FINAL WESTERN AREA REMEDIAL INVESTIGATION REPORT

CTS OF ASHEVILLE, INC. SUPERFUND SITE

235 Mills Gap Road
Asheville, Buncombe County, North Carolina
EPA ID: NCD003149556
CERCLA Docket No. CERCLA-04-2012-3762

Prepared for:

CTS Corporation
2375 Cabot Drive
Lisle, Illinois 60532

Prepared by:

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1308 Patton Avenue
Asheville, North Carolina 28806

Amec Foster Wheeler Project 6252-12-0006

December 11, 2015

December 11, 2015

Mr. Craig Zeller, P.E.
Superfund Remedial and Site Evaluation Branch
U.S. Environmental Protection Agency
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960
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Subject: **Final Western Area Remedial Investigation Report**
CTS of Asheville, Inc. Superfund Site
235 Mills Gap Road, Asheville, Buncombe County, North Carolina
Amec Foster Wheeler Project 6252-12-0006
EPA ID: NCD003149556
CERCLA Docket No. CERCLA-04-2012-3762

Dear Mr. Zeller:

Please find attached the Final Western Area Remedial Investigation Report (Report) for the above-referenced Site. Amec Foster Wheeler Environment & Infrastructure, Inc. prepared this Report on behalf of CTS Corporation in accordance with the Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study between the United States Environmental Protection Agency Region 4 and CTS Corporation (effective date of January 26, 2012).

If you have questions regarding this Report, please contact us at (828) 252-8130.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure, Inc.

Susan E. Kelly, P.E., L.G.
Senior Engineer

Matthew E. Wallace, P.E.
Principal Engineer

SEK/MEW:sek

cc: Michael Dolan, Jones Day
Nile Testerman, NCDEQ

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ACRONYMS

bgs	below ground surface
cis-1,2-DCE	cis-1,2-dichloroethene
cVOC	chlorinated volatile organic compound
DPT	direct-push technology
FS	Feasibility Study
IDW	investigation derived waste
MDL	method detection limit
RI	Remedial Investigation
trans-1,2-DCE	trans-1,2-dichloroethene
TCE	trichloroethene (also, trichloroethylene)
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), on behalf of CTS Corporation, has prepared this Final Western Area Remedial Investigation Report (Western RI Report) for the CTS of Asheville, Inc. Superfund Site (Site) located at 235 Mills Gap Road in Asheville, Buncombe County, North Carolina (Figure 1). The activities described in this Western RI Report were performed pursuant to the 2012 Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study (RI/FS) between the United States Environmental Protection Agency (USEPA) Region 4 and CTS Corporation.

1.1 OBJECTIVE

The primary objective of the Western RI was to delineate the horizontal extent of the overburden (i.e., above bedrock) volatile organic compound (VOC) groundwater plume west of the former plant property. Surface water, sediment, and ambient air samples were also collected west of the Site to evaluate potential VOC contamination and to compare with historic sampling results.

When the Site-wide RI/FS is implemented, additional data might be gathered in the area west of the former plant property, as necessary to fulfill potential data gaps identified in the Site-wide RI work plan, which has not yet been prepared. For instance, analysis for additional compounds, beyond those compounds included in this Western RI, might be performed if determined necessary. The future Site-wide RI/FS will also include a Site-wide risk assessment, and will include proposed cleanup goals for environmental media. It was not the objective of this Western RI to evaluate additional compounds, perform the Site-wide risk assessment, or propose cleanup goals.

1.2 SITE DESCRIPTION

The approximate center of the Site is located at north latitude 35°29'36" and west longitude 82°30'25". The Site formerly contained an approximate 95,000-square foot, single-story brick and metal structure on the southern portion of the Site. The building was demolished in December 2011 and the concrete building pad remains intact. The northeastern portion of the Site contains an asphalt-paved parking area, and asphalt-

paved driveways are located parallel to the north (front) of the building and southeast (rear) of the building. A six-foot high chain-link fence surrounds the Site and a locked gate at the north end of the Site controls access to the Site from Mills Gap Road. The Site is unoccupied. The Site and adjacent property boundaries are illustrated on Figure 2.

2.0 WESTERN AREA REMEDIAL INVESTIGATION ACTIVITIES

The Western RI activities were implemented in accordance with the USEPA-approved Western Area Remedial Investigation Work Plan (Western RI Work Plan), dated May 21, 2015, as described in the following sections. Field activities were conducted from June 24, 2015, through August 12, 2015. A USEPA contractor representative accompanied Amec Foster Wheeler during the June and July 2015 groundwater sampling activities. The USEPA Remedial Project Manager accompanied Amec Foster Wheeler during the August 2015 ambient air sampling activities. Copies of the field log book and field data records are included as Appendix A.

2.1 PROPERTY ACCESS

Access to two properties west of the Site (Buncombe County PINs 9655-53-7351 and 9655-52-6798) was obtained for the Western RI field activities. USEPA obtained the access agreements for CTS and USEPA representatives to access the properties. Copies of the access agreements are included as Appendix B.

2.2 SURFACE WATER AND SEDIMENT SAMPLING

Surface water and sediment samples were collected from five locations, as indicated in Figure 3. The surface water and sediment samples were submitted for analysis of the following Site-specific VOCs according to USEPA Method 8260:

- trichloroethene (TCE)
- cis-1,2-dichloroethene (cis-1,2-DCE)
- trans-1,2-dichloroethene (trans-1,2-DCE)
- vinyl chloride

2.3 GROUNDWATER SAMPLING

Grab groundwater samples were collected from the 12 locations indicated in Figure 3. The locations in the eastern portion of the investigation area (nearest the former plant property) were modified from locations proposed in the Western RI Work Plan as directed by USEPA. Direct-push technology (DPT) equipment was used to first advance a soil boring at each location. Soil was retrieved from the borehole at five-foot increments and

scanned with a photoionization detector at approximate one-foot intervals. The soil borings were advanced to refusal of the DPT equipment. Boring logs are included as Appendix C.

At each location, a "shallow" groundwater sample was collected within 10 feet below the apparent water table in an adjacent boring. If the depth to refusal of the soil boring was greater than approximately 20 feet below the shallow groundwater sample, a "deep" groundwater sample was collected within five feet of the refusal depth.

The groundwater samples were collected using a peristaltic pump and tubing with a check valve. Water quality parameters (pH, temperature, conductivity, dissolved oxygen, and oxidation reduction potential) were measured during purging. The groundwater samples were submitted for analysis of Site-specific VOCs (TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride) according to USEPA Method 8260.

2.4 AMBIENT AIR SAMPLING

Ambient air samples were collected from five locations, as indicated in Figure 3. Two locations (AAS-01 and AAS-16) were proposed in the Western RI Work Plan. Ambient air samples were collected at three additional locations, as directed by USEPA.

The ambient air samples were collected over a 24-hour period and submitted for analysis of Site-specific VOCs (TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride) according to USEPA Method TO-15 SIM (selective ion monitoring).

2.5 MANAGEMENT OF INVESTIGATION DERIVED WASTE

Investigative derived waste (IDW), including soil cuttings and decontamination/purge water, was containerized in 55-gallon drums and labeled for accumulation at the property from which it was collected. Liquid IDW was accumulated separately from soil IDW and each drum was labeled as to the drum's contents. Excess soil was removed from sampling materials, such as plastic and gloves, and the sampling material was then collected in plastic bags and removed from the Site for disposal in a permitted, municipal

solid waste landfill. The waste disposal manifest for soil and water IDW will be provided to USEPA when it is received from the waste disposal company.

3.0 RESULTS AND DATA USABILITY

The following sections describe the field activity results, laboratory analytical results of the submitted samples, and the results of the data validation. Table 1 contains a summary of the samples collected during the Western RI activities.

3.1 GEOLOGY AND HYDROGEOLOGY

The overburden west of the former facility property contains fill material, alluvial sediments, and residuum (i.e., weathered bedrock, or saprolite). Based on a 1951 aerial photograph (before construction of the facility), two apparent natural intermittent surface water drainage channels are depicted in the western portion of the former facility property. These surface water drainage channels were presumably backfilled when this area of the former plant property was graded for development. A steep hill is present immediately west of the former plant property boundary, presumably at the western extent of the filled drainage channels.

In borings located in the vicinity of the unnamed tributary/perennial stream, the upper soil layer appears to have been disturbed. A grey and orange clayey, sandy, silt layer is present at depths ranging from three to ten feet below ground surface (bgs). This layer is presumed to be the former surface soil that has been covered. In borings near the unnamed tributary, it appears that former surface water drainage channels have been covered, as alluvial sediments were observed at depths up to approximately 18 feet bgs.

Below the disturbed soil and/or alluvium, the uppermost zone of overburden generally consists of silty sand that coarsens with depth to sand with little/some silt (i.e., 10 to 30 percent silt). The overburden "fabric" ranges from massive (i.e., no apparent structure) to strongly foliated. Refusal of the drilling equipment was encountered at depths ranging from approximately 30 feet to 58 feet bgs.

The water table was encountered at depths ranging from approximately 4 feet to 23 feet bgs. Although water table elevations were not measured as part of this scope of work, based on surface topography and typical hydrogeologic conditions in the region, the inferred groundwater flow direction in the overburden is toward the unnamed tributary.

3.2 SURFACE WATER AND SEDIMENT

3.2.1 Analytical Results

Four Site-specific VOCs were detected at concentrations above the method detection limit (MDL) in surface water and sediment samples at the SW/SED-01W to SW/SED-04W locations. Site-specific VOCs were not detected above the MDL in the downstream surface water and sediment samples SW-05W and SED-05W, respectively. The highest concentrations of Site-specific VOCs were detected in the SW/SED-03W location, which is located within approximately 10 feet of the confluence of the unnamed tributaries depicted in Figure 3.

The laboratory analytical results of the surface water and sediment samples are summarized in Table 2 and presented in Figure 4. The laboratory analytical report is included in Appendix D.

3.2.2 Data Validation

Data validation was conducted based on procedures in the USEPA Region 4 Data Validation Standard Operating Procedures for Organic Analysis (USEPA, 2008). Full validation, including raw data verification and calculation checks, was completed on ten percent of the laboratory data. The results of the data validation did not indicate the presence of quality control issues. The data validation report is included in Appendix E.

3.3 GROUNDWATER

Three Site-specific VOCs (TCE, cis-1,2-DCE, and trans-1,2-DCE) were detected at concentrations greater than the MDL in groundwater samples collected from five borings. Concentrations of TCE ranged from an estimated concentration (i.e., above the MDL but below the laboratory reporting limit) of 0.80 micrograms per liter (µg/L) in groundwater sample GW-76-48 to 14,800 µg/L in groundwater sample GW-84-18.

The laboratory analytical results are summarized in Table 3 and presented in Figure 5. The laboratory analytical report is included in Appendix F.

3.4 AMBIENT AIR

3.4.1 Analytical Results

Four Site-specific VOCs were detected at concentrations greater than the MDL in the submitted ambient air samples. Concentrations of TCE ranged from 0.61 micrograms per liter (µg/m^3) in AAS-18 to 13 µg/m^3 in AAS-17.

The ambient air concentrations of TCE detected in June 2015 at locations AAS-01 and AAS-16, north of Silk Tree Lane in Southside Village (SSV), are higher than those detected in these areas in 2008 and 2012. There is not an action level for TCE in outside air. However, USEPA's recommended removal management level for TCE in indoor residential air is 2 µg/m^3 for homes with sensitive populations (i.e., women of child-bearing age) present and 6.3 µg/m^3 for less sensitive populations. The TCE outdoor air concentrations detected at AAS-01 and AAS-16 in June 2015 were high enough for USEPA to recommend indoor and crawlspace air sampling at the four residential units located north of Silk Tree Lane.

On July 28, 2015, USEPA sent letters to the residents of the four units asking for permission to sample their indoor and crawlspace air. The residents of the four units denied USEPA access to conduct the recommended sampling. In addition, the SSV Homeowners' Association denied USEPA's request to resample ambient air at the AAS-01 and AAS-16 locations. As a result, USEPA added three ambient air sampling locations (AAS-17, AAS-18, and AAS-19) on adjacent private property north of the SSV property, where USEPA does have permission to gather data. Ambient air samples were collected from those three locations in August 2015.

The laboratory analytical results are summarized in Table 4 and presented in Figure 6. The laboratory analytical report is included as Appendix G.

3.4.2 Data Validation

Data validation was conducted based on procedures in the USEPA Region 4 Data Validation Standard Operating Procedures for Organic Analysis (USEPA, 2008). Full validation, including raw data verification and calculation checks, was completed on ten percent of the laboratory data. The results of the June 2015 data validation did not

indicate the presence of quality control issues. The results of the August 2015 data validation indicated the presence of one quality control issue that resulted in designating concentrations of vinyl chloride as estimated concentrations; however the data are useable (i.e., not rejected). The data validation report for the June 2015 ambient air sampling included in Appendix H and the data validation report for the August 2015 ambient air sampling is included in Appendix I.

3.5 DATA USABILITY SUMMARY

The field investigation was conducted as proposed in the Western RI Work Plan, with the exception of the modified groundwater and additional ambient air sampling locations. Additionally, with USEPA's approval, the installation of permanent monitoring wells was not completed in this phase of work. However, data gaps were not identified in relation to the data collected during the activities described herein. The data set is considered to be 100 percent complete with respect to the collected data. Therefore, the data are usable for completing the objectives set forth in the Western RI Work Plan.

4.0 DISCUSSION AND RECOMMENDATIONS

Based on the analytical results of the groundwater samples, the shallow TCE plume extends to between borings SB-76 and SB-73/SB-78 as depicted in Figure 7. The deep overburden TCE plume extends to just east of boring SB-76 as depicted in Figure 8. The zone of highest TCE concentrations (i.e., greater than 10,000 µg/L) is relatively narrow, resulting from groundwater flow from the north limiting the horizontal extent of the groundwater plume to the north. Based on the limited area of comparably high TCE concentration in the shallow overburden in the vicinity of SB-84 (TCE concentration of 14,800 µg/L), the deep overburden groundwater plume from the vicinity of GW-01-50 (TCE concentration of 19,800 µg/L) and MW-7A (TCE concentration of 52,800 µg/L) appears to discharge to the shallow overburden in the vicinity of SB-84 and does not extend as far west as the shallow overburden TCE plume.

Based on the analytical results of the surface water and sediment samples, the groundwater plume discharges to the unnamed tributary and concentrations of Site-specific VOCs do not extend to the SW/SED-05W location.

The installation of four groundwater monitoring well pairs is recommended, as shown in Figure 9.

Another ambient air sample was collected in October 2015 at the AAS-17 location for seasonal trend monitoring. Quarterly ambient air sampling at AAS-17 in the western area will be conducted along with the other two ambient air sampling locations in the eastern area until no longer warranted.

5.0 REFERENCE

USEPA, 2008. Data Validation Standard Operating Procedures for Organic Analyses; USEPA Region 4, Science and Ecosystem Support Division Quality Assurance Section, MTSB; Athens, Georgia; August 2008.

TABLES

TABLE 1
Western Area Remedial Investigation Sample Summary
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

Sample Type	Sample ID	Date
Surface Water	SW-01W	6/25/2015
Surface Water	SW-02W	6/25/2015
Surface Water	SW-03W	6/25/2015
Surface Water	SW-04W	6/25/2015
Surface Water	SW-05W	6/25/2015
Duplicate (SW-01W)	FD-01	6/25/2015
Trip Blank	TB-01	6/25/15 shipment
Sediment	SED-01W	6/25/2015
Sediment	SED-02W	6/25/2015
Sediment	SED-03W	6/25/2015
Sediment	SED-04W	6/25/2015
Sediment	SED-05W	6/25/2015
Duplicate (SED-01W)	FD-02	6/25/2015
Groundwater	GW-73-20	6/29/2015
Groundwater	GW-73-58	6/29/2015
Groundwater	GW-74-33	6/30/2015
Groundwater	GW-74-58	6/30/2015
Groundwater	GW-75-20	6/30/2015
Groundwater	GW-75-43	6/30/2015
Groundwater	GW-76-14	6/30/2015
Groundwater	GW-76-48	6/30/2015
Groundwater	GW-77-17	7/1/2015
Groundwater	GW-77-36	7/1/2015
Groundwater	GW-78-15	7/1/2015
Groundwater	GW-79-20	7/2/2015
Groundwater	GW-80-25	7/2/2015
Groundwater	GW-81-17	7/2/2015
Groundwater	GW-81-49	7/2/2015
Groundwater	GW-82-19	8/11/2015
Groundwater	GW-82-49	8/12/2015
Groundwater	GW-83-23	8/12/2015
Groundwater	GW-83-49	8/12/2015
Groundwater	GW-84-18	8/12/2015
Groundwater	GW-84-38	8/12/2015
Duplicate (GW-76-14)	FD-03	6/30/2015
Duplicate (GW-78-15)	FD-04	7/1/2015
Duplicate (GW-84-38)	FD-05	8/12/2015
Equipment Blank	EB-01	7/1/2015
Trip Blank	TB-02	7/1/15 shipment
Trip Blank	TB-03	7/2/15 shipment
Trip Blank	TB-04	8/12/15 shipment

TABLE 1
Western Area Remedial Investigation Sample Summary
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

Sample Type	Sample ID	Date
Ambient Air	AAS-01	6/25/2015
Ambient Air	AAS-16	6/25/2015
Ambient Air	AAS-17	8/5/2015
Ambient Air	AAS-18	8/5/2015
Ambient Air	AAS-19	8/5/2015
Duplicate (AAS-01)	FD-25	6/25/2015
Duplicate (AAS-19)	FD-27	8/5/2015
Trip Blank	TB-10	6/25/15 shipment
Trip Blank	TB-13	8/5/15 shipment

Note:
All samples analyzed for site-specific VOCs, as follows:
Water: USEPA Method 8260
Sediment: USEPA Method 8260 (Method 5035A preparation)
Air: Method TO-15 SIM (selective ion monitoring)

Prepared By: SEK 9/15/15
Checked By: AAS 9/15/15

TABLE 2
Analytical Results of Surface Water and Sediment Samples
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

Location	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride
Surface Water (µg/L)				
SW-01W	27.8	2.1		
FD-01 (SW-01W)	28.7	1.8		
SW-02W	81.2	13.5		3.5
SW-03W	129	81.7	0.51 J	9.8
SW-04W	21.6	0.44 J		
SW-05W				
Sediment (µg/kg)				
SED-01W	36.3	2.7 J		
FD-02 (SED-01W)	42.7	4.3 J		
SED-02W	14.9	2.6 J		
SED-03W	702	162		6.4 J
SED-04W	8.1			
SED-05W				

Notes:
1. µg/L = micrograms per liter; µg/kg = micrograms per kilogram
2. Blank cells indicate analyte not detected above method detection limit (MDL); refer to laboratory report for associated MDLs.

Prepared By: SEK 7/24/15
Checked By: EPM 7/24/15

TABLE 3
Analytical Results of Groundwater Samples
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

Location	Date	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride
GW-73-20	6/29/2015				
GW-73-58	6/29/2015				
GW-74-33	6/30/2015				
GW-74-58	6/30/2015				
GW-75-20	6/30/2015				
GW-75-43	6/30/2015	4.1			
GW-76-14	6/30/2015	168			
FD-03 (GW-76-14)	6/30/2015	160			
GW-76-48	6/30/2015	0.80 J			
GW-77-17	7/1/2015				
GW-77-36	7/1/2015				
GW-78-15	7/1/2015				
FD-04 (GW-78-15)	7/1/2015				
GW-79-20	7/2/2015				
GW-80-25	7/2/2015				
GW-81-17	7/2/2015				
GW-81-49	7/2/2015				
GW-82-19	8/11/2015				
GW-82-49	8/12/2015	54.5	1.5		
GW-83-23	8/12/2015	14.3	0.59 J		
GW-83-49	8/12/2015				
GW-84-18	8/12/2015	14,800	135	0.89 J	
GW-84-38	8/12/2015	793			
FD-05 (GW-84-38)	8/12/2015	992	0.80 J		

Notes:
1. Concentrations are in micrograms per liter (µg/L).
2. Blank cells indicate analyte not detected above method detection limit (MDL); refer to laboratory report for associated MDLs.
3. J - estimated concentration.

Prepared By: SEK 9/15/15
Checked By: AAS 9/15/15

TABLE 4
Summary of Historical and June/August 2015 Ambient Air Analytical Results
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

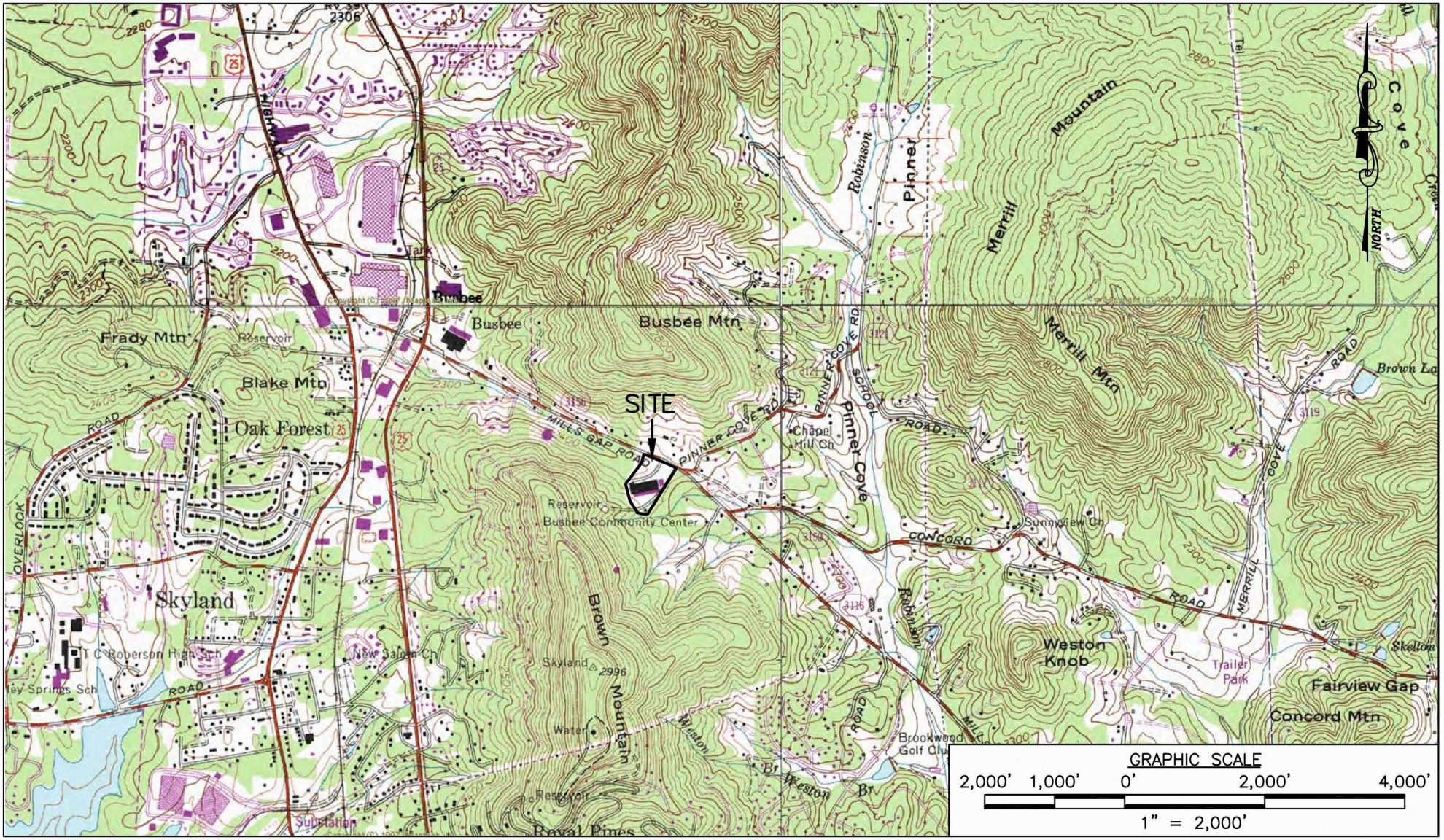
Address	Date	Sample ID	TCE	cis-1,2-DCE	trans-1,2-DCE	VC
North of 108 Silk Tree Lane	8/7/2008	MG01-AMB	0.989	<0.264	<0.264	<0.171
	10/18/2012	AAS-01	0.62	0.15	<0.035	<0.0068
	10/18/2012	FD-02 (AAS-01)	0.65	0.15	<0.033	<0.0065
	6/25/2015	AAS-01	9.8	1.6	0.016 J	0.11
	6/25/2015	FD-25 (AAS-01)	9.7	1.5	0.015 J	0.11
North of 102 Silk Tree Lane	8/7/2008	MG04-AMB	3.19	0.408	<0.264	<0.171
	6/25/2015	AAS-16	3.7	0.59	<0.010	0.038
Powell property center (adjacent to tributary)	8/5/2015	AAS-17	13	2.7	0.034 J	0.13 J
Powell property east	8/5/2015	AAS-18	0.61	0.33	<0.011	<0.011
Powell property west (adjacent to tributary)	8/5/2015	AAS-19	8.0	0.94	0.023 J	0.058 J
	8/5/2015	FD-27 (AAS-19)	6.6	0.70	0.011 J	0.045 J

Notes:

1. Concentrations are in micrograms per cubic meter ($\mu g/m^3$).
2. TCE = trichloroethene; cis-1,2-DCE = cis-1,2-dichloroethene; trans-1,2-DCE = trans-1,2-dichloroethene; VC = vinyl chloride
3. J - Concentration is estimated.
4. '<' - Constituent not detected at or above indicated laboratory reporting limit.

Prepared By: SEK 9/15/15
Checked By: AAS 9/15/15

FIGURES



TOPOGRAPHIC SITE LOCATION MAP
CTS OF ASHEVILLE, INC. SUPERFUND SITE
ASHEVILLE, NORTH CAROLINA

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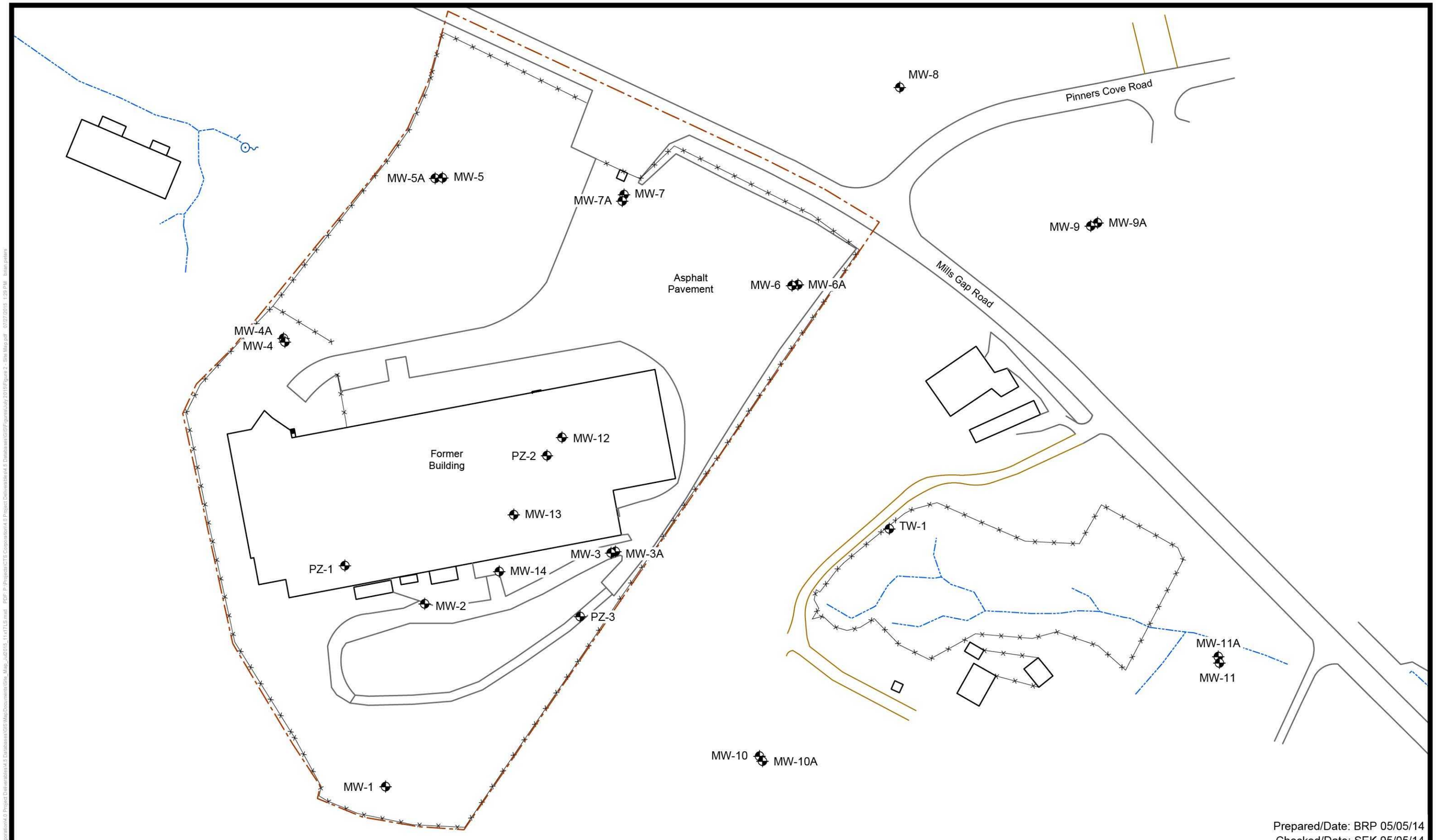
DRAWN: SEK	ENG CHECK: --	DATE: JULY 2015	PROJECT: 6252120006
DFT CHECK: MEW	APPROVAL: MEW	SCALE: 1" = 2,000'	FIGURE: 1

REFERENCE: USGS QUADRANGLES: ASHEVILLE (1961), OTEEN (1962), FRUITLAND (1978) AND SKYLAND (1978)



Legend

N

0 50 100 Feet

Monitoring Well/Piezometer

Spring

Fence

Property Line

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CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Site Map

Project 6252120006

Figure 2

SW-05W
SB-81
SB-77
SW-04W
SB-73
SB-74
Mills Gap Road
SB-78
AAS-19
SB-75
SB-82
SB-76
AAS-16
AAS-17
SW-03W
SW-02W
SW-01W
SB-84
MW-5A
MW-5
MW-7
MW-7A
Silk Tree Lane
SB-80
AAS-18
SB-83
SB-79
MW-4A
MW-4
Former Building
Southside Village Drive

Legend

- Direct-push Groundwater Sampling Location
- Surface Water and Sediment Sampling Location
- Ambient Air Sampling Location
- Sampling locations are approximate
- Existing Monitoring Well
- Approximate Location of Unnamed Tributary
- Spring
- Fence
- Property Line

N

0 60 120 Feet

Prepared/Date: BJS 10/08/15
Checked/Date: SEK 10/08/15

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CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Sampling Locations West of Site

Project 6252120006

Figure 3

SW-05W	SED-05W
ND	ND
ND	ND
ND	ND
ND	ND

SW-04W	SED-04W
21.6	8.1
0.44 J	ND
ND	ND
ND	ND

SW-03W	SED-03W
129	702
81.7	162
0.51 J	ND
9.8	6.4 J

SW-02W	SED-02W
81.2	14.9
13.5	2.6 J
ND	ND
3.5	ND

SW-01W	FD-01 (SW-01W)
27.8	28.7
2.1	1.8
ND	ND
ND	ND

SED-01W	FD-02 (SED-01W)
36.3	42.7
2.7 J	4.3 J
ND	ND
ND	ND

Mills Gap Road

Southside Village Drive

Silk Tree Lane

Former Building

Legend

- Surface Water and Sediment Sampling Location
- Sampling locations are approximate
- Approximate Location of Unnamed Tributary
- Spring
- Fence
- Property Line

N

0 60 120 Feet

SW-01W	Sample Name
36.3	Trichloroethene concentration
2.7 J	cis-1,2-Dichloroethene concentration
ND	trans-1,2-Dichloroethene concentration
ND	Vinyl Chloride concentration

Notes:
surface water concentrations in µg/L
sediment concentrations in µg/kg
J = estimated concentration
ND = Not Detected

Prepared/Date: BJS 10/08/15
Checked/Date: SEK 10/08/15

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CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Surface Water and Sediment Analytical Results

