n-Hexane	10.0	9.21		ppb v/v		92	70 - 130
n-Propylbenzene	10.0	9.27		ppb v/v		93	70 - 130
sec-Butylbenzene	10.0	9.40		ppb v/v		94	70 - 130
Styrene	10.0	9.21		ppb v/v		92	70 - 130
tert-Butyl alcohol	10.0	8.72		ppb v/v		87	70 - 130
tert-Butylbenzene	10.0	9.34		ppb v/v		93	70 - 130
1,1,2,2-Tetrachloroethane	10.0	8.57		ppb v/v		86	70 - 130
Tetrachloroethene	10.0	8.98		ppb v/v		90	70 - 130
Tetrahydrofuran	10.0	8.84		ppb v/v		88	70 - 130
Toluene	10.0	8.97		ppb v/v		90	70 - 130
trans-1,2-Dichloroethene	10.0	9.20		ppb v/v		92	70 - 130
trans-1,3-Dichloropropene	10.0	9.66		ppb v/v		97	70 - 130
1,2,4-Trichlorobenzene	10.0	8.19		ppb v/v		82	70 - 130
1,1,1-Trichloroethane	10.0	9.46		ppb v/v		95	70 - 130
1,1,2-Trichloroethane	10.0	8.77		ppb v/v		88	70 - 130
Trichloroethene	10.0	8.77		ppb v/v		88	70 - 130
Trichlorofluoromethane	10.0	9.63		ppb v/v		96	70 - 130
1,2,4-Trimethylbenzene	10.0	9.23		ppb v/v		92	70 - 130
1,3,5-Trimethylbenzene	10.0	9.18		ppb v/v		92	70 - 130
2,2,4-Trimethylpentane	10.0	9.01		ppb v/v		90	70 - 130
Vinyl chloride	10.0	8.35		ppb v/v		83	70 - 130
Xylene, o-	10.0	8.83		ppb v/v		88	70 - 130

QC Association Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

GC VOA

Analysis Batch: 44538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-4	TRIP BLANK	Total/NA	Air	D1946	
680-82259-5	GP-13	Total/NA	Air	D1946	
680-82259-6	DUP-2	Total/NA	Air	D1946	
LCS 200-44538/2	Lab Control Sample	Total/NA	Air	D1946	
MB 200-44538/3	Method Blank	Total/NA	Air	D1946	

Air - GC/MS VOA

Analysis Batch: 44527

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-4	TRIP BLANK	Total/NA	Air	TO-15	
LCS 200-44527/3	Lab Control Sample	Total/NA	Air	TO-15	
MB 200-44527/4	Method Blank	Total/NA	Air	TO-15	

Analysis Batch: 44597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-82259-5	GP-13	Total/NA	Air	TO-15	
680-82259-6	DUP-2	Total/NA	Air	TO-15	
LCS 200-44597/5	Lab Control Sample	Total/NA	Air	TO-15	
MB 200-44597/6	Method Blank	Total/NA	Air	TO-15	

Lab Chronicle

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Client Sample ID: TRIP BLANK

Lab Sample ID: 680-82259-4

Date Collected: 08/23/12 00:00

Matrix: Air

Date Received: 08/24/12 08:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D1946		1	44538	09/05/12 16:23	PAD	TAL BUR
Total/NA	Analysis	TO-15		1	44527	09/06/12 03:35	WRD	TAL BUR

Client Sample ID: GP-13

Lab Sample ID: 680-82259-5

Date Collected: 08/23/12 10:05

Matrix: Air

Date Received: 08/24/12 08:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D1946		1.8	44538	09/05/12 16:18	PAD	TAL BUR
Total/NA	Analysis	TO-15		481	44597	09/07/12 00:00	AHK	TAL BUR

Client Sample ID: DUP-2

Lab Sample ID: 680-82259-6

Date Collected: 08/23/12 10:25

Matrix: Air

Date Received: 08/24/12 08:48

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	D1946		1.8	44538	09/05/12 16:28	PAD	TAL BUR
Total/NA	Analysis	TO-15		440	44597	09/07/12 00:53	AHK	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information			
Company: Schnabel Engineering	Project Manager: Misti Benchabbat	Samples Collected By: Benchabbat	1 of 1 COCs
Address: 104 Corp. Blvd. Ste 420	Phone: 919 219 3244		
City/State/Zip W. Columbia SC 29169	Email: mbenchabbat@schnabel-eng.com		
Phone: 919 219 3244	Site Contact: M. Benchabbat		
FAX:	TA Contact: Lidya - Savannah		
Project Name: Swannanoa	Analysis Turnaround Time		
Site: NCD980557987	Standard (Specify) X		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	MA-APH	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
TRIP BLANK	8-23-12	NA	NA	NA	NA	NA	5706	X		X									
GP-13	8-23-12	0940	1025	-23	-4	3840	3037	X		X									
DUP-2	8-23-12	0940	1025	-30	-8	3114	2844	X		X									

