VIA ELECTRONIC MAIL

February 19, 2019

Richelle Hanson, Project Manager
Voluntary Cleanup Program
Maryland Department of the Environment
Land and Materials Administration
1800 Washington Blvd., Suite 625
Baltimore, Maryland 21230

Subject: **Quarterly Status Report No. 9 - Offsite Area**
Former Kop-Flex Facility Site, Hanover, Maryland

Dear Richelle:

On behalf of EMERSUB 16 LLC, a subsidiary of Emerson Electric Co., WSP USA Inc. (WSP) is submitting this quarterly status report describing the investigation and remediation activities conducted in the fourth quarter 2018 in the offsite portion of the Former Kop-Flex Facility Site in Hanover, Maryland. The report also describes the activities planned for the first quarter of 2019. In addition to this electronic version, a hard copy of the status report is being submitted to the Maryland Department of Environment under separate cover.

If you have any questions, please do not hesitate to contact us at 703-709-6500.

Kind regards,

Robert E. Johnson
Senior Technical Manager
Water & Environment

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kK:\Emerson\Kop-Flex\Reporting\Status Reports\MDE Reports\2019\January 2019

Encl.

cc: Mr. Erich Weissbart, U.S. Environmental Protection Agency, Region III
Mr. Stephen Clarke, Emerson Electric Co.
Sheila Harvey, Esquire, Pillsbury Winthrop Shaw Pittman

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QUARTERLY STATUS REPORT NO. 9 – OFFSITE AREA

FORMER KOP-FLEX FACILITY SITE

October 2018 THROUGH December 2018

Site Name:	Former Kop-Flex Facility
Site Address:	7565 Harmans Road Hanover, Maryland 21076
Consultant:	WSP USA Inc.
Address:	13530 Dulles Technology Drive, Suite 300 Herndon, Virginia 20171
Phone No.:	(703) 709-6500
Project Coordinator:	Eric Johnson, WSP USA
Alternate:	Lisa Bryda**,** WSP USA

1.0 Offsite Activities Conducted During October 2018 through December 2018

1.1 Residential Well Sampling

- Pursuant to MDE's request, water samples were collected from the residential well at 1227 Old Camp Meade Road (Figure 1) on the following dates during the reporting period:
  - October 3, 2018
  - November 7, 2018
  - December 6, 2018

  Historical analytical results, including those for the fourth quarter 2018 samples, are summarized in Table 1. Copies of the certified laboratory analytical reports for the October 2018 through December 2018 sampling events are included in Enclosure A.
- As with samples collected in the third quarter 2018, site-related constituents of concern (COCs) were detected in both the untreated and treated water samples, with none of these chemicals present at levels above the applicable groundwater quality criteria (Table 1). In the pre-treatment samples, concentrations of 1,1-DCE ranged from 4.3 micrograms per liter (µg/l) to 5.2 µg/l, while 1,4-dioxane was present at levels between 1.1 µg/l and 2.2 µg/l. The post-treatment water samples for the three events had concentrations of 1,1-DCE ranging from below the reporting limit of 0.5 µg/l to 1.7 µg/l, and 1,4-dioxane concentrations similar to the levels detected in the untreated water (1.2 µg/l to 2.3 µg/l). The data for the 2018 sampling events indicate a general reduction in the concentration of 1,1-DCE in the untreated water through the year, with fluctuating levels in the corresponding treated water (Figure 2). During the same period, the 1,4-dioxane concentrations in both the untreated and treated water exhibit a general increase over the first and second quarters followed by a decreasing trend for the remainder of the year (Figure 3). Trace levels (<1 µg/l) of 1,1,1-trichloroethane (TCA) were also detected in both the treated and untreated samples in November 2018 and December 2018. EMERSUB 16 and WSP have communicated the analytical results for these water samples in writing to the homeowner and MDE.

1.2 Residential Water Service Connection

- The home at 7742 Twin Oaks Road was connected to the public water main the week of October 29, 2018. The location of this residential property in the Severn area is shown in Figure 1. WSP coordinated with All-American Plumbing, Inc., an Anne Arundel County (AAC)-licensed Master Plumber, to connect this home to the public water main running along Twin Oaks Road. As part of the water service connection, the plumbing contractor disconnected the piping and electrical line extending from the private water supply well into the residence. An AAC inspector approved the water service connection during their site visit to the property to observe the work.

  On November 8, 2018, WSP returned to 7742 Twin Oaks Road with a Maryland licensed drilling company to decommission the water supply well on the property. The submersible pump and water conveyance piping was removed with a mechanical hoist, and the well was then pressure grouted with a cement-bentonite mixture to a depth

of approximately 1 foot below ground surface (BGS). The well casing was then cut approximately 1 foot BGS, and the hole was filled to existing grade with top soil and seeded.

— In preparation for the connection of the home at 1227 Old Camp Meade Road (Figure 1) to the public water system, WSP contracted a Maryland licensed surveying company, Johnson, Mirmiran & Thompson, Inc. (JMT), to complete boundary surveys of the properties along the access road leading from Old Camp Meade Road to the residence. The survey was completed in mid-December 2018, and WSP received the results from JMT in early January of 2019. The survey information will be used to help determine ownership of the access road property for the purpose of obtaining an utility easement for the subsurface water line.

1.3 Quarterly Offsite Groundwater Sampling

— The offsite monitoring wells located south of the Site were sampled on November 8, 2018, using a disposable passive sampling device (HydraSleeve™) that had been deployed during the previous sampling of each well. The sample retrieval depths for each monitoring well are consistent with those from the previous monitoring events. All sample depths are provided in the table below. The shallow wells MW-25 and MW-28, which are screened in the unconfined portion of the Lower Patapsco aquifer, were not sampled because these wells are no longer part of the offsite monitoring program.

Well ID	Hydrologic Unit	Depth to Water (ft BGS)	Well Depth (ft BGS)	Well Screen Interval (ft BGS)	Sample Interval (ft BGS)
MW-25D-130	Confined Lower Patapsco	58.75	130	120 - 130	125 – 127.5
MW-25D-192	Confined Lower Patapsco	57.63	192	182 - 192	185 – 187.5
MW-28D	Confined Lower Patapsco	88.30	210	200 – 210	205 – 207.5
MW-31D	Confined Lower Patapsco	106.27	280	270 - 280	275 – 277.5
MW-33D-235	Confined Lower Patapsco	125.14	235	225 – 235	230 – 232.5
MW-33D-295	Confined Lower Patapsco	125.69	295	285 – 295	290 – 292.5
MW-35D	Confined Lower Patapsco	123.64	298	288 – 298	293 – 295.5
MW-29D	Confined Lower Patapsco	65.03	151	141-151	146-148.5
MW-30-273	Confined Lower Patapsco	98.14	273	263-273	267-269.5

MW-30-413	Patuxent	140.62	413	403-413	407-409.5
MW-32D	Confined Lower Patapsco	98.17	236	226-236	233-235.5
MW-34D	Confined Lower Patapsco/Arundel Clay Gradational Zone	131.96	385	375-385	379-381.5
MW-36D	Patuxent	142.75	360	350-360	357-359.5

FT = feet;
BGS = below ground surface.

- A potentiometric surface contour map for the confined portion of the Lower Patapsco aquifer is shown in Figure 4 based on the water levels measured during the sampling event. General groundwater flow in the Lower Patapsco aquifer is to the south/southeast.

- The November 2018 analytical results for samples from the offsite monitoring wells are summarized in Table 2. A copy of the certified laboratory analytical report for these samples is provided in Enclosure B. Historical groundwater sampling data for the offsite monitoring wells can be found in Table 3.

  Concentrations of the primary site-related VOCs in the confined Lower Patapsco aquifer south of Maryland Route 100 are provided in Figure 5. Overall, the concentrations of the site-related VOCs and 1,4-dioxane in the November 2018 groundwater samples from wells screened in the confined portion of the Lower Patapsco aquifer are similar to the levels detected in the previous sampling events (Table 3). For the deep wells at the MW-25/MW-25D location, the total concentration of site-related VOCs and 1,4-dioxane in the MW-25D-130 sample (253.6 µg/l), which is screened from 120-130 feet BGS, is higher than the concentration in the deeper well (MW-25D-192) sample and its duplicate at this location (133.8 µg/l and 136.9 µg/l, respectively). However, the concentrations of site-related VOCs in the MW-25D-130 sample exhibit a noticeable decrease compared to previous sampling events. The lower VOC concentrations in the sample from MW-25D-192 are consistent with the vertical distribution of constituents in onsite and offsite areas north of Maryland Route 100.

  Most of the sampling data for the confined Lower Patapsco monitoring wells located further downgradient indicate non-detect to very low concentrations of site-related VOCs and 1,4-dioxane. The only exceptions are the wells at the MW-30 and MW-33D locations. The groundwater sample from MW-30D-273, which is screened from 263-273 feet BGS contained 1,1-DCE and 1,4-dioxane above the groundwater quality criteria with concentrations of 44.0 µg/l and 22.2 µg/l, respectively. The MW-33D-295 sample contained 1,4-dioxane at 6.1 µg/l.

  The new monitoring wells MW-36 installed in the eastern portion of the Harmans Woods neighborhood, and the deeper well (413 feet BGS) at the MW-30 location are screened in the Patuxent aquifer below the Arundel Clay. Consistent with previous sampling event, no site-related VOCs were detected in the samples from these wells, indicating VOCs have not migrated below the Lower Patapsco Aquifer.

2.0 Planned Offsite Activities for Next Reporting Period (January 2019 Through March 2019)

- Perform quarterly sampling of the newly installed (2018) offsite groundwater monitoring wells in the confined portion of the Lower Patapsco aquifer and Patuxent aquifer in late February 2019.

- Continue to conduct monthly monitoring of the untreated and treated water from the residential well at 1227 Old Camp Meade Road.

- Review the boundary survey results along the access road and other necessary information for the installation of the public water service connection at the 1227 Old Camp Meade Road residence.

- Submit the Annual (2018) Offsite Monitoring Report in February 2019.

3.0 Key Personnel/Facility Changes

During the reporting period, there were no changes to either key project personnel or conditions relevant to the performance of the ongoing work at the site.

FIGURES

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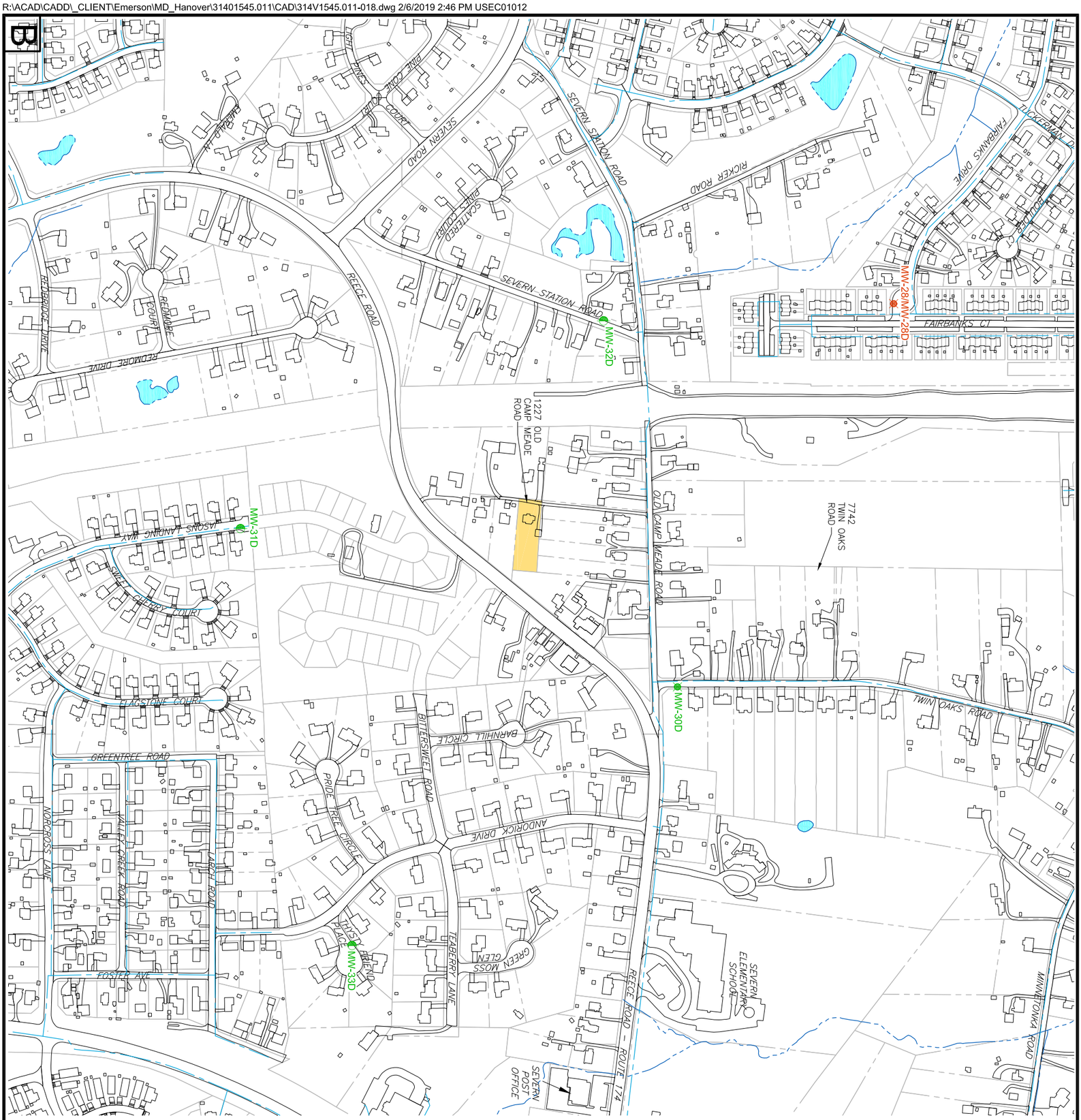

LEGEND

- PROPERTY LINE
- WATER MAIN
- STREAM
- WATER BODY
- UNCONFINED AND CONFINED LOWER PATAPSCO AQUIFER MONITORING WELL
- CONFINED LOWER PATAPSCO AQUIFER MONITORING WELL
- CONFINED LOWER PATAPSCO AQUIFER AND PATUXENT AQUIFER MONITORING WELLS
- PROPERTY WITH POTABLE WELL IDENTIFIED FOR SAMPLING

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Figure 1

PROPERTY WITH RESIDENTIAL WELL IDENTIFIED FOR REGULAR MONITORING

FORMER KOP-FLEX FACILITY
HANOVER, MARYLAND

PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

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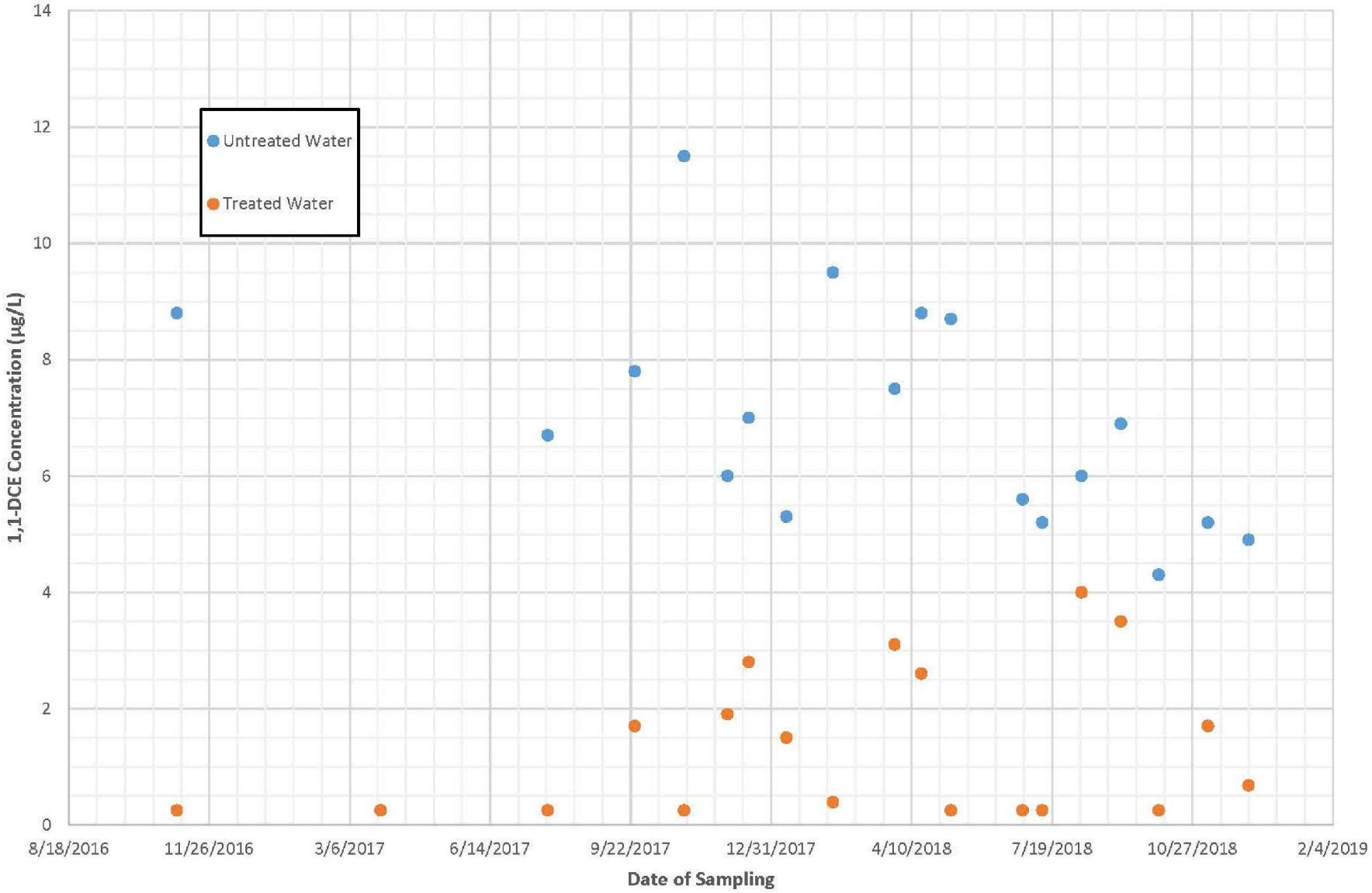

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Figure 2

1227 OLD CAMP MEADE ROAD
CONCENTRATION vs TIME PLOT
1,1-DCE

FORMER KOP-FLEX FACILITY
HANOVER, MARYLAND

PREPARED FOR
EMERSUB16 LLC
ST. LOUIS, MISSOURI

Drawn By: EGC
Checked: CC 2/6/2019
Approved: RKJ
DWG Name: 314V1545.011-012

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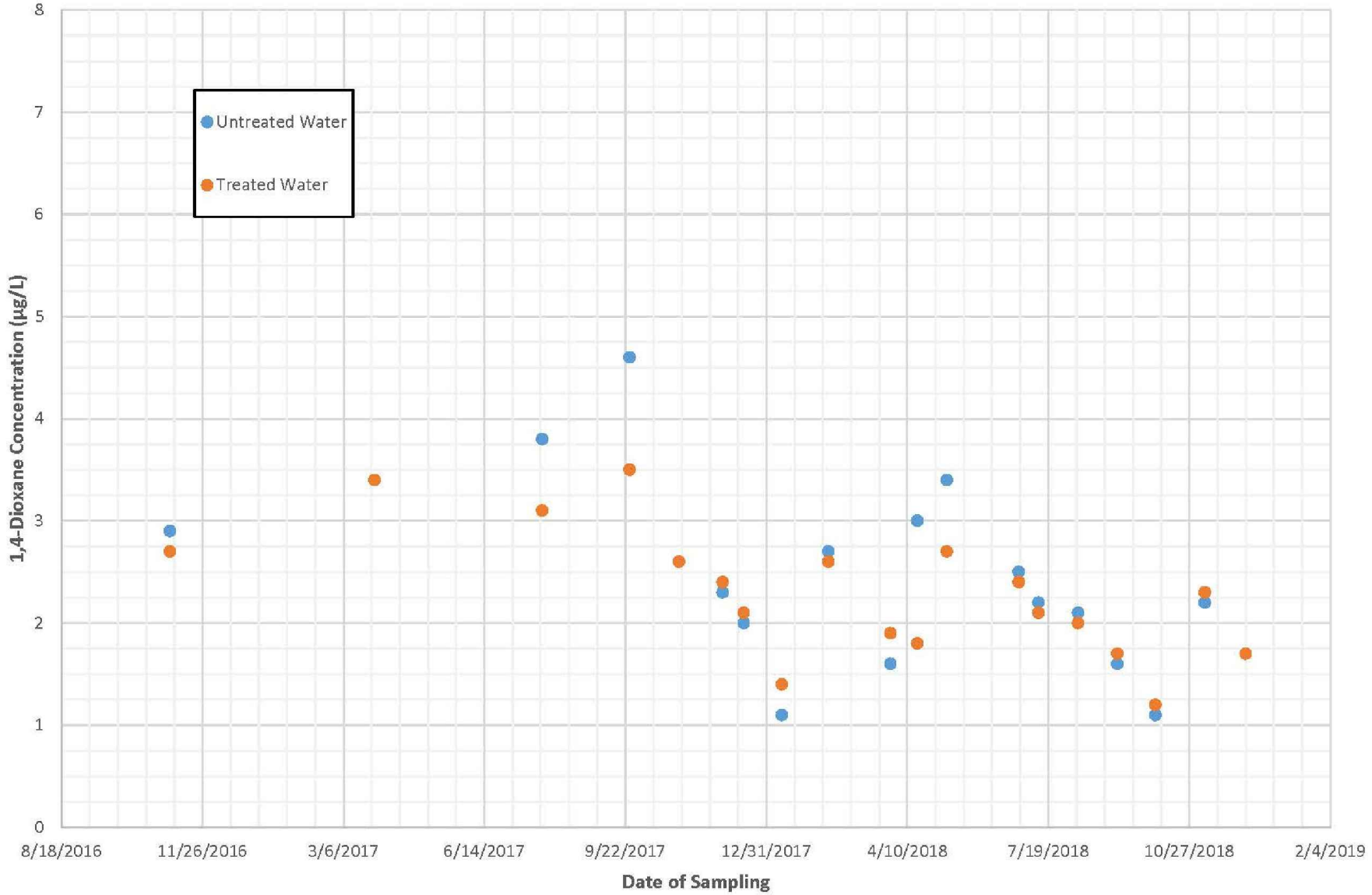

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Figure 3

1227 OLD CAMP MEADE ROAD
CONCENTRATION vs TIME PLOT
1,4-DIOXANE

FORMER KOP-FLEX FACILITY
HANOVER, MARYLAND

PREPARED FOR
EMERSUB16 LLC
ST. LOUIS, MISSOURI

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LEGEND
PROPERTY LINE
STREAM
WATER BODY
MONITORING WELL
RECOVERY WELL
72.18 GROUNDWATER SURFACE ELEVATION (FEET MSL)
GROUNDWATER SURFACE CONTOUR
INFERRED GROUNDWATER FLOW
MW-46D 92.12
MW-27D-113 88.03
MW-23D-92 87.48
MW-16D-101 84.77
MW-40D 84.50
RW-1D
RW-2D
MW-22D-114
MW-1D-112 72.18
MW-21D-102 76.69
MW-24D-128 78.38
MW-25D 71.75
MW-29D 66.89
MW-28D 62.20
MW-30D 55.40
MW-32D 57.97
MW-35D 54.16
MW-33D 53.46
MW-31D 56.23
MW-34D 51.95
92
90
88
86
84
82
80
78
76
74
72
70
68
66
64
62
60
58
56
54
52
ROUTE 100
SEVERN ELEMENTARY SCHOOL
SEVERN POST OFFICE
DONALDSON AVENUE
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REVISIONS

REV	DESCRIPTION

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CHECKED 2/19/2019
APPROVED 2/19/2019

POTENTIOMETRIC SURFACE CONTOUR MAP
LOWER PATAPSCO AQUIFER
NOVEMBER 2018
FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
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FIGURE 4

Drawing Number
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FORMER KOP-FLEX FACILITY
HANOVER, MARYLAND
PREPARED FOR
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ST. LOUIS, MISSOURI

Figure 5

GROUNDWATER MONITORING RESULTS
LOWER PATAPSCO AQUIFER AND PATUXENT AQUIFER
OFFSITE MONITORING WELLS – NOVEMBER 2018

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LEGEND

- PROPERTY LINE
- WATER MAIN
- STREAM
- WATER BODY
- UNCONFINED AND CONFINED LOWER PATAPSCO AQUIFER MONITORING WELL
- CONFINED LOWER PATAPSCO AQUIFER MONITORING WELL
- PATUXENT AQUIFER MONITORING WELLS
- CONFINED LOWER PATAPSCO AQUIFER AND PATUXENT AQUIFER MONITORING WELLS
- RECOVERY WELL

MW-25D	120' - 130'	180' - 190'
1,1-DCA	4.4	13.7
1,2-DCA	1.1	ND
1,1-DCE	**109**	**64**
1,4-Dioxane	**40.2**	**47**
1,1,1-TCA	ND	9.8

- WELL IDENTIFICATION
- SCREENED INTERVAL (FT-BGS)
- SAMPLE RESULTS IN ppb (RED INDICATES RESULTS ABOVE MDE CLEANUP STANDARDS)
- CONSTITUENTS

DCA DICHLOROETHANE
DCE DICHLOROETHENE
TCA TRICHLOROETHANE
ND NOT DETECTED

WELL SCREENED IN THE PATUXENT AQUIFER

MW-25D	120' - 130'	182' - 192'
1,1-DCA	4.4	13.7
1,2-DCA	1.1	ND
1,1-DCE	**109**	**64**
1,4-Dioxane	**40.2**	**47**
1,1,1-TCA	ND	9.8

MW-29D	141-151'
1,1-DCA	ND
1,2-DCA	ND
1,1-DCE	ND
1,4-Dioxane	ND
1,1,1-TCA	ND

MW-36D	350-360'
1,1-DCA	ND
1,2-DCA	ND
1,1-DCE	ND
1,4-Dioxane	ND
1,1,1-TCA	ND
PCE	ND

MW-28D	200' - 210'
1,1-DCA	ND
1,2-DCA	ND
1,1-DCE	6.9
1,4-Dioxane	2.3
1,1,1-TCA	ND

MW-30D	263-273'	403-413'
1,1-DCA	1.2	ND
1,2-DCA	ND	ND
1,1-DCE	**44**	ND
1,4-Dioxane	**22**	ND
1,1,1-TCA	2.1	ND

MW-35D	288' - 298'
1,1-DCA	ND
1,2-DCA	ND
1,1-DCE	ND
1,4-Dioxane	ND
1,1,1-TCA	ND

MW-32D	226-236'
1,1-DCA	ND
1,2-DCA	ND
1,1-DCE	ND
1,4-Dioxane	ND
1,1,1-TCA	ND

MW-33D	225' - 235'	285' - 295'
1,1-DCA	ND	ND
1,2-DCA	ND	ND
1,1-DCE	ND	4.2
1,4-Dioxane	ND	**6.1**
1,1,1-TCA	ND	ND

MW-31D	270' - 280'
1,1-DCA	ND
1,2-DCA	ND
1,1-DCE	ND
1,4-Dioxane	ND
1,1,1-TCA	ND

MW-34D	375-385'
1,1-DCA	ND
1,2-DCA	ND
1,1-DCE	ND
1,4-Dioxane	ND
1,1,1-TCA	ND

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TABLES

Table 1

Historical Water Sampling Results
Residential Well - 1227 Old Camp Meade Road
Former Kop-Flex Facility Site
Hanover, Maryland