Project 6252120006

Figure 4

GW-77-17
7/1/2015
ND
ND
ND
ND

GW-77-36
7/1/2015
ND
ND
ND
ND

GW-81-49
7/2/2015
ND
ND
ND
ND

GW-81-17
7/2/2015
ND
ND
ND
ND

GW-73-20
6/29/2015
ND
ND
ND
ND

GW-73-58
6/29/2015
ND
ND
ND
ND

GW-74-33
6/30/2015
ND
ND
ND
ND

GW-74-58
6/30/2015
ND
ND
ND
ND

GW-75-20
6/30/2015
ND
ND
ND
ND

GW-75-43
6/30/2015
4.1
ND
ND
ND

GW-82-19
8/11/2015
ND
ND
ND
ND

GW-82-49
8/12/2015
54.5
1.5
ND
ND

GW-78-15
7/1/2015
ND
ND
ND
ND

FD-04 (GW-78-15)
7/1/2015
ND
ND
ND
ND

GW-76-48
6/30/2015
0.80 J
ND
ND
ND

FD-03 (GW-76-14)
6/30/2015
160
ND
ND
ND

GW-76-14
6/30/2015
168
ND
ND
ND

GW-84-38
8/12/2015
793
ND
ND
ND

FD-05 (GW-84-38)
8/12/2015
992
0.80 J
ND
ND

GW-84-18
8/12/2015
14800
135
0.89 J
ND

GW-83-23
8/12/2015
14.3
0.59 J
ND
ND

GW-83-49
8/12/2015
ND
ND
ND
ND

GW-80-25
7/2/2015
ND
ND
ND
ND

GW-79-20
7/2/2015
ND
ND
ND
ND

Mills Gap Road

Southside Village Drive

Silk Tree Lane

Former Building

Legend

- Direct-push Groundwater Sampling Location
- Sampling locations are approximate
- Approximate Location of Unnamed Tributary
- Spring
- Fence
- Property Line

N

0 60 120 Feet

GW-83-23 — Sample Name (last 2 digits indicates depth bgs)
8/12/2015 — Sample Date
14.3 — Trichloroethene concentration
0.59 J — cis-1,2-Dichloroethene concentration
ND — trans-1,2-Dichloroethene concentration
ND — Vinyl Chloride concentration

Notes:
concentrations in µg/L
J = estimated concentration
ND = Not Detected

Prepared/Date: BJS 10/09/15
Checked/Date: SEK 10/09/15

amec foster wheeler

CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Groundwater Analytical Results

Project 6252120006

Figure 5

Mills Gap Road

Southside Village Drive

Silk Tree Lane

Former Building

AAS-19
8/5/2015
8
0.94
0.023 J
0.058

FD-27 (AAS-19)
8/5/2015
6.6
0.7
0.011 J
0.045

AAS-16
6/25/2015
3.7
0.59
ND
0.038

AAS-17
8/5/2015
13
2.7
0.034 J
0.13

AAS-01
6/25/2015
9.8
1.6
0.016 J
0.11

FD-25 (AAS-01)
6/25/2015
9.7
1.5
0.015 J
0.11

AAS-18
8/5/2015
0.61
0.33
ND
ND

Legend

- Ambient Air Sampling
- Sampling locations are approximate
- Approximate Location of Unnamed Tributary
- Spring
- Fence
- Property Line

N

0 60 120 Feet

AAS-16	Sample Name (last 2 digits indicates depth bgs)
6/25/2015	Sample Date
3.7	Trichloroethene concentration
0.59	cis-1,2-Dichloroethene concentration
ND	trans-1,2-Dichloroethene concentration
0.038	Vinyl Chloride concentration

Notes:
concentrations in µg/m3
J = estimated concentration
ND = Not Detected

Prepared/Date: BJS 10/09/15
Checked/Date: SEK 10/09/15

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CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Ambient Air Analytical Results

Project 6252120006

Figure 6

GW-81-17
7/2/2015
ND

GW-77-17
7/1/2015
ND

GW-73-20
6/29/2015
ND

GW-74-33
6/30/2015
ND

GW-78-15
7/1/2015
ND

GW-75-20
6/30/2015
ND

GW-82-19
8/11/2015
ND

GW-76-14
6/30/2015
168

Mills Gap Road

GW-84-18
8/12/2015
14800

10,000

1
10
100
1,000

MW-5
1/9/2015
3840

MW-7
1/9/2015
195

GW-80-25
7/2/2015
ND

GW-79-20
7/2/2015
ND

GW-83-23
8/12/2015
14.3

MW-4
1/7/2015
111

Asphalt
Pavement

Former
Building
Location

GW-83-23 Sample Name (last 2 digits indicates depth bgs)
8/12/2015 Sample Date
14.3 Trichloroethene concentration

Notes:
TCE = Trichloroethene
J = estimated concentration
concentrations in µg/L
ND = Not Detected

Legend
- Existing Monitoring Well
- Direct-push Groundwater Sampling Location

Sampling locations are approximate

- TCE isopleth in µg/L
- Approximate Location of Unnamed Tributary
- Spring
- Fence
- Property Line

N
0 50 100
Feet

Prepared/Date: BJS 10/07/15
Checked/Date: SEK 10/07/15

amec foster wheeler

CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Western Area Shallow Overburden TCE Plume

Project 6252120006

Figure 7

GW-81-49
7/2/2015
ND

GW-77-36
7/1/2015
ND

GW-73-58
6/29/2015
ND

GW-74-58
6/30/2015
ND

GW-75-43
6/30/2015
4.1

GW-76-48
6/30/2015
0.80 J

GW-82-49
8/12/2015
54.5

Mills Gap Road

GW-84-38
8/12/2015
793

GW-01-49
2/3/2025
19800

MW-5A
1/9/2015
154

MW-7A
1/9/2015
52800

GW-83-49
8/12/2015
ND

MW-4A
1/7/2015
ND

7
10
100
1,000
10,000

Asphalt Pavement

Former Building Location

GW-82-49 Sample Name (last 2 digits indicates depth bgs)
8/12/2015 Sample Date
54.5 Trichloroethene concentration

Notes:
TCE = Trichloroethene
J = estimated concentration
concentrations in µg/L
ND = Not Detected

Legend
- Existing Monitoring Well
- Direct-push Groundwater Sampling Location
- Sampling locations are approximate
- TCE isopleth in µg/L
- Approximate Location of Unnamed Tributary
- Spring
- Fence
- Property Line

N
0 50 100 Feet

Prepared/Date: BJS 10/07/15
Checked/Date: SEK 10/07/15

amec foster wheeler

CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Western Area Deep Overburden TCE Plume

Project 6252120006 Figure 8

amec foster wheeler

CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Proposed Monitoring Well Locations West of Site

Project 6252120006

Figure 9

APPENDIX A

LOGBOOK AND FIELD DATA RECORDS

CONTENTS

PAGE	REFERENCE	DATE

Location Asheville, NC Date 6/24/15

Project / Client CTS of Asheville, Inc.

425212000b. S.Kelly/AMECFW P.1/1

1015- S.Kelly/AMECFW and A.Steurer/AMECFW arrive at Southside Village (entrance)
- calibrate PID (see calibration FD#2)
- deploy canister AAS-01 and FD-25 at 10:52 (north of 108 Silk Tree Lane)
- deploy canister AAS-16 at 1104 (north of 102 Silk Tree Lane)

1115- Leave Southside Village

AmandaKelly 6/24/15

Location Asheville, NC Date 6/25/15

Project / Client CTS of Asheville, Inc.

625212.0006 S.Kelly/AmecFW P.1/2

10:40 - S.Kelly/AmecFW and A.Steurer/AmecFW arrive at Southside Village (entrance drive)
- retrieve ambient air sample canisters AAS-01, FD-25, and AAS-16

11:15 - travel to office and prepare chain-of-custody and canisters for shipment to laboratory (ALS Environmental)

1210 - travel from office to FedEx and ~~travel~~ SRO 6/25/15 drop off box of canisters

1220 - travel from FedEx to Mills Gap Rd

1245 - arrive at City of Asheville property driveway located on Mills Gap Rd
- collect surface water sample (SW-05W at 12:55) and sediment sample (SED-05W) from creek upstream of culvert that is located beland driveway

1300 - travel to Southside Village (entrance driveway)
- collect SW-04W (13:10) and SED-04W (13:15) from creek at

Location Asheville, NC Date 6/25/15

Project / Client CTS of Asheville, Inc.

625212.0006 S.Kelly/AmecFW P.2/2

a location approximately 10 feet upstream of culvert located belaw driveway/road
- collect SW-03W (13:45) and SED-03W (13:50) from creek north of 108 Silk Tree Lane residence
- collect SW-02W (14:00) and SED-02W (14:05) from tributary/branch of creek west of 108 Silk Tree Lane (note: surface water appeared stagnant and between former contingency basin and sampling location, branch was dry)
- collect SW-01W (1435) and FD-01, and SED-01W (1440) with FD-02 at the spring head that forms the creek

1500 - leave Southside Village and travel to office

1525 - at office, complete chain of custody and pack coolers

16:30 - A.Steurer delivers coolers/samples to Pace; Pace will corrier samples to charlotte lab for analysis

Dreamland 6/25/15

Location Asheville, NC Date 6/29/15

Project / Client CTS of Asheville, NC

625212000b S. Kelly / AmecFW P. 1/2

940 - S. Kelly / AmecFW arrives at CTS site; Zebra crew (Dan and Jake) are at site

- travel to Southside Village entrance road to determine where to park trailer, stage drums, etc.

900 - unload trailer with drill rig; stage drums for soil and water

905 - A. Steurer / AmecFW arrives

940 - conduct safety meeting

950 - mob drill rig to boring location SB-73 and advance soil boring using dual-tube sampler

- probe refusal at 56 ft bgs

1040 - offset boring for groundwater sampling; collect GW-73-20 (11:30) and GW-73-58 (15:30)

1210 - Zebra off-site to purchase nitrogen to charge drive head on rig

1220-1300 - S. Kelly and A. Steurer off site for lunch

1315 - Zebra returns and charges hammer

1320 - R. Stubbs / OTIE (EPA contractor arrives)

1400 - M. Wallace arrives ↳ AmecFW

Location Asheville, NC Date 6/29/15

Project / Client CTS of Asheville

625212000b S. Kelly / AmecFW P. 2/2

1500 - M. Wallace leaves

1530 - finished collecting groundwater samples; decon screen / casing

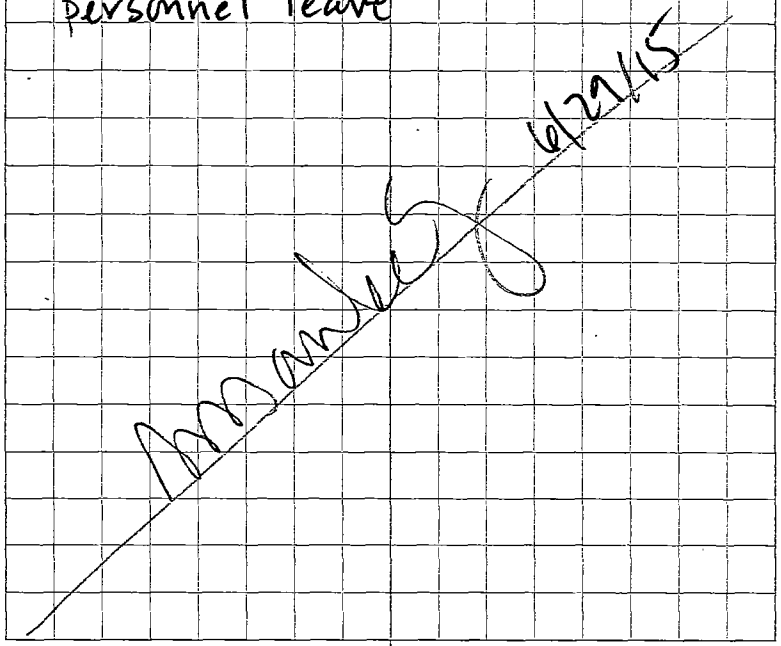
1600 - mob rig to SB-74 and advance soil boring

1730 - probe refusal at 58 ft bgs

- pull rods; decon lead rod and pack up

1755 - R. Stubbs leaves

1800 - S. Kelly, A. Steurer, and Zebra personnel leave



Location Asheville, NC Date 6/30/15

Project / Client CTS of Asheville

6252120006 S.Kelly/AmecFW P.1/2

730- S.Kelly/AmecFW, A.Steurer/AmecFW, and Zebra crew arrive at Southside village entrance area
- conduct safety meeting

750- advance groundwater boring adjacent to SB-74
- collect groundwater samples GW-74-33 (8:25) and GW-74-58 (9:15); also collect MS/MSD samples with GW-74-33

915- pull rods, decon, and mob to SB-75

955- at SB-75

1000-1030- break due to rain

1830- advance soil boring SB-75

1125- probe refusal at 43ft bgs; pull rods; A.Steurer re-calibrates PID

1140- advance offset boring for groundwater samples
- collect groundwater samples GW-75-20 (1205) and GW-75-43 (1345)

1215-1300- lunch

1345- groundwater sampling complete; pull rods, decon

1400- mob to SB-76

Location Asheville, NC Date 6/30/15

Project / Client CTS of Asheville

6252120006 S.Kelly/AMECFW P.2/2

1420- at SB-76; advance soil boring

1515- probe refusal at 47.5ft bgs, pull rods
- advance groundwater boring
- collect groundwater samples GW-76-14 (1550) and GW-76-48 (16:35); collect duplicate (FD-03) with GW-76-14

1700- A.Steurer leaves site

1720- S.Kelly and Zebra leave site

6/30/15

Location Asheville, NC Date 7/1/15

Project / Client CTS of Asheville

60252120006 S.Kelly/AmecFW P.1/2

730 - S.Kelly/AmecFW and Zebra crew arrive at Southside Village entrance area
(A.Steurer is delivering samples collected on 6/29/15 and 6/30/15 to Pace laboratory) Pace will courier samples to the Pace Charlotte lab for analysis
- S.Kelly calibrates PID and water quality meter (see calibration FDR)

815 - R.Stubbs/OTIE
- set up rig at SB-77

830 - A.Steurer/AmecFW arrives
- advance soil boring; probe refusal at 36ft bgs

9:15 - S.Kelly discusses ~~so~~ scope of work with a Southside Village Homeowners Association Board member

930 - advance groundwater boring; collect groundwater samples GW-77-17 (10:00) and GW-77-36 (11:30)

1050 - collect equipment blank (EB-01) from deionized water poured through screen

Location Asheville, NC Date 7/1/15

Project / Client CTS of Asheville

60252120006 S.Kelly/AmecFW P.2/2

1140 - 1245 lunch

1245 - backfill SB-77 borings (Backnote: Zebra backfilled previous borings with bentonite chips soon after arrival at site)

1310 - mob to SB-78

1340 - at SB-78; advanced soil boring; probe refusal at 30ft bgs, pull rods and advance groundwater boring
- collect groundwater sample GW-78-15 (15:15); also collect duplicate (FD-04) with GW-78-15
- pull rods and decon
- conduct reconnaissance of borings to be conducted on Silk Tree Lane in Southside Village especially with respect to underground utilities (gas and private sewer)

1600 - all personnel leave site (Backnote: R.Stubbs left site around 11:00)

7/1/15

Location Asheville, NC Date 7/2/15

Project / Client CTS of Asheville

625212000a S.Kelly/AmecFW P. 1/2

735- S.Kelly/AmecFW, A.Steurer/AmecFW, and Zebra crew arrive at Southside Village entrance

- mob rig into Southside Village SB-79 (end of Silk Tree Lane)
- hand auger 2 feet (approximately 6 feet from gas line, as located/indicated by PSNC
- A.Steurer calibrates PID and water quality meter (see calibration FDR)

810 - advancing soil boring SB-79

- 0% recovery for 10ft due to a rock in the shoe; offset and re-drill

835- R.Stubbs/OTIE arrives

845- probe refusal at 36 ft; pull rods and advance groundwater boring

- collect groundwater sample GW-79-20 (9:35); pull rods

940- move to boring SB-80; advance soil borings

1025- probe refusal at 29.5 ft; pull rods

Location Asheville, NC Date 7/2/15

Project / Client CTS of Asheville

625212000b S.Kelly/AmecFW P. 2/2

1035- advancing groundwater boring

- collect groundwater sample GW-80-25 (11:15)

1130- mob rig back to Southside Village entrance area

1135-1215- off-site for lunch; R.Stubbs leaves for Atlanta

1215- mob rig to SB-81 and advance soil boring

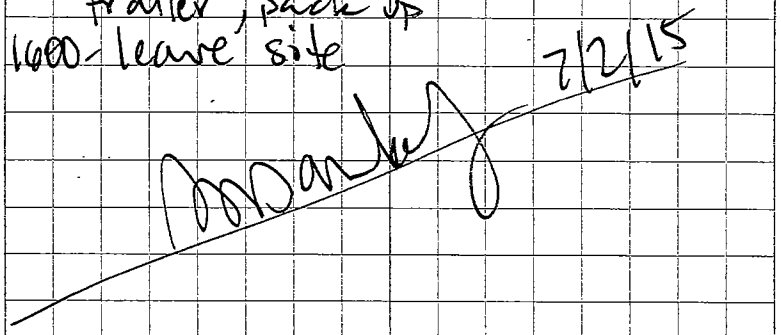
1320- probe refusal at 50 ft bgs; pull rods

- advance groundwater boring; collect groundwater samples GW-81-17 (14:00) and GW-81-49 (15:00)

1510- pull rods and mob rig to trailer; pack up

1600- leave site

7/2/15



14

Location Asheville, NC Date 8/14/15

Project / Client CTS of Asheville

625212006 S.Kelly | AnnecFW P. 1/1

815 - S.Kelly | AnnecFW and M.Wallace | AnnecFW arrive at the Powell property west of the CTS site

- S.Kelly calibrates PID (see calibration FDR)

830 - C.Zeller | EPA arrives

- deploy ambient air canister AAS-17 north of unnamed tributary, north of 108 Silk Tree Lane (at 8:58)
- deploy AAS-18 in southeastern portion of powell property (at 9:15)
- deploy AAS-19 and duplicate FD-27 north of unnamed tributary, north of 102 Silk Tree Lane (at 9:57)

1015 - all personnel leave property

8/14/15

15

Location Asheville, NC Date 8/15/15

Project / Client CTS of Asheville

625212006 S.Kelly | AnnecFW P. 1/1

820 - S.Kelly (AnnecFW, M.Wallace | AnnecFW and C.Zeller | EPA arrive at Powell propert

- S.Kelly calibrates PID (see calibration FDR)
- stop/retrieve canisters that were deployed on 8/14/15

1020 - all personnel leave property

- at office S.Kelly packages canisters and delivers them to FedEx for shipment to ALS.

8/15/15

16

Location Asheville, NC Date 8/11/15

Project / Client CTS of Asheville

625212000G SKelly/AmecFW P.1/2

800 - S.Kelly/AmecFW arrives at Powell property; Zebra personnel have just arrived
- Zebra unloads Geoprobe

815 - Zebra leaves to go to rental company and pick up skid steer
- S.Kelly calibrates PID and water quality meter (see calibration FSR

900 - Zebra returns and unloads skid-steer

915 - begin clearing for Geoprobe to access boring locations

1145 - 1230 lunch

1230 - resume clearing

1300 - cannot advance/clear to southernmost proposed boring - steep terrain to the east and soft soil near surface water features (almost sank skid-steer)
- S.Kelly notifies M.Wallace/AmecFW of situation

1315 - Zebra loads skid-steer and

17

Location Asheville, NC Date 8/11/15

Project / Client CTS of Asheville.

625212000G S.Kelly/AmecFW P.2/2

cleans mud (from skid-steer tracks) off of SSV Road and ~~1400~~ SB 9/11/15 returns skid-steer to rental company

1400 - Zebra returns; mob rig to SB-82 and begin advancing soil boring

1500 - probe refusal at 49 ft, pull rods

1545 - advance groundwater sampler and collect groundwater sample ~~GW-75-20~~ SB 9/14/15 ~~GW-18~~ SB 9/11/15 GW-82-19 (1615)

1630 - finished sampling; pack up

1645 - all personnel leave property

M.Wallace

Location Asheville, NC Date 8/12/15

Project / Client CTS of Asheville

625212000.06 S.Kelly/AmecFW P.1/2

810- S.Kelly/AmecFW and Zebra personnel arrive at Powell property

- S.Kelly calibrates PID and water quality meter (see calibration FDR

- groundwater sampler to advance deeper interval; collect GW-82-49 (900); pull rods and backfill borings with granular bentonite

925- move to SB-83

940- advance soil boring

1015- probe refusal at 49 feet; pull rods and advance groundwater sampler and collect GW-83-23 (1100) and GW-83-49 (1150)

1155-1255 - off-site for lunch

1255- pull rods and backfill borings with hydrated bentonite

1315- mob to SB-84 and advance soil boring

1415- probe refusal at 38 Ft.; pull rods and advance grand water sampler

Location Asheville, NC Date 8/12/15

Project / Client CTS of Asheville

625212000.06 S.Kelly/AmecFW P.2/2

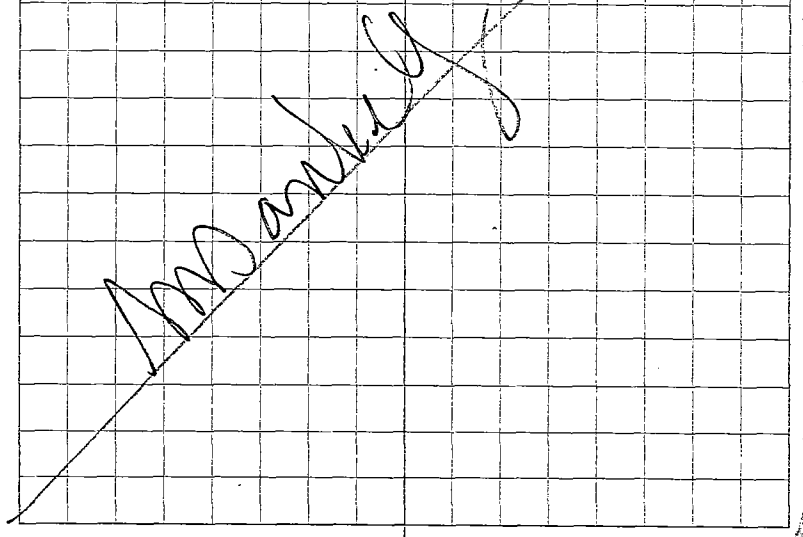
- collect groundwater samples GW-84-18 (1450) and GW-84-38 (15:15); collect FD-05 and MS/MSD samples with GW-84-18

- 1530- mob rig back to trailer and load up

- 1635- S.Kelly leaves property to take drill helper to airport; driller will finish loading rig, etc. and leave

- S.Kelly delivers samples to lab (Pace/Asheville)

8/12/15



FIELD INSTRUMENT CALIBRATION RECORD

Project Name: CTS of Asheville, Inc. Superfund Site Date: 6/24/15

Project Number: 6252-12-0006 Name: S. Kelly

Water Quality Meter Calibration

	Standard Value		Meter Value		Acceptance Criteria
Manufacturer:	pH:	SU	pH:	SU	+/- 10% of standard
Model No.:	Conductivity:	mS/cm	Conductivity:	mS/cm	+/- 10% of standard
Unit ID:	Redox:	+/- mV	Redox:	+/- mV	see note 1
	DO:	mg/L *	DO:	mg/L	+/- 10% of standard
	Thermometer Temperature:	C°	Temperature:	C°	+/- 2.0 C°

Turbidity Meter Calibration

	Standard Value		Meter Value		Acceptance Criteria
Manufacturer:		NTU (low)		NTU	+/- 10% of standard
Model No.:		NTU (med)		NTU	+/- 10% of standard
Unit ID:		NTU (high)		NTU	+/- 10% of standard

Photoionization Detector

						Acceptance Criteria
Manufacturer: RAE Systems	Background:	0	ppmv	Meter: 0.0	ppmv	within 5 ppmv of Zero
Model No.: mini-RAE 2000	Span Gas:	100	ppmv	Meter: 101	ppmv	+/- 10% of standard
Unit ID: Pine 5625						

Calibration Sources

	Source	Value		Lot Number	Expiration Date
pH			SU		
Conductivity			mS/cm		
Redox:			mV		
Turbidity (low)			NTU		
Turbidity (med):			NTU		
Turbidity (high):			NTU		
PID gas:	PortaCyl (isobutylene)	100	ppmv	0127FF14	1/2018
Other:					

NOTES:

* = Indicate in notes section what was used as the DO standard (i.e., based on saturation at room temperature)

** = If the meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

1 = meter must read within specified range of the Zobell solution (usually 231 +/- 10 mv).

FIELD INSTRUMENT CALIBRATION RECORD

Project Name: CTS of Asheville, Inc. Superfund Site Date: 6/25/15

Project Number: 6252-12-0006 Name: Sikelly

Water Quality Meter Calibration

	Standard Value		Meter Value		Acceptance Criteria
Manufacturer:	pH:	SU	pH:	SU	+/- 10% of standard
Model No.:	Conductivity:	mS/cm	Conductivity:	mS/cm	+/- 10% of standard
Unit ID:	Redox:	+/- mV	Redox:	+/- mV	see note 1
	DO:	mg/L *	DO:	mg/L	+/- 10% of standard
	Thermometer Temperature:	C°	Temperature:	C°	+/- 2.0 C°

Turbidity Meter Calibration

	Standard Value		Meter Value	Acceptance Criteria
Manufacturer:		NTU (low)	NTU	+/- 10% of standard
Model No.:		NTU (med)	NTU	+/- 10% of standard
Unit ID:		NTU (high)	NTU	+/- 10% of standard

Photoionization Detector

					Acceptance Criteria
Manufacturer: RAE Systems	Background:	0 ppmv	Meter:	0.1 ppmv	within 5 ppmv of Zero
Model No.: mini-RAE 2000	Span Gas:	100 ppmv	Meter:	100 ppmv	+/- 10% of standard
Unit ID: Pine 5625					

Calibration Sources

	Source	Value		Lot Number	Expiration Date
pH			SU		
Conductivity			mS/cm		
Redox:			mV		
Turbidity (low)			NTU		
Turbidity (med):			NTU		
Turbidity (high):			NTU		
PID gas:	PortaCyl (isobutylene)	100	ppmv	0127FF14	1/2018
Other:					

NOTES:

* = Indicate in notes section what was used as the DO standard (i.e., based on saturation at room temperature)

** = If the meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

1 = meter must read within specified range of the Zobell solution (usually 231 +/- 10 mv).

FIELD INSTRUMENT CALIBRATION RECORD

Project Name: CTS of Asheville, Inc. Superfund Site Date: 8/4/15

Project Number: 6252-12-0006 Name: S. Kelly

Water Quality Meter Calibration	Standard Value		Meter Value		Acceptance Criteria
Manufacturer: _____	pH: _____	SU	pH: _____	SU	+/- 10% of standard
Model No.: _____	Conductivity: _____	mS/cm	Conductivity: _____	mS/cm	+/- 10% of standard
Unit ID: _____	Redox: _____	+/- mV	Redox: _____	+/- mV	see note 1
	DO: _____	mg/L *	DO: _____	mg/L	+/- 10% of standard
	Thermometer Temperature: _____	C°	Temperature: _____	C°	+/- 2.0 C°

Turbidity Meter Calibration	Standard Value		Meter Value		Acceptance Criteria
Manufacturer: _____	_____	NTU (low)	_____	NTU	+/- 10% of standard
Model No.: _____	_____	NTU (med)	_____	NTU	+/- 10% of standard
Unit ID: _____	_____	NTU (high)	_____	NTU	+/- 10% of standard

Photoionization Detector						Acceptance Criteria
Manufacturer: RAE Systems	Background:	0	ppmv	Meter: 0.0	ppmv	within 5 ppmv of Zero
Model No.: mini-RAE 2000	Span Gas:	100	ppmv	Meter: 101	ppmv	+/- 10% of standard
Unit ID: Ashe-01						

Calibration Sources

	Source	Value		Lot Number	Expiration Date
pH	_____	_____	SU	_____	_____
Conductivity	_____	_____	mS/cm	_____	_____
Redox:	_____	_____	mV	_____	_____
Turbidity (low)	_____	_____	NTU	_____	_____
Turbidity (med):	_____	_____	NTU	_____	_____
Turbidity (high):	_____	_____	NTU	_____	_____
PID gas:	PortaCyl (isobutylene)	100	ppmv	LAO-248-100-9	12/2018
Other:	_____	_____		_____	_____

NOTES:

* = Indicate in notes section what was used as the DO standard (i.e., based on saturation at room temperature)

** = If the meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

1 = meter must read within specified range of the Zobell solution (usually 231 +/- 10 mv).

FIELD INSTRUMENT CALIBRATION RECORD

Project Name: CTS of Asheville, Inc. Superfund Site Date: 8/5/15

Project Number: 6252-12-0006 Name: S. Kelly

Water Quality Meter Calibration	Standard Value		Meter Value		Acceptance Criteria
Manufacturer: _____	pH: _____	SU	pH: _____	SU	+/- 10% of standard
Model No.: _____	Conductivity: _____	mS/cm	Conductivity: _____	mS/cm	+/- 10% of standard
Unit ID: _____	Redox: _____	+/- mV	Redox: _____	+/- mV	see note 1
	DO: _____	mg/L *	DO: _____	mg/L	+/- 10% of standard
	Thermometer Temperature: _____	C°	Temperature: _____	C°	+/- 2.0 C°

Turbidity Meter Calibration	Standard Value		Meter Value		Acceptance Criteria
Manufacturer: _____	_____	NTU (low)	_____	NTU	+/- 10% of standard
Model No.: _____	_____	NTU (med)	_____	NTU	+/- 10% of standard
Unit ID: _____	_____	NTU (high)	_____	NTU	+/- 10% of standard

Photoionization Detector						Acceptance Criteria
Manufacturer: RAE Systems	Background:	0	ppmv	Meter: 0.0	ppmv	within 5 ppmv of Zero
Model No.: mini-RAE 2000	Span Gas:	100	ppmv	Meter: 100	ppmv	+/- 10% of standard
Unit ID: Ashe-01						

Calibration Sources

	Source	Value		Lot Number	Expiration Date
pH			SU		
Conductivity			mS/cm		
Redox:			mV		
Turbidity (low)			NTU		
Turbidity (med):			NTU		
Turbidity (high):			NTU		
PID gas:	PortaCyl (isobutylene)	100	ppmv	LAO-248-100-9	12/2018
Other:					

NOTES:

* = Indicate in notes section what was used as the DO standard (i.e., based on saturation at room temperature)

** = If the meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

1 = meter must read within specified range of the Zobell solution (usually 231 +/- 10 mv).

