



VIA ELECTRONIC MAIL

May 31, 2018

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. 6 - 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 first 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 second quarter of 2018.

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

Kind regards,

A handwritten signature in black ink, appearing to read 'Robert E. Johnson'.

Robert E. Johnson
Senior Technical Manager
Water & Environment

REJ :rlo
k:\emerson\kop-flex\reporting\status reports\mde reports\2018\offsite area\april 2018

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. 6 – OFFSITE AREA

FORMER KOP-FLEX FACILITY SITE JANUARY 2018 THROUGH MARCH 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 January 2018 through March 2018

1.1 Residential Well Sampling

Phase 4 Area

- WSP continued the sampling program for the residential wells in the Phase 4 area the first quarter of 2018. During this period, a water sample was collected from the well located at 1315 Light Pines Court in mid-January 2018. The location of the residential property is shown in Figure 1. No site-related volatile organic compounds (VOCs), including 1,4-dioxane, were detected at concentrations above the U.S. Environmental Protection Agency (EPA) federal drinking water standards or MDE groundwater quality standards, which represent the groundwater comparative criteria, in the water sample. (A copy of the certified laboratory report for the well sample is provided in Enclosure A.)

Additional Monitoring Activities

Old Camp Meade Road Area

- As discussed in Status Report No. 5, MDE requested EMERSUB 16 initiate monthly sampling of the residential well at 1227 Old Camp Meade Road in October 2017, because the 1,4-dioxane levels in both the untreated and treated water were approaching the risk-based action level of 4.6 micrograms per liter (µg/l). Accordingly, pre- and post-treatment water samples were collected from the well on the following dates during the reporting period:
 - January 11, 2018
 - February 13, 2018
 - March 29, 2018

Historical analytical results, including those for the first quarter 2018 samples, are summarized in Table 1. Copies of the certified laboratory analytical reports for the January 2018 through March 2018 sampling events are included in Enclosure A.

In the way of a comprehensive overview of the sampling performed during the review period, site-related VOCs were detected in both the untreated and treated water samples, with 1,1-dichloroethene (DCE) and 1,4-dioxane present at the highest levels. In the untreated water, concentrations of 1,1-DCE ranged from 5.3 µg/l to 9.5 µg/l (Figure 2), while 1,4-dioxane was present at levels between 1 µg/l and 3 µg/l (Figure 3). The 1,1-DCE concentrations in the February and March samples of the untreated water exceeded the comparative groundwater quality criterion of 7 µg/l (Table 1). The treated water samples had 1,1-DCE concentrations ranging from 0.4 µg/l to 3.1 µg/l, with all levels below the criterion. As shown in the Figure 3 data plot, the concentrations of 1,4-dioxane in the treated water samples range from 1.4 µg/l to 2.6 µg/l, and were very similar to the levels detected in the untreated water. EMERSUB 16 and WSP communicated the analytical results for these water samples to the homeowner and MDE.



Twin Oaks Road Area

- As discussed in the previous status report, a water sample was collected from the private well at 7742 Twin Oaks Road in October 2017. (See Figure 1 for the location of this residential property in the Severn area.) Based on the detection of very low concentrations of 1,1-DCE and 1,4-dioxane, WSP proposed quarterly sampling of this well during 2018 to gather additional data on site-related VOC levels and assess the presence of any concentration trends in the well water.

A water sample was collected from this residential well on February 13th. The certified analytical results for this well sample are included in the corresponding laboratory report in Enclosure A. As with the October 2017 sample, very low concentrations of 1,1-DCE (2.8 µg/l) and 1,4-dioxane (1.7 µg/l) were found in the water sample, although neither compound exceeded the respective groundwater comparative criteria. A trace level of 1,1,1-trichloroethane (TCA) was also detected in the sample. The analytical results for this well water sample have been provided to the homeowner and MDE.