	Parameter	**Acetone**	**Bromoform**	**Carbon Disulfide**	**Chloroform**	**1,1-Dichloroethane**	**1,1-Dichloroethene**	**Methyl Tert Butyl Ether**	**Toluene**	**1,1,1-Trichloroethane**	**1,4-Dioxane**
	Units	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l	µg/l
	MCL	550 (a)	80 (a)	100 (a)	80 (a)	90 (a)	7	20 (a)	1,000	200	4.6 (b)
Sample Type	**Date**										
Pre-Treatment	2/13/2013	5 U	0.5 U	0.18 J	0.5 U	0.5 U	0.55	0.25 J	0.18 J	0.091 J	2 U
Post-Treatment	2/13/2013	5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U	0.081 J	2 U
Pre-Treatment	7/9/2013	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.11 J	2.3
Pre-Treatment	2/12/2014	5 U	0.5 U	0.5 U	0.5 U	0.15 J	0.5 U	0.5 U	0.5 U	0.5 U	2 U
Pre-Treatment	5/29/2014	5 U	0.5 U	0.5 U	0.5 U	0.051 J	1.3	0.5 U	0.5 U	0.15 J	2 U
Post-Treatment	5/29/2014	5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U	0.15 J	2 U
Pre-Treatment	9/12/2014	5 U	0.5 U	0.5 U	0.5 U	0.5 U	2	0.5 U	0.5 U	0.21 J	2 U
Post-Treatment	9/12/2014	5 U	0.28 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.18 J	2 U
Pre-Treatment	12/8/2014	0.99 J	0.5 U	0.5 U	0.5 U	0.5 U	0.43 J	0.5 U	0.5 U	0.20 J	2 U
Post-Treatment	12/8/2014	5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.4	0.5 U	0.5 U	0.24 J	2 U
Pre-Treatment	11/3/2016	5 U	0.5 U	0.5 U	0.5 U	0.19 J	**8.8**	0.5 U	0.5 U	0.48 J	2.9
Post-Treatment	11/3/2016	5 U	0.5 U	0.5 U	0.095 J	0.16 J	0.5 U	0.5 U	0.5 U	0.42 J	2.7
Post-Treatment	3/28/2017	5 U	0.5 U	0.5 U	0.5 U	0.17 J	0.5 U	0.5 U	0.5 U	0.41 J	3.4
Pre-Treatment	7/25/2017	5 U	0.5 U	0.5 U	0.5 U	0.15 J	6.7	0.5 U	0.5 U	0.33 J	3.8
Post-Treatment	7/25/2017	5 U	0.55	0.5 U	0.5 U	0.19 J	0.5 U	0.5 U	0.5 U	0.42 J	3.1
Pre-Treatment	9/25/2017	5 U	0.5 U	0.5 U	0.5 U	0.18 J	**7.8**	0.5 U	0.5 U	0.41 J	4.6
Post-Treatment	9/25/2017	5 U	0.5 U	0.5 U	0.5 U	0.15 J	1.7	0.5 U	0.5 U	0.37 J	3.5
Pre-Treatment	10/30/2017	5 U	0.5 U	0.5 U	0.5 U	0.24 J	**11.5**	0.5 U	0.5 U	0.5	2.6
Post-Treatment	10/30/2017	5 U	0.5 U	0.5 U	0.5 U	0.23 J	0.5 U	0.5 U	0.5 U	0.53	2.6
Pre-Treatment	11/30/2017	5 U	0.5 U	0.5 U	0.5 U	0.16 J	6	0.5 U	0.5 U	0.3 J	2.3
Post-Treatment	11/30/2017	5 U	0.5 U	0.5 U	0.5 U	0.17 J	1.9	0.5 U	0.5 U	0.34 J	2.4
Pre-Treatment	12/15/2017	5 U	0.5 U	0.5 U	0.5 U	0.5 U	7	0.5 U	0.5 U	0.36 J	2.0
Post-Treatment	12/15/2017	5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.8	0.5 U	0.5 U	0.39 J	2.1
Pre-Treatment	1/11/2018	5 U	0.5 U	0.5 U	0.5 U	0.15 J	5.3	0.5 U	0.5 U	0.27 J	1.1
Post-Treatment	1/11/2018	5 U	0.5 U	0.5 U	0.5 U	0.14 J	1.5	0.5 U	0.5 U	0.32 J	1.4
Pre-Treatment	2/13/2018	5 U	0.5 U	0.5 U	0.5 U	0.16 J	**9.5**	0.5 U	0.5 U	0.44 J	2.7
Post-Treatment	2/13/2018	5 U	0.5 U	0.5 U	0.5 U	0.16 J	0.39 J	0.5 U	0.5 U	0.38 J	2.6
Pre-Treatment	3/29/2018	5 U	0.5 U	0.5 U	0.5 U	0.14 J	**7.5**	0.5 U	0.5 U	0.35 J	1.6
Post-Treatment	3/29/2018	5 U	0.5 U	0.5 U	0.5 U	0.14 J	3.1	0.5 U	0.5 U	0.34 J	1.9
Pre-Treatment	4/17/2018	5 U	0.5 U	0.5 U	0.5 U	0.18 J	**8.8**	0.5 U	0.5 U	0.45 J	3.0
Post-Treatment	4/17/2018	5 U	0.5 U	0.5 U	0.5 U	0.15 J	2.6	0.5 U	0.5 U	0.37 J	1.8
Pre-Treatment	5/8/2018	5 U	0.5 U	0.5 U	0.5 U	0.18 J	**8.7**	0.5 U	0.5 U	0.48 J	3.4
Post-Treatment	5/8/2018	5 U	0.5 U	0.5 U	0.5 U	0.17 J	0.5 U	0.5 U	0.5 U	0.42 J	2.7
Pre-Treatment	6/28/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.6	0.5 U	0.5 U	0.28 J	2.5
Post-Treatment	6/28/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.28 J	2.4
Pre-Treatment	7/12/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.2	0.5 U	0.5 U	0.5 U	2.2
Post-Treatment	7/12/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.1
Pre-Treatment	8/9/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	6.0	0.5 U	0.5 U	0.26 J	2.1
Post-Treatment	8/9/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.0	0.5 U	0.5 U	0.27 J	2.0
Pre-Treatment	9/6/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	6.9	0.5 U	0.5 U	0.28 J	1.6
Post-Treatment	9/6/2018	2.8 J	0.5 U	0.5 U	0.5 U	0.5 U	3.5	0.5 U	0.5 U	0.33 J	1.7
Pre-Treatment	10/3/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.3	0.5 U	0.5 U	0.5 U	1.1
Post-Treatment	10/3/2018	5 U	0.51	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.2
Pre-Treatment	11/7/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	5.2	0.5 U	0.5 U	0.24 J	2.2
Post-Treatment	11/7/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.7	0.5 U	0.5 U	0.25 J	2.3
Pre-Treatment	12/6/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	4.9	0.5 U	0.5 U	0.22 J	1.7
Post-Treatment	12/6/2018	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.68	0.5 U	0.5 U	0.27 J	1.7

(a) Maryland Department of Environment Action Level
(b) Maryland Risk Based Action Level
Notes:
MCL - US Environmental Protection Agency Maximum Contaminant Level
U - Undetected, value reported is the laboratory reporting limit
J = Indicates an estimated value between method detection limit and reporting limit
Bold value indicates concentration above the comparative criterion.
Gray shaded rows represent pre-treatment water samples.

Table 2

Offsite Monitoring Well Sample Results
Former Kop-Flex Facility Site
Hanover, Maryland
November 2018

Parameters (a)	Groundwater Quality Standards (µg/L) (b)	Well ID: / Sampling Date:	MW-25D-130 8-Nov-18	MW-25D-192 8-Nov-18	Dup110818 (d) 8-Nov-18	MW-28D 8-Nov-18	MW-29D 8-Nov-18	MW-30D-273 8-Nov-18	MW-31D 8-Nov-18	MW-32D 8-Nov-18	MW-33D-235 8-Nov-18
			CONFINED LOWER PATAPSCO AQUIFER								
1,1-Dichloroethane	90		4.4	13.7	14.2	1.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7		**109**	**61.0**	**65.9**	6.9	1.0 U	**44.0**	1.0 U	1.0 U	1.0 U
1,4-Dioxane	4.6 (c)		**40.2**	**49.3**	**47.0**	2.3	2.0 U	**22.2**	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	200		1.0 U	9.8	9.8	1.0 U	1.0 U	2.1	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	Total CVOCs & 1,4-Dioxane	-	153.6	133.8	136.9	9.2	-	69.5	-	-	-

a/ U = not detected above the method detection limit; CVOC = chlorinated volatile organic compound.
Bolded values indicate an exceedence of the Groundwater Quality Standards
All sample concentrations in micrograms per liter (µg/l)
b/ Source: http://www.mde.maryland.gov/assets/document/Final%20Update%20No%202.1%20dated%205-20-08(1).pdf
c/ Value represents the MDE risk-based action level.
d/ Field duplicate of sample from well MW-25-190.

Table 2

Offsite Monitoring Well Sample Results
Former Kop-Flex Facility Site
Hanover, Maryland
November 2018

Parameters (a)	Groundwater Quality Standards (µg/L) (b)	Well ID: / Sampling Date:	MW-33D-295 8-Nov-18	MW-34D 8-Nov-18	MW-35D 8-Nov-18	PATUXENT AQUIFER MW-30D-413 8-Nov-18	PATUXENT AQUIFER MW-36D 8-Nov-18
1,1-Dichloroethane	90		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7		4.2	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dioxane	4.6 (c)		**6.1**	2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	200		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total CVOCs & 1,4-Dioxane			10.3	-	-	-	-

a/ U = not detected above the method detection limit; CVOC = chlorinated vo
Bolded values indicate an exceedence of the Groundwater Quality Stan
All sample concentrations in micrograms per liter (µg/l)

b/ Source: http://www.mde.maryland.gov/assets/document/Final%20Update%

c/ Value represents the MDE risk-based action level.

d/ Field duplicate of sample from well MW-25-190.

Table 3

Historical Offsite Groundwater Sampling Results (2015 to Present)
Former Kop-Flex Facility Site
Hanover, Maryland

Well ID		Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Quality Standard (µg/L)		3.6	90	5	7	70	4.6	5	200	5	5	2
Sample Date												
Unconfined Lower Patapsco Wells												
MW-25	3/19/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/24/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/23/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	1/6/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	3/23/2016	1.0 U	1.0 U	1.0 U	1.5	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	7/20/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/8/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/8/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/21/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/2/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/31/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2017	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	**11.7**	1.0 U	1.0 U	1.0 U	1.0 U
	2/13/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-28	3/17/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/23/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/22/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	1/5/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	3/22/2016	1.0 U	1.0 U	1.0 U	6.2	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	7/19/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/7/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/8/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/21/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/2/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/31/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2017	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/14/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Table 3

Historical Offsite Groundwater Sampling Results (2015 to Present)
Former Kop-Flex Facility Site
Hanover, Maryland

Well ID		Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Quality Standard (µg/L)		3.6	90	5	7	70	4.6	5	200	5	5	2
Confined Lower Patapsco Wells												
MW-25D-130	3/19/2015	10.0 U	38.6	**10.8**	**854**	10.0 U	**446**	200 U	**8,930**	100 U	100 U	100 U
	6/24/2015	1.0 U	37.1	**8.9**	**1,030**	4.6	**303**	2.0 U	46.3	1.2	**6.8**	1.0 U
	9/23/2015	10.0 U	29.7	10.0 U	**697**	10.0 U	**295**	20.0 U	32.3	10.0 U	**14.2**	10.0 U
	1/7/2016	5.0 U	33.4	**9.7**	**800**	5.0 U	**398**	10.0 U	5.0 U	5.0 U	**6.1**	5.0 U
	3/23/2016	5.0 U	24.5	**8.0**	**676**	5.0 U	**302**	10.0 U	26.2	5.0 U	**5.0**	5.0 U
	7/19/2016	10.0 U	39.3	**10.2**	**1,090**	4.9 J	**367**	14.3 J	37.0	10.0 U	**6.5** J	10.0 U
	9/9/2016	5.0 U	27.9	**6.4**	**661**	5.0 U	**241**	**12.0**	25.0	5.0 U	5.0 U	5.0 U
	12/8/2016	1.0 U	6.7	1.5	**171**	1.0 U	**13.6**	2.0 U	6.9	1.0 U	1.0 U	1.0 U
	2/21/2017	1.0 U	7.2	1.7	**194**	1.0 U	**69.1**	2.0 U	7.0	1.0 U	1.2	1.0 U
	5/2/2017	2.0 U	6.5	2.0 U	**174**	2.0 U	**61.0**	4.0 U	5.0	2.0 U	2.0 U	2.0 U
	8/31/2017	2.0 U	7.4	1.7	**193**	2.0 U	**57.9**	4.0 U	6.9	2.0 U	2.0 U	2.0 U
	11/14/2017	2.0 U	5.1	1.3	**151**	0.57 J	**58.5**	5.0 U	6.4	1.0 U	1.1	1.0 U
	2/13/2018	2.0 U	6.3	2.0 U	**154**	2.0 U	**67.1**	5.0 U	6.4	1.0 U	1.0 U	1.0 U
	5/30/2018	2.0 U	5.0	1.4	**144**	2.0 U	**53.9**	5.0 U	5.3	1.0 U	1.0 U	1.0 U
	11/8/2018	2.0 U	4.4	1.1	**109**	2.0 U	**40.2**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-25D-192	3/19/2015	1.0 U	11.7	1.0 U	**53.0**	1.0 U	**49.4**	2.0 U	13.7	1.0 U	1.0 U	1.0 U
	6/25/2015	1.0 U	11.9	1.0 U	**59.4**	1.0 U	**39.8**	2.0 U	14.2	1.0 U	1.0 U	1.0 U
	9/22/2015	1.0 U	13.9	1.0 U	**51.4**	1.0 U	**45.0**	2.0 U	12.9	1.0 U	1.3	1.0 U
	1/7/2016	1.0 U	11.7	1.0 U	**47.2**	1.0 U	**41.7**	2.0 U	12.5	1.0 U	1.0 U	1.0 U
	3/23/2016	1.0 U	10.3	1.0 U	**43.3**	1.0 U	**42.2**	2.0 U	11.3	1.0 U	1.0 U	1.0 U
	7/20/2016	1.0 U	11.7	0.73 J	**54.9**	1.0 U	**54.4**	2.0 U	11.1	1.0 U	1.0 U	1.0 U
	9/8/2016	1.0 U	12.9	1.0 U	**56.8**	1.0 U	**39.3**	2.0 U	12.6	1.0 U	1.0 U	1.0 U
	12/8/2016	1.0 U	16.1	1.0 U	**64.6**	1.0 U	**51.3**	2.0 U	13.3	1.0 U	1.0 U	1.0 U
	2/21/2017	1.0 U	14.0	1.0 U	**63.3**	1.0 U	**52.1**	2.0 U	11.6	1.0 U	1.0 U	1.0 U
	5/2/2017	1.0 U	16.9	1.0 U	**81.0**	1.0 U	**53.1**	2.0 U	13.5	1.0 U	1.0 U	1.0 U
	8/31/2017	1.0 U	15.7	1.0 U	**62.5**	1.0 U	**44.3**	2.0 U	13.1	1.0 U	1.0 U	1.0 U
	11/14/2017	5.0 U	13.6	0.67 J	**67.2**	1.0 U	**56.7**	5.0 U	13.6	1.0 U	1.0 U	1.0 U
	2/13/2018	5.0 U	13.7	1.0 U	**69.2**	1.0 U	**42.7**	5.0 U	11.0	1.0 U	1.0 U	1.0 U
	5/30/2018	5.0 U	10.8	1.0 U	**58.3**	1.0 U	**50.8**	5.0 U	7.2	1.0 U	1.0 U	1.0 U
	11/8/2018	5.0 U	13.7	1.0 U	**61.0**	1.0 U	**49.3**	5.0 U	9.8	1.0 U	1.0 U	1.0 U

Table 3

Historical Offsite Groundwater Sampling Results (2015 to Present)
Former Kop-Flex Facility Site
Hanover, Maryland

Well ID		Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Quality Standard (µg/L)		3.6	90	5	7	70	4.6	5	200	5	5	2
MW-28D	3/17/2015	1.0 U	1.0 U	1.0 U	**10.6**	1.0 U	**5.0**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/23/2015	1.0 U	1.0 U	1.0 U	**12.8**	1.0 U	4.5	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/22/2015	1.0 U	1.0 U	1.0 U	**14.3**	1.0 U	4.4	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	1/5/2016	1.0 U	1.0 U	1.0 U	**11.5**	1.0 U	**5.5**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	3/23/2016	1.0 U	1.0 U	1.0 U	**9.1**	1.0 U	4.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	7/19/2016	1.0 U	1.0 U	0.25 J	**10.1**	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/7/2016	1.0 U	1.0 U	1.0 U	**12.0**	1.0 U	**5.0**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/8/2016	1.0 U	1.0 U	1.0 U	6.3	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/21/2017	1.0 U	1.0 U	1.0 U	4.6	1.0 U	3.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/2/2017	1.0 U	1.0 U	1.0 U	5.8	1.0 U	2.7	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/31/2017	1.0 U	1.0 U	1.0 U	5.0	1.0 U	2.7	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2017	5.0 U	1.0 U	1.0 U	5.5	1.0 U	3.5	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/14/2018	5.0 U	1.0 U	1.0 U	4.3	1.0 U	2.8	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	5.0 U	1.0 U	1.0 U	6.1	1.0 U	2.4	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	5.0 U	1.0 U	1.0 U	6.9	1.0 U	2.3	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-29D	5/21/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/23/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-30D-273	5/31/2018	5.0 U	1.0 U	1.0 U	**27.4**	1.0 U	**16.4**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/23/2018	5.0 U	1.0	1.0 U	**40.7**	1.0 U	**24.5**	5.0 U	1.7	1.0 U	1.0 U	1.0 U
	11/8/2018	5.0 U	1.2	1.0 U	**44.0**	1.0 U	**22.2**	5.0 U	2.1	1.0 U	1.0 U	1.0 U
MW-31D	3/17/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/24/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/22/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	1/6/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	3/21/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	7/19/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/6/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/8/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/21/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/2/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/31/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2017	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/14/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/31/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 3

Historical Offsite Groundwater Sampling Results (2015 to Present)
Former Kop-Flex Facility Site
Hanover, Maryland

Well ID		Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Quality Standard (µg/L)		3.6	90	5	7	70	4.6	5	200	5	5	2
MW-32D	5/31/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/23/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-33D-235	3/18/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/23/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/21/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	1/4/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	3/21/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	7/18/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/7/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/8/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/21/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/2/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/31/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2017	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.3	**12.0**	1.0 U	1.0 U	1.0 U	1.0 U
	2/13/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/31/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-33D-295	3/18/2015	1.0 U	1.0 U	1.0 U	4.6	1.0 U	**8.0**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/23/2015	1.0 U	1.0 U	1.0 U	3.3	1.0 U	**6.8**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/21/2015	1.0 U	1.0 U	1.0 U	4.8	1.0 U	**6.8**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	1/4/2016	1.0 U	1.0 U	1.0 U	3.7	1.0 U	**7.6**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	3/21/2016	1.0 U	1.0 U	1.0 U	3.9	1.0 U	**7.8**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	7/18/2016	1.0 U	1.0 U	0.36 J	3.2	1.0 U	**5.1**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/7/2016	1.0 U	1.0 U	1.0 U	3.8	1.0 U	**7.4**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/8/2016	1.0 U	1.0 U	1.0 U	5.4	1.0 U	**7.4**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/21/2017	1.0 U	1.0 U	1.0 U	4.0	1.0 U	**6.8**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/2/2017	1.0 U	1.0 U	1.0 U	5.3	1.0 U	**7.4**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/31/2017	1.0 U	1.0 U	1.0 U	5.6	1.0 U	**6.3**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2017	5.0 U	1.0 U	1.0 U	3.4	1.0 U	**9.7**	**11.5**	0.49 J	1.0 U	1.0 U	1.0 U
	2/13/2018	5.0 U	1.0 U	1.0 U	4.6	1.0 U	**6.9**	2.0 U	0.49 J	1.0 U	1.0 U	1.0 U
	5/31/2018	5.0 U	1.0 U	1.0 U	4.6	1.0 U	**6.9**	2.0 U	0.49 J	1.0 U	1.0 U	1.0 U
	11/8/2018	5.0 U	1.0 U	1.0 U	4.2	1.0 U	**6.1**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-34D	5/31/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/23/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 3

Historical Offsite Groundwater Sampling Results (2015 to Present)
Former Kop-Flex Facility Site
Hanover, Maryland

Well ID		Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Quality Standard (µg/L)		3.6	90	5	7	70	4.6	5	200	5	5	2
MW-35D	3/18/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/22/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/21/2015	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	1/6/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	4/15/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	7/18/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	9/6/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/8/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/21/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/2/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/31/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2017	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	2/14/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/31/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Confined Patuxent Wells												
MW-30D-413	5/31/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/23/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-36D	5/30/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	8/23/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/8/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U

a/ U = not detected above the method detection limit; J = estimated concentration between the reporting limit and method detection limit.
Bolded values indicate an exceedence of the Groundwater Quality Standards
All sample concentrations in micrograms per liter (µg/l)
NS = well not sampled

ENCLOSURE A – LABORATORY ANALYTICAL REPORTS FOR RESIDENTIAL WELL SAMPLES

OCTOBER 2018

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

WSP Environment & Energy

Kop-Flex, Hanover, VA

31405145.011

SGS Job Number: JC75273

Sampling Date: 10/03/18

Report to:

WSP
11190 Sunrise Valley Drive Suite 300
Reston, VA 20190
Eric.Johnson@WSPGroup.com

ATTN: Eric Johnson

Total number of pages in report: 37

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

A. Paul Ioannidis
General Manager

Client Service contact: Rocus Peters 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

Sections: 1 2 3 4 5

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SGS North America Inc.

Sample Summary

WSP Environment & Energy

Job No: JC75273

Kop-Flex, Hanover, VA
Project No: 31405145.011

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC75273-1	10/03/18	09:53	ML/MK	10/04/18	DW	Drinking Water	PW-12270CM-100318
JC75273-2F	10/03/18	09:50	ML/MK	10/04/18	DW	Drinking Water Filt	PW-12270CM-100318-F
JC75273-3	10/03/18	09:53	ML/MK	10/04/18	DW	Drinking Water TB	TRIP BLANK

Summary of Hits

Job Number: JC75273
Account: WSP Environment & Energy
Project: Kop-Flex, Hanover, VA
Collected: 10/03/18

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC75273-1	**PW-12270CM-100318**					
1,1-Dichloroethylene		4.3	0.50	0.19	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane		1.1	0.40	0.095	ug/l	SW846 8260C BY SIM
JC75273-2F	**PW-12270CM-100318-F**					
Bromoform		0.51	0.50	0.27	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane		1.2	0.40	0.095	ug/l	SW846 8260C BY SIM
JC75273-3	**TRIP BLANK**					
Acetone		13.8	5.0	2.5	ug/l	EPA 524.2 REV 4.1
2-Butanone		4.6 J	5.0	0.43	ug/l	EPA 524.2 REV 4.1
Toluene		0.15 J	0.50	0.11	ug/l	EPA 524.2 REV 4.1

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	PW-12270CM-100318		
Lab Sample ID:	JC75273-1	**Date Sampled:**	10/03/18
Matrix:	DW - Drinking Water	**Date Received:**	10/04/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B116709.D	1	10/08/18 14:40	CSF	n/a	n/a	V1B5623
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
67-64-1	Acetone	ND		5.0	2.5	ug/l	
78-93-3	2-Butanone	ND		5.0	0.43	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.13	ug/l	
75-25-2	Bromoform	ND		0.50	0.27	ug/l	
74-83-9	Bromomethane	ND		0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND		0.50	0.080	ug/l	
67-66-3	Chloroform	ND		0.50	0.17	ug/l	
74-87-3	Chloromethane	ND		0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND		0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	4.3	7.0	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.14	ug/l	

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PW-12270CM-100318		
Lab Sample ID:	JC75273-1	**Date Sampled:**	10/03/18
Matrix:	DW - Drinking Water	**Date Received:**	10/04/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	600	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.14	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.18	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.16	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND		2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	5.0	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND		0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	0.22	ug/l	
91-20-3	Naphthalene	ND		0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.066	ug/l	
100-42-5	Styrene	ND	100	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	200	0.50	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	70	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.23	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.11	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.15	ug/l	
	m,p-Xylene	ND		0.50	0.14	ug/l	
95-47-6	o-Xylene	ND		0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	101%		70-130%
460-00-4	4-Bromofluorobenzene	91%		70-130%

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PW-12270CM-100318		
Lab Sample ID:	JC75273-1	**Date Sampled:**	10/03/18
Matrix:	DW - Drinking Water	**Date Received:**	10/04/18
Method:	SW846 8260C BY SIM	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A161020.D	1	10/08/18 16:42	RS	n/a	n/a	V3A6956
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	1.1		0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	60%		51-175%

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PW-12270CM-100318-F		
Lab Sample ID:	JC75273-2F	**Date Sampled:**	10/03/18
Matrix:	DW - Drinking Water Filt	**Date Received:**	10/04/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B116710.D	1	10/08/18 15:12	CSF	n/a	n/a	V1B5623
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
67-64-1	Acetone	ND		5.0	2.5	ug/l	
78-93-3	2-Butanone	ND		5.0	0.43	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.13	ug/l	
75-25-2	Bromoform	0.51		0.50	0.27	ug/l	
74-83-9	Bromomethane	ND		0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND		0.50	0.080	ug/l	
67-66-3	Chloroform	ND		0.50	0.17	ug/l	
74-87-3	Chloromethane	ND		0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND		0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	ND	7.0	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.14	ug/l	

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PW-12270CM-100318-F		
Lab Sample ID:	JC75273-2F	**Date Sampled:**	10/03/18
Matrix:	DW - Drinking Water Filt	**Date Received:**	10/04/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	600	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.14	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.18	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.16	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND		2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	5.0	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND		0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	0.22	ug/l	
91-20-3	Naphthalene	ND		0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.066	ug/l	
100-42-5	Styrene	ND	100	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	200	0.50	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	70	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.23	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.11	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.15	ug/l	
	m,p-Xylene	ND		0.50	0.14	ug/l	
95-47-6	o-Xylene	ND		0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	98%		70-130%
460-00-4	4-Bromofluorobenzene	90%		70-130%

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PW-12270CM-100318-F		
Lab Sample ID:	JC75273-2F	**Date Sampled:**	10/03/18
Matrix:	DW - Drinking Water Filt	**Date Received:**	10/04/18
Method:	SW846 8260C BY SIM	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A161021.D	1	10/08/18 17:09	RS	n/a	n/a	V3A6956
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	1.2		0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	61%		51-175%

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JC75273-3	**Date Sampled:**	10/03/18
Matrix:	DW - Drinking Water TB	**Date Received:**	10/04/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B116705.D	1	10/08/18 12:33	CSF	n/a	n/a	V1B5623
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
67-64-1	Acetone	13.8		5.0	2.5	ug/l	
78-93-3	2-Butanone	4.6		5.0	0.43	ug/l	J
71-43-2	Benzene	ND	5.0	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.13	ug/l	
75-25-2	Bromoform	ND		0.50	0.27	ug/l	
74-83-9	Bromomethane	ND		0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND		0.50	0.080	ug/l	
67-66-3	Chloroform	ND		0.50	0.17	ug/l	
74-87-3	Chloromethane	ND		0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND		0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	ND	7.0	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.14	ug/l	

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JC75273-3	**Date Sampled:**	10/03/18
Matrix:	DW - Drinking Water TB	**Date Received:**	10/04/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	600	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.14	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.18	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.16	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND		2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	5.0	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND		0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	0.22	ug/l	
91-20-3	Naphthalene	ND		0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.066	ug/l	
100-42-5	Styrene	ND	100	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	200	0.50	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	70	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.23	ug/l	
108-88-3	Toluene	0.15	1000	0.50	0.11	ug/l	J
79-01-6	Trichloroethylene	ND	5.0	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.15	ug/l	
	m,p-Xylene	ND		0.50	0.14	ug/l	
95-47-6	o-Xylene	ND		0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	98%		70-130%
460-00-4	4-Bromofluorobenzene	92%		70-130%

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JC75273-3	**Date Sampled:**	10/03/18
Matrix:	DW - Drinking Water TB	**Date Received:**	10/04/18
Method:	SW846 8260C BY SIM	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A161019.D	1	10/08/18 16:15	RS	n/a	n/a	V3A6956
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND		0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	60%		51-175%

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

VTB

CHAIN-OF-CUSTODY RECORD SW-043018-25

JC75273 Page 1 of 1

WSP USA Office Address: 13530 Dulles Technology Dr. Ste. 300 Herndon VA 20171

Project Name: Kapfuk

WSP USA Contact Name: Eric Johnson

Project Location: Hanover, MD

WSP USA Contact E-mail: eric.johnson@wsp.com

Project Number & Task: 31405145.011

WSP USA Contact Phone: 703 709 6500

Sampler(s) Name(s): Molly Long, Maria Kaplan

Sampler(s) Signature(s):

Requested Analyses & Preservatives

No. 009913

Laboratory Name & Location: Accutest

Laboratory Project Manager: Rokas Petess

Requested Turn-Around-Time: [X] Standard [ ] 24 HR [ ] 48 HR [ ] 72 HR [ ] ___ HR

	Sample Identification	Matrix	Collection Start Date	Collection Start Time	Collection Stop* Date	Collection Stop* Time	Number of Containers	VOCs (524)	1,4-dioxane (8260 SIMS)	Sample Comments
1	PW-12270CM-100318		10/3/18		0953		6	X	X	
2	PW-12270CM-100318-F		10/3/18		0950		6	X	X	
3	Trip Blank		lab provided				4	X	X	lab provided

Waste Sample

U542

Initial Assessment

Label Verification

Relinquished By (Signature)	Date	Time	Received By (Signature)	Date	Time	Shipment Method	Tracking Number(s)
	10/3/18	1600	FedEx			FedEx	809477536 8507
Relinquished By (Signature)	Date	Time	Received By (Signature)	Date	Time	Number of Packages	Custody Seal Number(s)
	10/4/18	9:40		10/4/18	930	1	3.4

*Use stop time/date for composite and/or air samples; use only start time/date for all other samples.

Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)

4.1 4

JC75273: Chain of Custody
Page 1 of 3

SGS Sample Receipt Summary

Job Number: JC75273 **Client:** WSP **Project:** KOP-FLEX, HANOVER, VA

Date / Time Received: 10/4/2018 9:20:00 AM **Delivery Method:** FedEx **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.4);

Cooler Temps (Corrected) °C: Cooler 1: (2.8);

Cooler Security

	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature

	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation

	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation

	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition

	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions

	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Test Strip Lot #s: pH 1-12: 216017 pH 12+: 208717 Other: (Specify)

Comments
-1 & -2 Please verify if samples are Potable water?
-3 Rec'd only 2 Trip Blank vials. 524 and 8260 requested. Vials do not appear to be SGS TB vials.

SM089-02 Rev. Date 12/1/16

Responded to by: Rocus Peters

Response Date: 10/9

Yes DW matrix

-3 yes log for V524STD and V8260SIMDIOX

JC75273: Chain of Custody
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MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5623-MB	1B116704.D	1	10/08/18	CSF	n/a	n/a	V1B5623

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	5.0	2.5	ug/l	
78-93-3	2-Butanone	ND	5.0	0.43	ug/l	
71-43-2	Benzene	ND	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.13	ug/l	
75-25-2	Bromoform	ND	0.50	0.27	ug/l	
74-83-9	Bromomethane	ND	0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND	0.50	0.080	ug/l	
67-66-3	Chloroform	ND	0.50	0.17	ug/l	
74-87-3	Chloromethane	ND	0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.14	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.14	ug/l	

Method Blank Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5623-MB	1B116704.D	1	10/08/18	CSF	n/a	n/a	V1B5623

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.16	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.18	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND	2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	0.22	ug/l	
91-20-3	Naphthalene	ND	0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.066	ug/l	
100-42-5	Styrene	ND	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.23	ug/l	
108-88-3	Toluene	ND	0.50	0.11	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.15	ug/l	
	m,p-Xylene	ND	0.50	0.14	ug/l	
95-47-6	o-Xylene	ND	0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries		Limits
2199-69-1	1,2-Dichlorobenzene-d4	98%	70-130%
460-00-4	4-Bromofluorobenzene	94%	70-130%

Method Blank Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5623-MB	1B116704.D	1	10/08/18	CSF	n/a	n/a	V1B5623

The QC reported here applies to the following samples: **Method:**

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Method Blank Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6956-MB	3A161012.D	1	10/08/18	RS	n/a	n/a	V3A6956

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND	0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries		Limits
17647-74-4	1,4-Dioxane-d8	96%	51-175%

Blank Spike Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5623-BS	1B116703.D	1	10/08/18	CSF	n/a	n/a	V1B5623

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	20	16.6	83	70-130
78-93-3	2-Butanone	20	16.0	80	70-130
71-43-2	Benzene	5	4.3	86	70-130
108-86-1	Bromobenzene	5	4.4	88	70-130
74-97-5	Bromochloromethane	5	4.6	92	70-130
75-27-4	Bromodichloromethane	5	4.5	90	70-130
75-25-2	Bromoform	5	4.5	90	70-130
74-83-9	Bromomethane	5	3.6	72	70-130
104-51-8	n-Butylbenzene	5	4.4	88	70-130
135-98-8	sec-Butylbenzene	5	4.4	88	70-130
98-06-6	tert-Butylbenzene	5	4.3	86	70-130
75-15-0	Carbon disulfide	5	4.4	88	70-130
108-90-7	Chlorobenzene	5	4.4	88	70-130
75-00-3	Chloroethane	5	3.7	74	70-130
67-66-3	Chloroform	5	4.3	86	70-130
74-87-3	Chloromethane	5	3.6	72	70-130
95-49-8	o-Chlorotoluene	5	4.3	86	70-130
106-43-4	p-Chlorotoluene	5	4.3	86	70-130
56-23-5	Carbon tetrachloride	5	4.8	96	70-130
75-34-3	1,1-Dichloroethane	5	4.3	86	70-130
75-35-4	1,1-Dichloroethylene	5	4.5	90	70-130
563-58-6	1,1-Dichloropropene	5	4.4	88	70-130
96-12-8	1,2-Dibromo-3-chloropropane	5	4.2	84	70-130
106-93-4	1,2-Dibromoethane	5	4.5	90	70-130
107-06-2	1,2-Dichloroethane	5	4.3	86	70-130
78-87-5	1,2-Dichloropropane	5	4.3	86	70-130
142-28-9	1,3-Dichloropropane	5	4.4	88	70-130
594-20-7	2,2-Dichloropropane	5	4.6	92	70-130
124-48-1	Dibromochloromethane	5	4.6	92	70-130
74-95-3	Dibromomethane	5	4.4	88	70-130
75-71-8	Dichlorodifluoromethane	5	4.2	84	70-130
541-73-1	m-Dichlorobenzene	5	4.5	90	70-130
95-50-1	o-Dichlorobenzene	5	4.4	88	70-130
106-46-7	p-Dichlorobenzene	5	4.4	88	70-130
156-60-5	trans-1,2-Dichloroethylene	5	4.3	86	70-130
156-59-2	cis-1,2-Dichloroethylene	5	4.3	86	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5623-BS	1B116703.D	1	10/08/18	CSF	n/a	n/a	V1B5623

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	5	4.4	88	70-130
10061-02-6	trans-1,3-Dichloropropene	5	4.2	84	70-130
100-41-4	Ethylbenzene	5	4.2	84	70-130
87-68-3	Hexachlorobutadiene	5	4.7	94	70-130
591-78-6	2-Hexanone	20	17.8	89	70-130
98-82-8	Isopropylbenzene	5	4.3	86	70-130
99-87-6	p-Isopropyltoluene	5	4.3	86	70-130
75-09-2	Methylene chloride	5	4.3	86	70-130
1634-04-4	Methyl Tert Butyl Ether	5	4.3	86	70-130
108-10-1	4-Methyl-2-pentanone	20	16.9	85	70-130
91-20-3	Naphthalene	5	4.2	84	70-130
103-65-1	n-Propylbenzene	5	4.3	86	70-130
100-42-5	Styrene	5	4.2	84	70-130
630-20-6	1,1,1,2-Tetrachloroethane	5	4.6	92	70-130
71-55-6	1,1,1-Trichloroethane	5	4.4	88	70-130
79-34-5	1,1,2,2-Tetrachloroethane	5	4.4	88	70-130
79-00-5	1,1,2-Trichloroethane	5	4.4	88	70-130
87-61-6	1,2,3-Trichlorobenzene	5	4.3	86	70-130
96-18-4	1,2,3-Trichloropropane	5	4.5	90	70-130
120-82-1	1,2,4-Trichlorobenzene	5	4.3	86	70-130
95-63-6	1,2,4-Trimethylbenzene	5	4.3	86	70-130
108-67-8	1,3,5-Trimethylbenzene	5	4.3	86	70-130
127-18-4	Tetrachloroethylene	5	4.6	92	70-130
108-88-3	Toluene	5	4.3	86	70-130
79-01-6	Trichloroethylene	5	4.3	86	70-130
75-69-4	Trichlorofluoromethane	5	4.3	86	70-130
75-01-4	Vinyl chloride	5	3.8	76	70-130
	m,p-Xylene	10	8.5	85	70-130
95-47-6	o-Xylene	5	4.3	86	70-130
1330-20-7	Xylenes (total)	15	12.8	85	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2199-69-1	1,2-Dichlorobenzene-d4	108%	70-130%
460-00-4	4-Bromofluorobenzene	104%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6956-BS	3A161010.D	1	10/08/18	RS	n/a	n/a	V3A6956
V3A6956-BSD	3A161011.D	1	10/08/18	RS	n/a	n/a	V3A6956

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
123-91-1	1,4-Dioxane	20	19.3	97	19.0	95	2	58-138/20

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
17647-74-4	1,4-Dioxane-d8	101%	97%	51-175%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC75383-1MS	1B116713.D	1	10/08/18	CSF	n/a	n/a	V1B5623
JC75383-1	1B116706.D	1	10/08/18	CSF	n/a	n/a	V1B5623

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	JC75383-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
67-64-1	Acetone	ND		20	17.4	87	41-142
78-93-3	2-Butanone	ND		20	16.3	82	55-129
71-43-2	Benzene	ND		5	4.1	82	53-138
108-86-1	Bromobenzene	ND		5	4.1	82	54-138
74-97-5	Bromochloromethane	ND		5	4.2	84	55-140
75-27-4	Bromodichloromethane	ND		5	4.2	84	57-147
75-25-2	Bromoform	ND		5	4.2	84	47-137
74-83-9	Bromomethane	ND		5	4.0	80	40-162
104-51-8	n-Butylbenzene	ND		5	3.6	72	45-144
135-98-8	sec-Butylbenzene	ND		5	3.7	74	46-145
98-06-6	tert-Butylbenzene	ND		5	3.6	72	48-141
75-15-0	Carbon disulfide	ND		5	4.1	82	35-127
108-90-7	Chlorobenzene	ND		5	4.1	82	54-135
75-00-3	Chloroethane	ND		5	4.1	82	38-153
67-66-3	Chloroform	ND		5	4.1	82	57-151
74-87-3	Chloromethane	ND		5	3.9	78	39-165
95-49-8	o-Chlorotoluene	ND		5	4.0	80	55-142
106-43-4	p-Chlorotoluene	ND		5	3.9	78	55-139
56-23-5	Carbon tetrachloride	ND		5	4.4	88	49-170
75-34-3	1,1-Dichloroethane	ND		5	4.0	80	55-149
75-35-4	1,1-Dichloroethylene	ND		5	4.2	84	42-142
563-58-6	1,1-Dichloropropene	ND		5	4.1	82	46-151
96-12-8	1,2-Dibromo-3-chloropropane	ND		5	4.2	84	48-141
106-93-4	1,2-Dibromoethane	ND		5	4.4	88	57-135
107-06-2	1,2-Dichloroethane	ND		5	4.1	82	59-166
78-87-5	1,2-Dichloropropane	ND		5	4.1	82	53-142
142-28-9	1,3-Dichloropropane	ND		5	4.2	84	58-143
594-20-7	2,2-Dichloropropane	ND		5	4.4	88	38-165
124-48-1	Dibromochloromethane	ND		5	4.4	88	55-138
74-95-3	Dibromomethane	ND		5	4.3	86	61-144
75-71-8	Dichlorodifluoromethane	ND		5	4.9	98	23-172
541-73-1	m-Dichlorobenzene	ND		5	4.1	82	53-138
95-50-1	o-Dichlorobenzene	ND		5	4.1	82	54-140
106-46-7	p-Dichlorobenzene	ND		5	4.0	80	53-137
156-60-5	trans-1,2-Dichloroethylene	ND		5	4.1	82	47-148
156-59-2	cis-1,2-Dichloroethylene	ND		5	4.0	80	51-146

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC75383-1MS	1B116713.D	1	10/08/18	CSF	n/a	n/a	V1B5623
JC75383-1	1B116706.D	1	10/08/18	CSF	n/a	n/a	V1B5623

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	JC75383-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
10061-01-5	cis-1,3-Dichloropropene	ND		5	4.0	80	51-136
10061-02-6	trans-1,3-Dichloropropene	ND		5	3.9	78	54-142
100-41-4	Ethylbenzene	ND		5	3.9	78	51-138
87-68-3	Hexachlorobutadiene	ND		5	4.2	84	40-154
591-78-6	2-Hexanone	ND		20	17.0	85	53-128
98-82-8	Isopropylbenzene	ND		5	3.7	74	49-139
99-87-6	p-Isopropyltoluene	ND		5	3.6	72	45-141
75-09-2	Methylene chloride	ND		5	4.1	82	54-137
1634-04-4	Methyl Tert Butyl Ether	ND		5	4.0	80	53-143
108-10-1	4-Methyl-2-pentanone	ND		20	17.0	85	58-127
91-20-3	Naphthalene	ND		5	4.1	82	44-140
103-65-1	n-Propylbenzene	ND		5	3.8	76	50-142
100-42-5	Styrene	ND		5	3.9	78	23-130
630-20-6	1,1,1,2-Tetrachloroethane	ND		5	4.2	84	57-144
71-55-6	1,1,1-Trichloroethane	ND		5	4.2	84	52-164
79-34-5	1,1,2,2-Tetrachloroethane	ND		5	4.4	88	58-138
79-00-5	1,1,2-Trichloroethane	ND		5	4.3	86	59-139
87-61-6	1,2,3-Trichlorobenzene	ND		5	4.0	80	47-141
96-18-4	1,2,3-Trichloropropane	ND		5	4.5	90	56-148
120-82-1	1,2,4-Trichlorobenzene	ND		5	3.9	78	46-137
95-63-6	1,2,4-Trimethylbenzene	ND		5	3.7	74	41-138
108-67-8	1,3,5-Trimethylbenzene	ND		5	3.7	74	45-138
127-18-4	Tetrachloroethylene	0.26	J	5	4.4	83	45-145
108-88-3	Toluene	ND		5	4.1	82	52-134
79-01-6	Trichloroethylene	ND		5	4.1	82	54-143
75-69-4	Trichlorofluoromethane	ND		5	5.1	102	36-167
75-01-4	Vinyl chloride	ND		5	4.4	88	35-162
	m,p-Xylene	ND		10	7.8	78	49-135
95-47-6	o-Xylene	ND		5	3.8	76	49-134
1330-20-7	Xylenes (total)	ND		15	11.6	77	50-134

CAS No.	Surrogate Recoveries	MS	JC75383-1	Limits
2199-69-1	1,2-Dichlorobenzene-d4	105%	99%	70-130%
460-00-4	4-Bromofluorobenzene	99%	92%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC75372-1MS	3A161014.D	1	10/08/18	RS	n/a	n/a	V3A6956
JC75372-1MSD	3A161015.D	1	10/08/18	RS	n/a	n/a	V3A6956
JC75372-1	3A161013.D	1	10/08/18	RS	n/a	n/a	V3A6956

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	JC75372-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
123-91-1	1,4-Dioxane	7.0		20	21.0	70	20	20.2	66	4	36-166/26

CAS No.	Surrogate Recoveries	MS	MSD	JC75372-1	Limits
17647-74-4	1,4-Dioxane-d8	82%	74%	86%	51-175%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC75383-2DUP	1B116714.D	1	10/08/18	CSF	n/a	n/a	V1B5623
JC75383-2	1B116707.D	1	10/08/18	CSF	n/a	n/a	V1B5623

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	JC75383-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
67-64-1	Acetone	ND		ND		nc	10
78-93-3	2-Butanone	ND		ND		nc	12
71-43-2	Benzene	ND		ND		nc	10
108-86-1	Bromobenzene	ND		ND		nc	10
74-97-5	Bromochloromethane	ND		ND		nc	10
75-27-4	Bromodichloromethane	ND		ND		nc	10
75-25-2	Bromoform	ND		ND		nc	10
74-83-9	Bromomethane	ND		ND		nc	10
104-51-8	n-Butylbenzene	ND		ND		nc	10
135-98-8	sec-Butylbenzene	ND		ND		nc	10
98-06-6	tert-Butylbenzene	ND		ND		nc	10
75-15-0	Carbon disulfide	ND		ND		nc	19
108-90-7	Chlorobenzene	ND		ND		nc	10
75-00-3	Chloroethane	ND		ND		nc	10
67-66-3	Chloroform	ND		ND		nc	12
74-87-3	Chloromethane	ND		ND		nc	10
95-49-8	o-Chlorotoluene	ND		ND		nc	10
106-43-4	p-Chlorotoluene	ND		ND		nc	10
56-23-5	Carbon tetrachloride	ND		ND		nc	10
75-34-3	1,1-Dichloroethane	ND		ND		nc	10
75-35-4	1,1-Dichloroethylene	ND		ND		nc	10
563-58-6	1,1-Dichloropropene	ND		ND		nc	10
96-12-8	1,2-Dibromo-3-chloropropane	ND		ND		nc	10
106-93-4	1,2-Dibromoethane	ND		ND		nc	10
107-06-2	1,2-Dichloroethane	ND		ND		nc	10
78-87-5	1,2-Dichloropropane	ND		ND		nc	10
142-28-9	1,3-Dichloropropane	ND		ND		nc	10
594-20-7	2,2-Dichloropropane	ND		ND		nc	10
124-48-1	Dibromochloromethane	ND		ND		nc	10
74-95-3	Dibromomethane	ND		ND		nc	10
75-71-8	Dichlorodifluoromethane	ND		ND		nc	10
541-73-1	m-Dichlorobenzene	ND		ND		nc	10
95-50-1	o-Dichlorobenzene	ND		ND		nc	10
106-46-7	p-Dichlorobenzene	ND		ND		nc	10
156-60-5	trans-1,2-Dichloroethylene	ND		ND		nc	10
156-59-2	cis-1,2-Dichloroethylene	ND		ND		nc	10

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC75383-2DUP	1B116714.D	1	10/08/18	CSF	n/a	n/a	V1B5623
JC75383-2	1B116707.D	1	10/08/18	CSF	n/a	n/a	V1B5623

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC75273-1, JC75273-3, JC75273-2F

CAS No.	Compound	JC75383-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
10061-01-5	cis-1,3-Dichloropropene	ND		ND		nc	10
10061-02-6	trans-1,3-Dichloropropene	ND		ND		nc	10
100-41-4	Ethylbenzene	ND		ND		nc	10
87-68-3	Hexachlorobutadiene	ND		ND		nc	10
591-78-6	2-Hexanone	ND		ND		nc	10
98-82-8	Isopropylbenzene	ND		ND		nc	10
99-87-6	p-Isopropyltoluene	ND		ND		nc	10
75-09-2	Methylene chloride	ND		ND		nc	10
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	10
108-10-1	4-Methyl-2-pentanone	ND		ND		nc	10
91-20-3	Naphthalene	ND		ND		nc	10
103-65-1	n-Propylbenzene	ND		ND		nc	10
100-42-5	Styrene	ND		ND		nc	10
630-20-6	1,1,1,2-Tetrachloroethane	ND		ND		nc	10
71-55-6	1,1,1-Trichloroethane	ND		ND		nc	10
79-34-5	1,1,2,2-Tetrachloroethane	ND		ND		nc	10
79-00-5	1,1,2-Trichloroethane	ND		ND		nc	10
87-61-6	1,2,3-Trichlorobenzene	ND		ND		nc	10
96-18-4	1,2,3-Trichloropropane	ND		ND		nc	10
120-82-1	1,2,4-Trichlorobenzene	ND		ND		nc	10
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	10
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	10
127-18-4	Tetrachloroethylene	ND		ND		nc	10
108-88-3	Toluene	ND		ND		nc	10
79-01-6	Trichloroethylene	ND		ND		nc	10
75-69-4	Trichlorofluoromethane	ND		ND		nc	10
75-01-4	Vinyl chloride	ND		ND		nc	10
	m,p-Xylene	ND		ND		nc	10
95-47-6	o-Xylene	ND		ND		nc	10
1330-20-7	Xylenes (total)	ND		ND		nc	10

CAS No.	Surrogate Recoveries	DUP	JC75383-2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	99%	98%	70-130%
460-00-4	4-Bromofluorobenzene	89%	90%	70-130%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5617-BFB
Lab File ID: 1B116624.D
Instrument ID: GCMS1B
Injection Date: 10/01/18
Injection Time: 15:30

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.99 - 40.0% of mass 95	2801	15.1		Pass
75	30.0 - 80.0% of mass 95	8625	46.5		Pass
95	Base peak, 100% relative abundance	18549	100.0		Pass
96	5.0 - 9.0% of mass 95	1163	6.27		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	16140	87.0		Pass
175	5.0 - 9.0% of mass 174	1202	6.48	(7.45) [a]	Pass
176	95.0 - 101.0% of mass 174	15619	84.2	(96.8) [a]	Pass
177	5.0 - 9.0% of mass 176	1002	5.40	(6.42) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V1B5617-IC5617	1B116625.D	10/01/18	16:06	00:36	Initial cal 0.2
V1B5617-IC5617	1B116626.D	10/01/18	16:38	01:08	Initial cal 0.5
V1B5617-IC5617	1B116627.D	10/01/18	17:09	01:39	Initial cal 1
V1B5617-IC5617	1B116628.D	10/01/18	17:41	02:11	Initial cal 2
V1B5617-IC5617	1B116629.D	10/01/18	18:13	02:43	Initial cal 5
V1B5617-ICC5617	1B116630.D	10/01/18	18:44	03:14	Initial cal 10
V1B5617-IC5617	1B116631.D	10/01/18	19:16	03:46	Initial cal 20
V1B5617-IC5617	1B116632.D	10/01/18	19:48	04:18	Initial cal 40
V1B5617-IC5617	1B116633.D	10/01/18	20:20	04:50	Initial cal 80
V1B5617-ICV5617	1B116635.D	10/01/18	21:23	05:53	Initial cal verification 10

Instrument Performance Check (BFB)

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5623-BFB
Lab File ID: 1B116702.D
Instrument ID: GCMS1B
Injection Date: 10/08/18
Injection Time: 10:26

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.99 - 40.0% of mass 95	4035	16.4		Pass
75	30.0 - 80.0% of mass 95	11550	47.0		Pass
95	Base peak, 100% relative abundance	24597	100.0		Pass
96	5.0 - 9.0% of mass 95	1709	6.95		Pass
173	Less than 2.0% of mass 174	132	0.54	(0.63) [a]	Pass
174	50.0 - 120.0% of mass 95	21043	85.6		Pass
175	5.0 - 9.0% of mass 174	1709	6.95	(8.12) [a]	Pass
176	95.0 - 101.0% of mass 174	20496	83.3	(97.4) [a]	Pass
177	5.0 - 9.0% of mass 176	1287	5.23	(6.28) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V1B5623-CC5617	1B116703.D	10/08/18	11:22	00:56	Continuing cal 5
V1B5623-BS	1B116703.D	10/08/18	11:22	00:56	Blank Spike
V1B5623-MB	1B116704.D	10/08/18	11:54	01:28	Method Blank
JC75273-3	1B116705.D	10/08/18	12:33	02:07	TRIP BLANK
JC75383-1	1B116706.D	10/08/18	13:05	02:39	(used for QC only; not part of job JC75273)
JC75383-2	1B116707.D	10/08/18	13:37	03:11	(used for QC only; not part of job JC75273)
ZZZZZZ	1B116708.D	10/08/18	14:08	03:42	(unrelated sample)
JC75273-1	1B116709.D	10/08/18	14:40	04:14	PW-12270CM-100318
JC75273-2F	1B116710.D	10/08/18	15:12	04:46	PW-12270CM-100318-F
ZZZZZZ	1B116711.D	10/08/18	15:43	05:17	(unrelated sample)
ZZZZZZ	1B116712.D	10/08/18	16:15	05:49	(unrelated sample)
JC75383-1MS	1B116713.D	10/08/18	16:46	06:20	Matrix Spike
JC75383-2DUP	1B116714.D	10/08/18	17:18	06:52	Duplicate
ZZZZZZ	1B116715.D	10/08/18	17:50	07:24	(unrelated sample)
ZZZZZZ	1B116716.D	10/08/18	18:22	07:56	(unrelated sample)
ZZZZZZ	1B116717.D	10/08/18	18:54	08:28	(unrelated sample)
ZZZZZZ	1B116718.D	10/08/18	19:25	08:59	(unrelated sample)
ZZZZZZ	1B116719.D	10/08/18	19:57	09:31	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample:	V3A6923-BFB	**Injection Date:**	07/18/18
Lab File ID:	3A160428.D	**Injection Time:**	16:55
Instrument ID:	GCMS3A		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	25408	20.8		Pass
75	30.0 - 60.0% of mass 95	62880	51.6		Pass
95	Base peak, 100% relative abundance	121864	100.0		Pass
96	5.0 - 9.0% of mass 95	8101	6.65		Pass
173	Less than 2.0% of mass 174	826	0.68	(0.81) [a]	Pass
174	50.0 - 120.0% of mass 95	102317	84.0		Pass
175	5.0 - 9.0% of mass 174	8168	6.70	(7.98) [a]	Pass
176	95.0 - 101.0% of mass 174	100370	82.4	(98.1) [a]	Pass
177	5.0 - 9.0% of mass 176	6691	5.49	(6.67) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3A6923-IC6923	3A160429.D	07/18/18	17:26	00:31	Initial cal 0.25
V3A6923-IC6923	3A160430.D	07/18/18	17:52	00:57	Initial cal 0.4
V3A6923-IC6923	3A160431.D	07/18/18	18:18	01:23	Initial cal 1
V3A6923-IC6923	3A160432.D	07/18/18	18:43	01:48	Initial cal 2
V3A6923-IC6923	3A160433.D	07/18/18	19:09	02:14	Initial cal 5
V3A6923-ICC6923	3A160434.D	07/18/18	19:35	02:40	Initial cal 20
V3A6923-IC6923	3A160435.D	07/18/18	20:00	03:05	Initial cal 50
V3A6923-IC6923	3A160436.D	07/18/18	20:26	03:31	Initial cal 100
V3A6923-IC6923	3A160437.D	07/18/18	20:52	03:57	Initial cal 200
V3A6923-ICV6923	3A160443.D	07/18/18	23:25	06:30	Initial cal verification 20