AIR SAMPLING FIELD DATA RECORD

Project Name: CTS of Asheville, Inc. **Project Numer:** 6252-12-0006

Sampling Personnel: S. Kelly / A. Steurer **Sample ID:** AAS-01

Sample Address: 108 Silk Tree Lane **Sample Location:** ambient

Canister ID: AC02084 **Flow Controller ID:** FCA08705

Gauge ID: AVG04064 **Intake Height (ft):** 4.7

	Start	Stop
Sample Date:	6/24/15	6/25/15
Sample Time:	1052	1052
Canister Vacuum ("Hg):	-27.5	0
Outdoor Temperature (°F):	86	85
Interior Temperature (°F):	N/A	N/A
PID Reading (ppm):	0.0	0.0
Wind Direction:	from west	calm

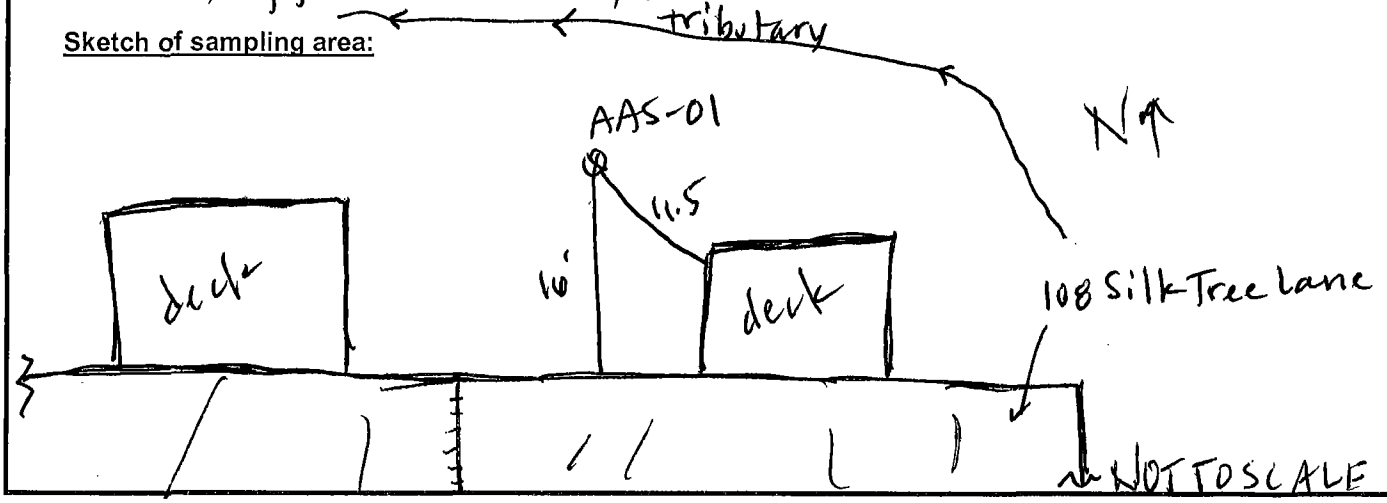
Antecedent weather conditions:

rain on 6/22/15; clear 6/23/15 mid-60s °F to upper 80s °F

Weather conditions during sample period:

clear; upper 60s °F to upper 80s °F

Sketch of sampling area:



AIR SAMPLING FIELD DATA RECORD

Project Name: CTS of Asheville, Inc. **Project Numer:** 6252-12-0006

Sampling Personnel: S.Kelly / A.Stevrer **Sample ID:** FD-25

Sample Address: 108 Silk Tree Lane **Sample Location:** ambient (AAS-01)

Canister ID: AS00503 **Flow Controller ID:** FCA00927

Gauge ID: AVG04072 **Intake Height (ft):** 4.7

	Start	Stop
Sample Date:	6/24/15	6/25/15
Sample Time:	1052	1052
Canister Vacuum ("Hg):	-29	0
Outdoor Temperature (°F):	86	85
Interior Temperature (°F):	N/A	N/A
PID Reading (ppm):	0.0	0.0
Wind Direction:	from west	calm

Antecedent weather conditions:

See AAS-01

Weather conditions during sample period:

See AAS-01

Sketch of sampling area:

See AAS-01

AIR SAMPLING FIELD DATA RECORD

Project Name: CTS of Asheville, Inc. **Project Numer:** 6252-12-0006

Sampling Personnel: S.Kelly/A.Steurer **Sample ID:** AAS16

Sample Address: 102 Silk Tree Lane **Sample Location:** ambient

Canister ID: AS00862 **Flow Controller ID:** FCA00268

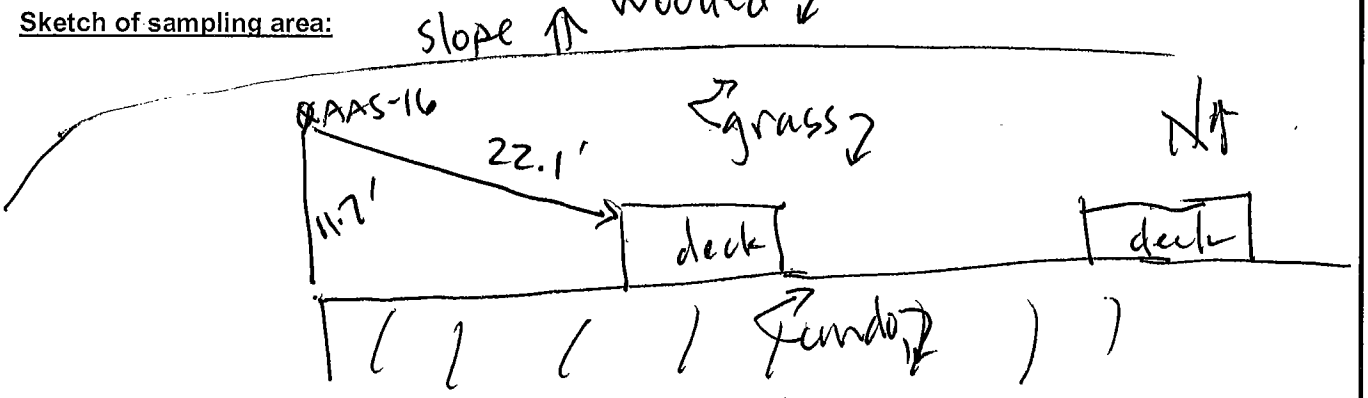
Gauge ID: AVG04404 **Intake Height (ft):** 4.9

	Start	Stop
Sample Date:	6/24/15	6/25/15
Sample Time:	1104	1104
Canister Vacuum ("Hg):	27.5	0
Outdoor Temperature (°F):	86	85
Interior Temperature (°F):	N/A	N/A
PID Reading (ppm):	0.0	1.1
Wind Direction:	from west	calm

Antecedent weather conditions:
rain on 6/22/15; clear 6/23 mid-60s°F to upper 80s°F

Weather conditions during sample period:
upper 60s°F to upper 80s°F; clear

Sketch of sampling area:



AIR SAMPLING FIELD DATA RECORD

Project Name: CTS of Asheville, Inc. **Project Numer:** 6252-12-0006

Sampling Personnel: S. Kelly / M. Wallace **Sample ID:** AAS-17

Sample Address: Powell property **Sample Location:** ambient

Canister ID: AS00786 **Flow Controller ID:** FCA00787

Gauge ID: AVG04341 **Intake Height (ft):** 4.1

	Start	Stop
Sample Date:	8/4/15	8/5/15
Sample Time:	8:58	8:58
Canister Vacuum ("Hg):	27.5	3
Outdoor Temperature (°F):	65	68
Interior Temperature (°F):	N/A	N/A
PID Reading (ppm):	0.1	0.0 - 0.1
Wind Direction:	calm	calm

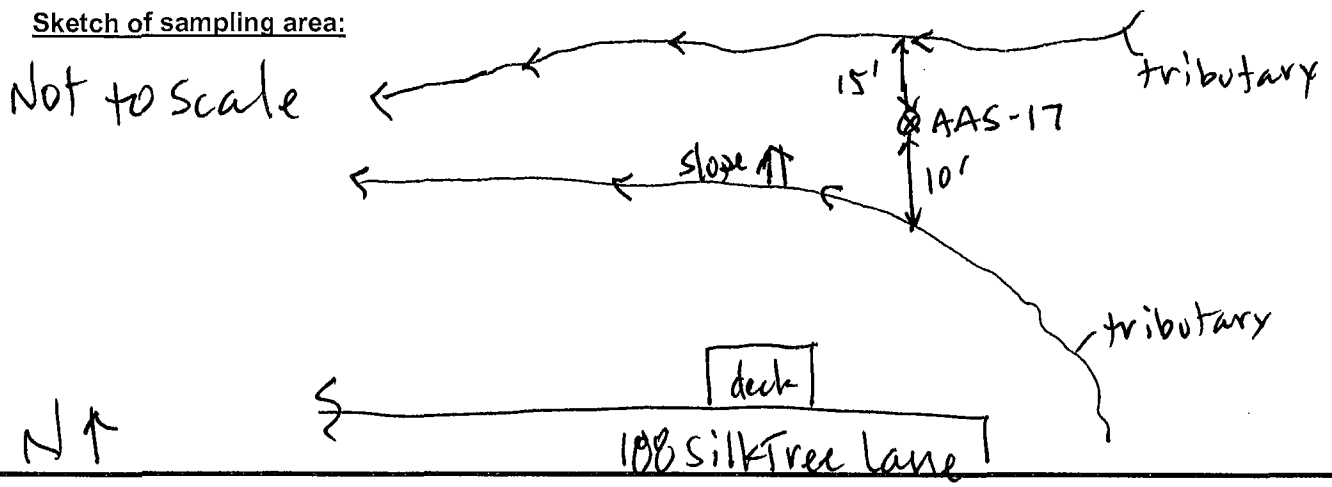
Antecedent weather conditions:

clear, low 60s°F to upper 80s°F

Weather conditions during sample period:

clear, low 60s°F to upper 80s°F

Sketch of sampling area:



AIR SAMPLING FIELD DATA RECORD

Project Name: CTS of Asheville, Inc. **Project Numer:** 6252-12-0006

Sampling Personnel: S.Kelly | M.Wallace **Sample ID:** AAS-18

Sample Address: Powell property **Sample Location:** ambient

Canister ID: AS00696 **Flow Controller ID:** FCA00347

Gauge ID: AVG04017 **Intake Height (ft):** 3.8

	Start	Stop
Sample Date:	8/4/15	8/5/15
Sample Time:	9:15	9:15
Canister Vacuum ("Hg):	28	4
Outdoor Temperature (°F):	69	70
Interior Temperature (°F):	N/A	N/A
PID Reading (ppm):	0.0-0.1	0.0-0.2
Wind Direction:	calm	calm

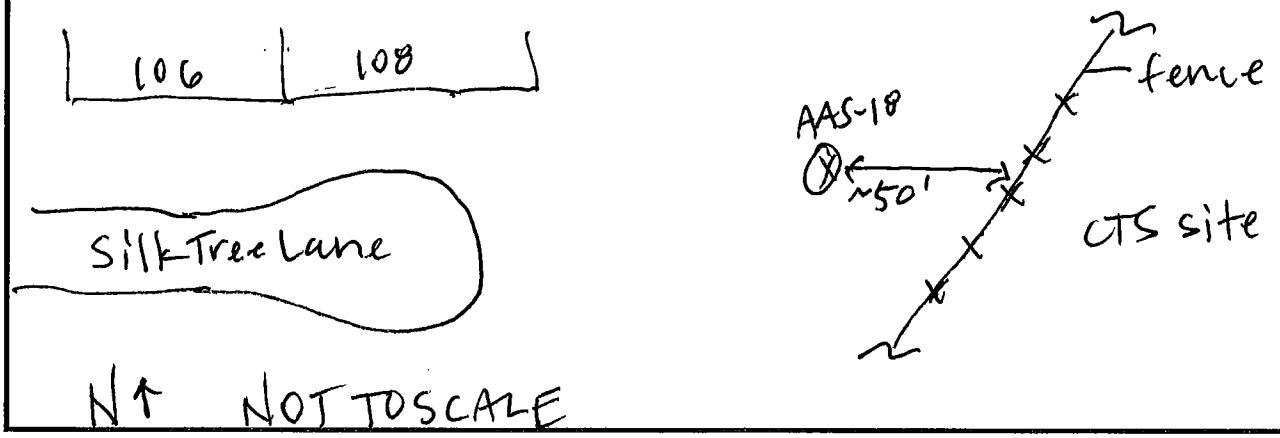
Antecedent weather conditions:

See AAS-17

Weather conditions during sample period:

See AAS-17

Sketch of sampling area:



AIR SAMPLING FIELD DATA RECORD

Project Name: CTS of Asheville, Inc. **Project Numer:** 6252-12-0006

Sampling Personnel: S.Kelly/M.Wallace **Sample ID:** AAS-19

Sample Address: Powell property **Sample Location:** ambient

Canister ID: AS00798 **Flow Controller ID:** FCS 00085

Gauge ID: AVG04265 **Intake Height (ft):** 3.9

	Start	Stop
Sample Date:	8/4/15	8/5/15
Sample Time:	9:57	9:57
Canister Vacuum ("Hg):	23.5	1
Outdoor Temperature (°F):	69	71
Interior Temperature (°F):	N/A	N/A
PID Reading (ppm):	0.0	0.0
Wind Direction:	calm	calm

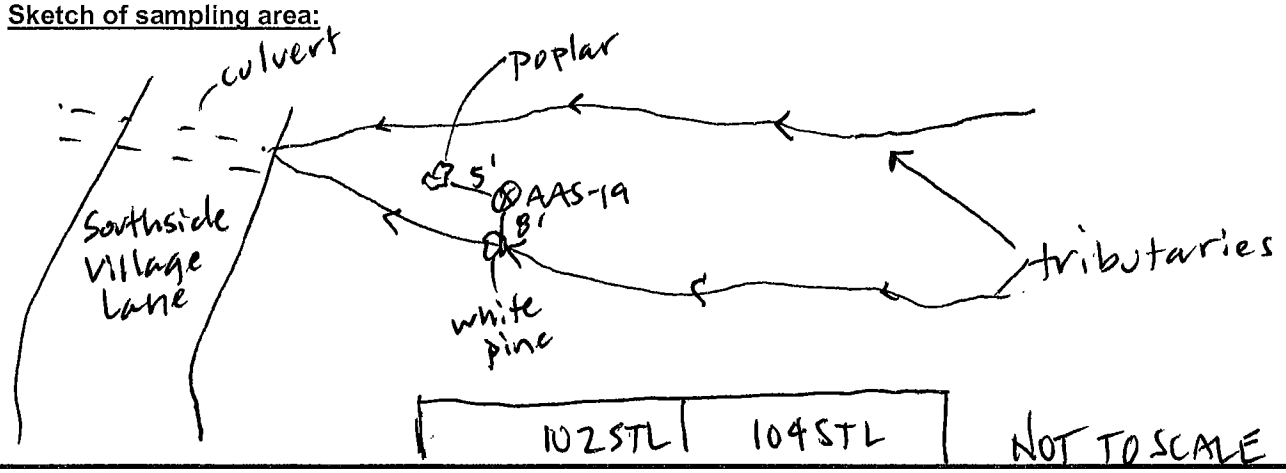
Antecedent weather conditions:

See AAS-17

Weather conditions during sample period:

See AAS-17

Sketch of sampling area:



AIR SAMPLING FIELD DATA RECORD

Project Name: CTS of Asheville, Inc. **Project Numer:** 6252-12-0006

Sampling Personnel: S.Kelly / M.Wallace **Sample ID:** FD-27

Sample Address: Parnell property **Sample Location:** ambient (AAS-19)

Canister ID: AC00722 **Flow Controller ID:** FC500253

Gauge ID: AVG04051 **Intake Height (ft):** 3.9

	Start	Stop
Sample Date:	8/4/15	8/5/15
Sample Time:	9:57	9:57
Canister Vacuum ("Hg):	30	2
Outdoor Temperature (°F):	49	71
Interior Temperature (°F):	N/A	N/A
PID Reading (ppm):	0.0	0.0
Wind Direction:	calm	calm

Antecedent weather conditions:

See AAS-17

Weather conditions during sample period:

See AAS-17

Sketch of sampling area:

See AAS-19

FIELD INSTRUMENT CALIBRATION RECORD

Project Name: CTS of Asheville, Inc. Superfund Site Date: 6/29/15

Project Number: 6252-12-0006 Name: S. Kelly

Water Quality Meter Calibration

		Standard Value		Meter Value		Acceptance Criteria
Manufacturer: YSI	pH:	4	SU (low)	pH: 3.99	SU	+/- 10% of standard
Model No.: 556 MPS	pH:	7	SU (med)	pH: 7.00	SU	+/- 10% of standard
Unit ID: 16731	pH:	10	SU (high)	pH: 10.00	SU	+/- 10% of standard
	Conductivity:	1.413	mS/cm	Conductivity: 1.918	mS/cm	+/- 10% of standard
	ORP:	240	mV	ORP: 240.3	mV	+/- 10% of standard

Turbidity Meter Calibration

	Standard Value		Meter Value		Acceptance Criteria
Manufacturer:		NTU (low)		NTU	+/- 10% of standard
Model No.:		NTU (med)		NTU	+/- 10% of standard
Unit ID:		NTU (high)		NTU	+/- 10% of standard
		NTU (high)		NTU	+/- 10% of standard

Photoionization Detector

						Acceptance Criteria
Manufacturer: RAE Systems	Background:	0.0	ppmv	Meter: 0.0	ppmv	within 5 ppmv of Zero
Model No.: mini-RAE 2000	Span Gas:	100	ppmv	Meter: 101	ppmv	+/- 10% of standard
Unit ID: 5625						

Calibration Sources

	Source	Value		Lot Number	Expiration Date
pH (low)	Pine (Aqua Pheonix)	4	SU	5AD247	4/2017
pH (med)	Pine (Aqua Pheonix)	7	SU	5AD425	4/2017
pH (high)	Pine (Aqua Pheonix)	10	SU	5AD453	4/2017
Conductivity	Pine (Aqua Pheonix)	1.413	mS/cm	5AC151	3/2016
ORP:	Pine (Hanna)	240	mV	6138	5/2018
Turbidity (low)			NTU		
Turbidity (med):			NTU		
Turbidity (high):			NTU		
Turbidity (high):			NTU		
PID gas:	Isobutylene	100	ppmv	LAO-248-100-9	12/2018

NOTES:

If a meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

FIELD INSTRUMENT CALIBRATION RECORD

Project Name: CTS of Asheville, Inc. Superfund Site Date: 6/30/15

Project Number: 6252-12-0006 Name: S. Kelly

Water Quality Meter Calibration

	Standard Value		Meter Value		Acceptance Criteria
Manufacturer: YSI	pH: 4	SU (low)	pH: 3.99	SU	+/- 10% of standard
Model No.: 556 MPS	pH: 7	SU (med)	pH: 7.00	SU	+/- 10% of standard
Unit ID: 16731	pH: 10	SU (high)	pH: 10.02	SU	+/- 10% of standard
	Conductivity: 1.413	mS/cm	Conductivity: 1.465	mS/cm	+/- 10% of standard
	ORP: 240	mV	ORP: 240.1	mV	+/- 10% of standard

Turbidity Meter Calibration

	Standard Value		Meter Value		Acceptance Criteria
Manufacturer:		NTU (low)		NTU	+/- 10% of standard
Model No.:		NTU (med)		NTU	+/- 10% of standard
Unit ID:		NTU (high)		NTU	+/- 10% of standard
		NTU (high)		NTU	+/- 10% of standard

Photoionization Detector

					Acceptance Criteria
Manufacturer: RAE Systems	Background: 0	ppmv	Meter: 0.0	ppmv	within 5 ppmv of Zero
Model No.: mini-RAE 2000	Span Gas: 100	ppmv	Meter: 100	ppmv	+/- 10% of standard
Unit ID: 5625					

Calibration Sources

	Source	Value		Lot Number	Expiration Date
pH (low)	Pine (Aqua Pheonix)	4	SU	5AD247	4/2017
pH (med)	Pine (Aqua Pheonix)	7	SU	5AD425	4/2017
pH (high)	Pine (Aqua Pheonix)	10	SU	5AD453	4/2017
Conductivity	Pine (Aqua Pheonix)	1.413	mS/cm	5AC151	3/2016
ORP:	Pine (Hanna)	240	mV	6138	5/2018
Turbidity (low)			NTU		
Turbidity (med):			NTU		
Turbidity (high):			NTU		
Turbidity (high):			NTU		
PID gas:	Isobutylene	100	ppmv	LAO-248-100-9	12/2018

NOTES:

If a meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

FIELD INSTRUMENT CALIBRATION RECORD

Project Name: CTS of Asheville, Inc. Superfund Site Date: 7/1/15

Project Number: 6252-12-0006 Name: S. Kelly

Water Quality Meter Calibration

	Standard Value		Meter Value		Acceptance Criteria
Manufacturer: YSI	pH: 4	SU (low)	pH: 4.00	SU	+/- 10% of standard
Model No.: 556 MPS	pH: 7	SU (med)	pH: 7.01	SU	+/- 10% of standard
Unit ID: 16731	pH: 10	SU (high)	pH: 10.00	SU	+/- 10% of standard
	Conductivity: 1.413	mS/cm	Conductivity: 1.413	mS/cm	+/- 10% of standard
	ORP: 240	mV	ORP: 240.2	mV	+/- 10% of standard

Turbidity Meter Calibration

	Standard Value		Meter Value		Acceptance Criteria
Manufacturer:		NTU (low)		NTU	+/- 10% of standard
Model No.:		NTU (med)		NTU	+/- 10% of standard
Unit ID:		NTU (high)		NTU	+/- 10% of standard
		NTU (high)		NTU	+/- 10% of standard

Photoionization Detector

					Acceptance Criteria
Manufacturer: RAE Systems	Background: 0.0	ppmv	Meter: 0.0	ppmv	within 5 ppmv of Zero
Model No.: mini-RAE 2000	Span Gas: 100	ppmv	Meter: 101	ppmv	+/- 10% of standard
Unit ID: 5625					

Calibration Sources

	Source	Value		Lot Number	Expiration Date
pH (low)	Pine (Aqua Pheonix)	4	SU	5AD247	4/2017
pH (med)	Pine (Aqua Pheonix)	7	SU	5AD425	4/2017
pH (high)	Pine (Aqua Pheonix)	10	SU	5AD453	4/2017
Conductivity	Pine (Aqua Pheonix)	1.413	mS/cm	5AC151	3/2016
ORP:	Pine (Hanna)	240	mV	6138	5/2018
Turbidity (low)			NTU		
Turbidity (med):			NTU		
Turbidity (high):			NTU		
Turbidity (high):			NTU		
PID gas:	Isobutylene	100	ppmv	LAO-248-100-9	12/2018

NOTES:

If a meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

FIELD INSTRUMENT CALIBRATION RECORD

Project Name: CTS of Asheville, Inc. Superfund Site Date: 7/2/15

Project Number: 6252-12-0006 Name: A. Steurer

Water Quality Meter Calibration

		Standard Value		Meter Value		Acceptance Criteria
Manufacturer: YSI	pH:	4	SU (low)	pH: 4.03	SU	+/- 10% of standard
Model No.: 556 MPS	pH:	7	SU (med)	pH: 7.01	SU	+/- 10% of standard
Unit ID: 16731	pH:	10	SU (high)	pH: 10.01	SU	+/- 10% of standard
	Conductivity:	1.413	mS/cm	Conductivity: 1.414	mS/cm	+/- 10% of standard
	ORP:	240	mV	ORP: 240.1	mV	+/- 10% of standard

Turbidity Meter Calibration

	Standard Value		Meter Value		Acceptance Criteria
Manufacturer:		NTU (low)		NTU	+/- 10% of standard
Model No.:		NTU (med)		NTU	+/- 10% of standard
Unit ID:		NTU (high)		NTU	+/- 10% of standard
		NTU (high)		NTU	+/- 10% of standard

Photoionization Detector

						Acceptance Criteria
Manufacturer: RAE Systems	Background:	0.0	ppmv	Meter: 0.0	ppmv	within 5 ppmv of Zero
Model No.: mini-RAE 2000	Span Gas:	100	ppmv	Meter: 99.7	ppmv	+/- 10% of standard
Unit ID: 5625						

Calibration Sources

	Source	Value		Lot Number	Expiration Date
pH (low)	Pine (Aqua Pheonix)	4	SU	5AD247	4/2017
pH (med)	Pine (Aqua Pheonix)	7	SU	5AD425	4/2017
pH (high)	Pine (Aqua Pheonix)	10	SU	5AD453	4/2017
Conductivity	Pine (Aqua Pheonix)	1.413	mS/cm	5AC151	3/2016
ORP:	Pine (Hanna)	240	mV	6138	5/2018
Turbidity (low)			NTU		
Turbidity (med):			NTU		
Turbidity (high):			NTU		
Turbidity (high):			NTU		
PID gas:	Isobutylene	100	ppmv	LAO-248-100-9	12/2018

NOTES:

If a meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

FIELD INSTRUMENT CALIBRATION RECORD

Project Name: CTS of Asheville, Inc. Superfund Site

Project Number: 6252-12-0006

Date: 8/11/15

Name: S. Kelly

Water Quality Meter Calibration

Manufacturer: YSI

Model No.: 556 MPS

Unit ID: Pine (024680)

	Standard Value		Meter Value		Acceptance Criteria
pH:	4	SU (low)	pH: 4.00	SU	+/- 10% of standard
pH:	7	SU (med)	pH: 7.00	SU	+/- 10% of standard
pH:	10	SU (high)	pH: 9.98	SU	+/- 10% of standard
Conductivity:	1.413	mS/cm	Conductivity: 1.413	mS/cm	+/- 10% of standard
ORP:	240	mV	ORP: 240.2	mV	+/- 10% of standard

Turbidity Meter Calibration

Manufacturer: _____

Model No.: _____

Unit ID: _____

Standard Value		Meter Value		Acceptance Criteria
_____	NTU (low)	_____	NTU	+/- 10% of standard
_____	NTU (med)	_____	NTU	+/- 10% of standard
_____	NTU (high)	_____	NTU	+/- 10% of standard
_____	NTU (high)	_____	NTU	+/- 10% of standard

Photoionization Detector

Manufacturer: RAE Systems

Model No.: mini-RAE 2000

Unit ID: Ashe-01

				Acceptance Criteria
Background:	0 ppmv	Meter:	0.0 ppmv	within 5 ppmv of Zero
Span Gas:	100 ppmv	Meter:	100 ppmv	+/- 10% of standard

Calibration Sources

	Source	Value		Lot Number	Expiration Date
pH (low)	Pine (Aqua Pheonix)	4	SU	4AA619	1/2016
pH (med)	Pine (Aqua Pheonix)	7	SU	4AD415	4/2016
pH (high)	Pine	10	SU	11375	11/2015
Conductivity	Pine (Aqua Pheonix)	1.413	mS/cm	4AK179	11/2015
ORP:	Pine (Hanna)	240	mV	6138	5/2018
Turbidity (low)			NTU		
Turbidity (med):			NTU		
Turbidity (high):			NTU		
Turbidity (high):			NTU		
PID gas:	Isobutylene	100	ppmv	LAO-248-100-9	12/2018

NOTES:

If a meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

FIELD INSTRUMENT CALIBRATION RECORD

Project Name: CTS of Asheville, Inc. Superfund Site Date: 8/12/15

Project Number: 6252-12-0006 Name: S. Kelly

Water Quality Meter Calibration

		Standard Value		Meter Value		Acceptance Criteria
Manufacturer: YSI	pH:	4	SU (low)	pH: 4.00	SU	+/- 10% of standard
Model No.: 556 MPS	pH:	7	SU (med)	pH: 7.00	SU	+/- 10% of standard
Unit ID: Pine (024680)	pH:	10	SU (high)	pH: 9.99	SU	+/- 10% of standard
	Conductivity:	1.413	mS/cm	Conductivity: 1.413	mS/cm	+/- 10% of standard
	ORP:	240	mV	ORP: 240.1	mV	+/- 10% of standard

Turbidity Meter Calibration

	Standard Value		Meter Value		Acceptance Criteria
Manufacturer:		NTU (low)		NTU	+/- 10% of standard
Model No.:		NTU (med)		NTU	+/- 10% of standard
Unit ID:		NTU (high)		NTU	+/- 10% of standard
		NTU (high)		NTU	+/- 10% of standard

Photoionization Detector

						Acceptance Criteria
Manufacturer: RAE Systems	Background:	0	ppmv	Meter: 0.1	ppmv	within 5 ppmv of Zero
Model No.: mini-RAE 2000	Span Gas:	100	ppmv	Meter: 100	ppmv	+/- 10% of standard
Unit ID: Ashe-01						

Calibration Sources

	Source	Value		Lot Number	Expiration Date
pH (low)	Pine (Aqua Pheonix)	4	SU	4AA619	1/2016
pH (med)	Pine (Aqua Pheonix)	7	SU	4AD415	4/2016
pH (high)	Pine	10	SU	11375	11/2015
Conductivity	Pine (Aqua Pheonix)	1.413	mS/cm	4AK179	11/2015
ORP:	Pine (Hanna)	240	mV	6138	5/2018
Turbidity (low)			NTU		
Turbidity (med):			NTU		
Turbidity (high):			NTU		
Turbidity (high):			NTU		
PID gas:	Isobutylene	100	ppmv	LAO-248-100-9	12/2018

NOTES:

If a meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 6/29/15

WELL / SAMPLE NUMBER: GW-73-20 | ACTIVITY TIME: START – END – | TIME: 1130

QC SAMPLES COLLECTED: TB-02 | ASSOCIATED TRIP BLANK: TB-02

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 16-20 ft bgs

BLADDER PUMP: –

PERISTALTIC PUMP: X

DISCHARGE: – | REFILL: –

+ check valve to start

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1115	DNM	DNM	17.26	0.139	6.98	7.36	DNM	157.4	
1119	↓	↓	15.48	0.122	4.13	8.22	↓	277.0	
1123			14.94	0.117	3.98	8.38		285.2	
1127			14.83	0.117	9.15	7.83		277.7	

ANALYSES: 8260 (site-specific list)

NOTES: approx. 1 gallon purged; slightly turbid

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 6/29/15

WELL / SAMPLE NUMBER: GW-73-58 | ACTIVITY TIME: START - END - | TIME: 1530

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-02

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 54-58 ftbgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1525	DNM	DNM	20.94	0.108	6.10	5.20	DNM	139.1	
1530	↓	↓	19.60	0.105	4.30	5.90	↓	198.1	
1535			19.39	0.102	4.36	6.56		200.0	
1539	↓	↓	18.79	0.101	5.00	7.85	↓	165.0	

ANALYSES: 8260 (site-specific list)

NOTES: purged approximately 1 gal/m; highly turbid

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 6/30/15

WELL / SAMPLE NUMBER: GW-74-33 | ACTIVITY TIME: START - END - | TIME: 825

QC SAMPLES COLLECTED: MS/MSD | ASSOCIATED TRIP BLANK: TB-02

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 29 - ~~34~~ 33 AS 6/30/15 ft bgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
804	DNM	DNM	17.34	0.101	5.85	5.78	DNM	160.6	
809	↓	↓	16.27	0.091	4.08	7.04	↓	199.1	
813	↓	↓	15.91	0.091	3.66	6.68	↓	223.0	
818	↓	↓	15.68	0.090	3.74	6.72	↓	231.2	

ANALYSES: 8260 (site-specific list)

NOTES: slightly turbid; purged approx. 1 gallon

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 6/30/15

WELL / SAMPLE NUMBER: GW-74-58 | ACTIVITY TIME: START - END - | TIME: 915

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-02

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 54-58 ft bgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
854	DNM	DNM	20.21	0.092	4.25	5.93	DNM	192.3	
858	↓	↓	18.62	0.070	5.80	7.84	↓	127.8	
901	↓	↓	18.10	0.068	5.50	7.85	↓	148.6	
905	↓	↓	17.63	0.069	5.41	7.96	↓	154.6	

ANALYSES: 8260 (site-specific list)

NOTES: Slightly turbid/purged approx 1 gallon | SIGNATURE: Mankelly

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 6/30/15

WELL / SAMPLE NUMBER: GW-75-20 | ACTIVITY TIME: START – END – | TIME: 1205

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-02

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 16-20 ft bgs

BLADDER PUMP: – | PERISTALTIC PUMP: X | DISCHARGE: – | REFILL: –

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1154	DNM	DNM	15.44	0.100	6.56	12.81	DNM	122.7	
1158	↓	↓	15.08	0.098	5.44	6.07	↓	138.0	
1159			14.95	0.096	4.55	6.56		176.2	
1203			14.22	0.093	4.51	6.53		178.6	

ANALYSES: 8260 (site-specific list)

NOTES: slightly turbid; purged approx 1.5 gallons

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 6/30/15

WELL / SAMPLE NUMBER: GW-75-43 | ACTIVITY TIME: START – END – | TIME: 1345

QC SAMPLES COLLECTED: (D) 6/30/15 39243-N/A | ASSOCIATED TRIP BLANK: TB-02

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 39-43 ft bgs

BLADDER PUMP: – | PERISTALTIC PUMP: X | DISCHARGE: – | REFILL: –

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1326	DNM	DNM	19.54	0.105	6.16	6.34	DNM	99.9	
1329	↓	↓	18.19	0.089	4.45	6.56	↓	187.7	
1332	↓	↓	17.40	0.088	4.16	6.86	↓	205.0	
1335	↓	↓	16.91	0.089	4.09	6.71	↓	206.7	

ANALYSES: 8260 (site-specific list)

NOTES:

SIGNATURE:

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 6/30/15

WELL / SAMPLE NUMBER: GW-76-14 | ACTIVITY TIME: START - END - | TIME: 1550

QC SAMPLES COLLECTED: FD-03 | ASSOCIATED TRIP BLANK: TB-02

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 10-14 ft bgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1539	DNM	DNM	15.90	0.100	6.16	15.26	DNM	144.6	
1542	↓	↓	15.35	0.096	4.96	8.74	↓	206.9	
1545	↓	↓	15.10	0.094	4.82	8.78	↓	213.4	
1548	↓	↓	14.99	0.094	4.66	8.27	↓	224.2	

ANALYSES: 8260 (site-specific list)

NOTES: V. slightly turbid; purge approx 1 gal/m

SIGNATURE: Amanda

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 6/30/15

WELL / SAMPLE NUMBER: GW-76-48 | ACTIVITY TIME: START — END — | TIME: 1635

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-02

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 44-48 ft bgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1639	DNM	DNM	18.20	0.107	6.16	4.58	DNM	77.4	
1643	↓	↓	17.64	0.106	5.49	3.68	↓	100.4	
1646			16.97	0.101	5.90	5.05		78.8	
1649			16.81	0.097	5.80	4.78		90.2	

ANALYSES: 8260 (site-specific list)

NOTES: slightly turbid ; purge approx. 1.5 gallons

SIGNATURE: M Mawhinney

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 7/1/15

WELL / SAMPLE NUMBER: GW-77-17 | ACTIVITY TIME: START - END - | TIME: 1000

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-03

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 13-17 ft bgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1014	DNM	DNM	20.08	0.057	6.56	5.94	DNM	210.1	

ANALYSES: 8260 (site-specific list)