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

680-82259-2

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 8/23/12 1600	Samples Received by: [illegible] 8/24/12 1054
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only: Shipper Name: Opened by: Condition:

Login Sample Receipt Checklist

Client: Schnabel Engineering

Job Number: 680-82259-2

Login Number: 82259

List Number: 1

Creator: Conner, Keaton

List Source: TestAmerica Savannah

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.2 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	RECEIVED 1 LITER AMBER Dup BROKEN
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	False	Dup metals (HNO3) pH >2; lab to acidify
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	Insufficient volume received for MS/MSD.
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Schnabel Engineering

Job Number: 680-82259-2

Login Number: 82259
List Number: 1
Creator: Poucher, Stephanie A

List Source: TestAmerica Burlington
List Creation: 08/27/12 05:17 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	586709, 710
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	ambient
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-12
USDA	Federal		SAV 3-04	04-07-14
Vermont	State Program	1	87052	11-16-12
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

Laboratory: TestAmerica Burlington

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Certification Summary

Client: Schnabel Engineering
Project/Site: Swannanoa LF Air NCD 980557987

TestAmerica Job ID: 680-82259-2

Laboratory: TestAmerica Burlington (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
ACLASS	DoD ELAP		ADE-1492	10-22-12
Connecticut	State Program	1	PH-0751	09-30-13
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-24-13
Florida	NELAC	4	E87467	06-30-13
Louisiana	NELAC	6	176292	06-30-13
Maine	State Program	1	VT00008	04-17-13
Minnesota	NELAC	5	050-999-436	12-31-12
New Hampshire	NELAC	1	200610	12-18-12
New Jersey	NELAC Primary AB	2	VT972	06-30-13
New York	NELAC	2	10391	04-01-13
Pennsylvania	NELAC	3	68-00489	04-30-13
Rhode Island	State Program	1	LAO00298	12-30-12
USDA	Federal		P330-11-00093	02-17-14
Vermont	State Program	1	VT-4000	12-31-12
Virginia	NELAC	3	460209	12-14-12

APPENDIX D

Tabulated GPS Coordinates

Point	State Plane Coordinates (meters)		Latitude (deg, min, sec)	Longitude (deg, min, sec)
	Northing	Easting	N	W
Points obtained using a submeter Trimble ProXRS DGPS				
LCID Perimeter 1				
GP-1	689037.237	993732.394	69 30 37.2	99 37 32.4
GP-2	689108.751	993817.79	69 31 8.8	99 38 17.8
GP-3	689162.910	993888.918	69 32 2.9	99 39 28.9
GP-4	689464.736	994077.449	69 35 4.7	99 41 17.4
GP-5	689589.326	994098.604	69 36 29.3	99 41 38.6
GP-6	689613.655	993992.583	69 36 13.7	99 40 32.6
GP-7	689592.426	993889.329	69 36 32.4	99 39 29.3
GP-8	689623.520	993703.421	69 36 23.5	99 37 3.4
GP-9	689702.531	993532.134	69 37 2.5	99 35 32.1
GP-10	689705.375	993415.998	69 37 5.4	99 34 16
GP-11	689474.794	993551.493	69 35 14.8	99 35 51.5
GP-12	689150.198	993671.027	69 31 50.2	99 37 11
GP-13	689399.651	993849.199	69 34 39.7	99 38 49.2
GP-14	689096.300	993496.383	69 31 36.3	99 35 36.4
GP-15	689347.140	994119.527	69 33 47.1	99 41 19.5
GP-16	689675.255	994099.906	69 37 15.3	99 41 39.9

Notes:

1) All points in NAD83 datum.

PHOTOGRAPH No.: 1 **Photo Taken: 8-23-12**
LOCATION:
Access road to western part of Site.
COMMENTS:
Photo taken facing toward the north.

PHOTOGRAPH No.: 2 **Photo Taken: 8-23-12**
LOCATION:
Access road located on northwest-central part of Site.
COMMENTS:
Photo taken facing toward the north.

PHOTOGRAPH No.: 3 **Photo Taken: 8-23-12**
LOCATION:
Access road located on northwest-central part of Site.
COMMENTS:
Photo taken facing toward the west.