Instrument Performance Check (BFB)

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V3A6956-BFB
Lab File ID: 3A161008.D
Instrument ID: GCMS3A
Injection Date: 10/08/18
Injection Time: 10:58

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	8859	20.9		Pass
75	30.0 - 60.0% of mass 95	20783	49.1		Pass
95	Base peak, 100% relative abundance	42356	100.0		Pass
96	5.0 - 9.0% of mass 95	2848	6.72		Pass
173	Less than 2.0% of mass 174	386	0.91	(1.09) [a]	Pass
174	50.0 - 120.0% of mass 95	35296	83.3		Pass
175	5.0 - 9.0% of mass 174	2736	6.46	(7.75) [a]	Pass
176	95.0 - 101.0% of mass 174	33585	79.3	(95.2) [a]	Pass
177	5.0 - 9.0% of mass 176	2479	5.85	(7.38) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3A6956-CC6923	3A161009.D	10/08/18	11:27	00:29	Continuing cal 20
V3A6956-BS	3A161010.D	10/08/18	11:56	00:58	Blank Spike
V3A6956-BSD	3A161011.D	10/08/18	12:25	01:27	Blank Spike Duplicate
V3A6956-MB	3A161012.D	10/08/18	13:01	02:03	Method Blank
JC75372-1	3A161013.D	10/08/18	13:28	02:30	(used for QC only; not part of job JC75273)
JC75372-1MS	3A161014.D	10/08/18	13:56	02:58	Matrix Spike
JC75372-1MSD	3A161015.D	10/08/18	14:24	03:26	Matrix Spike Duplicate
ZZZZZZ	3A161017.D	10/08/18	15:20	04:22	(unrelated sample)
ZZZZZZ	3A161018.D	10/08/18	15:47	04:49	(unrelated sample)
JC75273-3	3A161019.D	10/08/18	16:15	05:17	TRIP BLANK
JC75273-1	3A161020.D	10/08/18	16:42	05:44	PW-12270CM-100318
JC75273-2F	3A161021.D	10/08/18	17:09	06:11	PW-12270CM-100318-F
ZZZZZZ	3A161022.D	10/08/18	17:37	06:39	(unrelated sample)
ZZZZZZ	3A161023.D	10/08/18	18:04	07:06	(unrelated sample)
ZZZZZZ	3A161024.D	10/08/18	18:32	07:34	(unrelated sample)
ZZZZZZ	3A161025.D	10/08/18	18:59	08:01	(unrelated sample)
ZZZZZZ	3A161026.D	10/08/18	19:27	08:29	(unrelated sample)
ZZZZZZ	3A161027.D	10/08/18	19:54	08:56	(unrelated sample)
ZZZZZZ	3A161028.D	10/08/18	20:21	09:23	(unrelated sample)
ZZZZZZ	3A161029.D	10/08/18	20:49	09:51	(unrelated sample)
ZZZZZZ	3A161030.D	10/08/18	21:16	10:18	(unrelated sample)
ZZZZZZ	3A161031.D	10/08/18	21:43	10:45	(unrelated sample)

Surrogate Recovery Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Method: EPA 524.2 REV 4.1 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2
JC75273-1	1B116709.D	101	91
JC75273-3	1B116705.D	98	92
JC75273-2F	1B116710.D	98	90
JC75383-1MS	1B116713.D	105	99
JC75383-2DUP	1B116714.D	99	89
V1B5623-BS	1B116703.D	108	104
V1B5623-MB	1B116704.D	98	94

Surrogate Compounds	Recovery Limits
S1 = 1,2-Dichlorobenzene-d4	70-130%
S2 = 4-Bromofluorobenzene	70-130%

Surrogate Recovery Summary

Job Number: JC75273
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Method: SW846 8260C BY SIM **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1
JC75273-1	3A161020.D	60
JC75273-3	3A161019.D	60
JC75273-2F	3A161021.D	61
JC75372-1MS	3A161014.D	82
JC75372-1MSD	3A161015.D	74
V3A6956-BS	3A161010.D	101
V3A6956-BSD	3A161011.D	97
V3A6956-MB	3A161012.D	96

Surrogate Compounds	Recovery Limits
S1 = 1,4-Dioxane-d8	51-175%

NOVEMBER 2018

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

WSP Environment & Energy

Kop-Flex, Hanover, VA

31401545.011

SGS Job Number: JC77704

Sampling Date: 11/07/18

Report to:

WSP
11190 Sunrise Valley Drive Suite 300
Reston, VA 20190
Eric.Johnson@WSPGroup.com

ATTN: Eric Johnson

Total number of pages in report: 42

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Brian McGuire
General Manager

Client Service contact: Rocus Peters 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

Sections: 1 2 3 4 5

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SGS North America Inc.

Sample Summary

WSP Environment & Energy

Job No: JC77704

Kop-Flex, Hanover, VA
Project No: 31401545.011

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC77704-1	11/07/18	09:50	ML	11/08/18	AQ	Water	RW-12270CM-1107-18
JC77704-2	11/07/18	09:45	ML	11/08/18	AQ	Water	RW-12270CM-1107-18-F
JC77704-3	11/07/18	09:50	ML	11/08/18	AQ	Trip Blank Water	TRIP BLANK

Summary of Hits

Job Number: JC77704
Account: WSP Environment & Energy
Project: Kop-Flex, Hanover, VA
Collected: 11/07/18

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC77704-1	**RW-12270CM-1107-18**					
1,1-Dichloroethylene [a]		5.2	0.50	0.19	ug/l	EPA 524.2 REV 4.1
1,1,1-Trichloroethane [a]		0.24 J	0.50	0.22	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane		2.2	0.40	0.095	ug/l	SW846 8260C BY SIM
JC77704-2	**RW-12270CM-1107-18-F**					
1,1-Dichloroethylene [a]		1.7	0.50	0.19	ug/l	EPA 524.2 REV 4.1
1,1,1-Trichloroethane [a]		0.25 J	0.50	0.22	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane		2.3	0.40	0.095	ug/l	SW846 8260C BY SIM
JC77704-3	**TRIP BLANK**					

No hits reported in this sample.

(a) EPA 524.2 is not a certified method for non-potable water samples.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	RW-12270CM-1107-18		
Lab Sample ID:	JC77704-1	**Date Sampled:**	11/07/18
Matrix:	AQ - Water	**Date Received:**	11/08/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1B117051.D	1	11/13/18 13:51	CSF	n/a	n/a	V1B5643
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	5.0	2.5	ug/l	
78-93-3	2-Butanone	ND	5.0	0.43	ug/l	
71-43-2	Benzene	ND	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.13	ug/l	
75-25-2	Bromoform [b]	ND	0.50	0.27	ug/l	
74-83-9	Bromomethane	ND	0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND	0.50	0.080	ug/l	
67-66-3	Chloroform	ND	0.50	0.17	ug/l	
74-87-3	Chloromethane	ND	0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride [b]	ND	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	5.2	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.14	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-1107-18		
Lab Sample ID:	JC77704-1	**Date Sampled:**	11/07/18
Matrix:	AQ - Water	**Date Received:**	11/08/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.14	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.18	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.16	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND	2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	0.22	ug/l	
91-20-3	Naphthalene	ND	0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.066	ug/l	
100-42-5	Styrene	ND	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	0.24	0.50	0.22	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.23	ug/l	
108-88-3	Toluene	ND	0.50	0.11	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.15	ug/l	
	m,p-Xylene	ND	0.50	0.14	ug/l	
95-47-6	o-Xylene	ND	0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	93%		70-130%
460-00-4	4-Bromofluorobenzene	84%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-1107-18		
Lab Sample ID:	JC77704-1	**Date Sampled:**	11/07/18
Matrix:	AQ - Water	**Date Received:**	11/08/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q

(a) EPA 524.2 is not a certified method for non-potable water samples.
(b) Associated CCV and BS outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-1107-18		
Lab Sample ID:	JC77704-1	**Date Sampled:**	11/07/18
Matrix:	AQ - Water	**Date Received:**	11/08/18
Method:	SW846 8260C BY SIM	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A161177.D	1	11/16/18 11:00	RS	n/a	n/a	V3A6964
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	2.2	0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	112%		25-195%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-1107-18-F		
Lab Sample ID:	JC77704-2	**Date Sampled:**	11/07/18
Matrix:	AQ - Water	**Date Received:**	11/08/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1B117052.D	1	11/13/18 14:23	CSF	n/a	n/a	V1B5643
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	5.0	2.5	ug/l	
78-93-3	2-Butanone	ND	5.0	0.43	ug/l	
71-43-2	Benzene	ND	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.13	ug/l	
75-25-2	Bromoform [b]	ND	0.50	0.27	ug/l	
74-83-9	Bromomethane	ND	0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND	0.50	0.080	ug/l	
67-66-3	Chloroform	ND	0.50	0.17	ug/l	
74-87-3	Chloromethane	ND	0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride [b]	ND	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	1.7	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.14	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-1107-18-F		
Lab Sample ID:	JC77704-2	**Date Sampled:**	11/07/18
Matrix:	AQ - Water	**Date Received:**	11/08/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.14	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.18	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.16	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND	2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	0.22	ug/l	
91-20-3	Naphthalene	ND	0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.066	ug/l	
100-42-5	Styrene	ND	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	0.25	0.50	0.22	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.23	ug/l	
108-88-3	Toluene	ND	0.50	0.11	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.15	ug/l	
	m,p-Xylene	ND	0.50	0.14	ug/l	
95-47-6	o-Xylene	ND	0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	91%		70-130%
460-00-4	4-Bromofluorobenzene	81%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-1107-18-F		
Lab Sample ID:	JC77704-2	**Date Sampled:**	11/07/18
Matrix:	AQ - Water	**Date Received:**	11/08/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q

(a) EPA 524.2 is not a certified method for non-potable water samples.
(b) Associated CCV and BS outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-1107-18-F		
Lab Sample ID:	JC77704-2	**Date Sampled:**	11/07/18
Matrix:	AQ - Water	**Date Received:**	11/08/18
Method:	SW846 8260C BY SIM	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A161178.D	1	11/16/18 11:29	RS	n/a	n/a	V3A6964
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	2.3	0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	117%		25-195%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JC77704-3	**Date Sampled:**	11/07/18
Matrix:	AQ - Trip Blank Water	**Date Received:**	11/08/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	1B117050.D	1	11/13/18 13:20	CSF	n/a	n/a	V1B5643
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	5.0	2.5	ug/l	
78-93-3	2-Butanone	ND	5.0	0.43	ug/l	
71-43-2	Benzene	ND	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.13	ug/l	
75-25-2	Bromoform [b]	ND	0.50	0.27	ug/l	
74-83-9	Bromomethane	ND	0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND	0.50	0.080	ug/l	
67-66-3	Chloroform	ND	0.50	0.17	ug/l	
74-87-3	Chloromethane	ND	0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride [b]	ND	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.14	ug/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JC77704-3	**Date Sampled:**	11/07/18
Matrix:	AQ - Trip Blank Water	**Date Received:**	11/08/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.14	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.18	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.16	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND	2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	0.22	ug/l	
91-20-3	Naphthalene	ND	0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.066	ug/l	
100-42-5	Styrene	ND	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.23	ug/l	
108-88-3	Toluene	ND	0.50	0.11	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.15	ug/l	
	m,p-Xylene	ND	0.50	0.14	ug/l	
95-47-6	o-Xylene	ND	0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	99%		70-130%
460-00-4	4-Bromofluorobenzene	86%		70-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JC77704-3	**Date Sampled:**	11/07/18
Matrix:	AQ - Trip Blank Water	**Date Received:**	11/08/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q

(a) EPA 524.2 is not a certified method for non-potable water samples.
(b) Associated CCV and BS outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	JC77704-3	**Date Sampled:**	11/07/18
Matrix:	AQ - Trip Blank Water	**Date Received:**	11/08/18
Method:	SW846 8260C BY SIM	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A161176.D	1	11/16/18 10:32	RS	n/a	n/a	V3A6964
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND	0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	122%		25-195%

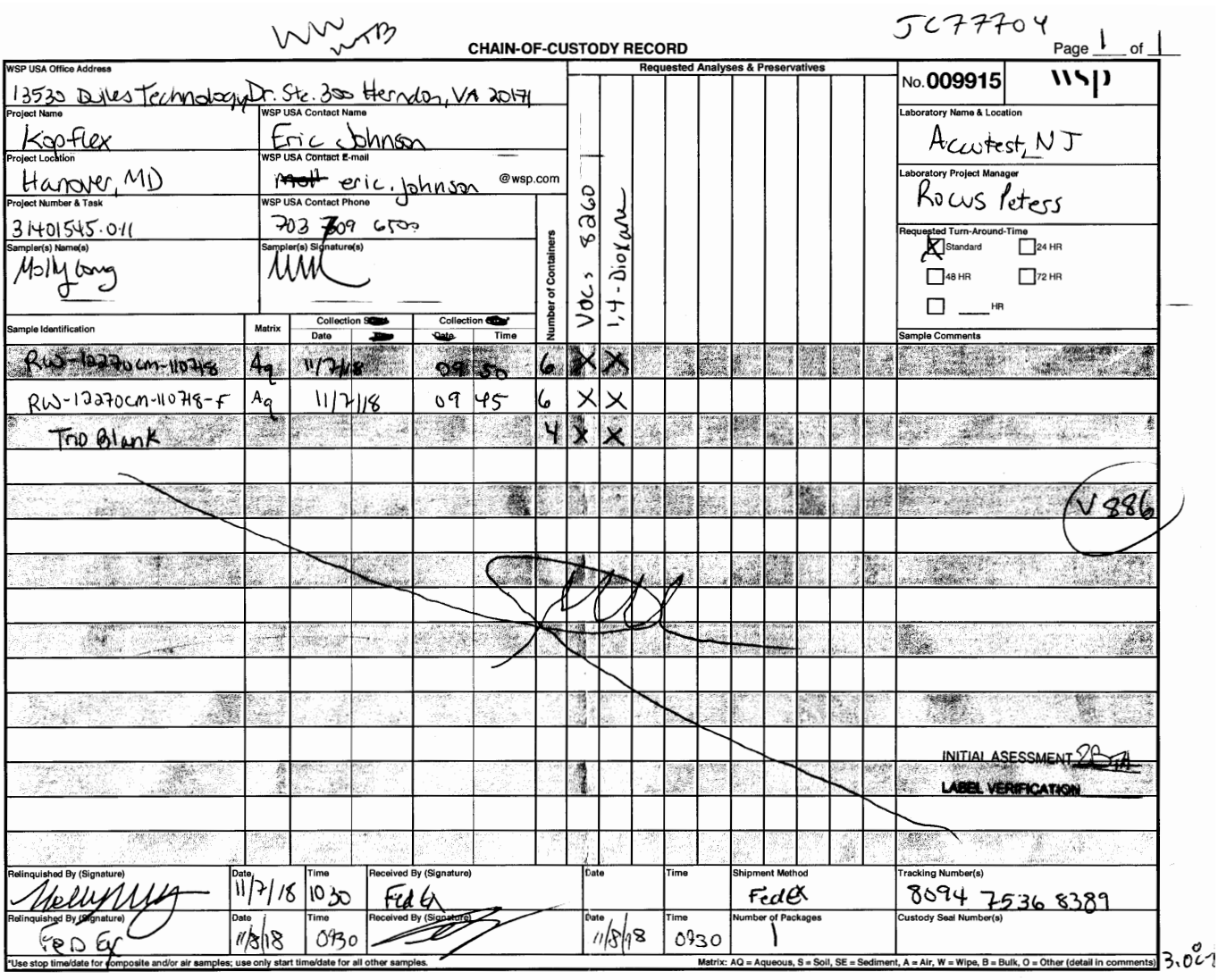
ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



JC77704 Page 1 of 1

CHAIN-OF-CUSTODY RECORD

WSP USA Office Address: 13530 Dulles Technology Dr. Ste. 300 Herndon, VA 20171

Project Name: Kopflex
Project Location: Hanover, MD
Project Number & Task: 31401545.011
Sampler(s) Name(s): Molly Long
WSP USA Contact Name: Eric Johnson
WSP USA Contact E-mail: ~~Matt~~ eric.johnson @wsp.com
WSP USA Contact Phone: 703 709 6500
Sampler(s) Signature(s):

Requested Analyses & Preservatives: VOCs 8260; 1,4-Dioxane

No. 009915

Laboratory Name & Location: Accutest, NJ
Laboratory Project Manager: Rocus Petess
Requested Turn-Around-Time: [X] Standard [ ] 24 HR [ ] 48 HR [ ] 72 HR [ ] ___ HR

	Sample Identification	Matrix	Collection Date	Collection Time	Number of Containers	VOCs 8260	1,4-Dioxane	Sample Comments
1	RW-12270cm-110718	Aq	11/7/18	0930	6	X	X	
2	RW-12270CM-110718-F	Aq	11/7/18	0945	6	X	X	
3	Trip Blank				4	X	X	

V886

INITIAL ASESSMENT
LABEL VERIFICATION

Relinquished By (Signature)	Date	Time	Received By (Signature)	Date	Time	Shipment Method	Tracking Number(s)
	11/7/18	1030	FedEx			FedEx	8094 7536 8389
FED EX	11/8/18	0930		11/8/18	0930	Number of Packages: 1	Custody Seal Number(s):

*Use stop time/date for composite and/or air samples; use only start time/date for all other samples.

Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)

3.0°C

JC77704: Chain of Custody
Page 1 of 2

SGS Sample Receipt Summary

Job Number: JC77704 **Client:** _____ **Project:** _____

Date / Time Received: 11/8/2018 9:30:00 AM **Delivery Method:** _____ **Airbill #'s:** _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.0);

Cooler Temps (Corrected) °C: Cooler 1: (2.4);

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☑		☐	☐
2. Trip Blank listed on COC:	☑		☐	☐
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☑		☐	☐

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume recvd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Test Strip Lot #s: pH 1-12: 216017 pH 12+: 208717 Other: (Specify) _____ _____

Comments

SM089-03
Rev. Date 12/7/17

JC77704: Chain of Custody
Page 2 of 2

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5643-MB	1B117047.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	5.0	2.5	ug/l	
78-93-3	2-Butanone	ND	5.0	0.43	ug/l	
71-43-2	Benzene	ND	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.13	ug/l	
75-25-2	Bromoform	ND	0.50	0.27	ug/l	
74-83-9	Bromomethane	ND	0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND	0.50	0.080	ug/l	
67-66-3	Chloroform	ND	0.50	0.17	ug/l	
74-87-3	Chloromethane	ND	0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.14	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.14	ug/l	

Method Blank Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5643-MB	1B117047.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.16	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.18	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND	2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	0.22	ug/l	
91-20-3	Naphthalene	ND	0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.066	ug/l	
100-42-5	Styrene	ND	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.23	ug/l	
108-88-3	Toluene	ND	0.50	0.11	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.15	ug/l	
	m,p-Xylene	ND	0.50	0.14	ug/l	
95-47-6	o-Xylene	ND	0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries		Limits
2199-69-1	1,2-Dichlorobenzene-d4	97%	70-130%
460-00-4	4-Bromofluorobenzene	85%	70-130%

Method Blank Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5643-MB	1B117047.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:**

JC77704-1, JC77704-2, JC77704-3

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Method Blank Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6964-MB	3A161173.D	1	11/16/18	RS	n/a	n/a	V3A6964

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND	0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries		Limits
17647-74-4	1,4-Dioxane-d8	113%	25-195%

Blank Spike Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5643-BS	1B117046.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	20	18.5	93	70-130
78-93-3	2-Butanone	20	19.2	96	70-130
71-43-2	Benzene	5	5.1	102	70-130
108-86-1	Bromobenzene	5	5.5	110	70-130
74-97-5	Bromochloromethane	5	5.7	114	70-130
75-27-4	Bromodichloromethane	5	5.6	112	70-130
75-25-2	Bromoform	5	6.9	138* [a]	70-130
74-83-9	Bromomethane	5	5.4	108	70-130
104-51-8	n-Butylbenzene	5	4.9	98	70-130
135-98-8	sec-Butylbenzene	5	4.9	98	70-130
98-06-6	tert-Butylbenzene	5	4.9	98	70-130
75-15-0	Carbon disulfide	5	5.2	104	70-130
108-90-7	Chlorobenzene	5	5.3	106	70-130
75-00-3	Chloroethane	5	5.3	106	70-130
67-66-3	Chloroform	5	5.1	102	70-130
74-87-3	Chloromethane	5	5.0	100	70-130
95-49-8	o-Chlorotoluene	5	5.2	104	70-130
106-43-4	p-Chlorotoluene	5	5.0	100	70-130
56-23-5	Carbon tetrachloride	5	6.6	132* [a]	70-130
75-34-3	1,1-Dichloroethane	5	4.9	98	70-130
75-35-4	1,1-Dichloroethylene	5	4.8	96	70-130
563-58-6	1,1-Dichloropropene	5	5.0	100	70-130
96-12-8	1,2-Dibromo-3-chloropropane	5	5.3	106	70-130
106-93-4	1,2-Dibromoethane	5	5.4	108	70-130
107-06-2	1,2-Dichloroethane	5	5.2	104	70-130
78-87-5	1,2-Dichloropropane	5	5.0	100	70-130
142-28-9	1,3-Dichloropropane	5	5.3	106	70-130
594-20-7	2,2-Dichloropropane	5	5.2	104	70-130
124-48-1	Dibromochloromethane	5	6.3	126	70-130
74-95-3	Dibromomethane	5	5.6	112	70-130
75-71-8	Dichlorodifluoromethane	5	5.3	106	70-130
541-73-1	m-Dichlorobenzene	5	5.5	110	70-130
95-50-1	o-Dichlorobenzene	5	5.4	108	70-130
106-46-7	p-Dichlorobenzene	5	5.4	108	70-130
156-60-5	trans-1,2-Dichloroethylene	5	5.4	108	70-130
156-59-2	cis-1,2-Dichloroethylene	5	5.2	104	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5643-BS	1B117046.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	5	5.1	102	70-130
10061-02-6	trans-1,3-Dichloropropene	5	5.3	106	70-130
100-41-4	Ethylbenzene	5	5.0	100	70-130
87-68-3	Hexachlorobutadiene	5	5.4	108	70-130
591-78-6	2-Hexanone	20	18.0	90	70-130
98-82-8	Isopropylbenzene	5	4.8	96	70-130
99-87-6	p-Isopropyltoluene	5	4.9	98	70-130
75-09-2	Methylene chloride	5	5.4	108	70-130
1634-04-4	Methyl Tert Butyl Ether	5	4.6	92	70-130
108-10-1	4-Methyl-2-pentanone	20	19.1	96	70-130
91-20-3	Naphthalene	5	4.8	96	70-130
103-65-1	n-Propylbenzene	5	5.0	100	70-130
100-42-5	Styrene	5	4.9	98	70-130
630-20-6	1,1,1,2-Tetrachloroethane	5	6.0	120	70-130
71-55-6	1,1,1-Trichloroethane	5	5.4	108	70-130
79-34-5	1,1,2,2-Tetrachloroethane	5	5.3	106	70-130
79-00-5	1,1,2-Trichloroethane	5	5.2	104	70-130
87-61-6	1,2,3-Trichlorobenzene	5	5.3	106	70-130
96-18-4	1,2,3-Trichloropropane	5	5.6	112	70-130
120-82-1	1,2,4-Trichlorobenzene	5	5.0	100	70-130
95-63-6	1,2,4-Trimethylbenzene	5	5.0	100	70-130
108-67-8	1,3,5-Trimethylbenzene	5	5.0	100	70-130
127-18-4	Tetrachloroethylene	5	5.2	104	70-130
108-88-3	Toluene	5	5.1	102	70-130
79-01-6	Trichloroethylene	5	5.1	102	70-130
75-69-4	Trichlorofluoromethane	5	5.5	110	70-130
75-01-4	Vinyl chloride	5	5.0	100	70-130
	m,p-Xylene	10	10.2	102	70-130
95-47-6	o-Xylene	5	5.0	100	70-130
1330-20-7	Xylenes (total)	15	15.2	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2199-69-1	1,2-Dichlorobenzene-d4	108%	70-130%
460-00-4	4-Bromofluorobenzene	99%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5643-BS	1B117046.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

(a) High percent recoveries and no associated positive reported in the QC batch.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6964-BS	3A161172.D	1	11/16/18	RS	n/a	n/a	V3A6964

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
123-91-1	1,4-Dioxane	20	21.2	106	48-137

CAS No.	Surrogate Recoveries	BSP	Limits
17647-74-4	1,4-Dioxane-d8	101%	25-195%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC77704-1MS	1B117053.D	1	11/13/18	CSF	n/a	n/a	V1B5643
JC77704-1 [a]	1B117051.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	JC77704-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
67-64-1	Acetone	ND		20	19.9	100	41-142
78-93-3	2-Butanone	ND		20	19.2	96	55-129
71-43-2	Benzene	ND		5	4.9	98	53-138
108-86-1	Bromobenzene	ND		5	5.0	100	54-138
74-97-5	Bromochloromethane	ND		5	5.4	108	55-140
75-27-4	Bromodichloromethane	ND		5	5.2	104	57-147
75-25-2	Bromoform	ND		5	6.3	126	47-137
74-83-9	Bromomethane	ND		5	5.9	118	40-162
104-51-8	n-Butylbenzene	ND		5	4.5	90	45-144
135-98-8	sec-Butylbenzene	ND		5	4.7	94	46-145
98-06-6	tert-Butylbenzene	ND		5	4.6	92	48-141
75-15-0	Carbon disulfide	ND		5	5.1	102	35-127
108-90-7	Chlorobenzene	ND		5	5.1	102	54-135
75-00-3	Chloroethane	ND		5	5.9	118	38-153
67-66-3	Chloroform	ND		5	5.0	100	57-151
74-87-3	Chloromethane	ND		5	5.7	114	39-165
95-49-8	o-Chlorotoluene	ND		5	4.9	98	55-142
106-43-4	p-Chlorotoluene	ND		5	4.7	94	55-139
56-23-5	Carbon tetrachloride	ND		5	6.4	128	49-170
75-34-3	1,1-Dichloroethane	ND		5	4.8	96	55-149
75-35-4	1,1-Dichloroethylene	5.2		5	9.5	86	42-142
563-58-6	1,1-Dichloropropene	ND		5	4.9	98	46-151
96-12-8	1,2-Dibromo-3-chloropropane	ND		5	4.9	98	48-141
106-93-4	1,2-Dibromoethane	ND		5	5.1	102	57-135
107-06-2	1,2-Dichloroethane	ND		5	4.9	98	59-166
78-87-5	1,2-Dichloropropane	ND		5	4.8	96	53-142
142-28-9	1,3-Dichloropropane	ND		5	5.0	100	58-143
594-20-7	2,2-Dichloropropane	ND		5	4.9	98	38-165
124-48-1	Dibromochloromethane	ND		5	5.9	118	55-138
74-95-3	Dibromomethane	ND		5	5.2	104	61-144
75-71-8	Dichlorodifluoromethane	ND		5	6.0	120	23-172
541-73-1	m-Dichlorobenzene	ND		5	5.0	100	53-138
95-50-1	o-Dichlorobenzene	ND		5	4.9	98	54-140
106-46-7	p-Dichlorobenzene	ND		5	4.9	98	53-137
156-60-5	trans-1,2-Dichloroethylene	ND		5	5.1	102	47-148
156-59-2	cis-1,2-Dichloroethylene	ND		5	5.0	100	51-146