NOTES: slow purge rate, sample is highly turbid

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 7/1/15

WELL / SAMPLE NUMBER: GW-77-36 | ACTIVITY TIME: START - END - | TIME: 1130

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-03

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 32-36 ft bgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1114	DNM	DNM	19.71	0.114	6.24	6.21	DNM	53.6	
1117			17.50	0.101	5.89	8.14		104.6	
1120			16.79	0.099	3.73	7.93		222.6	check pH - okay
1126			16.55	0.106	6.52	8.16		72.2	
1129			16.27	0.103	6.51	8.05		77.0	

ANALYSES: 8260 (site-specific list)

NOTES: Slightly turbid

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 7/1/15

WELL / SAMPLE NUMBER: GW-78-15 | ACTIVITY TIME: START - END - | TIME: 15:15

QC SAMPLES COLLECTED: FD-04 | ASSOCIATED TRIP BLANK: TB-03

WATER LEVEL / PUMP DATA

INITIAL DTW: DNm ft (TOC) | FINAL DTW: DNm ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 11-15 ftbgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1455	DNm	DNm	15.47	0.140	6.70	6.54	DNm	142.2	
1458	↓	↓	14.85	0.136	5.40	3.51	↓	288.4	
1502	↓	↓	14.38	0.135	3.12	3.21	↓	318.8	
1505	↓	↓	14.35	0.134	3.52	3.45	↓	296.5	

ANALYSES: 8260 (site-specific list)

NOTES: moderately turbid, purged approx 2 gallons

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 7/2/15

WELL / SAMPLE NUMBER: GW-79-20 | ACTIVITY TIME: START – END – | TIME: 935

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-03

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 16-20 ftbgs

BLADDER PUMP: – | PERISTALTIC PUMP: X | DISCHARGE: – | REFILL: –

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
917	DNM	DNM	16.10	0.100	6.22	4.72	DNM	122.6	
920	↓	↓	15.47	0.094	5.28	5.74	↓	131.0	
923	↓	↓	15.25	0.092	5.15	5.38	↓	143.3	
926	↓	↓	15.01	0.091	5.25	5.48	↓	136.7	

ANALYSES: 8260 (site-specific list)

NOTES: moderately turbid; purged approx 1 gallon

SIGNATURE:

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 7/2/15

WELL / SAMPLE NUMBER: GW-80-25 | ACTIVITY TIME: START – END – | TIME: 1115

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-03

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: ~~25~~ 21-25

BLADDER PUMP: – | PERISTALTIC PUMP: X | DISCHARGE: – | REFILL: –

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1055	DNM	DNM	17.72	0.133	6.24	7.89	DNM	175.6	
1057	↓	↓	16.79	0.131	5.28	5.29	↓	181.6	
1100	↓	↓	16.41	0.130	4.79	5.69	↓	195.0	
1103	↓	↓	16.16	0.130	4.76	5.71	↓	190.3	

ANALYSES: 8260 (site-specific list)

NOTES: moderately turbid; purged approx. 1 gallon

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 7/2/15

WELL / SAMPLE NUMBER: GW-81-17 | ACTIVITY TIME: START – END – | TIME: 1400

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-03

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 13-17

BLADDER PUMP: – | PERISTALTIC PUMP: X | DISCHARGE: – | REFILL: –

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1354	DNM	DNM	15.82	0.144	6.13	3.14	DNM	96.5	
1359	↓	↓	15.29	0.127	5.84	2.61	↓	103.1	
1405	↓	↓	15.73	0.126	5.41	2.87	↓	126.2	
1409	↓	↓	15.86	0.121	5.55	4.40	↓	111.7	

ANALYSES: 8260 (site-specific list)

NOTES: highly turbid; purged approx 0.5 gallons

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 7/21/15

WELL / SAMPLE NUMBER: GW-81-49 | ACTIVITY TIME: START – END – | TIME: 1500

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-03

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 45-49

BLADDER PUMP: –

PERISTALTIC PUMP: X

DISCHARGE: – | REFILL: –

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1451	DNM	DNM	18.29	0.130	6.17	2.19	DNM	73.8	
1457	↓	↓	17.32	0.105	6.35	3.40	↓	87.2	
1503	↓	↓	16.87	0.090	6.20	5.61	↓	105.5	
1505	↓	↓	16.64	0.087	5.74	5.66	↓	127.4	

ANALYSES: 8260 (site-specific list)

NOTES:

SIGNATURE: Amanda

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 8/11/15

WELL / SAMPLE NUMBER: GW-82-19 | ACTIVITY TIME: START - END - | TIME: 1615

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-04

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 15-19 ft bgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1604	DNM	DNM	20.35	0.252	6.28	9.46	DNM	17.7	
1613	〃	〃	18.41	0.241	5.43	3.57	2	9.4	

ANALYSES: 8260 (site-specific list)

NOTES: slow purge rate

SIGNATURE: Amanda

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 8/21/15

WELL / SAMPLE NUMBER: GW-82-49 | ACTIVITY TIME: START - END - | TIME: 900

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-04

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 45-49 ft bgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
843	DNM	DNM	17.90	0.197	6.09	3.54	DNM	82.4	
847	↓	↓	17.35	0.137	5.02	3.24	↓	60.7	
854	↓	↓	16.58	0.136	4.81	3.02	↓	50.1	
901	↓	↓	16.34	0.133	4.80	3.09	↓	48.1	

ANALYSES: 8260 (site-specific list)

NOTES: purged ~1 gallon; sl. turbid

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 8/12/15

WELL / SAMPLE NUMBER: GW-83-23 | ACTIVITY TIME: START 1035 END | TIME: 1102

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-04

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: NA ft

SCREENED INTERVAL: 19-23 ft bgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1051	DNM	DNM	15.68	0.100	5.19	6.66	DNM	39.4	
1055	↓	↓	14.83	0.094	4.25	4.24	↓	40.1	
1059	↓	↓	14.62	0.093	4.05	4.01	↓	38.2	

ANALYSES: 8260 (site-specific list)

NOTES: v. sl. turbid

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 8/12/15

WELL / SAMPLE NUMBER: GW-83-49 | ACTIVITY TIME: START – END – | TIME: 1150

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-04

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 45-49 ft bgs

BLADDER PUMP: – | PERISTALTIC PUMP: X | DISCHARGE: – | REFILL: –

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1138	DNM	DNM	19.97	0.121	5.02	3.22	DNM	36.3	
1141	↓	↓	18.18	0.125	5.54	4.69	↓	34.4	
1145	↓	↓	18.03	0.123	5.61	3.51	↓	35.1	

ANALYSES: 8260 (site-specific list)

NOTES: purged approx. 1 gallon; slightly turbid

SIGNATURE:

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 8/13/15

WELL / SAMPLE NUMBER: GW-84-18 | ACTIVITY TIME: START - END - | TIME: 1450

QC SAMPLES COLLECTED: N/A | ASSOCIATED TRIP BLANK: TB-04

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 14-18 ft bgs

BLADDER PUMP: - | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1447	DNM	DNM	21.90	0.094	6.41	5.20	DNM	49.3	
1503	↓	↓	21.48	0.065		4.68	↓	33.9	

ANALYSES: 8260 (site-specific list)

NOTES: slow purge rate

SIGNATURE: [signature]

FIELD DATA RECORD - GROUNDWATER SAMPLING

PROJECT: CTS of Asheville, Inc. Superfund Site | JOB NUMBER: 6252-12-0006 | DATE: 8/12/15

WELL / SAMPLE NUMBER: GW-84-38 | ACTIVITY TIME: START – END – | TIME: 1515

QC SAMPLES COLLECTED: FD-05 | ASSOCIATED TRIP BLANK: TB-04

WATER LEVEL / PUMP DATA

INITIAL DTW: DNM ft (TOC) | FINAL DTW: DNM ft (TOC) | DRAWDOWN VOL INITIAL - FINAL X 0.16 GAL/FT: N/A ft

SCREENED INTERVAL: 34-38 ft bgs

BLADDER PUMP: – | PERISTALTIC PUMP: X | DISCHARGE: - | REFILL: -

PURGE DATA

TIME	DTW (ft)	PURGE RATE (L/min)	TEMP (C°)	SPECIFIC CONDUCTIVITY (mS/cm)	pH	DO (mg/L)	TUIBIDITY (NTU)	ORP (mV)	COMMENTS
1505	DNM	DNM	12.54	0.122	5.55	3.42	DNM	31.9	
1514	↓	↓	19.78	0.090	6.09	3.46	↓	31.5	
1517	↓	↓	19.13	0.088	5.64	3.48	↓	32.2	

ANALYSES: 8260 (site-specific list)

NOTES: very slightly turbid; purged approx. 2 gallons

SIGNATURE: Mandy

APPENDIX B

ACCESS AGREEMENTS

ACCESS AUTHORIZATION

1. I, Terry J. Powell, am the current owner, or authorized representative of the owner of Buncombe County land records parcel #9655-53-7351-00000 and as such I have the authority to sign this authorization.

2. I grant authorization to the U. S. Environmental Protection Agency (EPA) and its authorized representatives including, but not limited to, North Carolina Department of Environment and Natural Resources, (NCDENR), and CTS Corporation to enter the property located off of Mills Gap Road and conduct sampling activities. Authorized representatives also include officers, employees, contractors or other authorized representatives acting on the behalf of EPA, NCDENR and CTS for the purposes of these activities. This property is currently owned by Duckett, Powell & Thompson Real Estate. Sampling activities on this property may include, but not be limited to, the following:

   a. the taking of soil, sediment, surface water, ground water and air samples as may be determined to be necessary;

   b. the sampling of any solids or liquids stored or disposed of on-site;

   c. the drilling of holes and installation of monitoring wells for subsurface investigation;

   d. transport of investigation equipment and short term securing and storage of investigative materials, as needed.

3. The consent for access and use granted herein will commence on the date of signature and will continue until EPA completes the investigative work and evaluation at the CTS of Asheville, Inc. Superfund Site.

4. I have been notified that these actions by EPA are undertaken pursuant to its response authority under Section 104(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund), 42 U.S.C. Section 9604(a).

5. Please return this signed and dated Access Authorization to:

Samantha Urquhart-Foster
Remedial Project Manager
EPA, Region 4
Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303

Terry O'Neil for Duckett-Powell et al Thomson — 8-24-12
(Signature) (Date)

Terry J. Powell — 828-231-1344
(Printed Name) (Daytime Phone Number)

President Duckett Powell et al Thomson
(Title, if signing as authorized representative of owner)

755 Biltmore Ave. Asheville, N.C. 28803
(Mailing address including City, State, and Zip Code)

10903522

ACCESS AUTHORIZATION

1. I, Ronald J. Karpola, am the President of the Southside Village Association, Inc., which owns the common area of Southside Village, located off of Mills Gap Road in Asheville, Buncombe County, North Carolina (also known as Parcel #9655-52-6798-00000), and as such, I have the authority to sign this authorization.

2. I authorize the U. S. Environmental Protection Agency and its representatives, including, but not limited to, the North Carolina Department of Environment and Natural Resources, (NCDENR) and CTS Corporation, to enter the common area of Southside Village to conduct sampling activities. Authorized representatives include officers, employees, or contractors acting on the behalf of EPA, NCDENR and CTS for the purposes of these sampling activities. Sampling activities on the common area may include, but not be limited to, the following:

a. Taking groundwater, surface water, sediment, and air samples;
b. Drilling temporary holes for subsurface investigation;
c. Transporting investigation equipment and securing short-term storage of investigative materials;
d. Placing temporary stakes and caution tape around work zones for safety purposes; and
e. Restoring the property to its pre-existing condition, including filling any bore holes, repairing any ruts, and re-seeding any grassy areas that may be damaged during the activities.

3. My grant of access will take effect on the date of my signature and will continue until EPA completes the investigative work and evaluation at the CTS of Asheville, Inc. Superfund Site, unless terminated earlier in writing by the authorized representative of Southside Village Associates, Inc.

4. I have been notified that these actions by EPA are undertaken pursuant to its response authority under Section 104(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund), 42 U.S.C. Section 9604(a).

5. I understand that I should return this signed and dated Access Authorization to:

Craig Zeller, Remedial Project Manager
Superfund Division
U.S. EPA, Region 4
61 Forsyth Street, S.W.
Atlanta, GA 30303

Ronald F. Karpola
(Signature)

26 MAY '15
(Date)

PRESIDENT - SSVHOA
(Title)

828-684-8359
(Daytime Phone Number)

117 TRUMPET LN
(Mailing address including City, State, and Zip Code)

ASHEVILLE, NC 28803

APPENDIX C

BORING LOGS

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-73

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S.Kelly Checked By: A.Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,377 ft.	Boring Date: 6/29/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
0			0-5 80%	0.1 0.3 0.5		Dark reddish brown, micaceous, silty fine sand, slightly moist (3.4': clean quartz vein)
5			5-10 95%	0.5 0.3 0.0		RESIDUUM. Greyish tan, silty fine sand, moist (possible old surface soil) (5.5': clean quartz vein)
10			10-15 100%	0.0 0.0 0.0 0.0 0.0 0.0		Reddish brown to brown, micaceous, silty fine to medium sand, slightly moist, foliated to highly foliated, dark mineral weathering (9.5': apparent water table)
15			15-20 85%	0.0 0.0 0.0 0.0 0.0 0.0		Orangish brown, slightly micaceous, silty fine to medium sand, wet, massive with dark mineral weathering Reddish brown to brown, micaceous, silty fine to medium sand, slightly moist, foliated to highly foliated, dark mineral weathering Orangish brown, slightly micaceous, silty fine to medium sand, wet, massive with dark mineral weathering
20		GW-73-20	20-25 90%	0.0 0.0 0.0 0.0 0.0		Reddish brown to brown, micaceous, silty fine to medium sand, slightly moist, foliated to highly foliated, dark mineral weathering Orangish brown to brown, slightly micaceous, fine to medium sand, some silt, very wet to saturated, dark mineral weathering, massive appearance
25			25-30 80%	0.0 0.0 0.0 0.0 0.0		(22' - 22.5': saturated zone) Dark brown, highly micaceous, fine to medium sand, some silt, moist, foliated to massive appearance
30			30-35 75%	0.0 0.0 0.0 0.0 0.0		(54.5': wet zone with rock)
35			35-40 75%	0.0 0.0 0.0 0.0 0.0		
40			40-45 60%	0.0 0.0 0.0 0.0 0.0		
45			45-50 30%	0.0 0.0 0.0 0.0 0.0		
50			50-55 60%	0.0		
55		GW-73-58				

Refusal with Geoprobe at 58 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-74

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S.Kelly Checked By: A.Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,392 ft.	Boring Date: 6/29/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
0			0-5 95%	0.1 0.1 0.2 0.4		Reddish brown, slightly micaceous, sandy silt, slightly moist, some roots
5			5-10 100%	0.4 0.0 0.0 0.0 0.0		RESIDUUM. Orangish brown, slightly micaceous, clayey sandy silt, slightly moist (possible oil surface soil)
10			10-15 95%	0.0 0.0 0.0		Reddish brown, slightly micaceous, silty fine to medium sand, slightly moist
15			15-20 85%	0.0 0.0 0.0 0.0 0.0		Reddish brown to brown, micaceous, silty fine to medium sand, slightly moist, slightly foliated to foliated, dark mineral weathering (22.5': apparent water table)
20			20-25 90%	0.0 0.0 0.0 0.0 0.0		
25			25-30 90%	0.0 0.0 0.0 0.0 0.0 0.0		Orangish brown, slightly micaceous, fine sand, some silt, moist, massive appearance Dark brown to orangish brown, micaceous to highly micaceous, fine to medium sand, little to some silt, moist, slightly foliated to bedded, dark mineral weathering (57' - 57.5': wet quartz zone)
30		GW-74-33	30-35 60%	0.0 0.0		
35			35-40 80%	0.0 0.0 0.0 0.0 0.0		
40			40-45 80%	0.0 0.0 0.0 0.0 0.0		
45			45-50 90%	0.0 0.0 0.0 0.0 0.0		
50			50-55 90%	0.0 0.0 0.0 0.0 0.0		
55		GW-74-58	55-58 100%	0.0 0.0 0.0		

Refusal with Geoprobe at 58 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-75

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S.Kelly Checked By: A.Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,395 ft.	Boring Date: 6/30/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
			0-5 95%	0.8		Reddish brown, slightly micaceous, silty fine to medium sand, slightly moist, trace roots
				0.0		Orangish brown, sandy clayey silt, slightly moist, trace roots and other organics (possible old surface soil)
				0.0		
				0.0		POSSIBLE ALLUVIUM. Orange and grey, mottled, sandy clayey silt to sandy silty clay, slightly moist, trace organics, becomes coarser with depth
5			5-10 75%	0.0		
				0.0		
				0.0		
				0.0		
				0.0		Quartz sand and gravel
10			10-15 90%	0.0		(10': apparent water table)
				0.0		RESIDUUM. Grey, micaceous, silty fine to medium sand, moist, gneissic to massive appearance
				0.0		
				0.0		Reddish orange, slightly micaceous, fine to medium sand, little to some silt, slightly moist, bedded appearance
15			15-20 95%	0.0		
				0.0		
		GW-75-20		0.0		Reddish brown, slightly micaceous, fine to medium sand, little to some silt, massive apperance, trace coarse sand
				0.0		
20			20-25 95%	0.0		(27.5' - 28': saturated zone)
				0.0		
				0.0		
				0.0		
25			25-30 80%	0.0		
				0.0		
				0.0		
				0.0		
				0.0		
30			30-35 75%	0.0		Orangish brown, micaceous, fine to medium sand, little to some silt, massive appearance
				0.0		
				0.0		
				0.0		
				0.0		Grey, slightly micaceuos, fine to medium sand, little silt
35			35-40 60%	0.0		
				0.0		Dark reddish brown, micaceous, fine to medium sand, little to some silt, moist, foliated, trace gravel
				0.0		Dark brown, slightly micaceous, fine to medium sand, little to some silt, moist, bedded appearance
				0.0		
40		GW-75-43	40-43 100%	0.0		Orangish brown to tan, slightly micaceous, fine to medium sand, little silt, slightly moist, trace coarse sand, gneissic to bedded appearance
				0.0		
						Refusal with Geoprobe at 43 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-76

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S.Kelly Checked By: A.Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,375 ft.	Boring Date: 6/30/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
			0-5 45%			Dark brown, fine to medium sand, little to some silt, roots, slightly moist
						Orangish brown, fine to medium sand, little silt, trace fine roots, moist (possible old surface soil)
				0.0		ALLUVIUM: Grey to olive grey, sandy clayey silt, plastic, very moist
				0.0		(4': apparent water table)
5			5-10 50%	0.2		Dark grey, clayey silty sand, plastic, very moist, organic rich
						Dark brown, clayey silty sand, angular gravel
				0.0		RESIDUUM. Dark brown, highly micaceous, silty fine to medium sand, moist, foliated
				0.1		
10			10-15 60%	0.1		(17.5': quartz vein with iron staining)
				0.1		
		GW-76-14		0.1		(16' -17': saturated)
				0.1		
				0.5		(24.5': sand and gravel quartz seam)
15			15-20 75%	1.4		
				2.6		
				1.7		
				3.9		
				2.8		
20			20-25 50%	5.7		
				0.12		
				7.8		
				13.1		
				9.1		
25			25-30 30%	3.1		
				2.6		
				2.1		
30			30-35 70%	0.5		
				0.4		
				0.2		Dark brown, highly micaceous, silty fine to medium sand, moist, bedded appearance, dark mineral weathering
				0.4		
				0.0		
35			35-40 85%	0.0		Brown to greyish brown, highly micaceous, fine to medium sand, little to some silt, moist, strongly foliated.
				0.1		
				0.1		
				0.1		
				0.3		
40			40-45 70%	0.1		
				0.3		
				0.1		
				0.0		
45			45-48 90%	0.2		
		GW-76-48		0.3		
				0.3		

Refusal with Geoprobe at 48 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-77

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S.Kelly Checked By: A.Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,370 ft.	Boring Date: 7/1/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
			0-5 85%	0.3 0.3 0.3 0.2		FILL. Reddish brown, silty sand to sandy silt, slightly moist, trace gravel
5			5-10 75%	0.1 0.1 0.1		Tan, slightly micaceous, sandy silt, moist Grey, sandy silt, moist, organic rich
				0.0		(7': apparent water table, difficult to discern)
10				0.0 0.0		Orangish brown, clayey sandy silt, moist, some organics
			10-15 80%	0.0 0.0 0.0		Tan to grey with orange motting, clayey sand silt, some organics
				0.0 0.0		Orange, silty fine to medium sand, moist
15		GW-77-17	15-20 75%	0.1 0.0		ALLUVIUM. Tan, silty fine to coarse sand with quartz and rocks, moist RESIDUUM. Orange, slightly micaceous, fine to medium sand, some silt, moist, massive
				0.0 0.0 0.0		Dark brown, fine to medium sand, little to some silt, moist, bedded appearance , dark mineral weathering
20			20-25 80%	0.0 0.0 0.0		(22' - 22.5': coarse quartz sand zone)
				0.0 0.0		(23.5' - 24' quartz seam)
25			25-30 95%	0.0 0.0		Dark brown, fine to medium sand, little to some silt, moist, foliated
				0.0 0.0		Brown, highly micaceous, fine to medium sand, some silt, moist to wet, massive with dark mineral weathering
30			30-35 80%	0.0 0.0 0.0		Brown, highly micaceous, fine to medium sand, little to some silt, moist, foliated (33.5': 2" quartz seam)
				0.0 0.0		(35.5' - 36': quartz, coarse sand and gravel)
35		GW-77-36	35-36 100%	0.0		Refusal with Geoprobe at 36 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-78

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S.Kelly Checked By: A.Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,370 ft.	Boring Date: 7/1/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
			0-5 30%	NR		Brown, sandy silt, organics, slightly moist
				NR		
				0.3		
				6.4		Grey with orange mottling, slightly micaceous, silty sand, moist, gravel, trace roots
5			5-10 85%	0.1		
				0.0		(5': apparent water table)
				0.1		ALLUVIUM. Greyish brown, fine to coarse sand, gravel
				0.0		RESIDUUM. Grey to brown, micaceous, silty sand, foliated
				0.0		
10			10-15 95%	0.0		
				0.1		Dark brown, slightly micaceous, fine to medium sand, little to some silt, massive appearance
		GW-78-15		0.1		
				0.1		
				0.1		Dark brown, micaceous, fine to medium sand, little to some silt, foliated
15			15-20 80%	0.1		
				0.1		
				0.0		
				0.1		
				0.0		
20			20-25 65%	0.0		
				0.0		
				0.1		
				0.0		
				0.0		
25			25-30 100%	0.1		
				0.1		
				0.1		Brown to grey, micaceous, fine to medium sand, little silt, slightly moist, trace gravel, strongly foliated
				0.2		
				0.2		
30				0.3		Refusal with Geoprobe at 30 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-79

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S.Kelly Checked By: A.Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,493 ft.	Boring Date: 7/2/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
			0-5 50%	0.0		FILL. Reddish brown to brown, slightly micaceous, silty sand to sandy silt, moist
				0.0		
				0.0		
				0.0		RESIDUUM. Brown to orangish brown, fine to medium sand, little to some silt, massive to bedded appearance, slightly moist, dark mineral weathering
5			5-10 75%	0.0		
				0.1		(9.5': apparent water table)
				0.1		(17.5': quartz seam)
				0.0		
				0.0		(26.5' - 27': saturated zone)
10			10-15 75%	0.0		(32' - 33': saturated zone with coarse sand)
				0.0		
				0.0		
				0.0		
				0.0		
15			15-20 80%	0.0		
				0.0		
		GW-79-20		0.0		
				0.0		
				0.0		
20			20-25 75%	0.0		
				0.0		
				0.1		
				0.1		
				0.0		
25			25-30 70%	0.0		
				0.0		
				0.0		
				0.0		
				0.0		
30			30-35 75%	0.2		
				0.2		
				0.0		
				0.0		
				0.0		
35				0.0		
			35-36 90%			Refusal with Geoprobe at 36 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-80

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S.Kelly Checked By: A.Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,495 ft.	Boring Date: 7/2/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
			0-5 55%	NR		FILL. Brown, silty sand, trace gravel
				0.1		Brown to greyish brown, sandy silt, moist
				0.1		Reddish brown, slightly micaceous, sandy silt, moist
5				0.0		
			5-10 95%	0.0		POSSIBLE FILL. Orangish brown, slightly micaceous, sandy silt, moist
				0.0		
				0.0		Reddish brown, slightly micaceous, silty sand, moist, trace coarse gravel
				0.0		
				0.0		RESIDUUM. Dark brown, micaceous, silty sand, moist, foliated
10				0.0		
			10-15 80%	0.0		
				0.0		
				0.0		
				0.0		
				0.0		Greyish brown, slightly micaceous, fine to medium sand, little to some silt, slightly moist, bedded appearance
15				0.0		
			15-20 85%	0.0		Dark brown, micaceous, silty sand, moist, foliated
				0.0		
				0.0		(15': apparent water table, difficult to discern)
				0.0		
				0.0		Greyish brown, slightly micaceous, fine to medium sand, little to some silt, slightly moist, bedded appearance
20				0.0		
			20-25 60%	0.0		Brown to dark brown, highly micaceous, fine to medium sand, little to some silt, moist, mostly bedded appearance, dark mineral weathering
				0.0		
		GW-80-21		0.0		
				0.0		
25				0.0		
			25-29.5 95%	0.0		
				0.0		
				0.1		
				0.2		
						Refusal with Geoprobe at 29.5 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-81

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S. Kelly Checked By: A. Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,377 ft.	Boring Date: 7/2/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
0			0-5 95%	1.5 3.3 0.4 1.7 2.3		Brown, slightly micaceous, silty sand to sandy silt, moist, trace roots
5			5-10 100%	0.1 0.0 0.1 0.0		Brown and orange mottled, slightly micaceous, clayey sandy silt, moist, trace organics
				0.0		(7': apparent water table)
10			10-15 75%	0.0 0.0 0.0 0.0		Greyish brown and some orange mottled, clayey silty fine to medium sand, moist to very moist, coarsening with depth
				0.0		Organic-rich silt
15		GW-81-17	15-20 40%	0.0 NR NR 0.0		ALLUVIUM. Grey, clayey silty fine to coarse sand with gravel Grey to orangish brown, fine to coarse sand with gravel, wet
20			20-25 75%	0.0 0.0 0.0 0.0 0.0 0.0		RESIDUUM. Grey and brown, fine to medium sand, little silt, moist, bedded to massive appearance
25			25-30 55%	0.0 0.1 0.1 0.0		Brown, highly micaceous, silty sand, moist Dark brownish red, micaceous, fine to medium sand, little to some silt Brown, slightly micaceous, fine to medium sand, little to some silt, moist, bedded appearance, dark mineral weathering
30			30-35 80%	0.1 0.0 0.0 0.0 0.0		
35			35-40 75%	0.0 0.1 0.2 0.1 0.0		
40			40-45 90%	0.0 0.1 0.0 0.0		Brown to dark brown, micaceous, fine to medium sand, little to some silt, very moist, massive appearance, dark mineral weathering
45		GW-81-49	45-50 75%	0.0 0.0 0.0 0.1 0.0 0.0		Brown, micaceous, fine to medium sand, little to some silt, trace coarse sand, bedded appearance Brown to dark brown, micaceous, fine to medium sand, little to some silt, very moist, massive appearance, dark mineral weathering Brown, micaceous, fine to medium sand, little to some silt, trace coarse sand, bedded appearance
50						Refusal with Geoprobe at 50 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-82

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S. Kelly Checked By: A. Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,402 ft.	Boring Date: 8/11/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
			0-5 50%	2.0		FILL. Reddish brown to brown micaceous silty sand to sandy silt, very slightly moist, trace gravel
5			5-10 50%	0.4		
				0.0		RESIDUUM. Grey to reddish brown slightly micaceous, sandy clayey silt, very moist, 1" organic layer at top of zone (possible oil surface soil)
10			10-15 50%	0.0		
				0.0		(9': apparent water table)
				0.0		Orange and grey mottled, sandy clayey silt, moist
15			15-20 75%	0.0		
		GW-82-19		0.0		
				0.0		Grey to brown to dark brown, micaceous, silty fine to medium sand, moist, massive to bedded appearance
20			20-25 80%	0.0		
				0.0		
				0.0		
25			25-30 80%	0.0		
				0.0		
				0.0		
30			30-35 100%	0.0		
				0.0		
				0.0		
35			35-40 75%	0.0		
				0.0		
				0.0		
40			40-45 75%	0.0		
				0.0		
				0.0		
45			45-49 50%	0.0		Dark brown, slightly micaceous, fine to medium sand, little to some silt, moist, bedded appearance
		GW-82-49		0.0		
				0.0		
				0.0		Refusal with Geoprobe at 49 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-83

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S. Kelly Checked By: A. Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,402 ft.	Boring Date: 8/12/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
0			0-5 20%	1.7		FILL. Brown to reddish brown, micaceous, silty sand to sandy silt, very slightly moist
5			5-10 75%	0.0		
				0.0		
				0.0		Brownish red sandy silt, moist
10			10-15 80%	0.0		RESIDUUM. Orange and red mottled, sandy clayey silt, moist, trace organics (possible old surface soil)
				0.0		
				0.0		
				0.0		(13': apparent water table)
15			15-20 70%	0.0		Grey, clayey silty sand, moist, trace gravel
				0.0		Oranish brown, slightly micaceous, silty fine to medium sand, moist
				0.0		Brown to dark brown, micaceous to highly micaceous, silty fine to medium sand, moist, massive to bedded appearance
20		GW-83-23	20-25 60%	0.0		
				0.0		
				0.0		
25			25-30 60%	0.0		
				0.0		
				0.0		
30			30-35 60%	0.0		
				0.0		
				0.0		
				0.0		
35			35-40 70%	0.0		Brown to dark brown, micaceous, fine to medium sand, little to some silt, moist, massive to bedded appearance
				0.0		
				0.0		
				0.0		
40			40-45 70%	0.0		
				0.0		
				0.0		
				0.0		
45			45-49 35%	0.0		
		GW-83-49		0.0		
				0.0		Refusal with Geoprobe at 49 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

BORING LOG

Amec Foster Wheeler Environment & Infrastructure, Inc.
1308 Patton Avenue
Asheville, North Carolina 28806

Boring ID: SB-84

Project: CTS of Asheville, Inc. Superfund Site	Drilling Company: Zebra Environmental
Location: Asheville, North Carolina	Driller: Dan Ferrell (NC 3221)
Project Number: 6252120006	Boring Method: Direct Push Technology
Logged By: S. Kelly Checked By: A. Steurer	Equipment: Geoprobe 7822DT
Approximate Ground Surface Elevation (feet): approx. 2,397 ft.	Boring Date: 8/12/2015

Depth (feet)	Sample	Sample Name	Recovery (%)	PID (ppm)	Lithology	Lithologic Description
			0-5 70%	0.0		FILL. Reddish brown, slightly micaceous, silty sand to sandy silt, slightly moist, trace gravel and organics
				0.0		
				0.4		Brown, slightly micaceous, silty fine to medium sand, slightly moist
5			5-10 70%	20.3		(8': apparent water table)
				0.0		
				0.0		
				0.0		Greyish brown, slightly micaceous, fine to medium sand, little to some silt, very moist
10			10-15 70%	7.8		
				37.6		
				5.2		Tan to orangish brown, silty clay, little to some sand, moist, trace decomposed organics
				3.7		
				5.6		
15			15-20 70%	7.0		ALLUVIUM. Dark grey, clayey sandy silt, wet, trace organics
		GW-84-14		8.6		Dark grey to grey, fine to coarse sand, little to some silt and clay, coarsening with depth and gravel at base of zone
				16.9		
				33.8		RESIDUUM. Grey, micaceous, fine to medium sand, little to some silt, massive appearance
				84.7		
20			20-25 60%	58.2		
				32.7		
				53.8		
				34.3		Brownish red, slightly micaceous, fine to medium sand, little to some silt, slightly bedded appearance
				17.4		
25			25-30 70%	4.0		
				29.2		
				51.6		Brown to dark brown, micaceous to highly micaceous, fine to medium sand, little to some silt, slightly bedded appearance
				46.7		
				22.9		
30			30-35 75%	15.8		
				16.3		
				18.2		
				14.5		
				12.2		
35			35-38 100%	1.4		
		GW-84-14		0.0		
				0.0		
						Refusal with Geoprobe at 38 feet

REMARKS:
PID (ppm) = Photoionization Detector (parts per million)