- Given the recent well sampling activities in the area, the homeowner at 7728 Twin Oaks Road contacted MDE on January 25, 2018, to request the resampling of the private well on their property. Since this well had not been sampled in 5 years and no information was available on the construction, EMERSUB 16 and WSP agreed with MDE's recommendation to collect another sample to gather updated information on the water quality.

The well at 7728 Twin Oaks Road was sampled on the same day as the residential well at 7742 Twin Oaks Road. (A copy of the analytical results for this well sample are included in Enclosure A.) No site-related VOCs (including 1,4-dioxane) were detected in the well water sample. Methyl tert butyl ether, a constituent commonly found in unleaded gasoline, was present at a concentration of 1.4 µg/l, which is below the respective MDE action level of 20 µg/l. EMERSUB 16 and WSP communicated the analytical results for this water sample to the homeowner and MDE.

1.2 Residential Water Service Connection

- The home at 7740 Twin Oaks Road was connected to the public water main the week of January 1, 2018. 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.
- After completing the service connection, the private well was abandoned the week of January 15, 2018, by removing the pump and piping, and then backfilling the well casing with cement-bentonite grout. The polyvinyl chloride (PVC) well casing was cut below grade, and the hole filled to existing grade with top-soil and seeded.

1.3 Quarterly Offsite Groundwater Sampling

- The offsite monitoring wells located south of the Site were sampled on February 13-14, 2018, using a passive sampling device (HydraSleeve™). The sample retrieval depths for each monitoring well are consistent with those from the previous monitoring events and are provided in the table below.

WELL ID	DEPTH TO WATER (FT BGS)	WELL DEPTH (FT BGS)	WELL SCREEN INTERVAL (FT BGS)	SAMPLE INTERVAL (FT BGS)
MW-25	14.56	40	30 - 40	35 – 37.5
MW-25D-130	58.31	130	120 - 130	125 – 127.5
MW-25D-190	57.49	192	180 - 190	185 – 187.5
MW-28	27.48	45	35 – 45	40 – 42.5
MW-28D	67.37	210	200 – 210	205 – 207.5
MW-31D	106.29	280	270 - 280	275 – 277.5
MW-33D-235	123.79	235	225 – 235	230 – 232.5
MW-33D-295	123.60	295	285 – 295	290 – 292.5
MW-35D	124.02	298	288 – 298	293 – 295.5

FT = feet; BGS = below ground surface.

The February 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.

No site-related constituents of concern – chlorinated VOCs and 1,4-dioxane - were detected in the samples from the shallow wells (MW-25 and MW-28) screened in the unconfined portion of the Lower Patapsco aquifer. Concentrations of the primary site-related VOCs in the confined Lower Patapsco aquifer south of Maryland Route 100 are provided in Figure 4. 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 (233.5 µg/l), which is screened from 120-130 feet BGS, is higher than the concentrations of the sample (136.6 µg/l) and duplicate (131.8 µg/l) for the deeper well at this location (MW-25D-190). The difference in the VOC levels primarily reflects the variation in the 1,1-DCE concentrations between the well samples (see Table 2). The lower VOC concentrations in the sample from MW-25D-190 are consistent with the vertical distribution of constituents in onsite and offsite areas north of Maryland Route 100. The sampling data for the deep monitoring wells located further downgradient (MW-28D, MW-31D, MW-35D, and the paired MW-33D wells) indicate non-detect to very low concentrations of site-related VOCs and 1,4-dioxane. The only site-related constituent exceeding the Groundwater Quality Standards was 1,4-dioxane in the MW-33D-295 sample (6.9 µg/L). Overall, the concentrations of the site-related VOCs and 1,4-dioxane in the February 2018 groundwater samples from wells screened in the confined portion of the Lower Patapsco aquifer are similar to the levels detected in the samples collected during 2017 (Table 3).