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC77704-1MS	1B117053.D	1	11/13/18	CSF	n/a	n/a	V1B5643
JC77704-1 [a]	1B117051.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	JC77704-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
10061-01-5	cis-1,3-Dichloropropene	ND		5	4.6	92	51-136
10061-02-6	trans-1,3-Dichloropropene	ND		5	4.8	96	54-142
100-41-4	Ethylbenzene	ND		5	4.8	96	51-138
87-68-3	Hexachlorobutadiene	ND		5	4.1	82	40-154
591-78-6	2-Hexanone	ND		20	18.4	92	53-128
98-82-8	Isopropylbenzene	ND		5	4.6	92	49-139
99-87-6	p-Isopropyltoluene	ND		5	4.7	94	45-141
75-09-2	Methylene chloride	ND		5	5.2	104	54-137
1634-04-4	Methyl Tert Butyl Ether	ND		5	4.2	84	53-143
108-10-1	4-Methyl-2-pentanone	ND		20	18.3	92	58-127
91-20-3	Naphthalene	ND		5	3.5	70	44-140
103-65-1	n-Propylbenzene	ND		5	4.8	96	50-142
100-42-5	Styrene	ND		5	4.5	90	23-130
630-20-6	1,1,1,2-Tetrachloroethane	ND		5	5.6	112	57-144
71-55-6	1,1,1-Trichloroethane	0.24	J	5	5.6	107	52-164
79-34-5	1,1,2,2-Tetrachloroethane	ND		5	5.0	100	58-138
79-00-5	1,1,2-Trichloroethane	ND		5	5.1	102	59-139
87-61-6	1,2,3-Trichlorobenzene	ND		5	3.9	78	47-141
96-18-4	1,2,3-Trichloropropane	ND		5	5.3	106	56-148
120-82-1	1,2,4-Trichlorobenzene	ND		5	4.0	80	46-137
95-63-6	1,2,4-Trimethylbenzene	ND		5	4.7	94	41-138
108-67-8	1,3,5-Trimethylbenzene	ND		5	4.8	96	45-138
127-18-4	Tetrachloroethylene	ND		5	5.0	100	45-145
108-88-3	Toluene	ND		5	4.8	96	52-134
79-01-6	Trichloroethylene	ND		5	5.0	100	54-143
75-69-4	Trichlorofluoromethane	ND		5	6.4	128	36-167
75-01-4	Vinyl chloride	ND		5	6.0	120	35-162
	m,p-Xylene	ND		10	9.7	97	49-135
95-47-6	o-Xylene	ND		5	4.7	94	49-134
1330-20-7	Xylenes (total)	ND		15	14.4	96	50-134

CAS No.	Surrogate Recoveries	MS	JC77704-1	Limits
2199-69-1	1,2-Dichlorobenzene-d4	102%	93%	70-130%
460-00-4	4-Bromofluorobenzene	95%	84%	70-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC77704-1MS	1B117053.D	1	11/13/18	CSF	n/a	n/a	V1B5643
JC77704-1 [a]	1B117051.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

(a) EPA 524.2 is not a certified method for non-potable water samples.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC77704-1MS	3A161180.D	1	11/16/18	RS	n/a	n/a	V3A6964
JC77704-1MSD	3A161181.D	1	11/16/18	RS	n/a	n/a	V3A6964
JC77704-1	3A161177.D	1	11/16/18	RS	n/a	n/a	V3A6964

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	JC77704-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
123-91-1	1,4-Dioxane	2.2		20	24.6	112	20	23.1	105	6	28-162/64

CAS No.	Surrogate Recoveries	MS	MSD	JC77704-1	Limits
17647-74-4	1,4-Dioxane-d8	111%	108%	112%	25-195%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC77704-2DUP	1B117054.D	1	11/13/18	CSF	n/a	n/a	V1B5643
JC77704-2 [a]	1B117052.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	JC77704-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
67-64-1	Acetone	ND		ND		nc	10
78-93-3	2-Butanone	ND		ND		nc	12
71-43-2	Benzene	ND		ND		nc	10
108-86-1	Bromobenzene	ND		ND		nc	10
74-97-5	Bromochloromethane	ND		ND		nc	10
75-27-4	Bromodichloromethane	ND		ND		nc	10
75-25-2	Bromoform	ND		ND		nc	10
74-83-9	Bromomethane	ND		ND		nc	10
104-51-8	n-Butylbenzene	ND		ND		nc	10
135-98-8	sec-Butylbenzene	ND		ND		nc	10
98-06-6	tert-Butylbenzene	ND		ND		nc	10
75-15-0	Carbon disulfide	ND		ND		nc	19
108-90-7	Chlorobenzene	ND		ND		nc	10
75-00-3	Chloroethane	ND		ND		nc	10
67-66-3	Chloroform	ND		ND		nc	12
74-87-3	Chloromethane	ND		ND		nc	10
95-49-8	o-Chlorotoluene	ND		ND		nc	10
106-43-4	p-Chlorotoluene	ND		ND		nc	10
56-23-5	Carbon tetrachloride	ND		ND		nc	10
75-34-3	1,1-Dichloroethane	ND		ND		nc	10
75-35-4	1,1-Dichloroethylene	1.7		1.5		13* [b]	10
563-58-6	1,1-Dichloropropene	ND		ND		nc	10
96-12-8	1,2-Dibromo-3-chloropropane	ND		ND		nc	10
106-93-4	1,2-Dibromoethane	ND		ND		nc	10
107-06-2	1,2-Dichloroethane	ND		ND		nc	10
78-87-5	1,2-Dichloropropane	ND		ND		nc	10
142-28-9	1,3-Dichloropropane	ND		ND		nc	10
594-20-7	2,2-Dichloropropane	ND		ND		nc	10
124-48-1	Dibromochloromethane	ND		ND		nc	10
74-95-3	Dibromomethane	ND		ND		nc	10
75-71-8	Dichlorodifluoromethane	ND		ND		nc	10
541-73-1	m-Dichlorobenzene	ND		ND		nc	10
95-50-1	o-Dichlorobenzene	ND		ND		nc	10
106-46-7	p-Dichlorobenzene	ND		ND		nc	10
156-60-5	trans-1,2-Dichloroethylene	ND		ND		nc	10
156-59-2	cis-1,2-Dichloroethylene	ND		ND		nc	10

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC77704-2DUP	1B117054.D	1	11/13/18	CSF	n/a	n/a	V1B5643
JC77704-2 [a]	1B117052.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

CAS No.	Compound	JC77704-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
10061-01-5	cis-1,3-Dichloropropene	ND		ND		nc	10
10061-02-6	trans-1,3-Dichloropropene	ND		ND		nc	10
100-41-4	Ethylbenzene	ND		ND		nc	10
87-68-3	Hexachlorobutadiene	ND		ND		nc	10
591-78-6	2-Hexanone	ND		ND		nc	10
98-82-8	Isopropylbenzene	ND		ND		nc	10
99-87-6	p-Isopropyltoluene	ND		ND		nc	10
75-09-2	Methylene chloride	ND		ND		nc	10
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	10
108-10-1	4-Methyl-2-pentanone	ND		ND		nc	10
91-20-3	Naphthalene	ND		ND		nc	10
103-65-1	n-Propylbenzene	ND		ND		nc	10
100-42-5	Styrene	ND		ND		nc	10
630-20-6	1,1,1,2-Tetrachloroethane	ND		ND		nc	10
71-55-6	1,1,1-Trichloroethane	0.25	J	0.24	J	4	10
79-34-5	1,1,2,2-Tetrachloroethane	ND		ND		nc	10
79-00-5	1,1,2-Trichloroethane	ND		ND		nc	10
87-61-6	1,2,3-Trichlorobenzene	ND		ND		nc	10
96-18-4	1,2,3-Trichloropropane	ND		ND		nc	10
120-82-1	1,2,4-Trichlorobenzene	ND		ND		nc	10
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	10
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	10
127-18-4	Tetrachloroethylene	ND		ND		nc	10
108-88-3	Toluene	ND		ND		nc	10
79-01-6	Trichloroethylene	ND		ND		nc	10
75-69-4	Trichlorofluoromethane	ND		ND		nc	10
75-01-4	Vinyl chloride	ND		ND		nc	10
	m,p-Xylene	ND		ND		nc	10
95-47-6	o-Xylene	ND		ND		nc	10
1330-20-7	Xylenes (total)	ND		ND		nc	10

CAS No.	Surrogate Recoveries	DUP	JC77704-2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	87%	91%	70-130%
460-00-4	4-Bromofluorobenzene	82%	81%	70-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC77704-2DUP	1B117054.D	1	11/13/18	CSF	n/a	n/a	V1B5643
JC77704-2 [a]	1B117052.D	1	11/13/18	CSF	n/a	n/a	V1B5643

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC77704-1, JC77704-2, JC77704-3

(a) EPA 524.2 is not a certified method for non-potable water samples.
(b) RPD acceptable due to low DUP and sample concentrations.

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample:	V1B5635-BFB	**Injection Date:**	10/31/18
Lab File ID:	1B116906.D	**Injection Time:**	16:12
Instrument ID:	GCMS1B		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.99 - 40.0% of mass 95	3064	17.8		Pass
75	30.0 - 80.0% of mass 95	8612	50.1		Pass
95	Base peak, 100% relative abundance	17185	100.0		Pass
96	5.0 - 9.0% of mass 95	1168	6.80		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	15780	91.8		Pass
175	5.0 - 9.0% of mass 174	1107	6.44	(7.02) [a]	Pass
176	95.0 - 101.0% of mass 174	15586	90.7	(98.8) [a]	Pass
177	5.0 - 9.0% of mass 176	1013	5.89	(6.50) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V1B5635-IC5635	1B116907.D	10/31/18	16:56	00:44	Initial cal 0.2
V1B5635-IC5635	1B116908.D	10/31/18	17:28	01:16	Initial cal 0.5
V1B5635-IC5635	1B116909.D	10/31/18	18:00	01:48	Initial cal 1
V1B5635-IC5635	1B116910.D	10/31/18	18:32	02:20	Initial cal 2
V1B5635-IC5635	1B116911.D	10/31/18	19:03	02:51	Initial cal 5
V1B5635-ICC5635	1B116912.D	10/31/18	19:35	03:23	Initial cal 10
V1B5635-IC5635	1B116913.D	10/31/18	20:07	03:55	Initial cal 20
V1B5635-IC5635	1B116914.D	10/31/18	20:39	04:27	Initial cal 40
V1B5635-IC5635	1B116915.D	10/31/18	21:11	04:59	Initial cal 80
V1B5635-ICV5635	1B116917.D	10/31/18	22:14	06:02	Initial cal verification 10

Instrument Performance Check (BFB)

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5643-BFB
Lab File ID: 1B117045.D
Instrument ID: GCMS1B
Injection Date: 11/13/18
Injection Time: 10:32

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.99 - 40.0% of mass 95	2479	17.7		Pass
75	30.0 - 80.0% of mass 95	6683	47.8		Pass
95	Base peak, 100% relative abundance	13973	100.0		Pass
96	5.0 - 9.0% of mass 95	919	6.58		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	13343	95.5		Pass
175	5.0 - 9.0% of mass 174	910	6.51	(6.82) [a]	Pass
176	95.0 - 101.0% of mass 174	12841	91.9	(96.2) [a]	Pass
177	5.0 - 9.0% of mass 176	920	6.58	(7.16) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V1B5643-CC5635	1B117046.D	11/13/18	11:12	00:40	Continuing cal 5
V1B5643-BS	1B117046.D	11/13/18	11:12	00:40	Blank Spike
V1B5643-MB	1B117047.D	11/13/18	11:44	01:12	Method Blank
ZZZZZZ	1B117048.D	11/13/18	12:16	01:44	(unrelated sample)
JC77704-3	1B117050.D	11/13/18	13:20	02:48	TRIP BLANK
JC77704-1	1B117051.D	11/13/18	13:51	03:19	RW-12270CM-1107-18
JC77704-2	1B117052.D	11/13/18	14:23	03:51	RW-12270CM-1107-18-F
JC77704-1MS	1B117053.D	11/13/18	14:55	04:23	Matrix Spike
JC77704-2DUP	1B117054.D	11/13/18	15:27	04:55	Duplicate
ZZZZZZ	1B117055.D	11/13/18	15:59	05:27	(unrelated sample)
ZZZZZZ	1B117056.D	11/13/18	16:30	05:58	(unrelated sample)
ZZZZZZ	1B117057.D	11/13/18	17:02	06:30	(unrelated sample)
ZZZZZZ	1B117058.D	11/13/18	17:34	07:02	(unrelated sample)
ZZZZZZ	1B117059.D	11/13/18	18:06	07:34	(unrelated sample)
ZZZZZZ	1B117060.D	11/13/18	18:37	08:05	(unrelated sample)
ZZZZZZ	1B117061.D	11/13/18	19:09	08:37	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V3A6923-BFB
Lab File ID: 3A160428.D
Instrument ID: GCMS3A
Injection Date: 07/18/18
Injection Time: 16:55

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	25408	20.8		Pass
75	30.0 - 60.0% of mass 95	62880	51.6		Pass
95	Base peak, 100% relative abundance	121864	100.0		Pass
96	5.0 - 9.0% of mass 95	8101	6.65		Pass
173	Less than 2.0% of mass 174	826	0.68	(0.81) [a]	Pass
174	50.0 - 120.0% of mass 95	102317	84.0		Pass
175	5.0 - 9.0% of mass 174	8168	6.70	(7.98) [a]	Pass
176	95.0 - 101.0% of mass 174	100370	82.4	(98.1) [a]	Pass
177	5.0 - 9.0% of mass 176	6691	5.49	(6.67) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3A6923-IC6923	3A160429.D	07/18/18	17:26	00:31	Initial cal 0.25
V3A6923-IC6923	3A160430.D	07/18/18	17:52	00:57	Initial cal 0.4
V3A6923-IC6923	3A160431.D	07/18/18	18:18	01:23	Initial cal 1
V3A6923-IC6923	3A160432.D	07/18/18	18:43	01:48	Initial cal 2
V3A6923-IC6923	3A160433.D	07/18/18	19:09	02:14	Initial cal 5
V3A6923-ICC6923	3A160434.D	07/18/18	19:35	02:40	Initial cal 20
V3A6923-IC6923	3A160435.D	07/18/18	20:00	03:05	Initial cal 50
V3A6923-IC6923	3A160436.D	07/18/18	20:26	03:31	Initial cal 100
V3A6923-IC6923	3A160437.D	07/18/18	20:52	03:57	Initial cal 200
V3A6923-ICV6923	3A160443.D	07/18/18	23:25	06:30	Initial cal verification 20

Instrument Performance Check (BFB)

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V3A6964-BFB
Lab File ID: 3A161170.D
Instrument ID: GCMS3A
Injection Date: 11/16/18
Injection Time: 07:28

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	10777	18.8		Pass
75	30.0 - 60.0% of mass 95	26933	46.9		Pass
95	Base peak, 100% relative abundance	57461	100.0		Pass
96	5.0 - 9.0% of mass 95	4146	7.22		Pass
173	Less than 2.0% of mass 174	195	0.34	(0.43) [a]	Pass
174	50.0 - 120.0% of mass 95	44928	78.2		Pass
175	5.0 - 9.0% of mass 174	3631	6.32	(8.08) [a]	Pass
176	95.0 - 101.0% of mass 174	44353	77.2	(98.7) [a]	Pass
177	5.0 - 9.0% of mass 176	2999	5.22	(6.76) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3A6964-CC6923	3A161171.D	11/16/18	07:58	00:30	Continuing cal 20
V3A6964-BS	3A161172.D	11/16/18	08:29	01:01	Blank Spike
V3A6964-MB	3A161173.D	11/16/18	08:59	01:31	Method Blank
ZZZZZZ	3A161174.D	11/16/18	09:34	02:06	(unrelated sample)
ZZZZZZ	3A161175.D	11/16/18	10:03	02:35	(unrelated sample)
JC77704-3	3A161176.D	11/16/18	10:32	03:04	TRIP BLANK
JC77704-1	3A161177.D	11/16/18	11:00	03:32	RW-12270CM-1107-18
JC77704-2	3A161178.D	11/16/18	11:29	04:01	RW-12270CM-1107-18-F
ZZZZZZ	3A161179.D	11/16/18	11:57	04:29	(unrelated sample)
JC77704-1MS	3A161180.D	11/16/18	12:41	05:13	Matrix Spike
JC77704-1MSD	3A161181.D	11/16/18	13:10	05:42	Matrix Spike Duplicate
ZZZZZZ	3A161183.D	11/16/18	14:28	07:00	(unrelated sample)

Surrogate Recovery Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Method: EPA 524.2 REV 4.1 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2
JC77704-1	1B117051.D	93	84
JC77704-2	1B117052.D	91	81
JC77704-3	1B117050.D	99	86
JC77704-1MS	1B117053.D	102	95
JC77704-2DUP	1B117054.D	87	82
V1B5643-BS	1B117046.D	108	99
V1B5643-MB	1B117047.D	97	85

Surrogate Compounds	Recovery Limits
S1 = 1,2-Dichlorobenzene-d4	70-130%
S2 = 4-Bromofluorobenzene	70-130%

Surrogate Recovery Summary

Job Number: JC77704
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Method: SW846 8260C BY SIM **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1
JC77704-1	3A161177.D	112
JC77704-2	3A161178.D	117
JC77704-3	3A161176.D	122
JC77704-1MS	3A161180.D	111
JC77704-1MSD	3A161181.D	108
V3A6964-BS	3A161172.D	101
V3A6964-MB	3A161173.D	113

Surrogate Compounds	Recovery Limits
S1 = 1,4-Dioxane-d8	25-195%

DECEMBER 2018

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

WSP Environment & Energy

Kop-Flex, Hanover, VA

31401545.011

SGS Job Number: JC79352

Sampling Date: 12/06/18

Report to:

WSP
11190 Sunrise Valley Drive Suite 300
Reston, VA 20190
Eric.Johnson@WSPGroup.com

ATTN: Eric Johnson

Total number of pages in report: **40**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Brian McGuire
General Manager

Client Service contact: Rocus Peters 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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SGS North America Inc.

Sample Summary

WSP Environment & Energy

Job No: JC79352

Kop-Flex, Hanover, VA
Project No: 31401545.011

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JC79352-1	12/06/18	12:15	MK/SB	12/07/18	DW	Drinking Water	RW-1227OCM-120618-F
JC79352-2	12/06/18	12:25	MK/SB	12/07/18	DW	Drinking Water	RW-1227OCM-120618

Summary of Hits

Job Number: JC79352
Account: WSP Environment & Energy
Project: Kop-Flex, Hanover, VA
Collected: 12/06/18

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC79352-1	**RW-1227OCM-120618-F**					
1,1-Dichloroethylene		0.68	0.50	0.19	ug/l	EPA 524.2 REV 4.1
1,1,1-Trichloroethane		0.27 J	0.50	0.22	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane		1.7	0.40	0.095	ug/l	SW846 8260C BY SIM
JC79352-2	**RW-1227OCM-120618**					
1,1-Dichloroethylene		4.9	0.50	0.19	ug/l	EPA 524.2 REV 4.1
1,1,1-Trichloroethane		0.22 J	0.50	0.22	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane		1.7	0.40	0.095	ug/l	SW846 8260C BY SIM

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	RW-1227OCM-120618-F		
Lab Sample ID:	JC79352-1	**Date Sampled:**	12/06/18
Matrix:	DW - Drinking Water	**Date Received:**	12/07/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B117540.D	1	12/11/18 14:18	CSF	n/a	n/a	V1B5669
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
67-64-1	Acetone	ND		5.0	2.5	ug/l	
78-93-3	2-Butanone	ND		5.0	0.43	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.13	ug/l	
75-25-2	Bromoform	ND		0.50	0.27	ug/l	
74-83-9	Bromomethane	ND		0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND		0.50	0.080	ug/l	
67-66-3	Chloroform	ND		0.50	0.17	ug/l	
74-87-3	Chloromethane	ND		0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride [a]	ND	5.0	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND		0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	0.68	7.0	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane [a]	ND		0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.14	ug/l	

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-1227OCM-120618-F		
Lab Sample ID:	JC79352-1	**Date Sampled:**	12/06/18
Matrix:	DW - Drinking Water	**Date Received:**	12/07/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	600	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.14	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.18	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.16	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND		2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	5.0	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND		0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	0.22	ug/l	
91-20-3	Naphthalene	ND		0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.066	ug/l	
100-42-5	Styrene	ND	100	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	0.27	200	0.50	0.22	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	70	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.23	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.11	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.15	ug/l	
	m,p-Xylene	ND		0.50	0.14	ug/l	
95-47-6	o-Xylene	ND		0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	83%		70-130%
460-00-4	4-Bromofluorobenzene	83%		70-130%

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-1227OCM-120618-F		
Lab Sample ID:	JC79352-1	**Date Sampled:**	12/06/18
Matrix:	DW - Drinking Water	**Date Received:**	12/07/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q

(a) Associated CCV and BS outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-1227OCM-120618-F		
Lab Sample ID:	JC79352-1	**Date Sampled:**	12/06/18
Matrix:	DW - Drinking Water	**Date Received:**	12/07/18
Method:	SW846 8260C BY SIM	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A161394.D	1	12/10/18 16:15	RS	n/a	n/a	V3A6973
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	1.7		0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	82%		25-195%

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-1227OCM-120618		
Lab Sample ID:	JC79352-2	**Date Sampled:**	12/06/18
Matrix:	DW - Drinking Water	**Date Received:**	12/07/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B117541.D	1	12/11/18 14:49	CSF	n/a	n/a	V1B5669
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
67-64-1	Acetone	ND		5.0	2.5	ug/l	
78-93-3	2-Butanone	ND		5.0	0.43	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.13	ug/l	
75-25-2	Bromoform	ND		0.50	0.27	ug/l	
74-83-9	Bromomethane	ND		0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND		0.50	0.080	ug/l	
67-66-3	Chloroform	ND		0.50	0.17	ug/l	
74-87-3	Chloromethane	ND		0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride [a]	ND	5.0	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND		0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	4.9	7.0	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane [a]	ND		0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.14	ug/l	

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-1227OCM-120618		
Lab Sample ID:	JC79352-2	**Date Sampled:**	12/06/18
Matrix:	DW - Drinking Water	**Date Received:**	12/07/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	600	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.14	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.18	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.16	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND		2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	5.0	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND		0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	0.22	ug/l	
91-20-3	Naphthalene	ND		0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.066	ug/l	
100-42-5	Styrene	ND	100	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	0.22	200	0.50	0.22	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	70	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.23	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.11	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.15	ug/l	
	m,p-Xylene	ND		0.50	0.14	ug/l	
95-47-6	o-Xylene	ND		0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	88%		70-130%
460-00-4	4-Bromofluorobenzene	83%		70-130%

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-1227OCM-120618		
Lab Sample ID:	JC79352-2	**Date Sampled:**	12/06/18
Matrix:	DW - Drinking Water	**Date Received:**	12/07/18
Method:	EPA 524.2 REV 4.1	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q

(a) Associated CCV and BS outside of control limits high, sample was ND.

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-1227OCM-120618		
Lab Sample ID:	JC79352-2	**Date Sampled:**	12/06/18
Matrix:	DW - Drinking Water	**Date Received:**	12/07/18
Method:	SW846 8260C BY SIM	**Percent Solids:**	n/a
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A161395.D	1	12/10/18 16:44	RS	n/a	n/a	V3A6973
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	1.7		0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	82%		25-195%

ND = Not detected MDL = Method Detection Limit
MCL = Maximum Contamination Level (40 CFR 141)
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Certification Exceptions
- Chain of Custody

Parameter Certification Exceptions

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

The following parameters included in this report are exceptions to NELAC certification.
The certification status of each is indicated below.

Parameter	CAS#	Method	Mat	Certification Status
Bromodichloromethane	75-27-4	**EPA 524.2 REV 4.1**	AQ	SGS is not certified for this parameter.[a]
Bromoform	75-25-2	**EPA 524.2 REV 4.1**	AQ	SGS is not certified for this parameter.[a]
Chloroform	67-66-3	**EPA 524.2 REV 4.1**	AQ	SGS is not certified for this parameter.[a]
Dibromochloromethane	124-48-1	**EPA 524.2 REV 4.1**	AQ	SGS is not certified for this parameter.[a]

(a) Analyte is in applied status with NJDEP for this reference method.

Certification exceptions shown are based on the New Jersey DEP certifications. Applicability in other states may vary. Please contact your laboratory representative if additional information is required for a specific regulatory program.

DW

CHAIN-OF-CUSTODY RECORD

JC79352 Page 1 of 1

WSP | Parsons Brinckerhoff Office Address		Requested Analyses & Preservatives	No. 004566 WSP | PARSONS BRINCKERHOFF
13530 Dulles Technology Drive St 300 Herndon VA			
Project Name: Hopflex	WSP | Parsons Brinckerhoff Contact Name: Eric Johnson		Laboratory Name & Location: SGS Accutest Dayton NJ
Project Location: Hanover MD	WSP | Parsons Brinckerhoff Contact E-mail: eric-johnson@wspgroup.com		Laboratory Project Manager: Rous Peters
Project Number & Task: 31401545.011	WSP | Parsons Brinckerhoff Contact Phone: (703) 709-6500		Requested Turn-Around-Time: ☒ Standard ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ ___ HR
Sampler(s) Name(s): Maria Kepler, Shannon Burke	Sampler(s) Signature(s): [signatures]		Rou SW-11308.MM

	Sample Identification	Matrix	Collection Start Date	Collection Start ~~Time~~	Collection Stop ~~Date~~	Collection Stop Time	Number of Containers	VOCs (524)	1,4 Dioxane (8260 SIM)								Sample Comments
1	RW-12250CM-120618-F	DW	12/6/18		1215		6	X	X								
2	RW-12250CM-120618	DW	12/6/18		1225		6	X	X								
																	U1138

INITIAL ASSESSMENT 24 [initials]

LABEL VERIFICATION

Relinquished By (Signature)	Date	Time	Received By (Signature)	Date	Time	Shipment Method	Tracking Number(s)
[signature]	12/6/18	1400	Fedex	12/6/18	1400	FedEX	8127 8179 4240
Relinquished By (Signature)	**Date**	**Time**	**Received By (Signature)**	**Date**	**Time**	**Number of Packages**	**Custody Seal Number(s)**
FX	12/7/18	10:00	[signature]	12/7/18	1000		08040

*Use stop time/date for composite and/or air samples; use only start time/date for all other samples.

Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)

FCE/ 2.8°C-1

JC79352: Chain of Custody
Page 1 of 4

SGS Sample Receipt Summary

Job Number: JC79352 **Client:** WSP **Project:** KOP-FLEX, HANOVER, VA

Date / Time Received: 12/7/2018 10:00:00 AM **Delivery Method:** FedEx **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.8);

Cooler Temps (Corrected) °C: Cooler 1: (2.5);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☐	☑

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☑	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☑	☐	☐

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 216017 pH 12+: 208717 Other: (Specify)

Comments
-1 Collection time on labels is 11:15 not 12:15. ID and date is ok.
-2 Collection time on labels is 11:25 not 12:25. ID and date is ok.