APPENDIX D

LABORATORY ANALYTICAL REPORT FOR SURFACE WATER AND SEDIMENT SAMPLES

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

July 07, 2015

Ms. Susan Kelly
Amec Foster Wheeler
1308 Patton Avenue
Asheville, NC 28806

RE: Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Dear Ms. Kelly:
Enclosed are the analytical results for sample(s) received by the laboratory on June 25, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92256138001	TB-01	Water	06/25/15 00:00	06/25/15 16:31
92256138002	FD-01	Water	06/25/15 00:00	06/25/15 16:31
92256138003	SW-01W	Water	06/25/15 14:35	06/25/15 16:31
92256138004	SW-02W	Water	06/25/15 14:00	06/25/15 16:31
92256138005	SW-03W	Water	06/25/15 13:45	06/25/15 16:31
92256138006	SW-04W	Water	06/25/15 13:10	06/25/15 16:31
92256138007	SW-05W	Water	06/25/15 12:50	06/25/15 16:31
92256138008	FD-02	Solid	06/25/15 00:00	06/25/15 16:31
92256138009	SED-01W	Solid	06/25/15 14:40	06/25/15 16:31
92256138010	SED-02W	Solid	06/25/15 14:05	06/25/15 16:31
92256138011	SED-03W	Solid	06/25/15 13:50	06/25/15 16:31
92256138012	SED-04W	Solid	06/25/15 13:15	06/25/15 16:31
92256138013	SED-05W	Solid	06/25/15 12:55	06/25/15 16:31

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SAMPLE ANALYTE COUNT

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92256138001	TB-01	EPA 8260	SNP	7	PASI-C
92256138002	FD-01	EPA 8260	SNP	7	PASI-C
92256138003	SW-01W	EPA 8260	SNP	7	PASI-C
92256138004	SW-02W	EPA 8260	SNP	7	PASI-C
92256138005	SW-03W	EPA 8260	SNP	7	PASI-C
92256138006	SW-04W	EPA 8260	SNP	7	PASI-C
92256138007	SW-05W	EPA 8260	SNP	7	PASI-C
92256138008	FD-02	EPA 8260	DLK	7	PASI-C
		ASTM D2974-87	SLJ	1	PASI-C
92256138009	SED-01W	EPA 8260	DLK	7	PASI-C
		ASTM D2974-87	SLJ	1	PASI-C
92256138010	SED-02W	EPA 8260	DLK	7	PASI-C
		ASTM D2974-87	SLJ	1	PASI-C
92256138011	SED-03W	EPA 8260	DLK	7	PASI-C
		ASTM D2974-87	SLJ	1	PASI-C
92256138012	SED-04W	EPA 8260	DLK	7	PASI-C
		ASTM D2974-87	SLJ	1	PASI-C
92256138013	SED-05W	EPA 8260	DLK	7	PASI-C
		ASTM D2974-87	SLJ	1	PASI-C

Pace Analytical Services, Inc.
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SUMMARY OF DETECTION

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92256138002	**FD-01**					
EPA 8260	cis-1,2-Dichloroethene	1.8	ug/L	1.0	06/30/15 01:24	
EPA 8260	Trichloroethene	28.7	ug/L	1.0	06/30/15 01:24	
92256138003	**SW-01W**					
EPA 8260	cis-1,2-Dichloroethene	2.1	ug/L	1.0	06/30/15 01:41	
EPA 8260	Trichloroethene	27.8	ug/L	1.0	06/30/15 01:41	
92256138004	**SW-02W**					
EPA 8260	cis-1,2-Dichloroethene	13.5	ug/L	1.0	06/30/15 01:58	
EPA 8260	Trichloroethene	81.2	ug/L	1.0	06/30/15 01:58	
EPA 8260	Vinyl chloride	3.5	ug/L	1.0	06/30/15 01:58	
92256138005	**SW-03W**					
EPA 8260	cis-1,2-Dichloroethene	81.7	ug/L	1.0	06/30/15 02:15	
EPA 8260	trans-1,2-Dichloroethene	0.51J	ug/L	1.0	06/30/15 02:15	
EPA 8260	Trichloroethene	129	ug/L	1.0	06/30/15 02:15	
EPA 8260	Vinyl chloride	9.8	ug/L	1.0	06/30/15 02:15	
92256138006	**SW-04W**					
EPA 8260	cis-1,2-Dichloroethene	0.44J	ug/L	1.0	06/30/15 02:32	
EPA 8260	Trichloroethene	21.6	ug/L	1.0	06/30/15 02:32	
92256138008	**FD-02**					
EPA 8260	cis-1,2-Dichloroethene	4.3J	ug/kg	7.5	07/03/15 23:04	
EPA 8260	Trichloroethene	42.7	ug/kg	7.5	07/03/15 23:04	
ASTM D2974-87	Percent Moisture	29.4	%	0.10	07/02/15 10:12	
92256138009	**SED-01W**					
EPA 8260	cis-1,2-Dichloroethene	2.7J	ug/kg	5.8	07/03/15 23:23	
EPA 8260	Trichloroethene	36.3	ug/kg	5.8	07/03/15 23:23	
ASTM D2974-87	Percent Moisture	29.1	%	0.10	07/02/15 10:12	
92256138010	**SED-02W**					
EPA 8260	cis-1,2-Dichloroethene	2.6J	ug/kg	4.6	07/03/15 23:43	
EPA 8260	Trichloroethene	14.9	ug/kg	4.6	07/03/15 23:43	
ASTM D2974-87	Percent Moisture	24.2	%	0.10	07/02/15 10:13	
92256138011	**SED-03W**					
EPA 8260	cis-1,2-Dichloroethene	162	ug/kg	4.9	07/04/15 00:03	
EPA 8260	Trichloroethene	702	ug/kg	123	07/04/15 13:42	
EPA 8260	Vinyl chloride	6.4J	ug/kg	9.8	07/04/15 00:03	
ASTM D2974-87	Percent Moisture	24.3	%	0.10	07/02/15 10:13	
92256138012	**SED-04W**					
EPA 8260	Trichloroethene	8.1	ug/kg	5.2	07/04/15 16:41	
ASTM D2974-87	Percent Moisture	24.2	%	0.10	07/02/15 10:13	
92256138013	**SED-05W**					
ASTM D2974-87	Percent Moisture	26.8	%	0.10	07/02/15 10:13	

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PROJECT NARRATIVE

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Method: **EPA 8260**
Description: 8260 MSV Low Level
Client: Amec Foster Wheeler, Asheville
Date: July 07, 2015

General Information:
7 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Pace Analytical Services, Inc.
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PROJECT NARRATIVE

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Method: **EPA 8260**
Description: 8260/5035A Volatile Organics
Client: Amec Foster Wheeler, Asheville
Date: July 07, 2015

General Information:
6 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: TB-01 **Lab ID: 92256138001** Collected: 06/25/15 00:00 Received: 06/25/15 16:31 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		06/30/15 01:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		06/30/15 01:07	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		06/30/15 01:07	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		06/30/15 01:07	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	111	%	70-130		1		06/30/15 01:07	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	70-130		1		06/30/15 01:07	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		06/30/15 01:07	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: FD-01 **Lab ID: 92256138002** Collected: 06/25/15 00:00 Received: 06/25/15 16:31 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**1.8**	ug/L	1.0	0.19	1		06/30/15 01:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		06/30/15 01:24	156-60-5	
Trichloroethene	**28.7**	ug/L	1.0	0.47	1		06/30/15 01:24	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		06/30/15 01:24	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	109	%	70-130		1		06/30/15 01:24	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		06/30/15 01:24	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		06/30/15 01:24	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: SW-01W **Lab ID: 92256138003** Collected: 06/25/15 14:35 Received: 06/25/15 16:31 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**2.1**	ug/L	1.0	0.19	1		06/30/15 01:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		06/30/15 01:41	156-60-5	
Trichloroethene	**27.8**	ug/L	1.0	0.47	1		06/30/15 01:41	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		06/30/15 01:41	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	110	%	70-130		1		06/30/15 01:41	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	70-130		1		06/30/15 01:41	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		06/30/15 01:41	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: SW-02W **Lab ID: 92256138004** Collected: 06/25/15 14:00 Received: 06/25/15 16:31 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**13.5**	ug/L	1.0	0.19	1		06/30/15 01:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		06/30/15 01:58	156-60-5	
Trichloroethene	**81.2**	ug/L	1.0	0.47	1		06/30/15 01:58	79-01-6	
Vinyl chloride	**3.5**	ug/L	1.0	0.62	1		06/30/15 01:58	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	110	%	70-130		1		06/30/15 01:58	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	70-130		1		06/30/15 01:58	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		06/30/15 01:58	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: SW-03W **Lab ID: 92256138005** Collected: 06/25/15 13:45 Received: 06/25/15 16:31 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**81.7**	ug/L	1.0	0.19	1		06/30/15 02:15	156-59-2	
trans-1,2-Dichloroethene	**0.51J**	ug/L	1.0	0.49	1		06/30/15 02:15	156-60-5	
Trichloroethene	**129**	ug/L	1.0	0.47	1		06/30/15 02:15	79-01-6	
Vinyl chloride	**9.8**	ug/L	1.0	0.62	1		06/30/15 02:15	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	108	%	70-130		1		06/30/15 02:15	460-00-4	
1,2-Dichloroethane-d4 (S)	110	%	70-130		1		06/30/15 02:15	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		06/30/15 02:15	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: SW-04W **Lab ID: 92256138006** Collected: 06/25/15 13:10 Received: 06/25/15 16:31 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**0.44J**	ug/L	1.0	0.19	1		06/30/15 02:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		06/30/15 02:32	156-60-5	
Trichloroethene	**21.6**	ug/L	1.0	0.47	1		06/30/15 02:32	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		06/30/15 02:32	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	109	%	70-130		1		06/30/15 02:32	460-00-4	
1,2-Dichloroethane-d4 (S)	113	%	70-130		1		06/30/15 02:32	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		06/30/15 02:32	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: SW-05W **Lab ID: 92256138007** Collected: 06/25/15 12:50 Received: 06/25/15 16:31 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		06/30/15 02:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		06/30/15 02:49	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		06/30/15 02:49	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		06/30/15 02:49	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	109	%	70-130		1		06/30/15 02:49	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	70-130		1		06/30/15 02:49	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		06/30/15 02:49	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: FD-02 **Lab ID: 92256138008** Collected: 06/25/15 00:00 Received: 06/25/15 16:31 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**4.3J**	ug/kg	7.5	2.1	1		07/03/15 23:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	7.5	2.9	1		07/03/15 23:04	156-60-5	
Trichloroethene	**42.7**	ug/kg	7.5	3.2	1		07/03/15 23:04	79-01-6	
Vinyl chloride	ND	ug/kg	15.0	2.7	1		07/03/15 23:04	75-01-4	
Surrogates									
Toluene-d8 (S)	104	%	70-130		1		07/03/15 23:04	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130		1		07/03/15 23:04	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-132		1		07/03/15 23:04	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**29.4**	%	0.10	0.10	1		07/02/15 10:12		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: SED-01W **Lab ID: 92256138009** Collected: 06/25/15 14:40 Received: 06/25/15 16:31 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**2.7J**	ug/kg	5.8	1.6	1		07/03/15 23:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.8	2.2	1		07/03/15 23:23	156-60-5	
Trichloroethene	**36.3**	ug/kg	5.8	2.4	1		07/03/15 23:23	79-01-6	
Vinyl chloride	ND	ug/kg	11.5	2.1	1		07/03/15 23:23	75-01-4	
Surrogates									
Toluene-d8 (S)	99	%	70-130		1		07/03/15 23:23	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		1		07/03/15 23:23	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-132		1		07/03/15 23:23	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**29.1**	%	0.10	0.10	1		07/02/15 10:12		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: SED-02W **Lab ID: 92256138010** Collected: 06/25/15 14:05 Received: 06/25/15 16:31 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**2.6J**	ug/kg	4.6	1.3	1		07/03/15 23:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.6	1.8	1		07/03/15 23:43	156-60-5	
Trichloroethene	**14.9**	ug/kg	4.6	2.0	1		07/03/15 23:43	79-01-6	
Vinyl chloride	ND	ug/kg	9.3	1.7	1		07/03/15 23:43	75-01-4	
Surrogates									
Toluene-d8 (S)	103	%	70-130		1		07/03/15 23:43	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130		1		07/03/15 23:43	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-132		1		07/03/15 23:43	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**24.2**	%	0.10	0.10	1		07/02/15 10:13		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: SED-03W **Lab ID: 92256138011** Collected: 06/25/15 13:50 Received: 06/25/15 16:31 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**162**	ug/kg	4.9	1.4	1		07/04/15 00:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.9	1.9	1		07/04/15 00:03	156-60-5	
Trichloroethene	**702**	ug/kg	123	51.7	25		07/04/15 13:42	79-01-6	
Vinyl chloride	**6.4J**	ug/kg	9.8	1.8	1		07/04/15 00:03	75-01-4	
Surrogates									
Toluene-d8 (S)	103	%	70-130		1		07/04/15 00:03	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130		1		07/04/15 00:03	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-132		1		07/04/15 00:03	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**24.3**	%	0.10	0.10	1		07/02/15 10:13		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: SED-04W **Lab ID: 92256138012** Collected: 06/25/15 13:15 Received: 06/25/15 16:31 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/kg	5.2	1.5	1		07/04/15 16:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.2	2.0	1		07/04/15 16:41	156-60-5	
Trichloroethene	**8.1**	ug/kg	5.2	2.2	1		07/04/15 16:41	79-01-6	
Vinyl chloride	ND	ug/kg	10.4	1.9	1		07/04/15 16:41	75-01-4	
Surrogates									
Toluene-d8 (S)	102	%	70-130		1		07/04/15 16:41	2037-26-5	
4-Bromofluorobenzene (S)	100	%	70-130		1		07/04/15 16:41	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	70-132		1		07/04/15 16:41	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**24.2**	%	0.10	0.10	1		07/02/15 10:13		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Sample: SED-05W **Lab ID: 92256138013** Collected: 06/25/15 12:55 Received: 06/25/15 16:31 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5035A Volatile Organics	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/kg	4.8	1.4	1		07/04/15 17:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	4.8	1.8	1		07/04/15 17:01	156-60-5	
Trichloroethene	ND	ug/kg	4.8	2.0	1		07/04/15 17:01	79-01-6	
Vinyl chloride	ND	ug/kg	9.6	1.7	1		07/04/15 17:01	75-01-4	
Surrogates									
Toluene-d8 (S)	106	%	70-130		1		07/04/15 17:01	2037-26-5	
4-Bromofluorobenzene (S)	97	%	70-130		1		07/04/15 17:01	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-132		1		07/04/15 17:01	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87								
Percent Moisture	**26.8**	%	0.10	0.10	1		07/02/15 10:13		

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

QC Batch: MSV/32361 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92256138001, 92256138002, 92256138003, 92256138004, 92256138005, 92256138006, 92256138007

METHOD BLANK: 1497172 Matrix: Water
Associated Lab Samples: 92256138001, 92256138002, 92256138003, 92256138004, 92256138005, 92256138006, 92256138007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/L	ND	1.0	06/29/15 23:09	
trans-1,2-Dichloroethene	ug/L	ND	1.0	06/29/15 23:09	
Trichloroethene	ug/L	ND	1.0	06/29/15 23:09	
Vinyl chloride	ug/L	ND	1.0	06/29/15 23:09	
1,2-Dichloroethane-d4 (S)	%	105	70-130	06/29/15 23:09	
4-Bromofluorobenzene (S)	%	109	70-130	06/29/15 23:09	
Toluene-d8 (S)	%	100	70-130	06/29/15 23:09	

LABORATORY CONTROL SAMPLE: 1497173

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/L	50	55.2	110	70-131	
trans-1,2-Dichloroethene	ug/L	50	59.6	119	70-130	
Trichloroethene	ug/L	50	52.3	105	70-130	
Vinyl chloride	ug/L	50	60.8	122	50-150	
1,2-Dichloroethane-d4 (S)	%			103	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			102	70-130	

MATRIX SPIKE SAMPLE: 1497174

Parameter	Units	92256138003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/L	2.1	20	25.1	115	70-130	
trans-1,2-Dichloroethene	ug/L	ND	20	24.1	120	70-130	
Trichloroethene	ug/L	27.8	20	49.9	110	69-151	
Vinyl chloride	ug/L	ND	20	24.7	124	70-130	
1,2-Dichloroethane-d4 (S)	%				93	70-130	
4-Bromofluorobenzene (S)	%				112	70-130	
Toluene-d8 (S)	%				101	70-130	

SAMPLE DUPLICATE: 1497175

Parameter	Units	92256138004 Result	Dup Result	RPD	Max RPD	Qualifiers
cis-1,2-Dichloroethene	ug/L	13.5	12.6	7	30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
Trichloroethene	ug/L	81.2	80.3	1	30	
Vinyl chloride	ug/L	3.5	3.2	10	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

SAMPLE DUPLICATE: 1497175

Parameter	Units	92256138004 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane-d4 (S)	%	111	95	16		
4-Bromofluorobenzene (S)	%	110	111	1		
Toluene-d8 (S)	%	100	101	1		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

QC Batch: MSV/32425 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92256138008, 92256138009, 92256138010, 92256138011

METHOD BLANK: 1501732 Matrix: Solid
Associated Lab Samples: 92256138008, 92256138009, 92256138010, 92256138011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/kg	ND	4.7	07/03/15 15:45	
trans-1,2-Dichloroethene	ug/kg	ND	4.7	07/03/15 15:45	
Trichloroethene	ug/kg	ND	4.7	07/03/15 15:45	
Vinyl chloride	ug/kg	ND	9.4	07/03/15 15:45	
1,2-Dichloroethane-d4 (S)	%	96	70-132	07/03/15 15:45	
4-Bromofluorobenzene (S)	%	104	70-130	07/03/15 15:45	
Toluene-d8 (S)	%	105	70-130	07/03/15 15:45	

LABORATORY CONTROL SAMPLE: 1501733

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/kg	43.9	44.7	102	70-133	
trans-1,2-Dichloroethene	ug/kg	43.9	44.6	102	67-135	
Trichloroethene	ug/kg	43.9	46.3	106	67-135	
Vinyl chloride	ug/kg	43.9	48.0	109	56-141	
1,2-Dichloroethane-d4 (S)	%			98	70-132	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			98	70-130	

MATRIX SPIKE SAMPLE: 1501785

Parameter	Units	92255964001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/kg	ND	24.3	27.4	113	70-130	
trans-1,2-Dichloroethene	ug/kg	ND	24.3	29.1	120	70-130	
Trichloroethene	ug/kg	ND	24.3	25.0	103	49-167	
Vinyl chloride	ug/kg	ND	24.3	25.0	103	70-130	
1,2-Dichloroethane-d4 (S)	%				105	70-132	
4-Bromofluorobenzene (S)	%				104	70-130	
Toluene-d8 (S)	%				99	70-130	

SAMPLE DUPLICATE: 1501784

Parameter	Units	92255896001 Result	Dup Result	RPD	Max RPD	Qualifiers
cis-1,2-Dichloroethene	ug/kg	ND	ND		30	
trans-1,2-Dichloroethene	ug/kg	ND	ND		30	
Trichloroethene	ug/kg	ND	ND		30	
Vinyl chloride	ug/kg	ND	ND		30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

SAMPLE DUPLICATE: 1501784

Parameter	Units	92255896001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane-d4 (S)	%	103	100	32		
4-Bromofluorobenzene (S)	%	101	100	30		
Toluene-d8 (S)	%	101	106	25		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

QC Batch: MSV/32430 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 92256138012, 92256138013

METHOD BLANK: 1501803 Matrix: Solid
Associated Lab Samples: 92256138012, 92256138013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/kg	ND	4.2	07/04/15 12:02	
trans-1,2-Dichloroethene	ug/kg	ND	4.2	07/04/15 12:02	
Trichloroethene	ug/kg	ND	4.2	07/04/15 12:02	
Vinyl chloride	ug/kg	ND	8.5	07/04/15 12:02	
1,2-Dichloroethane-d4 (S)	%	93	70-132	07/04/15 12:02	
4-Bromofluorobenzene (S)	%	104	70-130	07/04/15 12:02	
Toluene-d8 (S)	%	102	70-130	07/04/15 12:02	

LABORATORY CONTROL SAMPLE: 1501804

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/kg	46.5	49.3	106	70-133	
trans-1,2-Dichloroethene	ug/kg	46.5	50.1	108	67-135	
Trichloroethene	ug/kg	46.5	49.7	107	67-135	
Vinyl chloride	ug/kg	46.5	53.9	116	56-141	
1,2-Dichloroethane-d4 (S)	%			101	70-132	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			101	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

QC Batch: PMST/8054 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 92256138008, 92256138009, 92256138010, 92256138011, 92256138012, 92256138013

SAMPLE DUPLICATE: 1499501

Parameter	Units	92254961005 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	14.9	15.1	1	25	

SAMPLE DUPLICATE: 1499502

Parameter	Units	92256138013 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	26.8	26.8	0	25	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256138

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92256138001	**TB-01**	EPA 8260	MSV/32361		
92256138002	**FD-01**	EPA 8260	MSV/32361		
92256138003	**SW-01W**	EPA 8260	MSV/32361		
92256138004	**SW-02W**	EPA 8260	MSV/32361		
92256138005	**SW-03W**	EPA 8260	MSV/32361		
92256138006	**SW-04W**	EPA 8260	MSV/32361		
92256138007	**SW-05W**	EPA 8260	MSV/32361		
92256138008	**FD-02**	EPA 8260	MSV/32425		
92256138009	**SED-01W**	EPA 8260	MSV/32425		
92256138010	**SED-02W**	EPA 8260	MSV/32425		
92256138011	**SED-03W**	EPA 8260	MSV/32425		
92256138012	**SED-04W**	EPA 8260	MSV/32430		
92256138013	**SED-05W**	EPA 8260	MSV/32430		
92256138008	**FD-02**	ASTM D2974-87	PMST/8054		
92256138009	**SED-01W**	ASTM D2974-87	PMST/8054		
92256138010	**SED-02W**	ASTM D2974-87	PMST/8054		
92256138011	**SED-03W**	ASTM D2974-87	PMST/8054		
92256138012	**SED-04W**	ASTM D2974-87	PMST/8054		
92256138013	**SED-05W**	ASTM D2974-87	PMST/8054		

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: May 15, 2015 Page 1 of 2*
	Document No.: F-ASV-CS-003-rev.14	Issuing Authorities: Pace Asheville Quality Office

Client Name: Amec Foster Wheeler

* Page 2 of 2 is for Internal Use Only

Courier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Thermometer Used: (IR Gun#3 -130265963) **Type of Ice:** (Wet) Blue None ☑ Samples on ice, cooling process has begun

IR Gun #4 SN:140290365 Other:_____

Temp Correction Factor: Add / Subtract 0.0 C

Corrected Cooler Temp.: 5.7 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Comments:

Date and initials of person examining contents: BDB 6/25/15

Chain of Custody Present:	☐Yes ☑No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☐Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: SL		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF Review: JD Date: 6/25/15

SRF Review: JD Date: 6/26/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (I.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO# : 92256138

Pace Analytical
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: | of

1899911

Section A Required Client Information:

Company: Amec Foster Wheeler
Address: 1308 Patton Avenue
Asheville NC 28806
Email To: Susan.kelly@amecfw.com
Phone: 8282528130 Fax:
Requested Due Date/TAT: Std

Section B Required Project Information:

Report To: Susan Kelly
Copy To:
Purchase Order No.: To be provided
Project Name: CTS of Asheville, Inc.
Project Number: 60252120006

Section C Invoice Information:

Attention: Susan Kelly
Company Name: Amec Foster Wheeler
Address: Susan.kelly@amecfw.com
Pace Quote Reference:
Pace Project Manager: Kevin Godwin
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☒ OTHER

Site Location STATE: NC

Requested Analysis Filtered (Y/N)

ITEM #	Section D Required Client Information — SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: 8260*	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TB-01	WT				labprep			2				2					X	X		001
2	FD-01	WT	G			6/25/15	00:00		3				3			2	1	X	X		002
3	FD-02	SL	G			6/25/15	00:00		6	1					2	1	2	X	X		004
4	SW-01W	WT	G			6/25/15	1435		3				3					X	X		003
5	SW-01RW	WT	G			6/25/15	1400		3				3					X	X		004
6	SW-03W	WT	G			6/25/15	1345		3				3					X	X		005
7	SW-04W	WT	G			6/25/15	1310		3				3					X	X		006
8	SW-05W	WT	G			6/25/15	1250		3				3					X	X		007
9	SED-01W	SL	G			6/25/15	1490		6	1					2	1	2	X	X		009
10	SED-02W	SL	G			6/25/15	1405		6	1					2	1	2	X	X		010
11	SED-03W	SL	G			6/25/15	1350		6	1					2	1	2	X	X		011
12	SED-04W	SL	G			6/25/15	1315		6	1					2	1	2	X	X		012

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*site-specific compound list (TCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride) ORIGINAL		6/25/15	16:34		6/25/15	16:34	2.7	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: SUSAN KELLY

SIGNATURE of SAMPLER: | DATE Signed (MM/DD/YY): 6/25/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical® www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: May 15, 2015 Page 1 of 2*
	Document No.: F-ASV-CS-003-rev.14	Issuing Authorities: Pace Asheville Quality Office

Client Name: Amec Foster

* Page 2 of 2 is for Internal Use Only

Courier (Circle): Fed Ex UPS USPS Client Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Thermometer Used: IR Gun#3 -130265963 **Type of Ice:** Wet Blue None ☑ Samples on Ice, cooling process has begun

IR Gun #4 SN:140290365 Other:_____

Temp Correction Factor: Add / Subtract 0.0 C

Corrected Cooler Temp.: 2.7 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Comments:

Date and Initials of person examining contents: DB 6/25/15

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT/SL		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☑No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15. DB 6/25/15
Trip Blank Present:	☑Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☑Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF Review: JD Date: 6/25/15

SRF Review: JD Date: 6/26/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (I.e out of hold, incorrect preservative, out of temp, incorrect containers)

Place label here

92256138 OR

Handwrite project number (if no label available)

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: of 1899912

Section A Required Client Information:

Company: Amec FosterWheeler
Address: 1308 Patton Avenue
Email To: susan.kelly@amecfw.com
Phone: 8282528830 Fax:
Requested Due Date/TAT: Std

Section B Required Project Information:

Report To: Susan Kelly
Copy To:
Purchase Order No.: To be provided
Project Name: ETS of Asheville, Inc.
Project Number: 625212000b

Section C Invoice Information:

Attention: Susan Kelly
Company Name: Amec Foster Wheeler
Address: Susan.kelly@amecfw.com
Pace Quote Reference:
Pace Project Manager: Kevin Godwin
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☒ OTHER

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260D ※	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	SED-05 W	SL	G			6/25/15	1255		6	1					2	1	2		X		613
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Requested Analysis Filtered (Y/N)

9225638

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*site-specific compound list (TCE, cis-1,2-DCE, trans,1,2-DCE, vinyl chloride)		6/25/15	16:34		6/25/15	16:34	5.7	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: SUSAN KELLY
SIGNATURE of SAMPLER: Susan
DATE Signed (MM/DD/YY): 6/25/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

APPENDIX E

DATA VALIDATION REPORT FOR SURFACE WATER AND SEDIMENT SAMPLES

DATA VALIDATION REPORT
June 2015 Surface Water and Sediment Sampling
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Introduction

Surface water and sediment samples were collected at the CTS of Asheville, Inc., Superfund Site in Asheville, North Carolina, in June 2015 and submitted for off-site laboratory analysis. Samples were analyzed by Pace Analytical Services, Inc., located in Huntersville, North Carolina. Results were reported in the following Sample Delivery Group (SDG): 92256138.

A listing of samples included in this Data Validation Report is presented in Table E.1. Data were evaluated using project quality control limits summarized in Table E.2. A summary of the final validated analytical results is presented in Table E.3. Samples were analyzed by the following method:

- Volatile organic compounds (VOCs) by USEPA Method 8260 (project list only)
- Percent Moisture by ASTM D2974-87 (sediment samples)

Data validation was completed based on procedures in the USEPA Region 4 Data Validation Standard Operating Procedures (SOP) for Organic Analysis (USEPA, 2008), Method 8260, and the CTS of Asheville Quality Assurance Project Plan (QAPP) [AMEC, 2012]. Data validation included the following evaluations:

- Lab report narrative
- Sample collection and chain of custody
- Data package completeness
- Holding times
- Instrument tuning
- Initial and continuing calibrations
- QC blanks
- System monitoring compound recovery
- Laboratory control samples
- Matrix spike/matrix spike duplicates
- Field duplicates
- Internal standard response and retention time
- Data transcription
- Raw data and calculation checks
- Electronic data reporting
- Data qualification

The following laboratory or data validation qualifiers are used in the final data presentation:

U = target analyte is not detected at the reported detection limit
J = estimated value

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

Data Package Completeness

Summary forms and raw data for the instrument tune and continuing calibration standard analyzed on 7/3/15 (14:25) were not included in the data package. The forms and raw data were requested on 8/11/15 and the laboratory submitted the information on 8/25/15.

Instrument Tuning

The tuning criteria provided by the laboratory do not match the tuning criteria listed in Method 8260 or the Region 4 validation guideline. The laboratory criteria reported are based on the USEPA Contract Laboratory Program Method OLM03. Method 8260 allows for the use of alternative tuning criteria, and instrument tuning was reviewed based on criteria provided in the lab report.

Tuning results were also compared to USEPA Region 4 control limits during data validation. Instrument tune results for all mass/charge (m/z) ratios were within control limits for percent relative abundance as stated in the USEPA Region 4 SOP for all instrument tunes, and sample results were accepted as reported without qualification.

References

Amec, 2012. "NAPL Investigation Work Plan: Quality Assurance Project Plan (Revision 2);" December 21, 2012.

USEPA Region 4, 2008. "Data Validation Standard Operating Procedures for Organic Analysis" Science and Ecosystem Support Division, Quality Assurance Section, MTSB, Revision 3.1, August 2008.

Data Validator: Julie Ricardi

Julie Ricardi

Date: 9/3/2015

Reviewed by Chris Ricardi, NRCC-EAC

Chris Ricardi

Date: 9/8/2015

TABLE E.1
Data Validation Report: Sample Summary
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

SDG	Sample ID	Sample Date	Media	Lab Sample ID	QC Code	VOCs EPA 8260
92256138	TB-01	06/25/15	BW	92256138001	TB	4
92256138	SED-01W	06/25/15	SED	92256138009	FS	4
92256138	FD-02	06/25/15	SED	92256138008	FD	4
92256138	SED-02W	06/25/15	SED	92256138010	FS	4
92256138	SED-03W	06/25/15	SED	92256138011	FS	4
92256138	SED-04W	06/25/15	SED	92256138012	FS	4
92256138	SED-05W	06/25/15	SED	92256138013	FS	4
92256138	FD-01	06/25/15	SW	92256138002	FD	4
92256138	SW-01W	06/25/15	SW	92256138003	FS	4
92256138	SW-02W	06/25/15	SW	92256138004	FS	4
92256138	SW-03W	06/25/15	SW	92256138005	FS	4
92256138	SW-04W	06/25/15	SW	92256138006	FS	4
92256138	SW-05W	06/25/15	SW	92256138007	FS	4

Notes:
BW = blank water
SW = surface water
SED = sediment
FS = field sample
FD = field duplicate
TB = trip blank
Number listed under method indicates the number of target analytes reported.