1.4 Offsite Monitoring Well Installation

Public Road Right-of-Ways in Residential Areas

- The Anne Arundel County Department of Public Works (DPW) issued the right-of-way (ROW) permit to WSP for the installation of the additional offsite monitoring wells in the residential areas in Severn, Maryland on February 1, 2018.
- A pre-construction meeting between representatives of WSP and the Anne Arundel County DPW was conducted on February 28, 2018, to discuss the completion of the drilling and well installation activities at each location in accordance



with the ROW permit. Minor modifications were made to selected Traffic Control Plans based on field observations during the meeting.

- Offsite monitoring well installation activities started the week of March 5, 2018. As of the end of the reporting period, monitoring wells had been installed at three of the five drilling sites: MW-29, MW-32, and MW-36. The locations for these offsite monitoring wells are shown in the enclosed Figure 5. Construction information for these wells is provided below.

Well ID	Screen Interval (FT BGS)	Screen Interval (FT MSL)	Hydrogeologic Unit
MW-29D	141 - 151	-8.6 to -18.6	Confined Lower Patapsco Aquifer
MW-32D	226 - 236	-69.5 to -79.5	Confined Lower Patapsco Aquifer
MW-36D	350 - 360	-190.9 to -200.9	Patuxent Aquifer

FT = feet; BGS = below ground surface; MSL = mean sea level

- During installation of the well boreholes, groundwater profiling was conducted to provide data to assess the vertical distribution of site-related VOCs and guide construction of the monitoring well(s) at each location. Samples were field screened for 1,1-DCE using compound-specific colorimetric tubes and submitted to an offsite laboratory for VOC analysis on an expedited (less than 24-hour) turn-around time.

The analytical results for the depth-discrete groundwater samples collected from the MW-29, MW-32, and MW-36 boreholes are provided in Tables 4 through 6; copies of the laboratory reports are included in Enclosure C. Total concentrations of site-related VOCs above 100 µg/l were detected in the groundwater samples from the middle portion of the confined Lower Patapsco aquifer at the MW-36 location (Table 3). A sample collected from the lower portion of this aquifer (231-236 feet below ground surface) had a total VOC concentration of 7 µg/l. The presence of detectable VOC levels in these samples is consistent with the location of this well within the inferred plume area. Depth-discrete groundwater samples collected from the deeper Patuxent aquifer at the MW-36 location had no detections of site-related VOCs. No site-related VOCs were detected in any of the depth-discrete groundwater samples from either the MW-29 or MW-32 locations.

- The drilling and well installation activities continued in the Severn area into April 2018. Detailed information concerning the installation of the offsite wells, including groundwater profiling data, will be provided in the next quarterly offsite status report.

Verizon Property

- An access agreement for conducting groundwater investigation activities on the adjoining Verizon property was executed on February 12, 2018.
- A field planning meeting between WSP and Verizon representatives was convened on March 14, 2018, to review the drilling and well installation activities to be conducted at the Verizon facility. The proposed drilling location was marked in the parking lot to the west of the Verizon office building.

2.0 Planned Offsite Activities for Next Reporting Period (April 2018 Through June 2018)

- Complete the installation of the additional offsite monitoring wells in accordance with the approved Offsite Groundwater Monitoring Plan.
- Conduct the groundwater profiling and monitoring well installation on the Verizon property immediately to the north of the Site after completing the offsite well installation activities in the right-of-way areas south of Maryland Route 100.
- Perform sampling of the onsite groundwater recovery wells and monitoring wells, and the new and previously installed offsite monitoring wells in late May 2018.