SM089-02 Rev. Date 12/1/16

Responded to by: Rocus Peters

Response Date: 12/10

-1 Use COC times indicated
-2 Use COC times indicated

JC79352: Chain of Custody
Page 3 of 4

Job Change Order: JC79352

Requested Date:	12/18/2018	**Received Date:**	12/7/2018
Account Name:	WSP Environment & Energy	**Due Date:**	12/21/2018
Project Description:	Kop-Flex, Hanover, VA	**Deliverable:**	COMMB
C/O Initiated By:	RP **PM:** RP	**TAT (Days):**	1

==========

Sample #: JC79352-1 **Change:**
Dept: Please revise ID to RW-1227OCM-120618-F
TAT: 1

RW-1225OCM-120618-F

==========

Sample #: JC79352-2 **Change:**
Dept: Please revise ID to RW-1227OCM-120618
TAT: 1

RW-1225OCM-120618

==========

Above Changes Per: Eric Johnson **Date/Time:** 12/18/2018 8:48:06 AM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

JC79352: Chain of Custody
Page 4 of 4

MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5669-MB	1B117535.D	1	12/11/18	CSF	n/a	n/a	V1B5669

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC79352-1, JC79352-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	5.0	2.5	ug/l	
78-93-3	2-Butanone	ND	5.0	0.43	ug/l	
71-43-2	Benzene	ND	0.50	0.16	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.12	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.17	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.13	ug/l	
75-25-2	Bromoform	ND	0.50	0.27	ug/l	
74-83-9	Bromomethane	ND	0.50	0.18	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.068	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.43	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.057	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.18	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.093	ug/l	
75-00-3	Chloroethane	ND	0.50	0.080	ug/l	
67-66-3	Chloroform	ND	0.50	0.17	ug/l	
74-87-3	Chloromethane	ND	0.50	0.13	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.098	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.075	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.24	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.22	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.19	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.14	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.14	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.15	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.18	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.19	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.17	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.31	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.14	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.23	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.40	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.14	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.14	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.10	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.21	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.14	ug/l	

Method Blank Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5669-MB	1B117535.D	1	12/11/18	CSF	n/a	n/a	V1B5669

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC79352-1, JC79352-2

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.16	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.18	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.076	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.13	ug/l	
591-78-6	2-Hexanone	ND	2.0	0.24	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.054	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.43	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.11	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	0.22	ug/l	
91-20-3	Naphthalene	ND	0.50	0.28	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.066	ug/l	
100-42-5	Styrene	ND	0.50	0.069	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.22	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.19	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.091	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.13	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.055	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.40	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.057	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.23	ug/l	
108-88-3	Toluene	ND	0.50	0.11	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.19	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.15	ug/l	
	m,p-Xylene	ND	0.50	0.14	ug/l	
95-47-6	o-Xylene	ND	0.50	0.076	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.076	ug/l	

CAS No.	Surrogate Recoveries		Limits
2199-69-1	1,2-Dichlorobenzene-d4	85%	70-130%
460-00-4	4-Bromofluorobenzene	87%	70-130%

Method Blank Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5669-MB	1B117535.D	1	12/11/18	CSF	n/a	n/a	V1B5669

The QC reported here applies to the following samples: **Method:**

JC79352-1, JC79352-2

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/l	

Method Blank Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6973-MB	3A161388.D	1	12/10/18	RS	n/a	n/a	V3A6973

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

JC79352-1, JC79352-2

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND	0.40	0.095	ug/l	

CAS No.	Surrogate Recoveries		Limits
17647-74-4	1,4-Dioxane-d8	91%	25-195%

Blank Spike Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5669-BS	1B117534.D	1	12/11/18	CSF	n/a	n/a	V1B5669

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC79352-1, JC79352-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	20	21.0	105	70-130
78-93-3	2-Butanone	20	21.7	109	70-130
71-43-2	Benzene	5	5.9	118	70-130
108-86-1	Bromobenzene	5	5.8	116	70-130
74-97-5	Bromochloromethane	5	6.2	124	70-130
75-27-4	Bromodichloromethane	5	6.3	126	70-130
75-25-2	Bromoform	5	6.2	124	70-130
74-83-9	Bromomethane	5	4.9	98	70-130
104-51-8	n-Butylbenzene	5	5.0	100	70-130
135-98-8	sec-Butylbenzene	5	5.2	104	70-130
98-06-6	tert-Butylbenzene	5	5.1	102	70-130
75-15-0	Carbon disulfide	5	6.2	124	70-130
108-90-7	Chlorobenzene	5	5.9	118	70-130
75-00-3	Chloroethane	5	5.3	106	70-130
67-66-3	Chloroform	5	5.9	118	70-130
74-87-3	Chloromethane	5	5.4	108	70-130
95-49-8	o-Chlorotoluene	5	5.6	112	70-130
106-43-4	p-Chlorotoluene	5	5.5	110	70-130
56-23-5	Carbon tetrachloride	5	6.6	132* [a]	70-130
75-34-3	1,1-Dichloroethane	5	5.9	118	70-130
75-35-4	1,1-Dichloroethylene	5	5.8	116	70-130
563-58-6	1,1-Dichloropropene	5	6.0	120	70-130
96-12-8	1,2-Dibromo-3-chloropropane	5	5.0	100	70-130
106-93-4	1,2-Dibromoethane	5	6.0	120	70-130
107-06-2	1,2-Dichloroethane	5	5.9	118	70-130
78-87-5	1,2-Dichloropropane	5	5.9	118	70-130
142-28-9	1,3-Dichloropropane	5	6.1	122	70-130
594-20-7	2,2-Dichloropropane	5	6.6	132* [a]	70-130
124-48-1	Dibromochloromethane	5	6.1	122	70-130
74-95-3	Dibromomethane	5	6.2	124	70-130
75-71-8	Dichlorodifluoromethane	5	5.2	104	70-130
541-73-1	m-Dichlorobenzene	5	5.5	110	70-130
95-50-1	o-Dichlorobenzene	5	5.4	108	70-130
106-46-7	p-Dichlorobenzene	5	5.5	110	70-130
156-60-5	trans-1,2-Dichloroethylene	5	6.0	120	70-130
156-59-2	cis-1,2-Dichloroethylene	5	6.0	120	70-130

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5669-BS	1B117534.D	1	12/11/18	CSF	n/a	n/a	V1B5669

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC79352-1, JC79352-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	5	5.8	116	70-130
10061-02-6	trans-1,3-Dichloropropene	5	5.4	108	70-130
100-41-4	Ethylbenzene	5	5.7	114	70-130
87-68-3	Hexachlorobutadiene	5	4.9	98	70-130
591-78-6	2-Hexanone	20	20.8	104	70-130
98-82-8	Isopropylbenzene	5	5.4	108	70-130
99-87-6	p-Isopropyltoluene	5	5.1	102	70-130
75-09-2	Methylene chloride	5	6.2	124	70-130
1634-04-4	Methyl Tert Butyl Ether	5	5.4	108	70-130
108-10-1	4-Methyl-2-pentanone	20	22.5	113	70-130
91-20-3	Naphthalene	5	4.3	86	70-130
103-65-1	n-Propylbenzene	5	5.4	108	70-130
100-42-5	Styrene	5	5.5	110	70-130
630-20-6	1,1,1,2-Tetrachloroethane	5	6.4	128	70-130
71-55-6	1,1,1-Trichloroethane	5	6.5	130	70-130
79-34-5	1,1,2,2-Tetrachloroethane	5	5.8	116	70-130
79-00-5	1,1,2-Trichloroethane	5	6.0	120	70-130
87-61-6	1,2,3-Trichlorobenzene	5	4.6	92	70-130
96-18-4	1,2,3-Trichloropropane	5	5.9	118	70-130
120-82-1	1,2,4-Trichlorobenzene	5	4.7	94	70-130
95-63-6	1,2,4-Trimethylbenzene	5	5.2	104	70-130
108-67-8	1,3,5-Trimethylbenzene	5	5.3	106	70-130
127-18-4	Tetrachloroethylene	5	5.9	118	70-130
108-88-3	Toluene	5	5.9	118	70-130
79-01-6	Trichloroethylene	5	5.9	118	70-130
75-69-4	Trichlorofluoromethane	5	5.3	106	70-130
75-01-4	Vinyl chloride	5	4.7	94	70-130
	m,p-Xylene	10	11.6	116	70-130
95-47-6	o-Xylene	5	5.6	112	70-130
1330-20-7	Xylenes (total)	15	17.1	114	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2199-69-1	1,2-Dichlorobenzene-d4	94%	70-130%
460-00-4	4-Bromofluorobenzene	97%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5669-BS	1B117534.D	1	12/11/18	CSF	n/a	n/a	V1B5669

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC79352-1, JC79352-2

(a) High percent recoveries and no associated positive reported in the QC batch.

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6973-BS	3A161386.D	1	12/10/18	RS	n/a	n/a	V3A6973
V3A6973-BSD	3A161387.D	1	12/10/18	RS	n/a	n/a	V3A6973

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

JC79352-1, JC79352-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
123-91-1	1,4-Dioxane	20	18.7	94	15.7	79	17	48-137/32

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
17647-74-4	1,4-Dioxane-d8	100%	79%	25-195%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC78952-1MS	1B117542.D	1	12/11/18	CSF	n/a	n/a	V1B5669
JC78952-1	1B117536.D	1	12/11/18	CSF	n/a	n/a	V1B5669

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC79352-1, JC79352-2

CAS No.	Compound	JC78952-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
67-64-1	Acetone	ND		20	19.2	96	41-142
78-93-3	2-Butanone	ND		20	20.5	103	55-129
71-43-2	Benzene	ND		5	5.0	100	53-138
108-86-1	Bromobenzene	ND		5	4.9	98	54-138
74-97-5	Bromochloromethane	ND		5	5.3	106	55-140
75-27-4	Bromodichloromethane	ND		5	5.3	106	57-147
75-25-2	Bromoform	ND		5	5.1	102	47-137
74-83-9	Bromomethane	ND		5	4.3	86	40-162
104-51-8	n-Butylbenzene	ND		5	4.1	82	45-144
135-98-8	sec-Butylbenzene	ND		5	4.3	86	46-145
98-06-6	tert-Butylbenzene	ND		5	4.3	86	48-141
75-15-0	Carbon disulfide	ND		5	5.1	102	35-127
108-90-7	Chlorobenzene	ND		5	5.0	100	54-135
75-00-3	Chloroethane	ND		5	5.1	102	38-153
67-66-3	Chloroform	ND		5	4.9	98	57-151
74-87-3	Chloromethane	ND		5	5.4	108	39-165
95-49-8	o-Chlorotoluene	ND		5	4.6	92	55-142
106-43-4	p-Chlorotoluene	ND		5	4.4	88	55-139
56-23-5	Carbon tetrachloride	ND		5	5.7	114	49-170
75-34-3	1,1-Dichloroethane	ND		5	4.9	98	55-149
75-35-4	1,1-Dichloroethylene	ND		5	4.9	98	42-142
563-58-6	1,1-Dichloropropene	ND		5	5.1	102	46-151
96-12-8	1,2-Dibromo-3-chloropropane	ND		5	4.2	84	48-141
106-93-4	1,2-Dibromoethane	ND		5	5.1	102	57-135
107-06-2	1,2-Dichloroethane	ND		5	5.1	102	59-166
78-87-5	1,2-Dichloropropane	ND		5	4.9	98	53-142
142-28-9	1,3-Dichloropropane	ND		5	5.1	102	58-143
594-20-7	2,2-Dichloropropane	ND		5	5.4	108	38-165
124-48-1	Dibromochloromethane	ND		5	5.1	102	55-138
74-95-3	Dibromomethane	ND		5	5.3	106	61-144
75-71-8	Dichlorodifluoromethane	ND		5	6.3	126	23-172
541-73-1	m-Dichlorobenzene	ND		5	4.5	90	53-138
95-50-1	o-Dichlorobenzene	ND		5	4.5	90	54-140
106-46-7	p-Dichlorobenzene	ND		5	4.5	90	53-137
156-60-5	trans-1,2-Dichloroethylene	ND		5	5.0	100	47-148
156-59-2	cis-1,2-Dichloroethylene	ND		5	5.0	100	51-146

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC78952-1MS	1B117542.D	1	12/11/18	CSF	n/a	n/a	V1B5669
JC78952-1	1B117536.D	1	12/11/18	CSF	n/a	n/a	V1B5669

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC79352-1, JC79352-2

CAS No.	Compound	JC78952-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
10061-01-5	cis-1,3-Dichloropropene	ND		5	4.9	98	51-136
10061-02-6	trans-1,3-Dichloropropene	ND		5	4.5	90	54-142
100-41-4	Ethylbenzene	ND		5	4.7	94	51-138
87-68-3	Hexachlorobutadiene	ND		5	3.8	76	40-154
591-78-6	2-Hexanone	ND		20	18.8	94	53-128
98-82-8	Isopropylbenzene	ND		5	4.5	90	49-139
99-87-6	p-Isopropyltoluene	ND		5	4.2	84	45-141
75-09-2	Methylene chloride	ND		5	5.1	102	54-137
1634-04-4	Methyl Tert Butyl Ether	ND		5	4.6	92	53-143
108-10-1	4-Methyl-2-pentanone	ND		20	19.4	97	58-127
91-20-3	Naphthalene	ND		5	3.4	68	44-140
103-65-1	n-Propylbenzene	ND		5	4.5	90	50-142
100-42-5	Styrene	ND		5	4.5	90	23-130
630-20-6	1,1,1,2-Tetrachloroethane	ND		5	5.3	106	57-144
71-55-6	1,1,1-Trichloroethane	ND		5	5.4	108	52-164
79-34-5	1,1,2,2-Tetrachloroethane	ND		5	5.0	100	58-138
79-00-5	1,1,2-Trichloroethane	ND		5	5.1	102	59-139
87-61-6	1,2,3-Trichlorobenzene	ND		5	3.6	72	47-141
96-18-4	1,2,3-Trichloropropane	ND		5	5.3	106	56-148
120-82-1	1,2,4-Trichlorobenzene	ND		5	3.6	72	46-137
95-63-6	1,2,4-Trimethylbenzene	ND		5	4.2	84	41-138
108-67-8	1,3,5-Trimethylbenzene	ND		5	4.4	88	45-138
127-18-4	Tetrachloroethylene	ND		5	5.0	100	45-145
108-88-3	Toluene	ND		5	5.0	100	52-134
79-01-6	Trichloroethylene	ND		5	5.0	100	54-143
75-69-4	Trichlorofluoromethane	ND		5	6.1	122	36-167
75-01-4	Vinyl chloride	ND		5	5.0	100	35-162
	m,p-Xylene	ND		10	9.6	96	49-135
95-47-6	o-Xylene	ND		5	4.6	92	49-134
1330-20-7	Xylenes (total)	ND		15	14.1	94	50-134

CAS No.	Surrogate Recoveries	MS	JC78952-1	Limits
2199-69-1	1,2-Dichlorobenzene-d4	89%	90%	70-130%
460-00-4	4-Bromofluorobenzene	92%	86%	70-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC79193-2MS	3A161391.D	1	12/10/18	RS	n/a	n/a	V3A6973
JC79193-2	3A161390.D	1	12/10/18	RS	n/a	n/a	V3A6973

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

JC79352-1, JC79352-2

CAS No.	Compound	JC79193-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
123-91-1	1,4-Dioxane	ND		20	17.9	90	28-162

CAS No.	Surrogate Recoveries	MS	JC79193-2	Limits
17647-74-4	1,4-Dioxane-d8	91%	95%	25-195%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC78953-1DUP	1B117543.D	1	12/11/18	CSF	n/a	n/a	V1B5669
JC78953-1	1B117537.D	1	12/11/18	CSF	n/a	n/a	V1B5669

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC79352-1, JC79352-2

CAS No.	Compound	JC78953-1 ug/l	Q	DUP ug/l	Q	RPD	Limits
67-64-1	Acetone	ND		ND		nc	10
78-93-3	2-Butanone	ND		ND		nc	12
71-43-2	Benzene	ND		ND		nc	10
108-86-1	Bromobenzene	ND		ND		nc	10
74-97-5	Bromochloromethane	ND		ND		nc	10
75-27-4	Bromodichloromethane	ND		ND		nc	10
75-25-2	Bromoform	ND		ND		nc	10
74-83-9	Bromomethane	ND		ND		nc	10
104-51-8	n-Butylbenzene	ND		ND		nc	10
135-98-8	sec-Butylbenzene	ND		ND		nc	10
98-06-6	tert-Butylbenzene	ND		ND		nc	10
75-15-0	Carbon disulfide	ND		ND		nc	19
108-90-7	Chlorobenzene	ND		ND		nc	10
75-00-3	Chloroethane	ND		ND		nc	10
67-66-3	Chloroform	ND		ND		nc	12
74-87-3	Chloromethane	ND		ND		nc	10
95-49-8	o-Chlorotoluene	ND		ND		nc	10
106-43-4	p-Chlorotoluene	ND		ND		nc	10
56-23-5	Carbon tetrachloride	ND		ND		nc	10
75-34-3	1,1-Dichloroethane	ND		ND		nc	10
75-35-4	1,1-Dichloroethylene	ND		ND		nc	10
563-58-6	1,1-Dichloropropene	ND		ND		nc	10
96-12-8	1,2-Dibromo-3-chloropropane	ND		ND		nc	10
106-93-4	1,2-Dibromoethane	ND		ND		nc	10
107-06-2	1,2-Dichloroethane	ND		ND		nc	10
78-87-5	1,2-Dichloropropane	ND		ND		nc	10
142-28-9	1,3-Dichloropropane	ND		ND		nc	10
594-20-7	2,2-Dichloropropane	ND		ND		nc	10
124-48-1	Dibromochloromethane	ND		ND		nc	10
74-95-3	Dibromomethane	ND		ND		nc	10
75-71-8	Dichlorodifluoromethane	ND		ND		nc	10
541-73-1	m-Dichlorobenzene	ND		ND		nc	10
95-50-1	o-Dichlorobenzene	ND		ND		nc	10
106-46-7	p-Dichlorobenzene	ND		ND		nc	10
156-60-5	trans-1,2-Dichloroethylene	ND		ND		nc	10
156-59-2	cis-1,2-Dichloroethylene	ND		ND		nc	10

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC78953-1DUP	1B117543.D	1	12/11/18	CSF	n/a	n/a	V1B5669
JC78953-1	1B117537.D	1	12/11/18	CSF	n/a	n/a	V1B5669

The QC reported here applies to the following samples: **Method:** EPA 524.2 REV 4.1

JC79352-1, JC79352-2

CAS No.	Compound	JC78953-1 ug/l	Q	DUP ug/l	Q	RPD	Limits
10061-01-5	cis-1,3-Dichloropropene	ND		ND		nc	10
10061-02-6	trans-1,3-Dichloropropene	ND		ND		nc	10
100-41-4	Ethylbenzene	ND		ND		nc	10
87-68-3	Hexachlorobutadiene	ND		ND		nc	10
591-78-6	2-Hexanone	ND		ND		nc	10
98-82-8	Isopropylbenzene	ND		ND		nc	10
99-87-6	p-Isopropyltoluene	ND		ND		nc	10
75-09-2	Methylene chloride	ND		ND		nc	10
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	10
108-10-1	4-Methyl-2-pentanone	ND		ND		nc	10
91-20-3	Naphthalene	ND		ND		nc	10
103-65-1	n-Propylbenzene	ND		ND		nc	10
100-42-5	Styrene	ND		ND		nc	10
630-20-6	1,1,1,2-Tetrachloroethane	ND		ND		nc	10
71-55-6	1,1,1-Trichloroethane	ND		ND		nc	10
79-34-5	1,1,2,2-Tetrachloroethane	ND		ND		nc	10
79-00-5	1,1,2-Trichloroethane	ND		ND		nc	10
87-61-6	1,2,3-Trichlorobenzene	ND		ND		nc	10
96-18-4	1,2,3-Trichloropropane	ND		ND		nc	10
120-82-1	1,2,4-Trichlorobenzene	ND		ND		nc	10
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	10
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	10
127-18-4	Tetrachloroethylene	ND		ND		nc	10
108-88-3	Toluene	ND		ND		nc	10
79-01-6	Trichloroethylene	ND		ND		nc	10
75-69-4	Trichlorofluoromethane	ND		ND		nc	10
75-01-4	Vinyl chloride	ND		ND		nc	10
	m,p-Xylene	ND		ND		nc	10
95-47-6	o-Xylene	ND		ND		nc	10
1330-20-7	Xylenes (total)	ND		ND		nc	10

CAS No.	Surrogate Recoveries	DUP	JC78953-1	Limits
2199-69-1	1,2-Dichlorobenzene-d4	86%	88%	70-130%
460-00-4	4-Bromofluorobenzene	82%	85%	70-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC79193-1DUP	3A161392.D	1	12/10/18	RS	n/a	n/a	V3A6973
JC79193-1	3A161389.D	1	12/10/18	RS	n/a	n/a	V3A6973

The QC reported here applies to the following samples: **Method:** SW846 8260C BY SIM

JC79352-1, JC79352-2

CAS No.	Compound	JC79193-1 ug/l	Q	DUP ug/l	Q	RPD	Limits
123-91-1	1,4-Dioxane	7.6		8.2		8	48

CAS No.	Surrogate Recoveries	DUP	JC79193-1	Limits
17647-74-4	1,4-Dioxane-d8	122%	110%	25-195%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample:	V1B5665-BFB	**Injection Date:**	12/06/18
Lab File ID:	1B117456.D	**Injection Time:**	11:31
Instrument ID:	GCMS1B		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.99 - 40.0% of mass 95	2523	17.0		Pass
75	30.0 - 80.0% of mass 95	7471	50.4		Pass
95	Base peak, 100% relative abundance	14830	100.0		Pass
96	5.0 - 9.0% of mass 95	1018	6.86		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	12578	84.8		Pass
175	5.0 - 9.0% of mass 174	908	6.12	(7.22) [a]	Pass
176	95.0 - 101.0% of mass 174	12138	81.8	(96.5) [a]	Pass
177	5.0 - 9.0% of mass 176	785	5.29	(6.47) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V1B5665-IC5665	1B117457.D	12/06/18	12:26	00:55	Initial cal 0.2
V1B5665-IC5665	1B117458.D	12/06/18	12:57	01:26	Initial cal 0.5
V1B5665-IC5665	1B117459.D	12/06/18	13:28	01:57	Initial cal 1
V1B5665-IC5665	1B117460.D	12/06/18	13:59	02:28	Initial cal 2
V1B5665-IC5665	1B117461.D	12/06/18	14:30	02:59	Initial cal 5
V1B5665-ICC5665	1B117462.D	12/06/18	15:01	03:30	Initial cal 10
V1B5665-IC5665	1B117463.D	12/06/18	15:33	04:02	Initial cal 20
V1B5665-IC5665	1B117464.D	12/06/18	16:04	04:33	Initial cal 40
V1B5665-IC5665	1B117465.D	12/06/18	16:36	05:05	Initial cal 80
V1B5665-ICV5665	1B117467.D	12/06/18	17:39	06:08	Initial cal verification 10

Instrument Performance Check (BFB)

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5669-BFB
Lab File ID: 1B117533.D
Instrument ID: GCMS1B
Injection Date: 12/11/18
Injection Time: 09:17

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	14.99 - 40.0% of mass 95	2207	17.1		Pass
75	30.0 - 80.0% of mass 95	6691	51.9		Pass
95	Base peak, 100% relative abundance	12887	100.0		Pass
96	5.0 - 9.0% of mass 95	863	6.70		Pass
173	Less than 2.0% of mass 174	0	0.00	(0.00) [a]	Pass
174	50.0 - 120.0% of mass 95	11582	89.9		Pass
175	5.0 - 9.0% of mass 174	794	6.16	(6.86) [a]	Pass
176	95.0 - 101.0% of mass 174	11217	87.0	(96.8) [a]	Pass
177	5.0 - 9.0% of mass 176	741	5.75	(6.61) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V1B5669-CC5665	1B117534.D	12/11/18	10:39	01:22	Continuing cal 5
V1B5669-BS	1B117534.D	12/11/18	10:39	01:22	Blank Spike
V1B5669-MB	1B117535.D	12/11/18	11:21	02:04	Method Blank
JC78952-1	1B117536.D	12/11/18	12:11	02:54	(used for QC only; not part of job JC79352)
JC78953-1	1B117537.D	12/11/18	12:43	03:26	(used for QC only; not part of job JC79352)
ZZZZZZ	1B117538.D	12/11/18	13:15	03:58	(unrelated sample)
ZZZZZZ	1B117539.D	12/11/18	13:46	04:29	(unrelated sample)
JC79352-1	1B117540.D	12/11/18	14:18	05:01	RW-1227OCM-120618-F
JC79352-2	1B117541.D	12/11/18	14:49	05:32	RW-1227OCM-120618
JC78952-1MS	1B117542.D	12/11/18	15:31	06:14	Matrix Spike
JC78953-1DUP	1B117543.D	12/11/18	16:03	06:46	Duplicate
ZZZZZZ	1B117544.D	12/11/18	16:35	07:18	(unrelated sample)

Instrument Performance Check (BFB)

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample:	V3A6923-BFB	**Injection Date:**	07/18/18
Lab File ID:	3A160428.D	**Injection Time:**	16:55
Instrument ID:	GCMS3A		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	25408	20.8		Pass
75	30.0 - 60.0% of mass 95	62880	51.6		Pass
95	Base peak, 100% relative abundance	121864	100.0		Pass
96	5.0 - 9.0% of mass 95	8101	6.65		Pass
173	Less than 2.0% of mass 174	826	0.68	(0.81) [a]	Pass
174	50.0 - 120.0% of mass 95	102317	84.0		Pass
175	5.0 - 9.0% of mass 174	8168	6.70	(7.98) [a]	Pass
176	95.0 - 101.0% of mass 174	100370	82.4	(98.1) [a]	Pass
177	5.0 - 9.0% of mass 176	6691	5.49	(6.67) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3A6923-IC6923	3A160429.D	07/18/18	17:26	00:31	Initial cal 0.25
V3A6923-IC6923	3A160430.D	07/18/18	17:52	00:57	Initial cal 0.4
V3A6923-IC6923	3A160431.D	07/18/18	18:18	01:23	Initial cal 1
V3A6923-IC6923	3A160432.D	07/18/18	18:43	01:48	Initial cal 2
V3A6923-IC6923	3A160433.D	07/18/18	19:09	02:14	Initial cal 5
V3A6923-ICC6923	3A160434.D	07/18/18	19:35	02:40	Initial cal 20
V3A6923-IC6923	3A160435.D	07/18/18	20:00	03:05	Initial cal 50
V3A6923-IC6923	3A160436.D	07/18/18	20:26	03:31	Initial cal 100
V3A6923-IC6923	3A160437.D	07/18/18	20:52	03:57	Initial cal 200
V3A6923-ICV6923	3A160443.D	07/18/18	23:25	06:30	Initial cal verification 20

Instrument Performance Check (BFB)

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample:	V3A6973-BFB	**Injection Date:**	12/10/18
Lab File ID:	3A161384.D	**Injection Time:**	11:05
Instrument ID:	GCMS3A		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance		Pass/Fail
50	15.0 - 40.0% of mass 95	14682	20.6		Pass
75	30.0 - 60.0% of mass 95	35310	49.5		Pass
95	Base peak, 100% relative abundance	71341	100.0		Pass
96	5.0 - 9.0% of mass 95	5086	7.13		Pass
173	Less than 2.0% of mass 174	752	1.05	(1.29) [a]	Pass
174	50.0 - 120.0% of mass 95	58464	82.0		Pass
175	5.0 - 9.0% of mass 174	4402	6.17	(7.53) [a]	Pass
176	95.0 - 101.0% of mass 174	56232	78.8	(96.2) [a]	Pass
177	5.0 - 9.0% of mass 176	3824	5.36	(6.80) [b]	Pass