Prepared By: WCG 9/4/15
Checked By: JAR 9/8/15

TABLE E.2
Data Validation Report: Quality Control Limits
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

Parameter	QC Test	Water %R	Water RPD	Soil %R	Soil RPD
VOC	Surrogate	70-130	---	70-130	---
	LCS/LCSD	70-130	30	70-130	30
	MS/MSD	70-130	30	70-130	30
	Field Duplicate	---	30	---	30

Notes:
LCS = laboratory control sample
LCSD = laboratory control sample duplicate
MS = matrix spike
MSD = matrix spike duplicate
%R = percent recovery
RPD = relative percent difference

Prepared By: JAR 9/2/15
Checked By: CSR 9/7/15

TABLE E.3
Data Validation Report: Summary of Results
CTS of Asheville, Inc. Superfund Sites
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

	Sample Location		SED-01W		SED-02W		SED-02W		SED-03W		SED-04W		SED-05W	
	Sample Date		06/25/15		06/25/15		06/25/15		06/25/15		06/25/15		06/25/15	
	Field Sample ID		SED-01W		FD-02		SED-02W		SED-03W		SED-04W		SED-05W	
Method	**Parameter Name**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
ASTM D2974	Percent Moisture	percent	29.1		29.4		24.2		24.3		24.2		26.8	
EPA 8260	cis-1,2-Dichloroethene	ug/kg	2.7	J	4.3	J	2.6	J	162		5.2	U	4.8	U
EPA 8260	trans-1,2-Dichloroethene	ug/kg	5.8	U	7.5	U	4.6	U	4.9	U	5.2	U	4.8	U
EPA 8260	Trichloroethene	ug/kg	36.3		42.7		14.9		702		8.1		4.8	U
EPA 8260	Vinyl chloride	ug/kg	11.5	U	15	U	9.3	U	6.4	J	10.4	U	9.6	U

	Sample Location		QC		SW-01W		SW-01W		SW-02W		SW-03W		SW-04W		SW-05W	
	Sample Date		06/25/15		06/25/15		06/25/15		06/25/15		06/25/15		06/25/15		06/25/15	
	Field Sample ID		TB-01		FD-01		SW-01W		SW-02W		SW-03W		SW-04W		SW-05W	
Method	**Parameter Name**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
EPA 8260	cis-1,2-Dichloroethene	ug/l	1	U	1.8		2.1		13.5		81.7		0.44	J	1	U
EPA 8260	trans-1,2-Dichloroethene	ug/l	1	U	1	U	1	U	1	U	0.51	J	1	U	1	U
EPA 8260	Trichloroethene	ug/l	1	U	28.7		27.8		81.2		129		21.6		1	U
EPA 8260	Vinyl chloride	ug/l	1	U	1	U	1	U	3.5		9.8		1	U	1	U

Notes:
ug/l = micrograms per liter
ug/kg = micrograms per kilogram
Qualifier --
U = not detected at the detection limit
J = estimated value

Prepared By: WCG 9/4/15
Checked By: JAR 9/8/15

APPENDIX F

LABORATORY ANALYTICAL REPORT FOR GROUNDWATER SAMPLES

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

July 09, 2015

Ms. Susan Kelly
Amec Foster Wheeler
1308 Patton Avenue
Asheville, NC 28806

RE: Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Dear Ms. Kelly:
Enclosed are the analytical results for sample(s) received by the laboratory on July 01, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92256729001	TB-02	Water	06/29/15 00:00	07/01/15 08:12
92256729002	FD-03	Water	06/30/15 00:00	07/01/15 08:12
92256729003	GW-73-20	Water	06/29/15 11:30	07/01/15 08:12
92256729004	GW-73-58	Water	06/29/15 15:30	07/01/15 08:12
92256729005	GW-74-33	Water	06/30/15 08:25	07/01/15 08:12
92256729006	GW-74-58	Water	06/30/15 09:15	07/01/15 08:12
92256729007	GW-75-20	Water	06/30/15 12:05	07/01/15 08:12
92256729008	GW-75-43	Water	06/30/15 13:45	07/01/15 08:12
92256729009	GW-76-14	Water	06/30/15 15:50	07/01/15 08:12
92256729010	GW-76-48	Water	06/30/15 16:35	07/01/15 08:12

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SAMPLE ANALYTE COUNT

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92256729001	TB-02	EPA 8260	SNP	7	PASI-C
92256729002	FD-03	EPA 8260	SNP	7	PASI-C
92256729003	GW-73-20	EPA 8260	GAW	7	PASI-C
92256729004	GW-73-58	EPA 8260	GAW	7	PASI-C
92256729005	GW-74-33	EPA 8260	SNP	7	PASI-C
92256729006	GW-74-58	EPA 8260	GAW	7	PASI-C
92256729007	GW-75-20	EPA 8260	GAW	7	PASI-C
92256729008	GW-75-43	EPA 8260	GAW	7	PASI-C
92256729009	GW-76-14	EPA 8260	GAW	7	PASI-C
92256729010	GW-76-48	EPA 8260	SNP	7	PASI-C

Pace Analytical Services, Inc.
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SUMMARY OF DETECTION

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92256729002	**FD-03**					
EPA 8260	Trichloroethene	160	ug/L	1.0	07/02/15 14:45	
92256729008	**GW-75-43**					
EPA 8260	Trichloroethene	4.1	ug/L	1.0	07/07/15 03:24	
92256729009	**GW-76-14**					
EPA 8260	Trichloroethene	168	ug/L	1.0	07/07/15 03:41	
92256729010	**GW-76-48**					
EPA 8260	Trichloroethene	0.80J	ug/L	1.0	07/06/15 19:20	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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PROJECT NARRATIVE

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Method: **EPA 8260**
Description: 8260 MSV Low Level
Client: Amec Foster Wheeler, Asheville
Date: July 09, 2015

General Information:
10 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Sample: TB-02 **Lab ID: 92256729001** Collected: 06/29/15 00:00 Received: 07/01/15 08:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/02/15 14:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/02/15 14:28	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/02/15 14:28	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/02/15 14:28	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	112	%	70-130		1		07/02/15 14:28	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		07/02/15 14:28	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		07/02/15 14:28	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Sample: FD-03 **Lab ID: 92256729002** Collected: 06/30/15 00:00 Received: 07/01/15 08:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/02/15 14:45	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/02/15 14:45	156-60-5	
Trichloroethene	**160**	ug/L	1.0	0.47	1		07/02/15 14:45	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/02/15 14:45	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	114	%	70-130		1		07/02/15 14:45	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		07/02/15 14:45	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		07/02/15 14:45	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Sample: GW-73-20 **Lab ID: 92256729003** Collected: 06/29/15 11:30 Received: 07/01/15 08:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/07/15 02:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/07/15 02:16	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/07/15 02:16	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/07/15 02:16	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	113	%	70-130		1		07/07/15 02:16	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		07/07/15 02:16	17060-07-0	
Toluene-d8 (S)	93	%	70-130		1		07/07/15 02:16	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Sample: GW-73-58 **Lab ID: 92256729004** Collected: 06/29/15 15:30 Received: 07/01/15 08:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/07/15 02:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/07/15 02:33	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/07/15 02:33	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/07/15 02:33	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	115	%	70-130		1		07/07/15 02:33	460-00-4	
1,2-Dichloroethane-d4 (S)	90	%	70-130		1		07/07/15 02:33	17060-07-0	
Toluene-d8 (S)	95	%	70-130		1		07/07/15 02:33	2037-26-5	

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Sample: GW-74-33 **Lab ID: 92256729005** Collected: 06/30/15 08:25 Received: 07/01/15 08:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/06/15 19:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/06/15 19:03	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/06/15 19:03	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/06/15 19:03	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	114	%	70-130		1		07/06/15 19:03	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	70-130		1		07/06/15 19:03	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		07/06/15 19:03	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Sample: GW-74-58 **Lab ID: 92256729006** Collected: 06/30/15 09:15 Received: 07/01/15 08:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/07/15 02:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/07/15 02:50	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/07/15 02:50	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/07/15 02:50	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	107	%	70-130		1		07/07/15 02:50	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		07/07/15 02:50	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		07/07/15 02:50	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Sample: GW-75-20 **Lab ID: 92256729007** Collected: 06/30/15 12:05 Received: 07/01/15 08:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/07/15 03:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/07/15 03:07	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/07/15 03:07	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/07/15 03:07	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	122	%	70-130		1		07/07/15 03:07	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130		1		07/07/15 03:07	17060-07-0	
Toluene-d8 (S)	95	%	70-130		1		07/07/15 03:07	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Sample: GW-75-43 **Lab ID: 92256729008** Collected: 06/30/15 13:45 Received: 07/01/15 08:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/07/15 03:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/07/15 03:24	156-60-5	
Trichloroethene	**4.1**	ug/L	1.0	0.47	1		07/07/15 03:24	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/07/15 03:24	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	113	%	70-130		1		07/07/15 03:24	460-00-4	
1,2-Dichloroethane-d4 (S)	92	%	70-130		1		07/07/15 03:24	17060-07-0	
Toluene-d8 (S)	97	%	70-130		1		07/07/15 03:24	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Sample: GW-76-14 **Lab ID: 92256729009** Collected: 06/30/15 15:50 Received: 07/01/15 08:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/07/15 03:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/07/15 03:41	156-60-5	
Trichloroethene	**168**	ug/L	1.0	0.47	1		07/07/15 03:41	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/07/15 03:41	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	112	%	70-130		1		07/07/15 03:41	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130		1		07/07/15 03:41	17060-07-0	
Toluene-d8 (S)	103	%	70-130		1		07/07/15 03:41	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Sample: GW-76-48 **Lab ID: 92256729010** Collected: 06/30/15 16:35 Received: 07/01/15 08:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/06/15 19:20	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/06/15 19:20	156-60-5	
Trichloroethene	**0.80J**	ug/L	1.0	0.47	1		07/06/15 19:20	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/06/15 19:20	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	112	%	70-130		1		07/06/15 19:20	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		07/06/15 19:20	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		07/06/15 19:20	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

QC Batch: MSV/32413 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92256729001, 92256729002

METHOD BLANK: 1500681 Matrix: Water
Associated Lab Samples: 92256729001, 92256729002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/02/15 12:30	
trans-1,2-Dichloroethene	ug/L	ND	1.0	07/02/15 12:30	
Trichloroethene	ug/L	ND	1.0	07/02/15 12:30	
Vinyl chloride	ug/L	ND	1.0	07/02/15 12:30	
1,2-Dichloroethane-d4 (S)	%	94	70-130	07/02/15 12:30	
4-Bromofluorobenzene (S)	%	96	70-130	07/02/15 12:30	
Toluene-d8 (S)	%	102	70-130	07/02/15 12:30	

LABORATORY CONTROL SAMPLE: 1500682

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/L	50	50.7	101	70-131	
trans-1,2-Dichloroethene	ug/L	50	52.4	105	70-130	
Trichloroethene	ug/L	50	50.7	101	70-130	
Vinyl chloride	ug/L	50	51.7	103	50-150	
1,2-Dichloroethane-d4 (S)	%			86	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Toluene-d8 (S)	%			100	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Huntersville, NC 28078
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QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

QC Batch: MSV/32433
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92256729005, 92256729010

METHOD BLANK: 1502030
Matrix: Water
Associated Lab Samples: 92256729005, 92256729010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/06/15 15:07	
trans-1,2-Dichloroethene	ug/L	ND	1.0	07/06/15 15:07	
Trichloroethene	ug/L	ND	1.0	07/06/15 15:07	
Vinyl chloride	ug/L	ND	1.0	07/06/15 15:07	
1,2-Dichloroethane-d4 (S)	%	99	70-130	07/06/15 15:07	
4-Bromofluorobenzene (S)	%	115	70-130	07/06/15 15:07	
Toluene-d8 (S)	%	100	70-130	07/06/15 15:07	

LABORATORY CONTROL SAMPLE: 1502031

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/L	50	47.2	94	70-131	
trans-1,2-Dichloroethene	ug/L	50	49.7	99	70-130	
Trichloroethene	ug/L	50	47.4	95	70-130	
Vinyl chloride	ug/L	50	49.9	100	50-150	
1,2-Dichloroethane-d4 (S)	%			93	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1502032 1502033

Parameter	Units	92256729005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
cis-1,2-Dichloroethene	ug/L	ND	20	20	21.5	21.3	108	106	70-130	1	30	
trans-1,2-Dichloroethene	ug/L	ND	20	20	22.6	18.9	113	94	70-130	18	30	
Trichloroethene	ug/L	ND	20	20	20.4	20.5	101	102	69-151	0	30	
Vinyl chloride	ug/L	ND	20	20	22.3	21.8	112	109	70-130	2	30	
1,2-Dichloroethane-d4 (S)	%						103	101	70-130			
4-Bromofluorobenzene (S)	%						108	107	70-130			
Toluene-d8 (S)	%						98	99	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

QC Batch: MSV/32451 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92256729003, 92256729004, 92256729006, 92256729007, 92256729008, 92256729009

METHOD BLANK: 1502589 Matrix: Water
Associated Lab Samples: 92256729003, 92256729004, 92256729006, 92256729007, 92256729008, 92256729009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/07/15 01:42	
trans-1,2-Dichloroethene	ug/L	ND	1.0	07/07/15 01:42	
Trichloroethene	ug/L	ND	1.0	07/07/15 01:42	
Vinyl chloride	ug/L	ND	1.0	07/07/15 01:42	
1,2-Dichloroethane-d4 (S)	%	93	70-130	07/07/15 01:42	
4-Bromofluorobenzene (S)	%	107	70-130	07/07/15 01:42	
Toluene-d8 (S)	%	98	70-130	07/07/15 01:42	

LABORATORY CONTROL SAMPLE: 1502590

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/L	50	49.1	98	70-131	
trans-1,2-Dichloroethene	ug/L	50	53.4	107	70-130	
Trichloroethene	ug/L	50	52.0	104	70-130	
Vinyl chloride	ug/L	50	43.1	86	50-150	
1,2-Dichloroethane-d4 (S)	%			103	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			103	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92256729

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92256729001	**TB-02**	EPA 8260	MSV/32413		
92256729002	**FD-03**	EPA 8260	MSV/32413		
92256729003	**GW-73-20**	EPA 8260	MSV/32451		
92256729004	**GW-73-58**	EPA 8260	MSV/32451		
92256729005	**GW-74-33**	EPA 8260	MSV/32433		
92256729006	**GW-74-58**	EPA 8260	MSV/32451		
92256729007	**GW-75-20**	EPA 8260	MSV/32451		
92256729008	**GW-75-43**	EPA 8260	MSV/32451		
92256729009	**GW-76-14**	EPA 8260	MSV/32451		
92256729010	**GW-76-48**	EPA 8260	MSV/32433		

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: May 15, 2015 Page 1 of 2*
	Document No.: F-ASV-CS-003-rev.14	Issuing Authorities: Pace Asheville Quality Office

Client Name: AMEC

* Page 2 of 2 is for Internal Use Only

Courier (Circle): Fed Ex UPS USPS (Client) Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals Intact: ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: (IR Gun#3 -130265963) Type of Ice: (Wet) Blue None ☑ Samples on Ice, cooling process has begun

IR Gun #4 SN:140290365 Other:_____

Temp Correction Factor: Add / Subtract N/A C

Corrected Cooler Temp.: 5.9 C Biological Tissue is Frozen: Yes No (N/A)

Temp should be above freezing to 6°C

Date and Initials of person examining contents: MS 7/1

Comments:

Chain of Custody Present:	☑Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☑Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☑Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☑Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☑Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☑No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☑No	☐N/A	7.
Sufficient Volume:	☑Yes	☐No	☐N/A	8.
Correct Containers Used:	☑Yes	☐No	☐N/A	9.
-Pace Containers Used:	☑Yes	☐No	☐N/A	
Containers Intact:	☑Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☐No	☑N/A	11.
Sample Labels match COC:	☑Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT				
All containers needing preservation have been checked.	☑Yes	☐No	☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes	☐No	☐N/A	
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes	☑No		
Samples checked for dechlorination:	☐Yes	☐No	☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes	☐No	☐N/A	15.
Trip Blank Present:	☑Yes	☐No	☐N/A	16.
Trip Blank Custody Seals Present	☑Yes	☐No	☐N/A	
Pace Trip Blank Lot # (if purchased):_____				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF Review: JD Date: 7/1/15

SRF Review: JD Date: 7/2/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO# : 92256729

92256729

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1897208

Section A Required Client Information:

Company: Amec Foster Wheeler
Address: 130b Patton Ave
Asheville NC 28806
Email To: susan.kelly@amecfw.com
Phone: 828 252 8130 Fax:
Requested Due Date/TAT: Std

Section B Required Project Information:

Report To: Susan Kelly
Copy To:
Purchase Order No.: to be provided
Project Name: ETS of Asheville
Project Number: 625212 0006

Section C Invoice Information:

Attention: Susan Kelly
Company Name: Amec Foster Wheeler
Address: susan.kelly@amecfw.com
Pace Quote Reference:
Pace Project Manager: Kevin Cordwin
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☒ OTHER

Site Location STATE: NC

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260*	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TB-02	WT	G			lap	rep.		2				X						X		001
2	FD-03	WT	G			6/30/15	0:00		3				X						X		002
3	GW-73-20	WT	G			6/29/15	1130		3				X						X		003
4	GW-73-58	WT	G			6/29/15	1530		3				X						X		004
5	GW-74-33	WT	G			6/30/15	825		9				X						X		MS/MSD 005
6	GW-74-58	WT	G			6/30/15	915		3				X						X		006
7	GW-75-20	WT	G			6/30/15	12:05		3				X						X		007
8	GW-75-43	WT	G			6/30/15	1345		3				X						X		008
9	GW-75-14	WT	G			6/30/15	1550		3				X						X		009
10	GW-76-48	WT	G			6/30/15	1635		3				X						X		010
11																					
12																					

92256729 Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
* TCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	Adam Steurer	7/1/15	8:12	Stephen Dyer	7/1/15	8:12	5.9	Y	N/A	Yes

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Adam Steurer
SIGNATURE of SAMPLER: Adam Steurer
DATE Signed (MM/DD/YY): 07/01/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

July 11, 2015

Ms. Susan Kelly
Amec Foster Wheeler
1308 Patton Avenue
Asheville, NC 28806

RE: Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Dear Ms. Kelly:
Enclosed are the analytical results for sample(s) received by the laboratory on July 02, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92257177004	**GW-77-17**	Water	07/01/15 10:00	07/02/15 16:12
92257177005	**GW-77-36**	Water	07/01/15 11:30	07/02/15 16:12
92257177006	**GW-78-15**	Water	07/01/15 15:15	07/02/15 16:12
92257177007	**GW-79-20**	Water	07/02/15 09:35	07/02/15 16:12
92257177008	**GW-80-25**	Water	07/02/15 11:15	07/02/15 16:12
92257177009	**GW-81-17**	Water	07/02/15 14:00	07/02/15 16:12
92257177010	**GW-81-49**	Water	07/02/15 15:00	07/02/15 16:12
92257177001	**TB-03**	Water	07/01/15 00:00	07/02/15 16:12
92257177002	**EB-01**	Water	07/01/15 10:50	07/02/15 16:12
92257177003	**FD-04**	Water	07/01/15 00:00	07/02/15 16:12

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SAMPLE ANALYTE COUNT

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92257177004	GW-77-17	EPA 8260	SNP	7	PASI-C
92257177005	GW-77-36	EPA 8260	SNP	7	PASI-C
92257177006	GW-78-15	EPA 8260	SNP	7	PASI-C
92257177007	GW-79-20	EPA 8260	SNP	7	PASI-C
92257177008	GW-80-25	EPA 8260	SNP	7	PASI-C
92257177009	GW-81-17	EPA 8260	SNP	7	PASI-C
92257177010	GW-81-49	EPA 8260	SNP	7	PASI-C
92257177001	TB-03	EPA 8260	SNP	7	PASI-C
92257177002	EB-01	EPA 8260	SNP	7	PASI-C
92257177003	FD-04	EPA 8260	SNP	7	PASI-C

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PROJECT NARRATIVE

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Method: **EPA 8260**
Description: 8260 MSV Low Level
Client: Amec Foster Wheeler, Asheville
Date: July 11, 2015

General Information:
10 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Sample: GW-77-17 **Lab ID: 92257177004** Collected: 07/01/15 10:00 Received: 07/02/15 16:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/09/15 00:59	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/09/15 00:59	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/09/15 00:59	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/09/15 00:59	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	105	%	70-130		1		07/09/15 00:59	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		1		07/09/15 00:59	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		07/09/15 00:59	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Sample: GW-77-36 **Lab ID: 92257177005** Collected: 07/01/15 11:30 Received: 07/02/15 16:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/09/15 01:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/09/15 01:16	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/09/15 01:16	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/09/15 01:16	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	106	%	70-130		1		07/09/15 01:16	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-130		1		07/09/15 01:16	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		07/09/15 01:16	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Sample: GW-78-15 **Lab ID: 92257177006** Collected: 07/01/15 15:15 Received: 07/02/15 16:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/09/15 01:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/09/15 01:33	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/09/15 01:33	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/09/15 01:33	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	105	%	70-130		1		07/09/15 01:33	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		07/09/15 01:33	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		07/09/15 01:33	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Sample: GW-79-20 **Lab ID: 92257177007** Collected: 07/02/15 09:35 Received: 07/02/15 16:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/09/15 01:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/09/15 01:50	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/09/15 01:50	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/09/15 01:50	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	109	%	70-130		1		07/09/15 01:50	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		07/09/15 01:50	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		07/09/15 01:50	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Sample: GW-80-25 **Lab ID: 92257177008** Collected: 07/02/15 11:15 Received: 07/02/15 16:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/09/15 02:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/09/15 02:07	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/09/15 02:07	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/09/15 02:07	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	107	%	70-130		1		07/09/15 02:07	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	70-130		1		07/09/15 02:07	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		07/09/15 02:07	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Sample: GW-81-17 **Lab ID: 92257177009** Collected: 07/02/15 14:00 Received: 07/02/15 16:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/09/15 02:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/09/15 02:24	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/09/15 02:24	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/09/15 02:24	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	107	%	70-130		1		07/09/15 02:24	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		07/09/15 02:24	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		07/09/15 02:24	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Sample: GW-81-49 **Lab ID: 92257177010** Collected: 07/02/15 15:00 Received: 07/02/15 16:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/09/15 02:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/09/15 02:40	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/09/15 02:40	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/09/15 02:40	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	107	%	70-130		1		07/09/15 02:40	460-00-4	
1,2-Dichloroethane-d4 (S)	110	%	70-130		1		07/09/15 02:40	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		07/09/15 02:40	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Sample: TB-03 **Lab ID: 92257177001** Collected: 07/01/15 00:00 Received: 07/02/15 16:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/06/15 19:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/06/15 19:37	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/06/15 19:37	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/06/15 19:37	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	111	%	70-130		1		07/06/15 19:37	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	70-130		1		07/06/15 19:37	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		07/06/15 19:37	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Sample: EB-01 **Lab ID: 92257177002** Collected: 07/01/15 10:50 Received: 07/02/15 16:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/06/15 19:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/06/15 19:54	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/06/15 19:54	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/06/15 19:54	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	111	%	70-130		1		07/06/15 19:54	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		07/06/15 19:54	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		07/06/15 19:54	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Sample: FD-04 **Lab ID: 92257177003** Collected: 07/01/15 00:00 Received: 07/02/15 16:12 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		07/06/15 20:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		07/06/15 20:11	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/06/15 20:11	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/06/15 20:11	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	109	%	70-130		1		07/06/15 20:11	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-130		1		07/06/15 20:11	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		07/06/15 20:11	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

QC Batch: MSV/32433 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92257177001, 92257177002, 92257177003

METHOD BLANK: 1502030 Matrix: Water
Associated Lab Samples: 92257177001, 92257177002, 92257177003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/06/15 15:07	
trans-1,2-Dichloroethene	ug/L	ND	1.0	07/06/15 15:07	
Trichloroethene	ug/L	ND	1.0	07/06/15 15:07	
Vinyl chloride	ug/L	ND	1.0	07/06/15 15:07	
1,2-Dichloroethane-d4 (S)	%	99	70-130	07/06/15 15:07	
4-Bromofluorobenzene (S)	%	115	70-130	07/06/15 15:07	
Toluene-d8 (S)	%	100	70-130	07/06/15 15:07	

LABORATORY CONTROL SAMPLE: 1502031

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/L	50	47.2	94	70-131	
trans-1,2-Dichloroethene	ug/L	50	49.7	99	70-130	
Trichloroethene	ug/L	50	47.4	95	70-130	
Vinyl chloride	ug/L	50	49.9	100	50-150	
1,2-Dichloroethane-d4 (S)	%			93	70-130	
4-Bromofluorobenzene (S)	%			98	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1502032 1502033

Parameter	Units	92256729005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
cis-1,2-Dichloroethene	ug/L	ND	20	20	21.5	21.3	108	106	70-130	1	30	
trans-1,2-Dichloroethene	ug/L	ND	20	20	22.6	18.9	113	94	70-130	18	30	
Trichloroethene	ug/L	ND	20	20	20.4	20.5	101	102	69-151	0	30	
Vinyl chloride	ug/L	ND	20	20	22.3	21.8	112	109	70-130	2	30	
1,2-Dichloroethane-d4 (S)	%						103	101	70-130			
4-Bromofluorobenzene (S)	%						108	107	70-130			
Toluene-d8 (S)	%						98	99	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

QC Batch: MSV/32473 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92257177004, 92257177005, 92257177006, 92257177007, 92257177008, 92257177009, 92257177010

METHOD BLANK: 1504114 Matrix: Water
Associated Lab Samples: 92257177004, 92257177005, 92257177006, 92257177007, 92257177008, 92257177009, 92257177010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/L	ND	1.0	07/08/15 23:17	
trans-1,2-Dichloroethene	ug/L	ND	1.0	07/08/15 23:17	
Trichloroethene	ug/L	ND	1.0	07/08/15 23:17	
Vinyl chloride	ug/L	ND	1.0	07/08/15 23:17	
1,2-Dichloroethane-d4 (S)	%	98	70-130	07/08/15 23:17	
4-Bromofluorobenzene (S)	%	105	70-130	07/08/15 23:17	
Toluene-d8 (S)	%	100	70-130	07/08/15 23:17	

LABORATORY CONTROL SAMPLE: 1504115

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/L	50	46.1	92	70-131	
trans-1,2-Dichloroethene	ug/L	50	42.7	85	70-130	
Trichloroethene	ug/L	50	43.6	87	70-130	
Vinyl chloride	ug/L	50	45.8	92	50-150	
1,2-Dichloroethane-d4 (S)	%			99	70-130	
4-Bromofluorobenzene (S)	%			110	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE SAMPLE: 1504116

Parameter	Units	92257291001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/L	ND	20	20.5	102	70-130	
trans-1,2-Dichloroethene	ug/L	ND	20	21.3	107	70-130	
Trichloroethene	ug/L	ND	20	19.9	100	69-151	
Vinyl chloride	ug/L	ND	20	19.5	98	70-130	
1,2-Dichloroethane-d4 (S)	%				100	70-130	
4-Bromofluorobenzene (S)	%				103	70-130	
Toluene-d8 (S)	%				101	70-130	

SAMPLE DUPLICATE: 1504117

Parameter	Units	92257243001 Result	Dup Result	RPD	Max RPD	Qualifiers
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

SAMPLE DUPLICATE: 1504117

Parameter	Units	92257243001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2-Dichloroethane-d4 (S)	%	111	113	2		
4-Bromofluorobenzene (S)	%	109	111	2		
Toluene-d8 (S)	%	100	101	1		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C Pace Analytical Services - Charlotte

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92257177

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92257177001	**TB-03**	EPA 8260	MSV/32433		
92257177002	**EB-01**	EPA 8260	MSV/32433		
92257177003	**FD-04**	EPA 8260	MSV/32433		
92257177004	**GW-77-17**	EPA 8260	MSV/32473		
92257177005	**GW-77-36**	EPA 8260	MSV/32473		
92257177006	**GW-78-15**	EPA 8260	MSV/32473		
92257177007	**GW-79-20**	EPA 8260	MSV/32473		
92257177008	**GW-80-25**	EPA 8260	MSV/32473		
92257177009	**GW-81-17**	EPA 8260	MSV/32473		
92257177010	**GW-81-49**	EPA 8260	MSV/32473		

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: May 15, 2015 Page 1 of 2*
	Document No.: F-ASV-CS-003-rev.14	Issuing Authorities: Pace Asheville Quality Office

Client Name: Amec

* Page 2 of 2 is for Internal Use Only

Courier (Circle): Fed Ex UPS USPS Client Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no 7/2/15 **Seals intact:** ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other_____

Thermometer Used: IR Gun#3 -130265963 **Type of Ice:** Wet Blue None ☑ Samples on Ice, cooling process has begun

IR Gun #4 SN:140290365 Other:

Temp Correction Factor: Add / Subtract 0.0 C

Corrected Cooler Temp.: 2.4 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C **Comments:**

Date and Initials of person examining contents: RDB 7/2/15

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☑N/A	15.
Trip Blank Present:	☐Yes ☑No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF Review: JD Date: 7/2/15

SRF Review: JD Date: 7/6/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO# : 92257177

92257177

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www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1899914

Section A Required Client Information:
Company: Amec Foster Wheeler
Address: 1308 Patton Avenue
Asheville, NC 28806
Email To: susan.kelly@amecfw.com
Phone: 8782578130 Fax:
Requested Due Date/TAT: Std

Section B Required Project Information:
Report To: Susan Kelly
Copy To:
Purchase Order No.: to be provided
Project Name: CTS of Asheville
Project Number: 60252120006

Section C Invoice Information:
Attention: Susan Kelly
Company Name: Amec Foster Wheeler
Address: Susan.Kelly@amecfw.com
Pace Quote Reference:
Pace Project Manager: Kevin Godwin
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☒ OTHER
Site Location STATE: NC

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test ↓ Y/N	8260	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TB-03	WT	G			lab prep			2				X					X	X		001
2	EB-01	WT	G			7/1/15	1050		3				X					X	X		002
3	FD-04	WT	G			7/1/15	00:00		3				X					X	X		003
4	GW-77-17	WT	G			7/1/15	1000		3				X					X	X		004
5	GW-77-36	WT	G			7/1/15	1130		3				X					X	X		005
6	GW-78-15	WT	G			7/1/15	1515		3				X					X	X		006
7	GW-79-20	WT	G			7/2/15	935		3				X					X	X		007
8	GW-80-25	WT	G			7/2/15	1115		3				X					X	X		008
9	GW-81-17	WT	G			7/2/15	1400		3				X					X	X		009
10	GW-81-49	WT	G			7/2/15	1500		3				X					X	X		010
11																					
12																					

Requested Analysis Filtered (Y/N): 1

92257177 Pace Project No./ Lab I.D.

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
*TCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride	Allen Jones / Amec	7/2/15	18:12	Mike Ste AVL	7/2/15	1612	2.4	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Susan Kelly
SIGNATURE of SAMPLER: Susan Kelly
DATE Signed (MM/DD/YY): 7/2/15

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

August 17, 2015

Ms. Susan Kelly
Amec Foster Wheeler
1308 Patton Avenue
Asheville, NC 28806

RE: Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Dear Ms. Kelly:
Enclosed are the analytical results for sample(s) received by the laboratory on August 12, 2015. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kevin Godwin
kevin.godwin@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(704)875-9092

SAMPLE SUMMARY

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92263154001	TB-04	Water	08/11/15 00:00	08/12/15 17:00
92263154002	FD-05	Water	08/12/15 00:00	08/12/15 17:00
92263154003	GW-82-19	Water	08/11/15 16:15	08/12/15 17:00
92263154004	GW-82-49	Water	08/12/15 09:00	08/12/15 17:00
92263154005	GW-83-23	Water	08/12/15 11:00	08/12/15 17:00
92263154006	GW-83-49	Water	08/12/15 11:50	08/12/15 17:00
92263154007	GW-84-18	Water	08/12/15 14:50	08/12/15 17:00
92263154008	GW-84-38	Water	08/12/15 15:15	08/12/15 17:00

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SAMPLE ANALYTE COUNT

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92263154001	TB-04	EPA 8260	CAH	7	PASI-C
92263154002	FD-05	EPA 8260	CAH	7	PASI-C
92263154003	GW-82-19	EPA 8260	CAH	7	PASI-C
92263154004	GW-82-49	EPA 8260	CAH	7	PASI-C
92263154005	GW-83-23	EPA 8260	CAH	7	PASI-C
92263154006	GW-83-49	EPA 8260	CAH	7	PASI-C
92263154007	GW-84-18	EPA 8260	CAH	7	PASI-C
92263154008	GW-84-38	EPA 8260	CAH	7	PASI-C

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SUMMARY OF DETECTION

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92263154002	**FD-05**					
EPA 8260	cis-1,2-Dichloroethene	0.80J	ug/L	1.0	08/14/15 16:21	
EPA 8260	Trichloroethene	992	ug/L	10.0	08/17/15 02:27	
92263154004	**GW-82-49**					
EPA 8260	cis-1,2-Dichloroethene	1.5	ug/L	1.0	08/14/15 19:44	
EPA 8260	Trichloroethene	54.5	ug/L	1.0	08/14/15 19:44	
92263154005	**GW-83-23**					
EPA 8260	cis-1,2-Dichloroethene	0.59J	ug/L	1.0	08/14/15 20:01	
EPA 8260	Trichloroethene	14.3	ug/L	1.0	08/14/15 20:01	
92263154007	**GW-84-18**					
EPA 8260	cis-1,2-Dichloroethene	135	ug/L	1.0	08/14/15 20:35	
EPA 8260	trans-1,2-Dichloroethene	0.89J	ug/L	1.0	08/14/15 20:35	
EPA 8260	Trichloroethene	14800	ug/L	200	08/17/15 03:01	
92263154008	**GW-84-38**					
EPA 8260	Trichloroethene	793	ug/L	10.0	08/17/15 03:18	M1

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Method: **EPA 8260**
Description: 8260 MSV Low Level
Client: Amec Foster Wheeler, Asheville
Date: August 17, 2015

General Information:
8 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/32985

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 92263154008

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1534097)
  - Trichloroethene
- MSD (Lab ID: 1534098)
  - Trichloroethene

Additional Comments:

Analyte Comments:

QC Batch: MSV/32985

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1534097)
  - Trichloroethene

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Method: **EPA 8260**
Description: 8260 MSV Low Level
Client: Amec Foster Wheeler, Asheville
Date: August 17, 2015

Analyte Comments:

QC Batch: MSV/32985

E: Analyte concentration exceeded the calibration range. The reported result is estimated.
- MSD (Lab ID: 1534098)
  - Trichloroethene