(a) Value is % of mass 174
(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
V3A6973-CC6923	3A161385.D	12/10/18	11:34	00:29	Continuing cal 5
V3A6973-BS	3A161386.D	12/10/18	12:11	01:06	Blank Spike
V3A6973-BSD	3A161387.D	12/10/18	12:39	01:34	Blank Spike Duplicate
V3A6973-MB	3A161388.D	12/10/18	13:08	02:03	Method Blank
JC79193-1	3A161389.D	12/10/18	13:39	02:34	(used for QC only; not part of job JC79352)
JC79193-2	3A161390.D	12/10/18	14:08	03:03	(used for QC only; not part of job JC79352)
JC79193-2MS	3A161391.D	12/10/18	14:49	03:44	Matrix Spike
JC79193-1DUP	3A161392.D	12/10/18	15:17	04:12	Duplicate
JC79352-1	3A161394.D	12/10/18	16:15	05:10	RW-1227OCM-120618-F
JC79352-2	3A161395.D	12/10/18	16:44	05:39	RW-1227OCM-120618

Surrogate Recovery Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Method: EPA 524.2 REV 4.1 **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2
JC79352-1	1B117540.D	83	83
JC79352-2	1B117541.D	88	83
JC78952-1MS	1B117542.D	89	92
JC78953-1DUP	1B117543.D	86	82
V1B5669-BS	1B117534.D	94	97
V1B5669-MB	1B117535.D	85	87

Surrogate Compounds	Recovery Limits
S1 = 1,2-Dichlorobenzene-d4	70-130%
S2 = 4-Bromofluorobenzene	70-130%

Surrogate Recovery Summary

Job Number: JC79352
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Method: SW846 8260C BY SIM **Matrix:** AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1
JC79352-1	3A161394.D	82
JC79352-2	3A161395.D	82
JC79193-1DUP	3A161392.D	122
JC79193-2MS	3A161391.D	91
V3A6973-BS	3A161386.D	100
V3A6973-BSD	3A161387.D	79
V3A6973-MB	3A161388.D	91

Surrogate Compounds	Recovery Limits
S1 = 1,4-Dioxane-d8	25-195%

ENCLOSURE B – LABORATORY ANALYTICAL REPORT FOR OFFSITE GROUNDWATER MONITORING WELL SAMPLES (NOVEMBER 2018)

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

November 20, 2018

Eric Johnson
WSP USA
13530 Dulles Technology Drive
Suite 300
Herndon, VA 20171

RE: Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Dear Eric Johnson:
Enclosed are the analytical results for sample(s) received by the laboratory on November 12, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Taylor Ezell
taylor.ezell@pacelabs.com
(704)875-9092
Project Manager

Enclosures

cc: Molly Long, WSP

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

CERTIFICATIONS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
Louisiana/NELAP Certification # LA170028
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
Virginia/VELAP Certification #: 460221

Pace Analytical Services, LLC
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SAMPLE SUMMARY

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92406866001	**MW-34D**	Water	11/08/18 10:45	11/12/18 09:37
92406866002	**MW-35D**	Water	11/08/18 11:05	11/12/18 09:37
92406866003	**MW-31D**	Water	11/08/18 11:35	11/12/18 09:37
92406866004	**MW-33D-235**	Water	11/08/18 13:15	11/12/18 09:37
92406866005	**MW-33D-295**	Water	11/08/18 13:25	11/12/18 09:37
92406866006	**MW-30D-413**	Water	11/08/18 13:35	11/12/18 09:37
92406866007	**MW-30D-273**	Water	11/08/18 13:50	11/12/18 09:37
92406866008	**MW-29D**	Water	11/08/18 14:00	11/12/18 09:37
92406866009	**MW-32D**	Water	11/08/18 14:15	11/12/18 09:37
92406866010	**MW-36D**	Water	11/08/18 14:30	11/12/18 09:37
92406866011	**MW-28D**	Water	11/08/18 14:50	11/12/18 09:37
92406866012	**MW-25D-130**	Water	11/08/18 13:40	11/12/18 09:37
92406866013	**MW-25D-190**	Water	11/08/18 13:55	11/12/18 09:37
92406866014	**DUP-110818**	Water	11/08/18 09:00	11/12/18 09:37
92406866015	**TRIP BLANK**	Water	11/08/18 00:00	11/12/18 09:37

Pace Analytical Services, LLC
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SAMPLE ANALYTE COUNT

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92406866001	**MW-34D**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866002	**MW-35D**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866003	**MW-31D**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866004	**MW-33D-235**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866005	**MW-33D-295**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866006	**MW-30D-413**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866007	**MW-30D-273**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866008	**MW-29D**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866009	**MW-32D**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866010	**MW-36D**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866011	**MW-28D**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866012	**MW-25D-130**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866013	**MW-25D-190**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866014	**DUP-110818**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92406866015	**TRIP BLANK**	EPA 8260B	SAS	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-34D **Lab ID: 92406866001** Collected: 11/08/18 10:45 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 19:48	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 19:48	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 19:48	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 19:48	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 19:48	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 19:48	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 19:48	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 19:48	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 19:48	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 19:48	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 19:48	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 19:48	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 19:48	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 19:48	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 19:48	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 19:48	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 19:48	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 19:48	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 19:48	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 19:48	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 19:48	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 19:48	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 19:48	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 19:48	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 19:48	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 19:48	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 19:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 19:48	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 19:48	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 19:48	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 19:48	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 19:48	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 19:48	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 19:48	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 19:48	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 19:48	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 19:48	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 19:48	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 19:48	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 19:48	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 19:48	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 19:48	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 19:48	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 19:48	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 19:48	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 19:48	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 19:48	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-34D **Lab ID: 92406866001** Collected: 11/08/18 10:45 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 19:48	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 19:48	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 19:48	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 19:48	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 19:48	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 19:48	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 19:48	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 19:48	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 19:48	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 19:48	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 19:48	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 19:48	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 19:48	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	101	%	70-130	1		11/13/18 19:48	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		11/13/18 19:48	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/13/18 19:48	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/14/18 12:48	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%	50-150	1		11/14/18 12:48	17060-07-0	
Toluene-d8 (S)	102	%	50-150	1		11/14/18 12:48	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-35D **Lab ID: 92406866002** Collected: 11/08/18 11:05 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 20:04	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 20:04	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 20:04	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 20:04	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 20:04	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 20:04	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 20:04	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 20:04	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 20:04	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 20:04	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 20:04	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 20:04	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 20:04	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 20:04	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 20:04	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 20:04	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 20:04	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 20:04	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 20:04	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:04	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:04	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:04	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 20:04	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 20:04	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 20:04	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:04	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:04	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:04	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:04	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:04	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:04	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:04	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:04	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:04	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 20:04	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 20:04	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 20:04	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 20:04	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 20:04	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 20:04	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 20:04	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 20:04	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 20:04	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 20:04	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 20:04	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 20:04	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 20:04	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-35D **Lab ID: 92406866002** Collected: 11/08/18 11:05 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 20:04	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:04	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:04	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 20:04	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 20:04	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 20:04	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 20:04	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 20:04	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 20:04	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 20:04	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 20:04	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 20:04	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 20:04	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	101	%	70-130	1		11/13/18 20:04	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130	1		11/13/18 20:04	17060-07-0	
Toluene-d8 (S)	105	%	70-130	1		11/13/18 20:04	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/14/18 13:08	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	93	%	50-150	1		11/14/18 13:08	17060-07-0	
Toluene-d8 (S)	93	%	50-150	1		11/14/18 13:08	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-31D **Lab ID: 92406866003** Collected: 11/08/18 11:35 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 20:21	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 20:21	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 20:21	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 20:21	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 20:21	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 20:21	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 20:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 20:21	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 20:21	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 20:21	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 20:21	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 20:21	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 20:21	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 20:21	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 20:21	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 20:21	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 20:21	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 20:21	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 20:21	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:21	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:21	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:21	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 20:21	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 20:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 20:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:21	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:21	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:21	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:21	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:21	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:21	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 20:21	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 20:21	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 20:21	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 20:21	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 20:21	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 20:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 20:21	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 20:21	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 20:21	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 20:21	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 20:21	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 20:21	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 20:21	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-31D **Lab ID: 92406866003** Collected: 11/08/18 11:35 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 20:21	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:21	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:21	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 20:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 20:21	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 20:21	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 20:21	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 20:21	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 20:21	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 20:21	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 20:21	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 20:21	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 20:21	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	1		11/13/18 20:21	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	70-130	1		11/13/18 20:21	17060-07-0	
Toluene-d8 (S)	108	%	70-130	1		11/13/18 20:21	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/14/18 13:27	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	96	%	50-150	1		11/14/18 13:27	17060-07-0	
Toluene-d8 (S)	105	%	50-150	1		11/14/18 13:27	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-33D-235 **Lab ID: 92406866004** Collected: 11/08/18 13:15 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 20:37	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 20:37	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 20:37	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 20:37	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 20:37	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 20:37	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 20:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 20:37	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 20:37	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 20:37	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 20:37	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 20:37	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 20:37	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 20:37	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 20:37	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 20:37	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 20:37	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 20:37	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 20:37	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:37	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:37	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:37	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 20:37	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 20:37	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 20:37	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:37	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:37	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:37	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:37	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:37	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 20:37	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 20:37	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 20:37	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 20:37	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 20:37	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 20:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 20:37	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 20:37	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 20:37	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 20:37	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 20:37	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 20:37	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 20:37	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-33D-235 **Lab ID: 92406866004** Collected: 11/08/18 13:15 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 20:37	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:37	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:37	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 20:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 20:37	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 20:37	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 20:37	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 20:37	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 20:37	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 20:37	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 20:37	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 20:37	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 20:37	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		11/13/18 20:37	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	70-130	1		11/13/18 20:37	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/13/18 20:37	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/14/18 14:25	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	95	%	50-150	1		11/14/18 14:25	17060-07-0	
Toluene-d8 (S)	123	%	50-150	1		11/14/18 14:25	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-33D-295 **Lab ID: 92406866005** Collected: 11/08/18 13:25 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 20:54	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 20:54	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 20:54	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 20:54	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 20:54	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 20:54	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 20:54	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 20:54	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 20:54	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 20:54	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 20:54	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 20:54	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 20:54	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 20:54	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 20:54	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 20:54	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 20:54	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 20:54	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 20:54	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:54	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 20:54	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 20:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 20:54	107-06-2	
1,1-Dichloroethene	**4.2**	ug/L	1.0	1		11/13/18 20:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 20:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:54	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:54	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 20:54	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:54	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 20:54	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 20:54	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 20:54	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 20:54	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 20:54	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 20:54	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 20:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 20:54	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 20:54	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 20:54	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 20:54	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 20:54	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 20:54	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 20:54	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-33D-295 **Lab ID: 92406866005** Collected: 11/08/18 13:25 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 20:54	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:54	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 20:54	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 20:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 20:54	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 20:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 20:54	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 20:54	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 20:54	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 20:54	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 20:54	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 20:54	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 20:54	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		11/13/18 20:54	460-00-4	
1,2-Dichloroethane-d4 (S)	92	%	70-130	1		11/13/18 20:54	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/13/18 20:54	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	**6.1**	ug/L	2.0	1		11/14/18 14:45	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	92	%	50-150	1		11/14/18 14:45	17060-07-0	
Toluene-d8 (S)	115	%	50-150	1		11/14/18 14:45	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-30D-413 **Lab ID: 92406866006** Collected: 11/08/18 13:35 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 21:10	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 21:10	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 21:10	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 21:10	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 21:10	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 21:10	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 21:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 21:10	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 21:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 21:10	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 21:10	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 21:10	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 21:10	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 21:10	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 21:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 21:10	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 21:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 21:10	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 21:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:10	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 21:10	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 21:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 21:10	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 21:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 21:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 21:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 21:10	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 21:10	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 21:10	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 21:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 21:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 21:10	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 21:10	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 21:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 21:10	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 21:10	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 21:10	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 21:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 21:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 21:10	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 21:10	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 21:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 21:10	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 21:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 21:10	127-18-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
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(704)875-9092

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-30D-413 **Lab ID: 92406866006** Collected: 11/08/18 13:35 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 21:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 21:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 21:10	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 21:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 21:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 21:10	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 21:10	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 21:10	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 21:10	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 21:10	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 21:10	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		11/13/18 21:10	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		11/13/18 21:10	17060-07-0	
Toluene-d8 (S)	105	%	70-130	1		11/13/18 21:10	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/14/18 22:32	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	50-150	1		11/14/18 22:32	17060-07-0	
Toluene-d8 (S)	86	%	50-150	1		11/14/18 22:32	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-30D-273 **Lab ID: 92406866007** Collected: 11/08/18 13:50 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 21:27	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 21:27	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 21:27	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 21:27	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 21:27	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 21:27	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 21:27	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 21:27	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 21:27	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 21:27	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 21:27	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 21:27	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 21:27	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 21:27	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 21:27	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 21:27	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 21:27	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 21:27	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 21:27	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:27	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:27	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:27	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 21:27	75-71-8	
1,1-Dichloroethane	**1.2**	ug/L	1.0	1		11/13/18 21:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 21:27	107-06-2	
1,1-Dichloroethene	**44.0**	ug/L	1.0	1		11/13/18 21:27	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 21:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 21:27	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 21:27	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 21:27	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 21:27	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 21:27	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 21:27	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 21:27	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 21:27	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 21:27	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 21:27	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 21:27	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 21:27	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 21:27	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 21:27	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 21:27	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 21:27	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 21:27	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 21:27	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 21:27	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 21:27	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-30D-273 **Lab ID: 92406866007** Collected: 11/08/18 13:50 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 21:27	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:27	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:27	120-82-1	
1,1,1-Trichloroethane	**2.1**	ug/L	1.0	1		11/13/18 21:27	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 21:27	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 21:27	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 21:27	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 21:27	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 21:27	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 21:27	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 21:27	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 21:27	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 21:27	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		11/13/18 21:27	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		11/13/18 21:27	17060-07-0	
Toluene-d8 (S)	105	%	70-130	1		11/13/18 21:27	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	**22.2**	ug/L	2.0	1		11/14/18 22:51	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	117	%	50-150	1		11/14/18 22:51	17060-07-0	
Toluene-d8 (S)	137	%	50-150	1		11/14/18 22:51	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-29D **Lab ID: 92406866008** Collected: 11/08/18 14:00 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 21:44	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 21:44	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 21:44	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 21:44	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 21:44	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 21:44	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 21:44	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 21:44	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 21:44	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 21:44	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 21:44	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 21:44	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 21:44	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 21:44	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 21:44	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 21:44	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 21:44	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 21:44	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 21:44	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:44	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:44	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:44	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 21:44	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 21:44	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 21:44	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 21:44	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 21:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 21:44	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 21:44	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 21:44	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 21:44	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 21:44	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 21:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 21:44	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 21:44	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 21:44	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 21:44	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 21:44	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 21:44	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 21:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 21:44	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 21:44	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 21:44	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 21:44	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 21:44	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 21:44	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 21:44	127-18-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(704)875-9092

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-29D **Lab ID: 92406866008** Collected: 11/08/18 14:00 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 21:44	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:44	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 21:44	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 21:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 21:44	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 21:44	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 21:44	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 21:44	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 21:44	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 21:44	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 21:44	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 21:44	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 21:44	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		11/13/18 21:44	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		11/13/18 21:44	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/13/18 21:44	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/14/18 23:11	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	92	%	50-150	1		11/14/18 23:11	17060-07-0	
Toluene-d8 (S)	145	%	50-150	1		11/14/18 23:11	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-32D **Lab ID: 92406866009** Collected: 11/08/18 14:15 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 22:00	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 22:00	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 22:00	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 22:00	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 22:00	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 22:00	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 22:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 22:00	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 22:00	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 22:00	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 22:00	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 22:00	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 22:00	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 22:00	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 22:00	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 22:00	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 22:00	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 22:00	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 22:00	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:00	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:00	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:00	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 22:00	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 22:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 22:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 22:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 22:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 22:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:00	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:00	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:00	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:00	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:00	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 22:00	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 22:00	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 22:00	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 22:00	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 22:00	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 22:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 22:00	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 22:00	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 22:00	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 22:00	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 22:00	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 22:00	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 22:00	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-32D **Lab ID: 92406866009** Collected: 11/08/18 14:15 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 22:00	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:00	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:00	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 22:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 22:00	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 22:00	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 22:00	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 22:00	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 22:00	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 22:00	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 22:00	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 22:00	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 22:00	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		11/13/18 22:00	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		11/13/18 22:00	17060-07-0	
Toluene-d8 (S)	109	%	70-130	1		11/13/18 22:00	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/14/18 23:30	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	112	%	50-150	1		11/14/18 23:30	17060-07-0	
Toluene-d8 (S)	177	%	50-150	1		11/14/18 23:30	2037-26-5	S3

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-36D **Lab ID: 92406866010** Collected: 11/08/18 14:30 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 22:17	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 22:17	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 22:17	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 22:17	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 22:17	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 22:17	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 22:17	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 22:17	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 22:17	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 22:17	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 22:17	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 22:17	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 22:17	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 22:17	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 22:17	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 22:17	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 22:17	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 22:17	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 22:17	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:17	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:17	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:17	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 22:17	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 22:17	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 22:17	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 22:17	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 22:17	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 22:17	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:17	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:17	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:17	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:17	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:17	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:17	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 22:17	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 22:17	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 22:17	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 22:17	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 22:17	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 22:17	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 22:17	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 22:17	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 22:17	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 22:17	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 22:17	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 22:17	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 22:17	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-36D **Lab ID: 92406866010** Collected: 11/08/18 14:30 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 22:17	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:17	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:17	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 22:17	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 22:17	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 22:17	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 22:17	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 22:17	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 22:17	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 22:17	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 22:17	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 22:17	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 22:17	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	103	%	70-130	1		11/13/18 22:17	460-00-4	
1,2-Dichloroethane-d4 (S)	95	%	70-130	1		11/13/18 22:17	17060-07-0	
Toluene-d8 (S)	105	%	70-130	1		11/13/18 22:17	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/14/18 23:50	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	115	%	50-150	1		11/14/18 23:50	17060-07-0	
Toluene-d8 (S)	122	%	50-150	1		11/14/18 23:50	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-28D **Lab ID: 92406866011** Collected: 11/08/18 14:50 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 22:33	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 22:33	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 22:33	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 22:33	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 22:33	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 22:33	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 22:33	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 22:33	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 22:33	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 22:33	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 22:33	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 22:33	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 22:33	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 22:33	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 22:33	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 22:33	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 22:33	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 22:33	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 22:33	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:33	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:33	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:33	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 22:33	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 22:33	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 22:33	107-06-2	
1,1-Dichloroethene	**6.9**	ug/L	1.0	1		11/13/18 22:33	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 22:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 22:33	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:33	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:33	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:33	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:33	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:33	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 22:33	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 22:33	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 22:33	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 22:33	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 22:33	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 22:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 22:33	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 22:33	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 22:33	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 22:33	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 22:33	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 22:33	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 22:33	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-28D **Lab ID: 92406866011** Collected: 11/08/18 14:50 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 22:33	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:33	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:33	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 22:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 22:33	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 22:33	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 22:33	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 22:33	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 22:33	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 22:33	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 22:33	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 22:33	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 22:33	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	101	%	70-130	1		11/13/18 22:33	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		11/13/18 22:33	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/13/18 22:33	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	**2.3**	ug/L	2.0	1		11/15/18 00:09	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	90	%	50-150	1		11/15/18 00:09	17060-07-0	
Toluene-d8 (S)	122	%	50-150	1		11/15/18 00:09	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-25D-130 **Lab ID: 92406866012** Collected: 11/08/18 13:40 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 23:23	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 23:23	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 23:23	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 23:23	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 23:23	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 23:23	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 23:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 23:23	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 23:23	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 23:23	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 23:23	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 23:23	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 23:23	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 23:23	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 23:23	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 23:23	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 23:23	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 23:23	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 23:23	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 23:23	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 23:23	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 23:23	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 23:23	75-71-8	
1,1-Dichloroethane	**4.4**	ug/L	1.0	1		11/13/18 23:23	75-34-3	
1,2-Dichloroethane	**1.1**	ug/L	1.0	1		11/13/18 23:23	107-06-2	
1,1-Dichloroethene	**109**	ug/L	1.0	1		11/13/18 23:23	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 23:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 23:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 23:23	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 23:23	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 23:23	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 23:23	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 23:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 23:23	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 23:23	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 23:23	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 23:23	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 23:23	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 23:23	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 23:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 23:23	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 23:23	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 23:23	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 23:23	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 23:23	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 23:23	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 23:23	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-25D-130 **Lab ID: 92406866012** Collected: 11/08/18 13:40 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 23:23	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 23:23	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 23:23	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 23:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 23:23	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 23:23	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 23:23	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 23:23	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 23:23	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 23:23	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 23:23	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 23:23	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 23:23	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		11/13/18 23:23	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130	1		11/13/18 23:23	17060-07-0	
Toluene-d8 (S)	107	%	70-130	1		11/13/18 23:23	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	**40.2**	ug/L	2.0	1		11/15/18 00:28	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	94	%	50-150	1		11/15/18 00:28	17060-07-0	
Toluene-d8 (S)	132	%	50-150	1		11/15/18 00:28	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-25D-190 **Lab ID: 92406866013** Collected: 11/08/18 13:55 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 22:50	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 22:50	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 22:50	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 22:50	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 22:50	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 22:50	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 22:50	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 22:50	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 22:50	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 22:50	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 22:50	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 22:50	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 22:50	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 22:50	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 22:50	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 22:50	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 22:50	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 22:50	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 22:50	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:50	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:50	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:50	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 22:50	75-71-8	
1,1-Dichloroethane	**13.7**	ug/L	1.0	1		11/13/18 22:50	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 22:50	107-06-2	
1,1-Dichloroethene	**61.0**	ug/L	1.0	1		11/13/18 22:50	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 22:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 22:50	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:50	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:50	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 22:50	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:50	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:50	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 22:50	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 22:50	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 22:50	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 22:50	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 22:50	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 22:50	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 22:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 22:50	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 22:50	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 22:50	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 22:50	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 22:50	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 22:50	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 22:50	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: MW-25D-190 **Lab ID: 92406866013** Collected: 11/08/18 13:55 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 22:50	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:50	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 22:50	120-82-1	
1,1,1-Trichloroethane	**9.8**	ug/L	1.0	1		11/13/18 22:50	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 22:50	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 22:50	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 22:50	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 22:50	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 22:50	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 22:50	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 22:50	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 22:50	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 22:50	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	100	%	70-130	1		11/13/18 22:50	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		11/13/18 22:50	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/13/18 22:50	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	**49.3**	ug/L	2.0	1		11/19/18 16:53	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	96	%	50-150	1		11/19/18 16:53	17060-07-0	
Toluene-d8 (S)	98	%	50-150	1		11/19/18 16:53	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: DUP-110818 **Lab ID: 92406866014** Collected: 11/08/18 09:00 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 23:06	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 23:06	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 23:06	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 23:06	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 23:06	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 23:06	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 23:06	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 23:06	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 23:06	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 23:06	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 23:06	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 23:06	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 23:06	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 23:06	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 23:06	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 23:06	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 23:06	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 23:06	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 23:06	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 23:06	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 23:06	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 23:06	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 23:06	75-71-8	
1,1-Dichloroethane	**14.2**	ug/L	1.0	1		11/13/18 23:06	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 23:06	107-06-2	
1,1-Dichloroethene	**65.9**	ug/L	1.0	1		11/13/18 23:06	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 23:06	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 23:06	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 23:06	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 23:06	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 23:06	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 23:06	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 23:06	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 23:06	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 23:06	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 23:06	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 23:06	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 23:06	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 23:06	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1		11/13/18 23:06	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 23:06	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 23:06	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 23:06	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 23:06	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 23:06	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 23:06	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 23:06	127-18-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
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(704)875-9092

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: DUP-110818 **Lab ID: 92406866014** Collected: 11/08/18 09:00 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 23:06	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 23:06	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 23:06	120-82-1	
1,1,1-Trichloroethane	**9.8**	ug/L	1.0	1		11/13/18 23:06	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 23:06	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 23:06	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 23:06	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 23:06	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 23:06	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 23:06	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 23:06	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 23:06	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 23:06	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	104	%	70-130	1		11/13/18 23:06	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	70-130	1		11/13/18 23:06	17060-07-0	
Toluene-d8 (S)	109	%	70-130	1		11/13/18 23:06	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	**47.0**	ug/L	2.0	1		11/15/18 01:07	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%	50-150	1		11/15/18 01:07	17060-07-0	
Toluene-d8 (S)	68	%	50-150	1		11/15/18 01:07	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
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(704)875-9092

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: TRIP BLANK **Lab ID: 92406866015** Collected: 11/08/18 00:00 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	25.0	1		11/13/18 17:52	67-64-1	
Benzene	ND	ug/L	1.0	1		11/13/18 17:52	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/13/18 17:52	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/13/18 17:52	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/13/18 17:52	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/13/18 17:52	75-25-2	
Bromomethane	ND	ug/L	2.0	1		11/13/18 17:52	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/13/18 17:52	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1		11/13/18 17:52	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/13/18 17:52	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/13/18 17:52	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/13/18 17:52	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/13/18 17:52	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 17:52	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/13/18 17:52	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		11/13/18 17:52	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/13/18 17:52	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/13/18 17:52	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/13/18 17:52	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:52	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:52	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:52	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/13/18 17:52	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/13/18 17:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/13/18 17:52	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/13/18 17:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 17:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/13/18 17:52	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 17:52	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/13/18 17:52	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/13/18 17:52	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/13/18 17:52	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 17:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/13/18 17:52	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1		11/13/18 17:52	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1		11/13/18 17:52	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/13/18 17:52	87-68-3	
2-Hexanone	ND	ug/L	5.0	1		11/13/18 17:52	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/13/18 17:52	99-87-6	
Methylene Chloride	**5.3**	ug/L	2.0	1		11/13/18 17:52	75-09-2	C9
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/13/18 17:52	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/13/18 17:52	1634-04-4	
Naphthalene	ND	ug/L	1.0	1		11/13/18 17:52	91-20-3	
Styrene	ND	ug/L	1.0	1		11/13/18 17:52	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 17:52	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/13/18 17:52	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/13/18 17:52	127-18-4	

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Sample: TRIP BLANK **Lab ID: 92406866015** Collected: 11/08/18 00:00 Received: 11/12/18 09:37 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level	Analytical Method: EPA 8260B							
Toluene	ND	ug/L	1.0	1		11/13/18 17:52	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:52	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/13/18 17:52	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/13/18 17:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/13/18 17:52	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/13/18 17:52	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/13/18 17:52	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1		11/13/18 17:52	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1		11/13/18 17:52	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1		11/13/18 17:52	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1		11/13/18 17:52	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1		11/13/18 17:52	179601-23-1	
o-Xylene	ND	ug/L	1.0	1		11/13/18 17:52	95-47-6	
Surrogates								
4-Bromofluorobenzene (S)	102	%	70-130	1		11/13/18 17:52	460-00-4	
1,2-Dichloroethane-d4 (S)	92	%	70-130	1		11/13/18 17:52	17060-07-0	
Toluene-d8 (S)	106	%	70-130	1		11/13/18 17:52	2037-26-5	
8260 MSV SIM	Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		11/14/18 11:50	123-91-1	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%	50-150	1		11/14/18 11:50	17060-07-0	
Toluene-d8 (S)	116	%	50-150	1		11/14/18 11:50	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

QC Batch: 442054 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV Low Level
Associated Lab Samples: 92406866001, 92406866002, 92406866003, 92406866004, 92406866005, 92406866006, 92406866007, 92406866008, 92406866009, 92406866010, 92406866011, 92406866012, 92406866013, 92406866014, 92406866015