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Sample: TB-04 **Lab ID: 92263154001** Collected: 08/11/15 00:00 Received: 08/12/15 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		08/14/15 16:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		08/14/15 16:04	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		08/14/15 16:04	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		08/14/15 16:04	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		08/14/15 16:04	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		08/14/15 16:04	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		08/14/15 16:04	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Sample: FD-05 **Lab ID: 92263154002** Collected: 08/12/15 00:00 Received: 08/12/15 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**0.80J**	ug/L	1.0	0.19	1		08/14/15 16:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		08/14/15 16:21	156-60-5	
Trichloroethene	**992**	ug/L	10.0	4.7	10		08/17/15 02:27	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		08/14/15 16:21	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		08/14/15 16:21	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		08/14/15 16:21	17060-07-0	
Toluene-d8 (S)	97	%	70-130		1		08/14/15 16:21	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Sample: GW-82-19 **Lab ID: 92263154003** Collected: 08/11/15 16:15 Received: 08/12/15 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		08/14/15 19:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		08/14/15 19:27	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		08/14/15 19:27	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		08/14/15 19:27	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		08/14/15 19:27	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130		1		08/14/15 19:27	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		08/14/15 19:27	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Sample: GW-82-49 **Lab ID: 92263154004** Collected: 08/12/15 09:00 Received: 08/12/15 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**1.5**	ug/L	1.0	0.19	1		08/14/15 19:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		08/14/15 19:44	156-60-5	
Trichloroethene	**54.5**	ug/L	1.0	0.47	1		08/14/15 19:44	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		08/14/15 19:44	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		08/14/15 19:44	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		08/14/15 19:44	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		08/14/15 19:44	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Sample: GW-83-23 **Lab ID: 92263154005** Collected: 08/12/15 11:00 Received: 08/12/15 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**0.59J**	ug/L	1.0	0.19	1		08/14/15 20:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		08/14/15 20:01	156-60-5	
Trichloroethene	**14.3**	ug/L	1.0	0.47	1		08/14/15 20:01	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		08/14/15 20:01	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		08/14/15 20:01	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130		1		08/14/15 20:01	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		08/14/15 20:01	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Sample: GW-83-49 **Lab ID: 92263154006** Collected: 08/12/15 11:50 Received: 08/12/15 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.19	1		08/14/15 20:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.49	1		08/14/15 20:18	156-60-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		08/14/15 20:18	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		08/14/15 20:18	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	101	%	70-130		1		08/14/15 20:18	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130		1		08/14/15 20:18	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		08/14/15 20:18	2037-26-5	

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Sample: GW-84-18 **Lab ID: 92263154007** Collected: 08/12/15 14:50 Received: 08/12/15 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	**135**	ug/L	1.0	0.19	1		08/14/15 20:35	156-59-2	
trans-1,2-Dichloroethene	**0.89J**	ug/L	1.0	0.49	1		08/14/15 20:35	156-60-5	
Trichloroethene	**14800**	ug/L	200	94.0	200		08/17/15 03:01	79-01-6	
Vinyl chloride	ND	ug/L	1.0	0.62	1		08/14/15 20:35	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		1		08/14/15 20:35	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		08/14/15 20:35	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		08/14/15 20:35	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Sample: GW-84-38 **Lab ID: 92263154008** Collected: 08/12/15 15:15 Received: 08/12/15 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	10.0	1.9	10		08/17/15 03:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	10.0	4.9	10		08/17/15 03:18	156-60-5	
Trichloroethene	**793**	ug/L	10.0	4.7	10		08/17/15 03:18	79-01-6	M1
Vinyl chloride	ND	ug/L	10.0	6.2	10		08/17/15 03:18	75-01-4	
Surrogates									
4-Bromofluorobenzene (S)	102	%	70-130		10		08/17/15 03:18	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-130		10		08/17/15 03:18	17060-07-0	
Toluene-d8 (S)	100	%	70-130		10		08/17/15 03:18	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

QC Batch: MSV/32985 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92263154001, 92263154002, 92263154003, 92263154004, 92263154005, 92263154006, 92263154007, 92263154008

METHOD BLANK: 1534095 Matrix: Water
Associated Lab Samples: 92263154001, 92263154002, 92263154003, 92263154004, 92263154005, 92263154006, 92263154007, 92263154008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,2-Dichloroethene	ug/L	ND	1.0	08/14/15 12:42	
trans-1,2-Dichloroethene	ug/L	ND	1.0	08/14/15 12:42	
Trichloroethene	ug/L	ND	1.0	08/14/15 12:42	
Vinyl chloride	ug/L	ND	1.0	08/14/15 12:42	
1,2-Dichloroethane-d4 (S)	%	94	70-130	08/14/15 12:42	
4-Bromofluorobenzene (S)	%	104	70-130	08/14/15 12:42	
Toluene-d8 (S)	%	100	70-130	08/14/15 12:42	

LABORATORY CONTROL SAMPLE: 1534096

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/L	50	48.3	97	70-131	
trans-1,2-Dichloroethene	ug/L	50	51.6	103	70-130	
Trichloroethene	ug/L	50	45.7	91	70-130	
Vinyl chloride	ug/L	50	48.6	97	50-150	
1,2-Dichloroethane-d4 (S)	%			92	70-130	
4-Bromofluorobenzene (S)	%			107	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1534097 1534098

Parameter	Units	92263154008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
cis-1,2-Dichloroethene	ug/L	ND	20	20	23.0	23.0	115	115	70-130	0	30	
trans-1,2-Dichloroethene	ug/L	ND	20	20	23.4	23.9	117	119	70-130	2	30	
Trichloroethene	ug/L	793	20	20	1070	1090	1370	1460	69-151	2	30	E,M1
Vinyl chloride	ug/L	ND	20	20	22.5	22.7	113	114	70-130	1	30	
1,2-Dichloroethane-d4 (S)	%						97	95	70-130			
4-Bromofluorobenzene (S)	%						103	104	70-130			
Toluene-d8 (S)	%						96	95	70-130			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-C	Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

E	Analyte concentration exceeded the calibration range. The reported result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CTS OF ASHEVILLE 6252120006
Pace Project No.: 92263154

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92263154001	**TB-04**	EPA 8260	MSV/32985		
92263154002	**FD-05**	EPA 8260	MSV/32985		
92263154003	**GW-82-19**	EPA 8260	MSV/32985		
92263154004	**GW-82-49**	EPA 8260	MSV/32985		
92263154005	**GW-83-23**	EPA 8260	MSV/32985		
92263154006	**GW-83-49**	EPA 8260	MSV/32985		
92263154007	**GW-84-18**	EPA 8260	MSV/32985		
92263154008	**GW-84-38**	EPA 8260	MSV/32985		

Pace Analytical www.pacelabs.com	Document Name: **Sample Condition Upon Receipt (SCUR)**	Document Revised: May 15, 2015 Page 1 of 2*
	Document No.: F-ASV-CS-003-rev.14	Issuing Authorities: Pace Asheville Quality Office

Client Name: Amec

* Page 2 of 2 is for Internal Use Only

Courier (Circle): Fed Ex UPS USPS Client Commercial Pace Other_____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun#3 -130265963 **Type of Ice:** Wet Blue None ☑ Samples on ice, cooling process has begun

IR Gun #4 SN:140290365 Other:_____

Temp Correction Factor: Add / Subtract 0.0 C

Corrected Cooler Temp.: 4.9 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C **Comments:**

Date and initials of person examining contents: RDB 8/12/15

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☑No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☑No ☐N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted:_____ Date/Time:_____

Comments/ Resolution:_____

SCURF Review: JD Date: 8/13/15

SRF Review: JH Date: 8/14/15

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO# : 92263154

92263154

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1899915

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:
Company: AmecFoster Wheeler	Report To: Susan Kelly	Attention: Susan Kelly
Address: 1308 Patton Avenue 1308 Asheville, NC 28806	Copy To:	Company Name: AmecFoster Wheeler
Email To: Susan.kelly@amecfw.com	Purchase Order No.: To be provided	Address: Susan.kelly@amecfw.com
Phone: 8182528130 Fax:	Project Name: CTS of Asheville	Pace Quote Reference:
Requested Due Date/TAT: Std	Project Number: 60252120006	Pace Project Manager: Kevin Godwin
		Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☒ OTHER _____

Site Location STATE: NC

Requested Analysis Filtered (Y/N)

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID (A-Z, 0-9 / -) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	8260B	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 92263154
1	TB-04	WT	G			Lab prep			2				X					X	X		001
2	FD-05	WT	G			8/12/15	00:00		3				X					X	X		002
3	GW-82-19	WT	G			8/11/15	1145		3				X					X	X		003
4	GW-82-49	WT	G			8/12/15	900		3				X					X	X		004
5	GW-83-23	WT	G			8/12/15	1100		3				X					X	X		005
6	GW-83-49	WT	G			8/12/15	1150		3				X					X	X		006
7	GW-84-18	WT	G			8/12/15	1450		3				X					X	X		007
8	GW-84-38	W	G			8/12/15	1515		9				X					X	X		MS/MSD 008
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
*TCE, cis-1,2-DCE, trans-1,2-DCE, § vinyl chloride	Susan Kelly / AmecFW	8/12/15	1700		8/12/15	1700	5.9 / Y / N / Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Susan Kelly

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 8/12/15

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

APPENDIX G

LABORATORY ANALYTICAL REPORTS FOR AMBIENT AIR SAMPLES

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

LABORATORY REPORT

July 20, 2015

Susan Kelly
AMEC Foster Wheeler Environment & Infrastructure Inc.
1308 Patton Ave
Asheville, NC 28806-2604

RE: CTS of Asheville, Inc / 6252120006

Dear Susan:

Tier III
Enclosed are the results of the samples submitted to our laboratory on June 26, 2015. For your reference, these analyses have been assigned our service request number P1502595.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

Kate Aguilera

By Kate Aguilera at 9:43 am, Jul 20, 2015

Kate Aguilera
Project Manager

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

Client: AMEC Foster Wheeler Environment & Infrastructure Inc. Service Request No: P1502595
Project: CTS of Asheville, Inc / 6252120006

CASE NARRATIVE

The samples were received intact under chain of custody on June 26, 2015 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for selected volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation, however it is not part of the AIHA-LAP accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
F: +1 805 526 7270
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L14-2
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2014025
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	876241
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-001
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-15-6
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272014-4
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: AMEC Foster Wheeler Environment & Infrastructure Inc. Service Request: P1502595

Project ID: CTS of Asheville, Inc / 6252120006

Date Received: 6/26/2015

Time Received: 09:45

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC SIM
TB-10	P1502595-001	Air	6/25/2015	00:00	AS00543	-14.26	3.80	X
FD-25	P1502595-002	Air	6/25/2015	00:00	AS00503	-1.08	3.85	X
AAS-01	P1502595-003	Air	6/25/2015	10:52	AC02084	-1.50	3.69	X
AAS-16	P1502595-004	Air	6/25/2015	11:04	AS00862	-1.43	3.76	X

Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No: 1502595

Company Name & Address (Reporting Information)
Amec Foster Wheeler
1308 Patton Avenue
Asheville, NC 28806

Project Name: CTS of Asheville, Inc

Project Number: 6252120006

Project Manager: Susan Kelly

P.O. # / Billing Information: PO: to be provided
Bill to: susan.kelly@amecfw.com

Phone: 8282528130

Fax: –

Email Address for Result Reporting: susan.kelly@amecfw.com

Sampler (Print & Sign)

ALS Contact: F. Aguilera

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method: TO-15 SIM & site-specific list		Comments e.g. Actual Preservative or specific instructions
TB-10		lab prep		AS00543	N/A	N/A	N/A		X		
FD-25		4/25/15	00:00	AS00503	FCA00927	29	0		X		
AAS-01		4/25/15	1052	AC02084	FCA08705	27.5	0		X		
AAS-16		4/25/15	1104	AS00862	FCA00268	27.5	0		X		

Report Tier Levels - please select

Tier I - Results (Default in not specified) ____ Tier III (Results + QC & Calibration Summaries) ____
Tier II (Results + QC Summaries ____ Tier IV (Date Validation Package) 10% Surcharge X

EDD required YES / No
Type: Excel Units: ____

Chain of Custody Seal: (Circle)
INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP): QAPP

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	4/25/15	1200			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
				4/26/15	0747

Cooler / Blank Temperature ____ °C

5 of 19

ALS Environmental

Sample Acceptance Check Form

Client: AMEC Foster Wheeler Environment & Infrastructure Inc. Work order: P1502595

Project: CTS of Asheville, Inc / 6252120006

Sample(s) received on: 6/26/15 Date opened: 6/26/15 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☒	☐	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? _____ Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1502595-001.01	6.0 L Silonite Can					
P1502595-002.01	6.0 L Silonite Can					
P1502595-003.01	6.0 L Ambient Can					
P1502595-004.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **TB-10** ALS Project ID: P1502595
Client Project ID: **CTS of Asheville, Inc / 6252120006** ALS Sample ID: P1502595-001

Test Code: EPA TO-15 SIM Date Collected: 6 25 15
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: 6 26 15
Analyst: Wida Ang Date Analyzed: 7 6 15
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00543

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg m³	MDL µg m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.025	0.0076	ND	0.0098	0.0030	
156-60-5	trans-1,2-Dichloroethene	ND	0.025	0.0073	ND	0.0063	0.0018	
156-59-2	cis-1,2-Dichloroethene	ND	0.025	0.0092	ND	0.0063	0.0023	
79-01-6	Trichloroethene	ND	0.025	0.0085	ND	0.0047	0.0016	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **FD-25** ALS Project ID: P1502595
Client Project ID: **CTS of Asheville, Inc / 6252120006** ALS Sample ID: P1502595-002

Test Code: EPA TO-15 SIM Date Collected: 6 25 15
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: 6 26 15
Analyst: Wida Ang Date Analyzed: 7 6 15
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00503

Initial Pressure (psig): -1.08 Final Pressure (psig): 3.85

Canister Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg m³	MDL µg m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	**0.11**	0.034	0.010	**0.042**	0.013	0.0040	
156-60-5	trans-1,2-Dichloroethene	**0.015**	0.034	0.0099	**0.0037**	0.0086	0.0025	**J**
156-59-2	cis-1,2-Dichloroethene	**1.5**	0.034	0.013	**0.38**	0.0086	0.0032	
79-01-6	Trichloroethene	**9.7**	0.034	0.012	**1.8**	0.0063	0.0022	**B**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **AAS-01** ALS Project ID: P1502595
Client Project ID: **CTS of Asheville, Inc / 6252120006** ALS Sample ID: P1502595-003

Test Code: EPA TO-15 SIM Date Collected: 6 25 15
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: 6 26 15
Analyst: Wida Ang Date Analyzed: 7 6 15
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC02084
Initial Pressure (psig): -1.50 Final Pressure (psig): 3.69

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg m³	MDL µg m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	**0.11**	0.035	0.011	**0.044**	0.014	0.0041	
156-60-5	trans-1,2-Dichloroethene	**0.016**	0.035	0.010	**0.0041**	0.0088	0.0026	**J**
156-59-2	cis-1,2-Dichloroethene	**1.6**	0.035	0.013	**0.39**	0.0088	0.0032	
79-01-6	Trichloroethene	**9.8**	0.035	0.012	**1.8**	0.0065	0.0022	**B**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
B = Analyte detected in both the sample and associated method blank.

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **AAS-16** ALS Project ID: P1502595
Client Project ID: **CTS of Asheville, Inc / 6252120006** ALS Sample ID: P1502595-004

Test Code: EPA TO-15 SIM — Date Collected: 6/25/15
Instrument ID: Tekmar AUTOCAN/Agilent 5973N/HP6890A/MS19 — Date Received: 6/26/15
Analyst: Wida Ang — Date Analyzed: 7/6/15
Sample Type: 6.0 L Silonite Canister — Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00862
Initial Pressure (psig): -1.43 Final Pressure (psig): 3.76

Canister Dilution Factor: 1.39

CAS #	Compound	**Result µg/m³**	MRL µg/m³	MDL µg/m³	**Result ppbV**	MRL ppbV	MDL ppbV	**Data Qualifier**
75-01-4	Vinyl Chloride	**0.038**	0.035	0.011	**0.015**	0.014	0.0041	
156-60-5	trans-1,2-Dichloroethene	ND	0.035	0.010	ND	0.0088	0.0026	
156-59-2	cis-1,2-Dichloroethene	**0.59**	0.035	0.013	**0.15**	0.0088	0.0032	
79-01-6	Trichloroethene	**3.7**	0.035	0.012	**0.69**	0.0065	0.0022	**B**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
B = Analyte detected in both the sample and associated method blank.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS
Page 1 of 1

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1502595
Client Project ID: **CTS of Asheville, Inc / 6252120006** ALS Sample ID: P150706-MB

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 7 6 15
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

CAS #	Compound	Result $\mu g/m^3$	MRL $\mu g/m^3$	MDL $\mu g/m^3$	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.025	0.0076	ND	0.0098	0.0030	
156-60-5	trans-1,2-Dichloroethene	ND	0.025	0.0073	ND	0.0063	0.0018	
156-59-2	cis-1,2-Dichloroethene	ND	0.025	0.0092	ND	0.0063	0.0023	
79-01-6	Trichloroethene	**0.021**	0.025	0.0085	**0.0039**	0.0047	0.0016	**J**

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Project ID: **CTS of Asheville, Inc / 6252120006** ALS Project ID: P1502595

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date(s) Collected: 6 25 15
Analyst: Wida Ang Date(s) Received: 6 26 15
Sample Type: 6.0 L Summa Canister(s) Date(s) Analyzed: 7 6 15
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P150706-MB	**103**	**107**	**95**	70-130	
Lab Control Sample	P150706-LCS	**104**	**103**	**97**	70-130	
TB-10	P1502595-001	**103**	**107**	**96**	70-130	
FD-25	P1502595-002	**96**	**104**	**112**	70-130	
AAS-01	P1502595-003	**97**	**105**	**111**	70-130	
AAS-16	P1502595-004	**98**	**107**	**109**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1502595
Client Project ID: **CTS of Asheville, Inc / 6252120006** ALS Sample ID: P150706-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 7 6 15
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.04	**4.55**	**113**	64-118	
156-60-5	trans-1,2-Dichloroethene	4.24	**4.51**	**106**	70-115	
156-59-2	cis-1,2-Dichloroethene	4.28	**4.67**	**109**	72-115	
79-01-6	Trichloroethene	4.16	**4.13**	**99**	70-112	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Project ID: **CTS of Asheville, Inc / 6252120006** ALS Project ID: P1502595

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Lab File ID: 07061503.D
Analyst: Wida Ang Date Analyzed: 7 6 15
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 12:49
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P150706-LCS	07061504.D	13:20
TB-10	P1502595-001	07061510.D	17:34
FD-25	P1502595-002	07061515.D	20:11
AAS-01	P1502595-003	07061516.D	20:42
AAS-16	P1502595-004	07061517.D	21:14

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**

Client Project ID: **CTS of Asheville, Inc / 6252120006** ALS Project ID: P1502595

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM

Instrument ID: Tekmar AUTOCAN Agilent 5975Cinert 7890A MS19 Lab File ID: 07061502.D

Analyst: Wida Ang Date Analyzed: 7 6 15

Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 12:05

Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	17730	9.75	92943	11.71	14847	16.06
	Upper Limit	24822	10.08	130120	12.04	20786	16.39
	Lower Limit	10638	9.42	55766	11.38	8908	15.73
	Client Sample ID						
01	Method Blank	17467	9.76	86767	11.71	14370	16.06
02	Lab Control Sample	16904	9.75	89002	11.71	14357	16.06
03	TB-10	18211	9.76	92117	11.71	15462	16.06
04	FD-25	22536	9.75	118493	11.71	19349	16.06
05	AAS-01	21829	9.75	114233	11.71	18776	16.06
06	AAS-16	21285	9.75	109500	11.71	18986	16.06
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Response Factor Report MS19

Method Path : I:\MS19\METHODS\
Method File : S19060515.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Sat Jun 06 08:46:20 2015
Response Via : Initial Calibration

Calibration Files
10 =06051503.D 20 =06051504.D 50 =06051505.D 100 =06051506.D 500 =06051507.D 2000=06051508.D 5000=06051509.D
10K =06051510.D 20K =06051511.D 50K =06051512.D

		Compound	10	20	50	100	500	2000	5000	10K	20K	50K	Avg	%RSD
1)	I	Bromochloromethane...	----------	ISTD	----------									
2)	T	Dichlorodifluo...	3.046	3.190	2.936	2.729	2.834	2.562	2.387	2.358	2.518	2.456	2.702	10.76
3)	T	Chloromethane	0.837	1.042	0.810	0.732	0.715	0.558	0.545	0.462	0.561	0.534	0.680	26.54
4)	T	1,2-Dichloro,1...	3.021	3.196	2.965	2.705	2.832	2.596	2.419	2.343	2.487	2.474	2.704	10.68
5)	T	Vinyl Chloride	2.984	2.960	2.765	2.543	2.653	2.441	2.287	2.217	2.376	2.312	2.554	10.86
6)	T	1,3-Butadiene	1.079	1.169	1.077	1.019	1.615	1.516	1.571	1.564	1.515	1.803	1.393	19.98
7)	T	Bromomethane	1.290	1.299	1.118	1.015	1.059	0.905	0.891	0.880	0.987	0.966	1.041	14.71
8)	T	Chloroethane	0.777	0.842	0.773	0.714	0.751	0.710	0.665	0.656	0.697	0.669	0.726	8.24
9)	T	Acrolein			0.604	0.527	0.470	0.436	0.426	0.428	0.436	0.416	0.468	14.02
10)	T	Acetone				0.850	0.638	0.591	0.606	0.611	0.745	0.758	0.686	14.43
11)	T	Trichlorofluor...	2.022	2.205	1.979	1.825	1.909	1.740	1.674	1.674	1.791	1.760	1.858	9.18
12)	T	1,1-Dichloroet...	1.159	1.130	1.089	0.990	1.045	0.976	0.974	0.984	1.064	1.050	1.046	6.31
13)	T	Methylene Chlo...			1.331	1.196	1.138	1.025	1.005	0.989	1.050	1.008	1.093	11.02
14)	T	Trichlorotrifl...	1.166	1.194	1.062	0.985	1.011	0.931	0.933	0.931	1.066	1.141	1.042	9.61
15)	T	trans-1,2-Dich...	1.122	1.166	1.206	1.099	1.139	1.074	1.055	1.075	1.160	1.154	1.125	4.33
16)	T	1,1-Dichloroet...	2.013	2.182	2.039	1.921	2.008	1.851	1.784	1.752	1.862	1.833	1.924	6.96
17)	T	Methyl tert-Bu...	2.998	3.133	2.908	2.746	3.139	3.120	3.206	3.193	3.442	3.433	3.132	6.84
18)	T	cis-1,2-Dichlo...	1.149	1.356	1.229	1.137	1.184	1.125	1.132	1.119	1.212	1.201	1.184	6.08
19)	T	Chloroform			2.520	2.123	2.090	1.919	1.854	1.797	1.931	1.898	2.016	11.48
20)	S	1,2-Dichloroet...	1.789	1.827	1.868	1.879	1.903	1.876	1.778	1.716	1.663	1.585	1.788	5.88
21)	T	1,2-Dichloroet...	1.586	1.716	1.601	1.504	1.608	1.495	1.434	1.380	1.473	1.439	1.524	6.69
22)	T	1,1,1-Trichlor...	2.023	2.153	1.972	1.843	1.960	1.840	1.808	1.780	1.928	1.931	1.924	5.84
23)	T	Benzene		5.563	4.687	4.262	4.361	4.126	4.012	3.962	4.296	4.332	4.400	11.04
24)	T	Carbon Tetrach...	1.814	1.662	1.514	1.404	1.534	1.479	1.489	1.471	1.611	1.641	1.562	7.72
25)	I	1,4-Difluorobenzen...	----------	ISTD	----------									
26)	T	1,2-Dichloropr...	0.226	0.232	0.217	0.201	0.208	0.193	0.189	0.186	0.203	0.207	0.206	7.38
27)	T	Bromodichlorom...	0.319	0.336	0.313	0.290	0.301	0.287	0.286	0.286	0.321	0.348	0.309	7.20
28)	T	Trichloroethene	0.303	0.320	0.284	0.253	0.254	0.229	0.229	0.226	0.258	0.277	0.263	12.23
29)	T	1,4-Dioxane		0.179	0.168	0.158	0.165	0.163	0.185	0.185	0.196	0.212	0.179	9.85
30)	T	cis-1,3-Dichlo...	0.285	0.295	0.281	0.266	0.293	0.297	0.308	0.315	0.356	0.387	0.308	11.91
31)	T	trans-1,3-Dich...	0.242	0.256	0.237	0.220	0.255	0.267	0.283	0.290	0.323	0.337	0.271	13.81
32)	T	1,1,2-Trichlor...	0.199	0.206	0.187	0.173	0.180	0.168	0.168	0.166	0.182	0.188	0.182	7.40
33)	S	Toluene-d8 (SS2)	0.895	0.908	0.907	0.903	0.889	0.894	0.891	0.895	0.894	0.891	0.897	0.77
34)	T	Toluene	1.046	1.014	0.912	0.831	0.845	0.815	0.825	0.839	0.934	0.994	0.905	9.65
35)	T	Dibromochlorom...	0.220	0.228	0.210	0.196	0.213	0.212	0.223	0.228	0.261	0.275	0.226	10.62
36)	T	1,2-Dibromoethane	0.232	0.236	0.221	0.207	0.221	0.215	0.223	0.223	0.248	0.255	0.228	6.54
37)	T	Tetrachloroethene	0.280	0.294	0.255	0.232	0.239	0.223	0.230	0.235	0.276	0.312	0.258	12.01
38)	I	Chlorobenzene-d5 (...	----------	ISTD	----------									
39)	T	Chlorobenzene	3.966	4.117	3.646	3.308	3.419	3.231	3.456	3.466	3.746		3.595	8.33
40)	T	Ethylbenzene	5.721	5.574	5.082	4.726	5.365	5.562	6.053	6.197	6.632		5.657	10.27
41)	T	m,p-Xylene	4.249	4.176	3.742	3.591	4.427	4.611	4.987	5.109	5.619		4.501	14.58

WJA 6/6/15

Method Path : I:\MS19\METHODS\
Method File : S19060515.M
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)

42)	T	Styrene	2.541	2.390	2.282	2.285	3.016	3.310	3.795	3.918	4.171	3.079	24.36
43)	T	o-Xylene	2.108	2.043	1.905	1.859	2.259	2.319	2.539	2.590	2.792	2.268	14.19
44)	T	1,1,2,2-Tetrac...	1.837	1.912	1.837	1.774	2.042	2.113	2.319	2.369	2.552	2.084	13.21
45)	S	Bromofluoroben...	1.966	1.929	1.904	1.917	2.040	2.134	2.266	2.272	2.228	2.073	7.45
46)	T	1,3,5-Trimethy...	3.864	3.780	3.662	3.610	4.884	5.074	5.657	5.903	6.209	4.738	21.90
47)	T	1,2,4-Trimethy...	3.741	3.606	3.476	3.481	4.753	5.185	5.931	6.348	7.146	4.852	28.55
48)	T	1,3-Dichlorobe...	2.764	2.683	2.478	2.309	2.715	2.789	3.146	3.321	3.629	2.870	14.58
49)	T	1,4-Dichlorobe...	2.802	2.740	2.524	2.380	2.773	2.863	3.265	3.440	3.702	2.943	14.79
50)	T	1,2-Dichlorobe...	2.658	2.621	2.434	2.236	2.618	2.751	3.136	3.338	3.739	2.837	16.77
51)	T	1,2-Dibromo-3-...		0.401	0.404	0.422	0.620	0.771				0.524	31.70
52)	T	1,2,4-Trichlor...	1.479	1.123	1.075	1.022	1.329	1.472	1.974	2.092		1.446	27.84
53)	T	Naphthalene	5.506	2.831	2.875	2.814	4.893	5.686				4.101	34.29
54)	T	Hexachlorobuta...	1.049	0.956	0.884	0.791	0.893	0.922	1.105			0.943	11.20

(#) = Out of Range

WA 6/6/15

Evaluate Continuing Calibration Report

Data File I MS19 DATA 2015_07 06 0706l502 D
Acq On 6 Jul 2015 12 05 Operator WA
Sample CCV S19070615_500pg
Misc S29-06231506 S29-06171506 (7 11)
ALS Vial 14 Sample Multiplier 1

Quant Time Jul 06 12 51 55 2015
Quant Method I MS19 METHODS S19060515 M
Quant Title EPA TO-15 per SOP V0A-T015 (CAS2 TO-15 QC-MS)
QLast Update Sat Jun 06 08 46 20 2015
Response via Initial Calibration
DataAcq Meth TO15IM M

Min RRF 0 000 Min Rel Area 50% Max R T Dev 0 33min WA 7/6/15
Max RRF Dev 30% Max Rel Area 200%

		Compound	AvgRF	CCRF	%Dev Area%	Dev(min)
1	I	Bromochloromethane (IS1)	1 000	1 000	0 0	139 -0 03
2	T	Dichlorodifluoromethane (CF	0 702	0 782	-3 0	137 0 02
3	T	Chloromethane	0 680	0 674	0 9	131 0 02
4	T	1,2-Dichloro-1,1,2,2-tetrac	0 704	0 861	-5 8	141 0 02
5	T	Vinyl Chloride	0 554	0 630	-3 0	138 0 02
6	T	1,3-Butadiene	1 393	1 561	-12 1	135 0 01
7	T	Bromomethane	1 041	1 049	-0 8	138 0 00
8	T	Chloroethane	0 726	0 736	-1 4	136 0 01
9	T	Acrolein	0 468	0 500	-6 8	148 -0 01
10	T	Acetone	0 686	0 761	-10 9	166 -0 02
11	T	Trichlorofluoromethane	1 858	1 921	-3 4	140 0 00
12	T	1,1-Dichloroethene	1 046	1 061	-1 4	141 0 00
13	T	Methylene Chloride	1 093	1 183	-8 7	139 -0 03
14	T	Trichlorotrifluoroethane	1 042	1 088	-4 4	143 0 00
15	T	trans-1,2-Dichloroethene	1 125	1 178	-4 7	144 -0 02
16	T	1,1-Dichloroethane	1 924	2 004	-4 2	139 -0 03
17	T	Methyl tert-Butyl Ether	3 132	3 299	-5 3	146 0 00
18	T	cis-1,2-Dichloroethene	1 184	1 233	-4 1	145 -0 02
19	T	Chloroform	2 016	2 114	-4 8	148 -0 03
20	S	1,2-Dichloroethane-d4 (SS1)	1 788	1 812	-1 3	138 -0 03
21	T	1,2-Dichloroethane	1 924	1 902	-5 1	139 -0 02
22	T	1,1,1-Trichloroethane	1 924	2 014	-4 7	143 -0 02
23	T	Benzene	4 400	4 435	-0 8	142 -0 02
24	T	Carbon Tetrachloride	1 562	1 598	-2 3	145 -0 02
25	I	1,4-Difluorobenzene (IS2)	1 000	1 000	0 0	138 -0 02
26	T	1,2-Dichloropropane	0 206	0 209	-1 5	138 -0 01
27	T	Bromodichloromethane	0 309	0 307	0 5	141 -0 02
28	T	Trichloroethene	0 263	0 241	8 4	131 -0 01
29	T	1,4-Dioxane	0 179	0 182	-1 7	152 0 00
30	T	cis-1,3-Dichloropropene	0 306	0 314	-1 9	148 0 00
31	T	trans-1,3-Dichloropropene	0 271	0 282	-4 1	153 0 00
32	T	1,1,2-Trichloroethane	0 182	0 181	0 5	140 0 00
33	S	Toluene-d8 (SS2)	0 897	0 904	-0 8	144 0 00
34	T	Toluene	0 905	0 877	3 1	144 -0 01
35	T	Dibromochloromethane	0 226	0 226	1 3	144 0 00
36	T	1,2-Dibromoethane	0 228	0 227	0 4	143 0 00
37	T	Tetrachloroethene	0 256	0 248	3 9	144 0 00
38	I	Chlorobenzene-d5 (IS3)	1 000	1 000	0 0	135 0 00
39	T	Chlorobenzene	3 595	3 653	-1 6	144 0 00
40	T	Ethylbenzene	5 657	5 913	-4 5	142 0 00
41	T	m,p-Xylene	4 501	4 784	-6 3	146 0 00
42	T	Styrene	3 079	3 119	-1 3	140 0 00
43	T	o-Xylene	2 968	4 431	-7 5	146 0 00
44	T	1,1,2,2-Tetrachloroethane	0 084	0 366	-13 5	157 0 00
45	S	Bromofluorobenzene (SS3)	0 073	0 076	-0 1	138 0 00
46	T	1,3,5-Trimethylbenzene	4 738	5 135	-8 4	142 0 00
47	T	1,2,4-Trimethylbenzene	4 852	5 228	-7 7	142 0 00
48	T	1,3-Dichlorobenzene	3 870	3 863	0 2	143 0 00
49	T	1,4-Dichlorobenzene	3 943	3 988	-1 2	143 0 00
50	T	1,2-Dichlorobenzene	3 837	3 749	2 3	142 0 00
51	T	1,2-Dibromo-3-chloropropane	0 524	0 799	-52 5#	174 0 00
52	T	1,2,4-Trichlorobenzene	1 446	1 525	-5 5	155 0 00
53	T	Naphthalene	4 101	5 650	-37 8#	156 0 00

Evaluate Continuing Calibration Report

Data File: J:\MS19\DATA\2015_07\06\07061502.D
Acq On: 6 Jul 2015 12:05 Operator: WA
Sample: CCV,S19070615_500pg
Misc: SS9-06231506,SS9-06171506,c7,11,
ALS Vial: 14 Sample Multiplier: 1

Quant Time: Jul 06 12:51:55 2015
Quant Method: I:\MS19\METHODS\S19060515.M
Quant Title: EPA TO-15 per SOP V0A-T015 (CAS: TO-15 GC-MS)
QLast Update: Sat Jun 06 08:46:20 2015
Response via: Initial Calibration
DataAcq Meth: TO15SIM.M

Min. RRF: 0.000 Min. Rel. Area: 50% Max. R.T. Dev: 0.33min
Max. RRF Dev: 30% Max. Rel. Area: 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
54 T	Hexachlorobutadiene	0.943	0.949	-0.6	144	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

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LABORATORY REPORT

August 25, 2015

Susan Kelly
AMEC Foster Wheeler Environment & Infrastructure Inc.
1308 Patton Ave
Asheville, NC 28806-2604

RE: CTS of Asheville / 6252-12-0006

Dear Susan:

Enclosed are the results of the samples submitted to our laboratory on August 6, 2015. For your reference, these analyses have been assigned our service request number P1503213.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental

By Sue Anderson at 4:30 pm, Aug 25, 2015

For Kate Aguilera
Project Manager

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Simi Valley, CA 93065
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www.alsglobal.com

Client: AMEC Foster Wheeler Environment & Infrastructure Inc. Service Request No: P1503213
Project: CTS of Asheville / 6252-12-0006

CASE NARRATIVE

The samples were received intact under chain of custody on August 6, 2015 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed in SIM mode for selected volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation, however it is not part of the AIHA-LAP accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The canisters were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

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www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
AIHA	http://www.aihaaccreditedlabs.org	101661
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0694
DoD ELAP	http://www.pjlabs.com/search-accredited-labs	L14-2
Florida DOH (NELAP)	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E871020
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/labcert.htm	2014025
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	876241
New Jersey DEP (NELAP)	http://www.nj.gov/dep/oqa/	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-001
Pennsylvania DEP	http://www.depweb.state.pa.us/labs	68-03307 (Registration)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704413-15-6
Utah DOH (NELAP)	http://www.health.utah.gov/lab/labimp/certification/index.html	CA016272015-5
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946

Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.

Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: AMEC Foster Wheeler Environment & Infrastructure Inc. Service Request: P1503213

Project ID: CTS of Asheville / 6252-12-0006

Date Received: 8/6/2015

Time Received: 09:45

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	TO-15 - VOC SIM
TB-13	P1503213-001	Air	8/5/2015	00:00	AS00788	-14.23	4.07	X
FD-27	P1503213-002	Air	8/5/2015	00:00	AC00722	-0.66	3.65	X
AAS-17	P1503213-003	Air	8/5/2015	08:58	AS00786	-1.69	3.75	X
AAS-18	P1503213-004	Air	8/5/2015	09:15	AS00696	-2.36	3.97	X
AAS-19	P1503213-005	Air	8/5/2015	09:57	AS00798	-0.87	3.89	X

Air - Chain of Custody Record & Analytical Service Request

Page 1 of 1

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10-Day-Standard

ALS Project No: P1503213

Company Name & Address (Reporting Information)	Amec Foster Wheeler 1308 Patton Ave Asheville NC 28806
Project Name	CTS of Asheville
Project Number	6252-12-0006
Project Manager	S. Kelly
P.O. # / Billing Information	invoice to: susan.kelly@amecfw.com PO: C012504848
Phone	8282528130
Fax	
Email Address for Result Reporting	susan.kelly@amecfw.com
Sampler (Print & Sign)	Susan Kelly
ALS Contact:	R. Aguilera

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	Analysis Method: TO-15 SIM* with 24hr specific list	Comments e.g. Actual Preservative or specific instructions
TB-13	1	lab prep			N/A	N/A	N/A		X	
FD-27	2	8/5/15	00:00	AC00722	FLA00253	30	2		X	
AAS-17	3	8/5/15	0858	AS00786	FLA00787	27.5	3		X	
AAS-18	4	8/5/15	0915	AS00696	FLA00347	28	4		X	
AAS-19	5	8/5/15	0857	AS00798	FLS0085	23.5	1		X	

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Report Tier Levels - please select

Tier I - Results (Default in not specified) ____ Tier III (Results + QC & Calibration Summaries) ____
Tier II (Results + QC Summaries ____ Tier IV (Data Validation Package) 10% Surcharge X

EDD required YES / No
Type: Excel Units: ____

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date: 8/5/15	Time: 1300	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date: 8/6/15	Time: 0914

Cooler / Blank Temperature ____ °C

ALS Environmental

Sample Acceptance Check Form

Client: AMEC Foster Wheeler Environment & Infrastructure Inc. Work order: P1503213

Project: CTS of Asheville / 6252-12-0006

Sample(s) received on: 8/6/15 Date opened: 8/6/15 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by ALS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Were **chain-of-custody** papers used and filled out?	☒	☐	☐
5	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
6	Was **sample volume** received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
9	Was a **trip blank** received?	☒	☐	☐
10	Were **custody seals** on outside of cooler/Box?	☒	☐	☐
	Location of seal(s)? _____ Sealing Lid?	☒	☐	☐
	Were signature and date included?	☒	☐	☐
	Were seals intact?	☒	☐	☐
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
11	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
12	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
13	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1503213-001.01	6.0 L Silonite Can					
P1503213-002.01	6.0 L Ambient Can					
P1503213-003.01	6.0 L Silonite Can					
P1503213-004.01	6.0 L Silonite Can					
P1503213-005.01	6.0 L Silonite Can					

Explain any discrepancies: (include lab sample ID numbers): _____

RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **TB-13** ALS Project ID: P1503213
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Sample ID: P1503213-001

Test Code: EPA TO-15 SIM Date Collected: 8 5 15
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: 8 6 15
Analyst: Wida Ang Date Analyzed: 8 13 15
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00788

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg m³	MDL µg m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.025	0.0076	ND	0.0098	0.0030	
156-60-5	trans-1,2-Dichloroethene	ND	0.025	0.0073	ND	0.0063	0.0018	
156-59-2	cis-1,2-Dichloroethene	ND	0.025	0.0092	ND	0.0063	0.0023	
79-01-6	Trichloroethene	ND	0.025	0.0085	ND	0.0047	0.0016	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **FD-27** ALS Project ID: P1503213
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Sample ID: P1503213-002

Test Code: EPA TO-15 SIM Date Collected: 8 5 15
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: 8 6 15
Analyst: Wida Ang Date Analyzed: 8 13 15
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00722

Initial Pressure (psig): -0.66 Final Pressure (psig): 3.65

Canister Dilution Factor: 1.31

CAS #	Compound	Result µg/m³	MRL µg m³	MDL µg m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	**0.045**	0.033	0.010	**0.018**	0.013	0.0039	
156-60-5	trans-1,2-Dichloroethene	**0.011**	0.033	0.0096	**0.0027**	0.0083	0.0024	**J**
156-59-2	cis-1,2-Dichloroethene	**0.70**	0.033	0.012	**0.18**	0.0083	0.0030	
79-01-6	Trichloroethene	**6.6**	0.033	0.011	**1.2**	0.0061	0.0021	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **AAS-17** ALS Project ID: P1503213
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Sample ID: P1503213-003

Test Code: EPA TO-15 SIM Date Collected: 8 5 15
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: 8 6 15
Analyst: Wida Ang Date Analyzed: 8 13 15
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00786

Initial Pressure (psig): -1.69 Final Pressure (psig): 3.75

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg m³	MDL µg m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	**0.13**	0.036	0.011	**0.050**	0.014	0.0042	
156-60-5	trans-1,2-Dichloroethene	**0.034**	0.036	0.010	**0.0085**	0.0090	0.0026	**J**
156-59-2	cis-1,2-Dichloroethene	**2.7**	0.036	0.013	**0.69**	0.0090	0.0033	
79-01-6	Trichloroethene	**13**	0.036	0.012	**2.4**	0.0066	0.0022	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **AAS-18** ALS Project ID: P1503213
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Sample ID: P1503213-004

Test Code: EPA TO-15 SIM Date Collected: 8 5 15
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: 8 6 15
Analyst: Wida Ang Date Analyzed: 8 13 15
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00696

Initial Pressure (psig): -2.36 Final Pressure (psig): 3.97

Canister Dilution Factor: 1.51

CAS #	Compound	Result µg/m³	MRL µg m³	MDL µg m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.038	0.011	ND	0.015	0.0045	
156-60-5	trans-1,2-Dichloroethene	ND	0.038	0.011	ND	0.0095	0.0028	
156-59-2	cis-1,2-Dichloroethene	**0.33**	0.038	0.014	**0.083**	0.0095	0.0035	
79-01-6	Trichloroethene	**0.61**	0.038	0.013	**0.11**	0.0070	0.0024	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **AAS-19** ALS Project ID: P1503213
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Sample ID: P1503213-005

Test Code: EPA TO-15 SIM Date Collected: 8 5 15
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: 8 6 15
Analyst: Wida Ang Date Analyzed: 8 13 15
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AS00798

Initial Pressure (psig): -0.87 Final Pressure (psig): 3.89

Canister Dilution Factor: 1.34

CAS #	Compound	Result µg/m³	MRL µg m³	MDL µg m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	**0.058**	0.034	0.010	**0.023**	0.013	0.0040	
156-60-5	trans-1,2-Dichloroethene	**0.023**	0.034	0.0098	**0.0058**	0.0085	0.0025	**J**
156-59-2	cis-1,2-Dichloroethene	**0.94**	0.034	0.012	**0.24**	0.0085	0.0031	
79-01-6	Trichloroethene	**8.0**	0.034	0.011	**1.5**	0.0062	0.0021	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **Method Blank** ALS Project ID: P1503213
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Sample ID: P150812-MB

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19
Analyst: Wida Ang
Sample Type: 6.0 L Silonite Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 8 12 15
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg m³	MDL µg m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.025	0.0076	ND	0.0098	0.0030	
156-60-5	trans-1,2-Dichloroethene	ND	0.025	0.0073	ND	0.0063	0.0018	
156-59-2	cis-1,2-Dichloroethene	ND	0.025	0.0092	ND	0.0063	0.0023	
79-01-6	Trichloroethene	ND	0.025	0.0085	ND	0.0047	0.0016	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Project ID: P1503213

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date(s) Collected: 8 5 15
Analyst: Wida Ang Date(s) Received: 8 6 15
Sample Type: 6.0 L Summa Canister(s) Date(s) Analyzed: 8 12 - 8 13 15
Test Notes:

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4 % Recovered	Toluene-d8 % Recovered	Bromofluorobenzene % Recovered	Acceptance Limits	Data Qualifier
Method Blank	P150812-MB	**102**	**103**	**107**	70-130	
Lab Control Sample	P150812-LCS	**101**	**99**	**114**	70-130	
TB-13	P1503213-001	**102**	**102**	**106**	70-130	
FD-27	P1503213-002	**101**	**103**	**112**	70-130	
FD-27	P1503213-002DUP	**101**	**103**	**112**	70-130	
AAS-17	P1503213-003	**101**	**103**	**112**	70-130	
AAS-18	P1503213-004	**102**	**104**	**112**	70-130	
AAS-19	P1503213-005	**100**	**102**	**111**	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **Lab Control Sample** ALS Project ID: P1503213
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Sample ID: P150812-LCS

Test Code: EPA TO-15 SIM Date Collected: NA
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: NA
Analyst: Wida Ang Date Analyzed: 8 12 15
Sample Type: 6.0 L Silonite Canister Volume(s) Analyzed: 0.125 Liter(s)
Test Notes:

CAS #	Compound	Spike Amount µg m³	Result µg/m³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	4.00	**3.18**	**80**	64-118	
156-60-5	trans-1,2-Dichloroethene	4.20	**3.56**	**85**	70-115	
156-59-2	cis-1,2-Dichloroethene	4.36	**3.67**	**84**	72-115	
79-01-6	Trichloroethene	4.32	**3.41**	**79**	70-112	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
Reported results are shown in concentration units and as a result of the calculation, may vary slightly.

ALS ENVIRONMENTAL

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Sample ID: **FD-27** ALS Project ID: P1503213
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Sample ID: P1503213-002DUP

Test Code: EPA TO-15 SIM Date Collected: 8 5 15
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Date Received: 8 6 15
Analyst: Wida Ang Date Analyzed: 8 13 15
Sample Type: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC00722
Initial Pressure (psig): -0.66 Final Pressure (psig): 3.65

Canister Dilution Factor: 1.31

CAS #	Compound	Sample Result		Duplicate Sample Result		Average	% RPD	RPD Limit	Data Qualifier
		µg m³	ppbV	µg/m³	ppbV	µg m³			
75-01-4	Vinyl Chloride	0.0447	0.0175	0.0451	0.0177	0.0449	**0.9**	25	
156-60-5	trans-1,2-Dichloroethene	0.0107	0.00271	0.0103	0.00260	0.0105	**4**	25	**J**
156-59-2	cis-1,2-Dichloroethene	0.702	0.177	0.700	0.177	0.701	**0.3**	25	
79-01-6	Trichloroethene	6.58	1.23	6.55	1.22	6.565	**0.5**	25	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Project ID: P1503213

Method Blank Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN Agilent 5973N HP6890A MS19 Lab File ID: 08121533.D
Analyst: Wida Ang Date Analyzed: 8 12 15
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 21:31
Test Notes:

Client Sample ID	ALS Sample ID	Lab File ID	Time Analyzed
Lab Control Sample	P150812-LCS	08121534.D	22:03
TB-13	P1503213-001	08121542.D	02:19
FD-27	P1503213-002	08121543.D	02:51
FD-27 (Lab Duplicate)	P1503213-002DUP	08121544.D	03:22
AAS-17	P1503213-003	08121545.D	03:55
AAS-18	P1503213_004	08121546.D	07:32
AAS-19	P1503213-005	08121547.D	08:04

Client: **AMEC Foster Wheeler Environment & Infrastructure Inc.**
Client Project ID: **CTS of Asheville / 6252-12-0006** ALS Project ID: P1503213

Internal Standard Area and RT Summary

Test Code: EPA TO-15 SIM
Instrument ID: Tekmar AUTOCAN Agilent 5975Cinert 7890A MS19 Lab File ID: 08121532.D
Analyst: Wida Ang Date Analyzed: 8 12 15
Sample Type: 6.0 L Summa Canister(s) Time Analyzed: 20:59
Test Notes:

		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 Hour Standard	23318	9.75	124127	11.71	20492	16.06
	Upper Limit	32645	10.08	173778	12.04	28689	16.39
	Lower Limit	13991	9.42	74476	11.38	12295	15.73
	Client Sample ID						
01	Method Blank	22242	9.76	111894	11.71	19287	16.06
02	Lab Control Sample	22960	9.75	122442	11.71	20318	16.06
03	TB-13	21397	9.76	107937	11.71	18537	16.06
04	FD-27	22281	9.75	116408	11.71	20659	16.06
05	FD-27 (Lab Duplicate)	22697	9.75	118478	11.71	20903	16.06
06	AAS-17	22595	9.75	118178	11.71	20368	16.06
07	AAS-18	22901	9.75	120297	11.71	21336	16.06
08	AAS-19	23066	9.76	120015	11.71	20589	16.06
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area
AREA LOWER LIMIT = 60% of internal standard area
RT UPPER LIMIT = 0.33 minutes of internal standard RT
RT LOWER LIMIT = 0.33 minutes of internal standard RT

# Column used to flag values outside QC limits with an I.
I = Internal standard not within the specified limits. See case narrative.

Quantitation Report (QT Reviewed)

Data File: I:\MS19\DATA\2015_08\12\08121542.D
Acq On: 13 Aug 2015 2:19 Operator: WA
Sample: F150813-001 (1000mL)
Misc: 320-0623506
ALS Vial: 2 Sample Multiplier: 1

Quant Time: Aug 19 11:14:14 2015
Quant Method: I:\MS19\METHODS\S190714I5.M
Quant Title: EPA TO-15 per DOE QSM-TO15 (CAS2 TO-15 QC-MS)
QLast Update: Wed Jul 15 07:17:15 2015
Response via: Initial Calibration
DataAcq Meth: TO15SIM.M

8/19/15

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane (IS1)	9.76	130	21397	1000.000	pg	0.01
25) 1,4-Difluorobenzene (IS2)	11.71	114	107937	1000.000	pg	0.00
38) Chlorobenzene-d5 (IS3)	16.06	54	18537	1000.000	pg	0.00
System Monitoring Compounds						
20) 1,2-Dichloroethane-d4	10.54	65	38940	1016.840	pg	0.00
Spiked Amount 1000.000			Recovery = 101.68%			
33) Toluene-d8 (SS2)	14.15	98	101989	1022.118	pg	0.00
Spiked Amount 1000.000			Recovery = 102.21%			
45) Bromofluorobenzene (SS3)	17.56	174	41119	1057.168	pg	0.00
Spiked Amount 1000.000			Recovery = 105.72%			
Target Compounds						Qvalue
2) Dichlorodifluoromethan	4.45	85	139		II D	
3) Chloromethane	0.00	50	0		II D	d
4) 1,2-Dichloro-1,1,2,2-t	0.00	85	0		II D	
5) Vinyl Chloride	0.00	62	0		II D	
6) 1,3-Butadiene	0.00	54	0		II D	
7) Bromomethane	0.00	94	0		II D	
8) Chloroethane	0.00	64	0		II D	
9) Acrolein	0.00	56	0		II D	
10) Acetone	6.45	58	2194	136.777	pg	90
11) Trichlorofluoromethane	0.00	101	0		II D	
12) 1,1-Dichloroethene	0.00	96	0		II D	
13) Methylene Chloride	7.49	84	624	23.819	pg	94
14) Trichlorotrifluoroethane	0.00	151	0		II D	
15) trans-1,2-Dichloroethene	0.00	96	0		II D	
16) 1,1-Dichloroethane	0.00	63	0		II D	
17) Methyl tert-Butyl Ether	8.74	73	235		II D	
18) cis-1,2-Dichloroethene	0.00	96	0		II D	
19) Chloroform	9.89	83	740	14.685	pg	99
21) 1,2-Dichloroethane	0.00	62	0		II D	
22) 1,1,1-Trichloroethane	0.00	97	0		II D	
23) Benzene	11.37	78	15901	153.070	pg	100
24) Carbon Tetrachloride	0.00	117	0		II D	
26) 1,2-Dichloropropane	0.00	63	0		II D	
27) Bromodichloromethane	0.00	83	0		II D	
28) Trichloroethene	0.00	130	0		II D	
29) 1,4-Dioxane	0.00	88	0		II D	
30) cis-1,3-Dichloropropene	0.00	75	0		II D	
31) trans-1,3-Dichloropropene	0.00	75	0		II D	
32) 1,1,2-Trichloroethane	0.00	83	0		II D	
34) Toluene	14.25	91	1019	9.587	pg	99
35) Dibromochloromethane	0.00	129	0		II D	
36) 1,2-Dibromoethane	0.00	107	0		II D	
37) Tetrachloroethene	0.00	166	0		II D	
39) Chlorobenzene	0.00	112	0		II D	
40) Ethylbenzene	16.49	91	104		II D	
41) m,p-Xylene	16.66	91	193		II D	
42) Styrene	0.00	104	0		II D	
43) o-Xylene	0.00	106	0		II D	
44) 1,1,2,2-Tetrachloroethane	0.00	83	0		II D	
46) 1,3,5-Trimethylbenzene	0.00	105	0		II D	
47) 1,2,4-Trimethylbenzene	18.73	105	111		II D	
48) 1,3-Dichlorobenzene	0.00	146	0		II D	
49) 1,4-Dichlorobenzene	0.00	146	0		II D	
50) 1,2-Dichlorobenzene	0.00	146	0		II D	
51) 1,2-Dibromo-3-chloropr	0.00	157	0		II D	
52) 1,2,4-Trichlorobenzene	0.00	182	0		II D	

Quantitation Report (QT Reviewed)

Data File : I:\MS19\DATA\2015_08\19081542.D
Acq On : 19-Aug-2015 15:42:19 Operator : WA
Sample : P150813-001 (1000mL)
Misc : 220-062315@6
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 19 11:14:14 2015
Quant Method : I:\MS19\METHODS\S190714151.M
Quant Title : EPA TO-15 per DOE VOA-TO15 (CAS: TO-15 GC-MS)
QLast Update : Wed Jul 15 07:17:15 2015
Response via : Initial Calibration
DataAcq Meth : TO15SIM.M

Internal Standards	R.T.	Q.Ion	Response	Conc	Units	Dev(Min)
53) Naphthalene-d8	21.07	128	174			II D
54) Hexachlorobutadiene	0.00	225	0			II D

(#) = qualifier out of range (m) = manual integration (+) = signals summed

APPENDIX H

DATA VALIDATION REPORT FOR AMBIENT AIR SAMPLES (JUNE 2015)

DATA VALIDATION REPORT
Ambient Air Sampling (June 2015)
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Introduction

Air samples were collected at the CTS of Asheville, Inc. Superfund Site (Site) in Asheville, North Carolina in June 2015 and submitted for off-site laboratory analysis. Samples were analyzed by ALS Environmental in Simi Valley, California. Results were reported in Sample Delivery Group (SDG): P1502595.

A listing of samples included in this Data Validation Report is presented in Table H.1. A summary of the analytical results is presented in Table H.2. Samples were analyzed by the following method:

- Volatile organic compounds (VOCs) by USEPA Method TO-15 (project list only)

Deliverables for the off-site laboratory analyses included a Level IV data package.

Data validation was completed based on procedures in the USEPA Region 4 Data Validation Standard Operating Procedures (Region 4 SOP) for Organic Analysis (USEPA, 2008), in conjunction with the laboratory's Method TO-15 Selective Ion Monitoring (SIM) SOP (ALS, 2014) and the CTS of Asheville, Inc. Superfund Site Quality Assurance Project Plan (QAPP), Revision 4 (Amec, 2014). Quality control limits listed in the Region 4 SOP and QAPP were used during the data evaluation. The validation included the following evaluations:

- Lab report narrative
- Sample collection and chain of custody
- Data package completeness
- Holding times
- Quality control data (blanks, instrument tune and calibrations, lab control samples, duplicates, and surrogate recovery)
- Internal standard response and retention time
- Data transcription
- Calculations
- Electronic data reporting
- Data qualification

The following laboratory or data validation qualifiers are used in the final data presentation.

U = target analyte is not detected at the reported detection limit
J = concentration is estimated

All associated quality control measurements were within control limits, and sample data were not qualified as a result of the validation. Results are interpreted to be usable as reported by the laboratory.

Data Validation Results

Several data validation observations are discussed below.

Field Duplicates

A summary of field duplicate results is presented in Table H.3. Good agreement was observed for all target analytes in field duplicate pair AAS-01/FD-25. Relative percent differences (RPDs) between results were less than the QAPP specified control limit of 50.

Sample Reporting

A subset of project-specific TO-15 compounds (cis-1,2-dichloroethene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride) was reported in the data set.

References

Amec, 2014. "Vapor Intrusion Assessment Plan: Quality Assurance Project Plan"; Revision 4, March 14, 2014.

USEPA Region 4, 2008. "Data Validation Standard Operating Procedures for Organic Analysis" Science and Ecosystem Support Division, Quality Assurance Section, MTSB, Revision 3.1.

Data Validator: Julie Ricardi

Julie Ricardi

Date: 7/22/2015

Reviewed by Chris Ricardi, NRCC-EAC

Chris Ricardi

Date: 7/23/2015

TABLE H.1
Data Validation Report: Sample Summary (June 2015)
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

Location	Sample ID	SDG	Sample Date	Lab Sample ID
AAS-01	AAS-01	P1502595	06/25/15	P1502595-003
AAS-01	FD-25	P1502595	06/25/15	P1502595-002
AAS-16	AAS-16	P1502595	06/25/15	P1502595-004
QC	TB-10	P1502595	06/25/15	P1502595-001

Prepared By: WCG 7/22/15
Checked By: JAR 7/22/15

TABLE H.2
Data Validation Report: Summary of Results (June 2015)
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

	Location	AAS-01		AAS-01		AAS-16		QC	
	Sample Date	6/25/2015		6/25/2015		6/25/2015		6/25/2015	
	Field Sample ID	AAS-01		FD-25		AAS-16		TB-10	
Method	**Parameter**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
TO-15 SIM	cis-1,2-Dichloroethene	1.6		1.5		0.59		0.025	U
TO-15 SIM	trans-1,2-Dichloroethene	0.016	J	0.015	J	0.035	U	0.025	U
TO-15 SIM	Trichloroethene	9.8		9.7		3.7		0.025	U
TO-15 SIM	Vinyl chloride	0.11		0.11		0.038		0.025	U

Notes:
1. Concentrations are in micrograms per cubic meter ($\mu g/m^3$).
2. U - constituent not detected at the reporting limit.
3. J - concentration is estimated.

Prepared By: WCG 7/22/15
Checked By: JAR 7/22/15

TABLE H.3
Data Validation Report: Field Duplicate RPD Results (June 2015)
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

Sample ID	Constituent	Field Sample Result	Flag	Duplicate Sample Result	Flag	RPD (%)
AAS-01/FD-25	cis-1,2-Dichloroethene	1.6		1.5		6
AAS-01/FD-25	trans-1,2-Dichloroethene	0.016	J	0.015	J	NC
AAS-01/FD-25	Trichloroethene	9.8		9.7		1
AAS-01/FD-25	Vinyl chloride	0.11		0.11		0

Notes:
1. Concentrations are in micrograms per cubic meter ($\mu g/m^3$).
2. RPD - relative percent difference (between duplicate results).
3. U - constituent not detected at the reported detection limit.
4. J - estimated value
5. NC - not calculated; results non-detect or below RL

Prepared By: JAR 7/22/15
Checked By: CSR 7/23/15

APPENDIX I

DATA VALIDATION REPORT FOR AMBIENT AIR SAMPLES (AUGUST 2015)

DATA VALIDATION REPORT
Ambient Air Sampling (August 2015)
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina

Introduction

Air samples were collected at the CTS of Asheville, Inc. Superfund Site (Site) in Asheville, North Carolina in August 2015 and submitted for off-site laboratory analysis. Samples were analyzed by ALS Environmental in Simi Valley, California. Results were reported in Sample Delivery Group (SDG): P1503213.

A listing of samples included in this Data Validation Report is presented in Table I.1. A summary of the analytical results is presented in Table I.2. Samples were analyzed by the following method:

- Volatile organic compounds (VOCs) by USEPA Method TO-15 (project list only)

Deliverables for the off-site laboratory analyses included a Level IV data package.

Data validation was completed based on procedures in the USEPA Region 4 Data Validation Standard Operating Procedures (Region 4 SOP) for Organic Analysis (USEPA, 2008), in conjunction with the laboratory's Method TO-15 Selective Ion Monitoring (SIM) SOP (ALS, 2014) and the CTS of Asheville, Inc. Superfund Site Quality Assurance Project Plan (QAPP), Revision 4 (Amec, 2014). Quality control limits listed in the Region 4 SOP and QAPP were used during the data evaluation. The validation included the following evaluations:

- Lab report narrative
- Sample collection and chain of custody
- Data package completeness
- Holding times
- Quality control data (blanks, instrument tune and calibrations, lab control samples, duplicates, and surrogate recovery)
- Internal standard response and retention time
- Data transcription
- Calculations
- Electronic data reporting
- Data qualification

The following laboratory or data validation qualifiers are used in the final data presentation.

U = target analyte is not detected at the reported detection limit
J = concentration is estimated

Results are interpreted to be usable as reported by the laboratory unless discussed in the following sections.

Data Validation Results

Several data validation observations are discussed below.

Continuing Calibration
In the continuing calibration standard associated with all samples, the percent difference between the initial calibration average relative response factor (RRF) and continuing calibration RRF for vinyl chloride (20.4) was above the control limit of 20. Positive and non-detected results for vinyl chloride in all samples were qualified estimated (J/UJ). Qualified results are summarized in Table I.3 and were assigned qualification reason code CCV%D.

Field Duplicates
A summary of field duplicate results is presented in Table I.4. Good agreement was observed for all target analytes in field duplicate pair AAS-19/FD-27. Relative percent differences (RPDs) between results were less than the QAPP specified control limit of 50.

Sample Reporting
A subset of project-specific TO-15 compounds (cis-1,2-dichloroethene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride) was reported in the data set.

References

Amec, 2012. "Vapor Intrusion Assessment Plan: Quality Assurance Project Plan"; Revision 2, September 11, 2012.

USEPA Region 4, 2008. "Data Validation Standard Operating Procedures for Organic Analysis" Science and Ecosystem Support Division, Quality Assurance Section, MTSB, Revision 3.1.

Data Validator: Julie Ricardi

Julie Ricardi

Date: 9/11/2015

Reviewed by Chris Ricardi, NRCC-EAC

Chris Ricardi

Date: 9/23/2015

TABLE I.1
Data Validation Report: Sample Summary (August 2015)
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

Location	Sample ID	SDG	Sample Date	Lab Sample ID
AAS-17	AAS-17	P1503213	08/05/15	P1503213-003
AAS-18	AAS-18	P1503213	08/05/15	P1503213-004
AAS-19	AAS-19	P1503213	08/05/15	P1503213-005
AAS-19	FD-27	P1503213	08/05/15	P1503213-002
QC	TB-13	P1503213	08/05/15	P1503213-001

Prepared By: WCG 9/10/15
Checked By: JAR 9/10/15

TABLE I.2
Data Validation Report: Summary of Results (August 2015)
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

	Sample Location	AAS-17		AAS-18		AAS-19		AAS-19		QC	
	Sample Date	08/05/15		08/05/15		08/05/15		08/05/15		08/05/15	
	Field Sample ID	AAS-17		AAS-18		AAS-19		FD-27		TB-13	
Method	**Parameter**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
TO-15 SIM	cis-1,2-Dichloroethene	2.7		0.33		0.94		0.7		0.025	U
TO-15 SIM	trans-1,2-Dichloroethene	0.034	J	0.038	U	0.023	J	0.011	J	0.025	U
TO-15 SIM	Trichloroethene	13		0.61		8		6.6		0.025	U
TO-15 SIM	Vinyl chloride	0.13	J	0.038	UJ	0.058	J	0.045	J	0.025	U

Notes:
1. Concentrations are in micrograms per cubic meter ($\mu g/m^3$).
2. U - constituent not detected at the reporting limit.
3. J - concentration is estimated.

Prepared By: WCG9/10/15
Checked By: JAR 9/10/15

TABLE I.3
Data Validation Report: Data Qualification Actions (August 2015)
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

Method	Lab Sample ID	Sample Date	Field Sample ID	Parameter	Laboratory Result	Laboratory Qualifier	Final Result	Final Qualifier	Val Reason Code
TO-15 SIM	P1503213-003	08/05/15	AAS-17	Vinyl chloride	0.13		0.13	J	CCV%D
TO-15 SIM	P1503213-004	08/05/15	AAS-18	Vinyl chloride		U	0.038	UJ	CCV%D
TO-15 SIM	P1503213-005	08/05/15	AAS-19	Vinyl chloride	0.058		0.058	J	CCV%D
TO-15 SIM	P1503213-002	08/05/15	FD-27	Vinyl chloride	0.045		0.045	J	CCV%D

Notes:

1. Concentrations are in micrograms per cubic meter ($\mu g/m^3$).
2. * - Refer to laboratory analytical reports for laboratory qualifiers.

Validation Reason Code

CCV%D = Continuing calibration %D exceeds control limit

Prepared By: WCG 9/10/15
Checked By: JAR 9/10/15

TABLE I.4
Data Validation Report: Field Duplicate RPD Results (August 2015)
CTS of Asheville, Inc. Superfund Site
Asheville, North Carolina
Amec Foster Wheeler Project 6252-12-0006

Sample ID	Constituent	Field Sample Result	Flag	Duplicate Sample Result	Flag	RPD (%)
AAS-19/FD-27	cis-1,2-Dichloroethene	0.94		0.70		29
AAS-19/FD-27	trans-1,2-Dichloroethene	0.023	J	0.011	J	NC
AAS-19/FD-27	Trichloroethene	8.0		6.6		19
AAS-19/FD-27	Vinyl chloride	0.058	J	0.045	J	25

Notes:
1. Concentrations are in micrograms per cubic meter ($\mu g/m^3$).
2. RPD - relative percent difference (between duplicate results).
3. U - constituent not detected at the reported detection limit.
4. J - estimated value
5. NC - not calculated; results non-detect or below RL

Prepared By: JAR 9/9/15
Checked By: CSR 9/23/15