METHOD BLANK: 2426860 Matrix: Water
Associated Lab Samples: 92406866001, 92406866002, 92406866003, 92406866004, 92406866005, 92406866006, 92406866007, 92406866008, 92406866009, 92406866010, 92406866011, 92406866012, 92406866013, 92406866014, 92406866015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/13/18 17:02	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/13/18 17:02	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/13/18 17:02	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/13/18 17:02	
1,1-Dichloroethane	ug/L	ND	1.0	11/13/18 17:02	
1,1-Dichloroethene	ug/L	ND	1.0	11/13/18 17:02	
1,1-Dichloropropene	ug/L	ND	1.0	11/13/18 17:02	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/13/18 17:02	
1,2,3-Trichloropropane	ug/L	ND	1.0	11/13/18 17:02	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/13/18 17:02	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	11/13/18 17:02	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/13/18 17:02	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/13/18 17:02	
1,2-Dichloroethane	ug/L	ND	1.0	11/13/18 17:02	
1,2-Dichloropropane	ug/L	ND	1.0	11/13/18 17:02	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/13/18 17:02	
1,3-Dichloropropane	ug/L	ND	1.0	11/13/18 17:02	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/13/18 17:02	
2,2-Dichloropropane	ug/L	ND	1.0	11/13/18 17:02	
2-Butanone (MEK)	ug/L	ND	5.0	11/13/18 17:02	
2-Chlorotoluene	ug/L	ND	1.0	11/13/18 17:02	
2-Hexanone	ug/L	ND	5.0	11/13/18 17:02	
4-Chlorotoluene	ug/L	ND	1.0	11/13/18 17:02	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/13/18 17:02	
Acetone	ug/L	ND	25.0	11/13/18 17:02	
Benzene	ug/L	ND	1.0	11/13/18 17:02	
Bromobenzene	ug/L	ND	1.0	11/13/18 17:02	
Bromochloromethane	ug/L	ND	1.0	11/13/18 17:02	
Bromodichloromethane	ug/L	ND	1.0	11/13/18 17:02	
Bromoform	ug/L	ND	1.0	11/13/18 17:02	
Bromomethane	ug/L	ND	2.0	11/13/18 17:02	
Carbon tetrachloride	ug/L	ND	1.0	11/13/18 17:02	
Chlorobenzene	ug/L	ND	1.0	11/13/18 17:02	
Chloroethane	ug/L	ND	1.0	11/13/18 17:02	
Chloroform	ug/L	ND	1.0	11/13/18 17:02	
Chloromethane	ug/L	ND	1.0	11/13/18 17:02	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/13/18 17:02	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/13/18 17:02	

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, LLC
9800 Kincey Ave. Suite 100
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QUALITY CONTROL DATA

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

METHOD BLANK: 2426860 Matrix: Water

Associated Lab Samples: 92406866001, 92406866002, 92406866003, 92406866004, 92406866005, 92406866006, 92406866007, 92406866008, 92406866009, 92406866010, 92406866011, 92406866012, 92406866013, 92406866014, 92406866015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	11/13/18 17:02	
Dibromomethane	ug/L	ND	1.0	11/13/18 17:02	
Dichlorodifluoromethane	ug/L	ND	1.0	11/13/18 17:02	
Diisopropyl ether	ug/L	ND	1.0	11/13/18 17:02	
Ethylbenzene	ug/L	ND	1.0	11/13/18 17:02	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/13/18 17:02	
m&p-Xylene	ug/L	ND	2.0	11/13/18 17:02	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/13/18 17:02	
Methylene Chloride	ug/L	ND	2.0	11/13/18 17:02	
Naphthalene	ug/L	ND	1.0	11/13/18 17:02	
o-Xylene	ug/L	ND	1.0	11/13/18 17:02	
p-Isopropyltoluene	ug/L	ND	1.0	11/13/18 17:02	
Styrene	ug/L	ND	1.0	11/13/18 17:02	
Tetrachloroethene	ug/L	ND	1.0	11/13/18 17:02	
Toluene	ug/L	ND	1.0	11/13/18 17:02	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/13/18 17:02	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/13/18 17:02	
Trichloroethene	ug/L	ND	1.0	11/13/18 17:02	
Trichlorofluoromethane	ug/L	ND	1.0	11/13/18 17:02	
Vinyl acetate	ug/L	ND	2.0	11/13/18 17:02	
Vinyl chloride	ug/L	ND	1.0	11/13/18 17:02	
Xylene (Total)	ug/L	ND	1.0	11/13/18 17:02	
1,2-Dichloroethane-d4 (S)	%	87	70-130	11/13/18 17:02	
4-Bromofluorobenzene (S)	%	102	70-130	11/13/18 17:02	
Toluene-d8 (S)	%	108	70-130	11/13/18 17:02	

LABORATORY CONTROL SAMPLE: 2426861

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	51.2	102	70-130	
1,1,1-Trichloroethane	ug/L	50	49.7	99	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	50.1	100	70-130	
1,1,2-Trichloroethane	ug/L	50	53.1	106	70-130	
1,1-Dichloroethane	ug/L	50	49.2	98	70-130	
1,1-Dichloroethene	ug/L	50	49.7	99	70-130	
1,1-Dichloropropene	ug/L	50	57.1	114	70-130	
1,2,3-Trichlorobenzene	ug/L	50	49.7	99	70-130	
1,2,3-Trichloropropane	ug/L	50	51.6	103	70-130	
1,2,4-Trichlorobenzene	ug/L	50	48.6	97	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	47.2	94	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	54.2	108	70-130	
1,2-Dichlorobenzene	ug/L	50	48.5	97	70-130	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

LABORATORY CONTROL SAMPLE: 2426861

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	50	47.6	95	70-130	
1,2-Dichloropropane	ug/L	50	50.5	101	70-130	
1,3-Dichlorobenzene	ug/L	50	48.3	97	70-130	
1,3-Dichloropropane	ug/L	50	53.7	107	70-131	
1,4-Dichlorobenzene	ug/L	50	47.8	96	70-130	
2,2-Dichloropropane	ug/L	50	51.2	102	69-130	
2-Butanone (MEK)	ug/L	100	110	110	64-135	
2-Chlorotoluene	ug/L	50	47.1	94	70-130	
2-Hexanone	ug/L	100	98.7	99	66-135	
4-Chlorotoluene	ug/L	50	46.6	93	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.9	99	70-130	
Acetone	ug/L	100	105	105	61-157	
Benzene	ug/L	50	52.2	104	70-130	
Bromobenzene	ug/L	50	48.0	96	70-130	
Bromochloromethane	ug/L	50	58.4	117	70-130	
Bromodichloromethane	ug/L	50	44.3	89	70-130	
Bromoform	ug/L	50	45.7	91	70-130	
Bromomethane	ug/L	50	42.4	85	38-128	
Carbon tetrachloride	ug/L	50	45.8	92	70-130	
Chlorobenzene	ug/L	50	50.5	101	70-130	
Chloroethane	ug/L	50	36.9	74	37-142	
Chloroform	ug/L	50	52.0	104	70-130	
Chloromethane	ug/L	50	37.4	75	48-120	
cis-1,2-Dichloroethene	ug/L	50	49.8	100	70-130	
cis-1,3-Dichloropropene	ug/L	50	51.8	104	70-130	
Dibromochloromethane	ug/L	50	50.9	102	70-130	
Dibromomethane	ug/L	50	49.9	100	70-130	
Dichlorodifluoromethane	ug/L	50	37.3	75	53-134	
Diisopropyl ether	ug/L	50	53.5	107	71-135	
Ethylbenzene	ug/L	50	49.5	99	70-130	
Hexachloro-1,3-butadiene	ug/L	50	50.6	101	68-132	
m&p-Xylene	ug/L	100	98.7	99	70-130	
Methyl-tert-butyl ether	ug/L	50	53.4	107	70-130	
Methylene Chloride	ug/L	50	47.9	96	67-132	
Naphthalene	ug/L	50	46.7	93	70-130	
o-Xylene	ug/L	50	50.1	100	70-130	
p-Isopropyltoluene	ug/L	50	46.3	93	70-130	
Styrene	ug/L	50	49.6	99	70-130	
Tetrachloroethene	ug/L	50	52.3	105	69-130	
Toluene	ug/L	50	47.5	95	70-130	
trans-1,2-Dichloroethene	ug/L	50	48.9	98	70-130	
trans-1,3-Dichloropropene	ug/L	50	52.3	105	70-130	
Trichloroethene	ug/L	50	53.6	107	70-130	
Trichlorofluoromethane	ug/L	50	42.1	84	63-126	
Vinyl acetate	ug/L	100	104	104	55-143	
Vinyl chloride	ug/L	50	47.5	95	70-131	
Xylene (Total)	ug/L	150	149	99	70-130	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

LABORATORY CONTROL SAMPLE: 2426861

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			94	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2426862 2426863

Parameter	Units	92406645001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	2000	2000	1630	1940	81	97	73-134	17	30	
1,1,1-Trichloroethane	ug/L	ND	2000	2000	1880	2270	94	114	82-143	19	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	2000	2000	1600	1920	80	96	70-136	18	30	
1,1,2-Trichloroethane	ug/L	ND	2000	2000	1910	2360	95	118	70-135	21	30	
1,1-Dichloroethane	ug/L	ND	2000	2000	1870	2240	93	112	72-139	18	30	
1,1-Dichloroethene	ug/L	ND	2000	2000	1950	2230	97	112	81-154	14	30	
1,1-Dichloropropene	ug/L	ND	2000	2000	2040	2450	102	123	79-149	18	30	
1,2,3-Trichlorobenzene	ug/L	ND	2000	2000	1580	1950	79	97	70-135	21	30	
1,2,3-Trichloropropane	ug/L	ND	2000	2000	1640	1970	82	99	71-137	19	30	
1,2,4-Trichlorobenzene	ug/L	ND	2000	2000	1600	1960	80	98	73-140	21	30	
1,2-Dibromo-3-chloropropane	ug/L	ND	2000	2000	1430	1670	72	84	65-134	16	30	
1,2-Dibromoethane (EDB)	ug/L	ND	2000	2000	1710	2100	85	105	72-137	21	30	
1,2-Dichlorobenzene	ug/L	ND	2000	2000	1660	2000	83	100	70-133	19	30	
1,2-Dichloroethane	ug/L	ND	2000	2000	1710	2100	86	105	73-137	20	30	
1,2-Dichloropropane	ug/L	ND	2000	2000	1920	2300	96	115	79-140	18	30	
1,3-Dichlorobenzene	ug/L	ND	2000	2000	1670	2000	84	100	70-135	18	30	
1,3-Dichloropropane	ug/L	ND	2000	2000	1700	2160	85	108	76-143	23	30	
1,4-Dichlorobenzene	ug/L	ND	2000	2000	1660	2000	83	100	70-133	18	30	
2,2-Dichloropropane	ug/L	ND	2000	2000	1730	2110	87	106	61-148	20	30	
2-Butanone (MEK)	ug/L	ND	4000	4000	3550	4220	89	106	60-139	17	30	
2-Chlorotoluene	ug/L	ND	2000	2000	1650	1990	82	100	73-144	19	30	
2-Hexanone	ug/L	ND	4000	4000	3120	3740	78	94	65-138	18	30	
4-Chlorotoluene	ug/L	ND	2000	2000	1620	1930	81	96	76-137	17	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	4000	4000	3280	4130	82	103	65-135	23	30	
Acetone	ug/L	ND	4000	4000	3690	4200	92	105	60-148	13	30	
Benzene	ug/L	ND	2000	2000	2020	2450	101	122	72-151	19	30	
Bromobenzene	ug/L	ND	2000	2000	1660	2010	83	101	70-136	19	30	
Bromochloromethane	ug/L	ND	2000	2000	2070	2470	103	124	77-141	18	30	
Bromodichloromethane	ug/L	ND	2000	2000	1610	1970	80	99	76-138	20	30	
Bromoform	ug/L	ND	2000	2000	1270	1580	63	79	63-130	22	30	
Bromomethane	ug/L	ND	2000	2000	559	865	28	43	15-152	43	30	R1
Carbon tetrachloride	ug/L	ND	2000	2000	1750	2130	87	106	70-143	20	30	
Chlorobenzene	ug/L	ND	2000	2000	1750	2090	87	105	70-138	18	30	
Chloroethane	ug/L	ND	2000	2000	1660	2000	83	100	52-163	19	30	
Chloroform	ug/L	ND	2000	2000	1900	2290	95	114	74-139	18	30	
Chloromethane	ug/L	ND	2000	2000	1060	1270	53	64	41-139	18	30	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
9800 Kincey Ave. Suite 100
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(704)875-9092

QUALITY CONTROL DATA

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2426862 2426863

Parameter	Units	92406645001 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	3550	2000	2000	5210	5650	83	105	77-141	8	30	
cis-1,3-Dichloropropene	ug/L	ND	2000	2000	1870	2270	93	113	74-137	19	30	
Dibromochloromethane	ug/L	ND	2000	2000	1550	1910	77	96	70-134	21	30	
Dibromomethane	ug/L	ND	2000	2000	1870	2240	94	112	76-138	18	30	
Dichlorodifluoromethane	ug/L	ND	2000	2000	1150	1360	58	68	47-155	16	30	
Diisopropyl ether	ug/L	ND	2000	2000	1760	2070	88	103	63-144	16	30	
Ethylbenzene	ug/L	ND	2000	2000	1740	2090	87	104	66-153	18	30	
Hexachloro-1,3-butadiene	ug/L	ND	2000	2000	1600	2000	80	100	65-149	22	30	
m&p-Xylene	ug/L	ND	4000	4000	3510	4180	88	105	69-152	17	30	
Methyl-tert-butyl ether	ug/L	ND	2000	2000	1800	2240	90	112	54-156	22	30	
Methylene Chloride	ug/L	ND	2000	2000	1840	2160	92	108	42-159	16	30	
Naphthalene	ug/L	ND	2000	2000	1530	1840	76	92	61-148	19	30	
o-Xylene	ug/L	ND	2000	2000	1780	2160	89	108	73-148	20	30	
p-Isopropyltoluene	ug/L	ND	2000	2000	1610	1970	80	98	73-146	20	30	
Styrene	ug/L	ND	2000	2000	1710	2050	85	102	70-135	18	30	
Tetrachloroethene	ug/L	ND	2000	2000	1760	2150	88	108	59-143	20	30	
Toluene	ug/L	ND	2000	2000	1830	2200	92	110	59-148	18	30	
trans-1,2-Dichloroethene	ug/L	ND	2000	2000	1920	2220	96	111	76-146	14	30	
trans-1,3-Dichloropropene	ug/L	ND	2000	2000	1780	2200	89	110	71-135	21	30	
Trichloroethene	ug/L	14800	2000	2000	17500	18800	137	197	77-147	7	30	M1
Trichlorofluoromethane	ug/L	ND	2000	2000	1830	2160	92	108	76-148	17	30	
Vinyl acetate	ug/L	ND	4000	4000	3520	4250	88	106	49-151	19	30	
Vinyl chloride	ug/L	ND	2000	2000	1630	1910	82	96	70-156	16	30	
Xylene (Total)	ug/L	ND	6000	6000	5290	6350	88	106	63-158	18	30	
1,2-Dichloroethane-d4 (S)	%						88	87	70-130			
4-Bromofluorobenzene (S)	%						99	100	70-130			
Toluene-d8 (S)	%						97	99	70-130			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

QC Batch: 442270 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92406866001, 92406866002, 92406866003, 92406866004, 92406866005, 92406866015

METHOD BLANK: 2427641 Matrix: Water
Associated Lab Samples: 92406866001, 92406866002, 92406866003, 92406866004, 92406866005, 92406866015

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/14/18 11:31	
1,2-Dichloroethane-d4 (S)	%	92	50-150	11/14/18 11:31	
Toluene-d8 (S)	%	119	50-150	11/14/18 11:31	

LABORATORY CONTROL SAMPLE: 2427642

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	20.0	100	71-125	
1,2-Dichloroethane-d4 (S)	%			101	50-150	
Toluene-d8 (S)	%			104	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2427643 2427644

Parameter	Units	92406866003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	17.7	17.8	89	89	50-150	1	30	
1,2-Dichloroethane-d4 (S)	%						94	95	50-150		30	
Toluene-d8 (S)	%						126	105	50-150		30	

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REPORT OF LABORATORY ANALYSIS

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(704)875-9092

QUALITY CONTROL DATA

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

QC Batch: 442319 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92406866006, 92406866007, 92406866008, 92406866009, 92406866010, 92406866011, 92406866012

METHOD BLANK: 2427932 Matrix: Water
Associated Lab Samples: 92406866006, 92406866007, 92406866008, 92406866009, 92406866010, 92406866011, 92406866012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/14/18 17:40	
1,2-Dichloroethane-d4 (S)	%	88	50-150	11/14/18 17:40	
Toluene-d8 (S)	%	98	50-150	11/14/18 17:40	

LABORATORY CONTROL SAMPLE: 2427933

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.5	93	71-125	
1,2-Dichloroethane-d4 (S)	%			102	50-150	
Toluene-d8 (S)	%			135	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2427934 2427935

Parameter	Units	2611462001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	17.5	17.2	85	84	50-150	1	30	
1,2-Dichloroethane-d4 (S)	%						95	94	50-150		30	
Toluene-d8 (S)	%						110	127	50-150		30	

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REPORT OF LABORATORY ANALYSIS

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

QUALITY CONTROL DATA

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

QC Batch: 442320 Analysis Method: EPA 8260B Mod.
QC Batch Method: EPA 8260B Mod. Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92406866014

METHOD BLANK: 2427939 Matrix: Water
Associated Lab Samples: 92406866014

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/14/18 17:21	
1,2-Dichloroethane-d4 (S)	%	101	50-150	11/14/18 17:21	
Toluene-d8 (S)	%	122	50-150	11/14/18 17:21	

LABORATORY CONTROL SAMPLE: 2427940

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.8	94	71-125	
1,2-Dichloroethane-d4 (S)	%			96	50-150	
Toluene-d8 (S)	%			121	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2427941 2427942

Parameter	Units	92406671045 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	ND	20	20	17.6	17.3	83	82	50-150	2	30	
1,2-Dichloroethane-d4 (S)	%						97	104	50-150		30	
Toluene-d8 (S)	%						139	106	50-150		30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

QC Batch: 443132
QC Batch Method: EPA 8260B Mod.
Analysis Method: EPA 8260B Mod.
Analysis Description: 8260 MSV SIM
Associated Lab Samples: 92406866013

METHOD BLANK: 2431857 Matrix: Water
Associated Lab Samples: 92406866013

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	11/19/18 16:34	
1,2-Dichloroethane-d4 (S)	%	97	50-150	11/19/18 16:34	
Toluene-d8 (S)	%	98	50-150	11/19/18 16:34	

LABORATORY CONTROL SAMPLE: 2431858

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	20	18.7	93	71-125	
1,2-Dichloroethane-d4 (S)	%			98	50-150	
Toluene-d8 (S)	%			99	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2431859 2431860

Parameter	Units	92406671049 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,4-Dioxane (p-Dioxane)	ug/L	2.2	20	20	18.8	17.9	83	78	50-150	5	30	
1,2-Dichloroethane-d4 (S)	%						102	103	50-150		30	
Toluene-d8 (S)	%						97	98	50-150		30	

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REPORT OF LABORATORY ANALYSIS

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

QUALIFIERS

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

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.

TNTC - Too Numerous To Count

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 - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

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.

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

C9	Common Laboratory Contaminant.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.
S3	Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated sample.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: KOPFLEX OFFSITE
Pace Project No.: 92406866

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92406866001	**MW-34D**	EPA 8260B	442054		
92406866002	**MW-35D**	EPA 8260B	442054		
92406866003	**MW-31D**	EPA 8260B	442054		
92406866004	**MW-33D-235**	EPA 8260B	442054		
92406866005	**MW-33D-295**	EPA 8260B	442054		
92406866006	**MW-30D-413**	EPA 8260B	442054		
92406866007	**MW-30D-273**	EPA 8260B	442054		
92406866008	**MW-29D**	EPA 8260B	442054		
92406866009	**MW-32D**	EPA 8260B	442054		
92406866010	**MW-36D**	EPA 8260B	442054		
92406866011	**MW-28D**	EPA 8260B	442054		
92406866012	**MW-25D-130**	EPA 8260B	442054		
92406866013	**MW-25D-190**	EPA 8260B	442054		
92406866014	**DUP-110818**	EPA 8260B	442054		
92406866015	**TRIP BLANK**	EPA 8260B	442054		
92406866001	**MW-34D**	EPA 8260B Mod.	442270		
92406866002	**MW-35D**	EPA 8260B Mod.	442270		
92406866003	**MW-31D**	EPA 8260B Mod.	442270		
92406866004	**MW-33D-235**	EPA 8260B Mod.	442270		
92406866005	**MW-33D-295**	EPA 8260B Mod.	442270		
92406866006	**MW-30D-413**	EPA 8260B Mod.	442319		
92406866007	**MW-30D-273**	EPA 8260B Mod.	442319		
92406866008	**MW-29D**	EPA 8260B Mod.	442319		
92406866009	**MW-32D**	EPA 8260B Mod.	442319		
92406866010	**MW-36D**	EPA 8260B Mod.	442319		
92406866011	**MW-28D**	EPA 8260B Mod.	442319		
92406866012	**MW-25D-130**	EPA 8260B Mod.	442319		
92406866013	**MW-25D-190**	EPA 8260B Mod.	443132		
92406866014	**DUP-110818**	EPA 8260B Mod.	442320		
92406866015	**TRIP BLANK**	EPA 8260B Mod.	442270		

Pace Analytical	Document Name: **Sample Condition Upon Receipt(SCUR)**	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: **F-CAR-CS-033-Rev.06**	Issuing Authority: Pace Carolinas Quality Office

Laboratory receiving samples:
Asheville ☐ Eden ☐ Greenwood ☐ Huntersville ☑ Raleigh ☐ Mechanicsville ☐

Sample Condition Upon Receipt

Client Name: WSP

Project **WO# : 92406866**

92406866

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:____

Custody Seal Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No

Date/Initials Person Examining Contents: MH 11-12-18

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

Biological Tissue Frozen? ☐ Yes ☐ No ☑ N/A

Thermometer: ☑ IR Gun ID: 92T045 **Type of Ice:** ☑ Wet ☐ Blue ☐ None

Cooler Temp (°C): 5.5 **Correction Factor:** Add/Subtract (°C) -0.1

Cooler Temp Corrected (°C): 5.4

Temp should be above freezing to 6°C
☐ Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil (☑ N/A, water sample)
Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Dissolved analysis: Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☑ No	☐ N/A	10.
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	11.
Trip Blank Custody Seals Present?	☑ Yes	☐ No	☐ N/A	

COMMENTS/SAMPLE DISCREPANCY **Field Data Required?** ☐ Yes ☐ No

received 5 vials for MW-30D-273

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: JT **Date:** 11/12

Project Manager SRF Review: JT **Date:** 11/12

Pace Analytical	Document Name: **Sample Condition Upon Receipt(SCUR)**	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: **F-CAR-CS-033-Rev.06**	Issuing Authority: Pace Carolinas Quality Office

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottle**

Project # WO# : 92406866

PM: PTE Due Date: 11/19/18

CLIENT: 92-WSP

P1

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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.

Pace Analytical	Document Name: **Sample Condition Upon Receipt(SCUR)**	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: **F-CAR-CS-033-Rev.06**	Issuing Authority: Pace Carolinas Quality Office

***Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.**

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC, LLHg

****Bottom half of box is to list number of bottle**

Project WO#: 92406866

PM: PTE Due Date: 11/19/18

CLIENT: 92-WSP

P2

Item#	BP4U-125 mL Plastic Unpreserved (N/A) (Cl-)	BP3U-250 mL Plastic Unpreserved (N/A)	BP2U-500 mL Plastic Unpreserved (N/A)	BP1U-1 liter Plastic Unpreserved (N/A)	BP4S-125 mL Plastic H2SO4 (pH < 2) (Cl-)	BP3N-250 mL plastic HNO3 (pH < 2)	BP4Z-125 mL Plastic ZN Acetate & NaOH (>9)	BP4C-125 mL Plastic NaOH (pH > 12) (Cl-)	WGFU-Wide-mouthed Glass jar Unpreserved	AG1U-1 liter Amber Unpreserved (N/A) (Cl-)	AG1H-1 liter Amber HCl (pH < 2)	AG3U-250 mL Amber Unpreserved (N/A) (Cl-)	AG1S-1 liter Amber H2SO4 (pH < 2)	AG3S-250 mL Amber H2SO4 (pH < 2)	AG3A(DG3A)-250 mL Amber NH4Cl (N/A)(Cl-)	DG9H-40 mL VOA HCl (N/A)	VG9T-40 mL VOA Na2S2O3 (N/A)	VG9U-40 mL VOA Unp (N/A)	DG9P-40 mL VOA H3PO4 (N/A)	VOAK (6 vials per kit)-5035 kit (N/A)	V/GK (3 vials per kit)-VPH/Gas kit (N/A)	SP5T-125 mL Sterile Plastic (N/A – lab)	SP2T-250 mL Sterile Plastic (N/A – lab)		BP3A-250 mL Plastic (NH2)2SO4 (9.3-9.7)	AG0U-100 mL Amber Unpreserved vials (N/A)	VSGU-20 mL Scintillation vials (N/A)	DG9U-40 mL Amber Unpreserved vials (N/A)
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pH Adjustment Log for Preserved Samples

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

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.

CHAIN-OF-CUSTODY RECORD

WSP USA Office Address: 13530 Dulles Technology Dr. Ste. 300 Herndon VA 20171

No. 009916 — WSP

Project Name	WSP USA Contact Name	Laboratory Name & Location
Koppers Offsite	Eric Johnson	Pace Huntsville, NC
Project Location	**WSP USA Contact E-mail**	**Laboratory Project Manager**
Hanover, MD	eric.johnson @wsp.com	Taylor Ezell
Project Number & Task	**WSP USA Contact Phone**	**Requested Turn-Around-Time**
31401545.011	703 709 6500	☒ Standard ☐ 24 HR ☐ 48 HR ☐ 72 HR ☐ ___ HR
Sampler(s) Name(s)	**Sampler(s) Signature(s)**	
Molly Long		

Requested Analyses & Preservatives: VOCs (8260); 1,4-Dioxane (8260 SIMS)

Sample Identification	Matrix	Collection Start* Date	Collection Start* Time	Collection Stop* Date	Collection Stop* Time	Number of Containers	VOCs (8260)	1,4-Dioxane (8260 SIMS)	Sample Comments
MW-34D	AQ	11/8/18		10	45	6	X	X	92406866 001
MW-35D				11	05	6	X	X	002
MW-31D				11	35	6	X	X	003
MW-33D-235				13	15	6	X	X	004
MW-33D-295				13	25	6	X	X	005
MW-30D-413				13	35	6	X	X	006
MW-30D-273				13	50	5	X	X	007
MW-29D				14	00	6	X	X	008
MW-32D				14	15	6	X	X	009
MW-36D				14	30	6	X	X	010
MW-28D				14	50	6	X	X	011
MW-25D-130				13	40	6	X	X	012
MW-25D-190				13	55	6	X	X	013
Dup-110818				09	00	6	X	X	014
Trip Blank		Lab Provided				4	X	X	lab provided 015

Relinquished By (Signature)	Date	Time	Received By (Signature)	Date	Time	Shipment Method	Tracking Number(s)
Chris Cresci	11/9/18		FedEx				
Relinquished By (Signature)	**Date**	**Time**	**Received By (Signature)**	**Date**	**Time**	**Number of Packages**	**Custody Seal Number(s)**
			Michael G Pace	11-12-18	9:37	54°	

*Use stop time/date for composite and/or air samples; use only start time/date for all other samples.

Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)