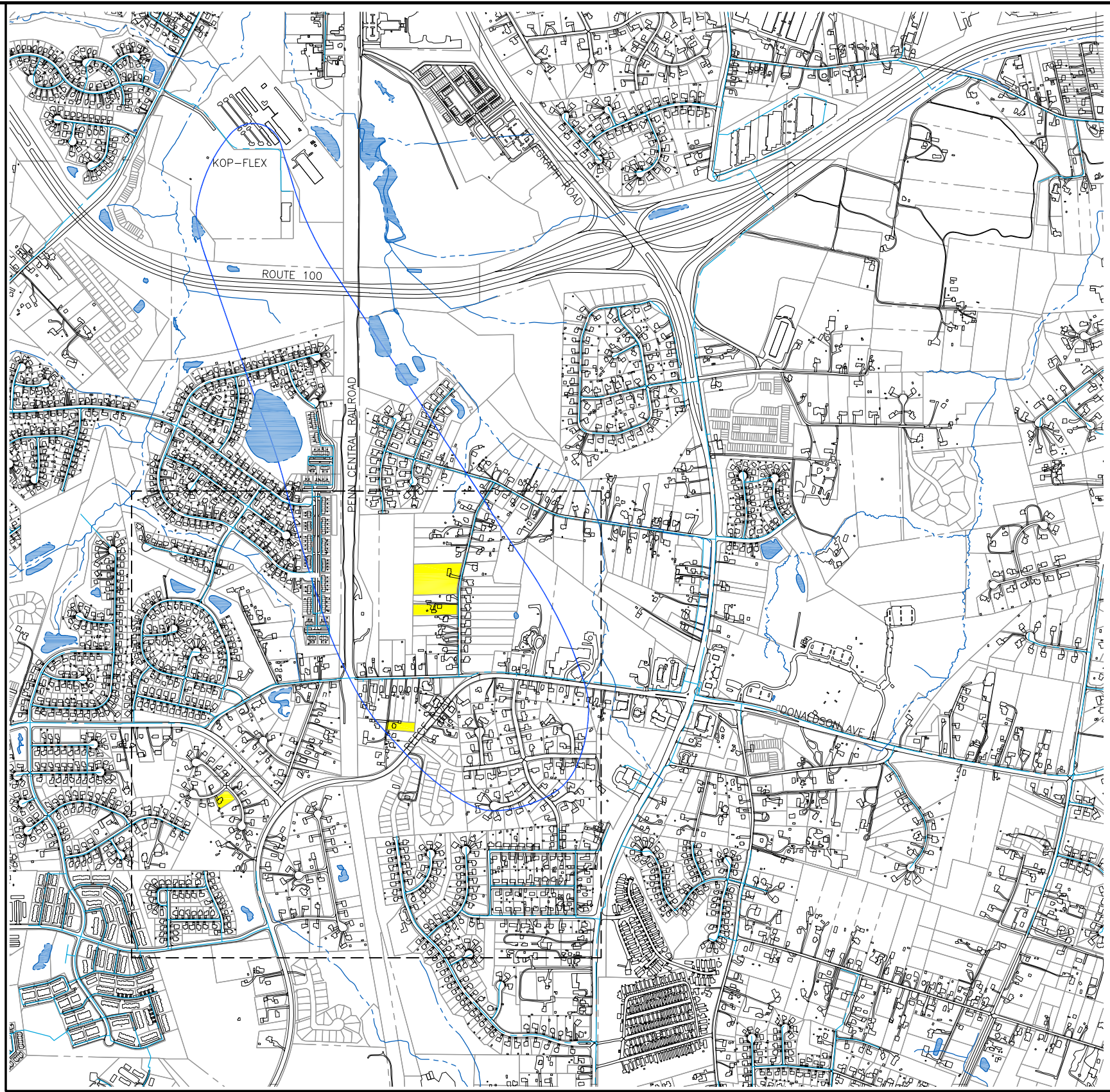
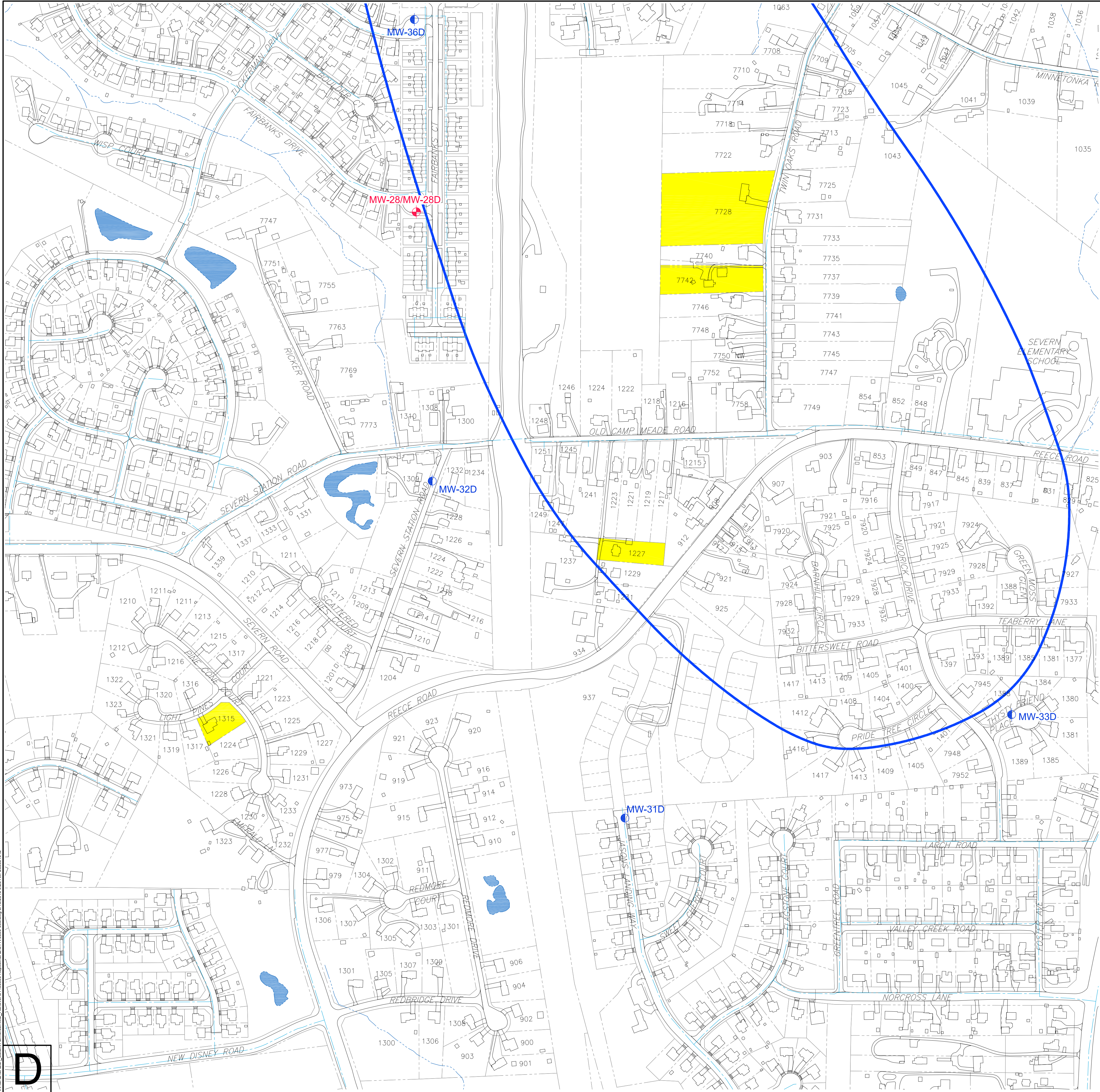


- Conduct monthly monitoring of the untreated and treated water from the residential well at 1227 Old Camp Meade Road, and quarterly sampling of the well at 7742 Twin Oaks Road.
- Conduct the next round of semi-annual monitoring of the designated residential wells.

3.0 Key Personnel/Facility Changes

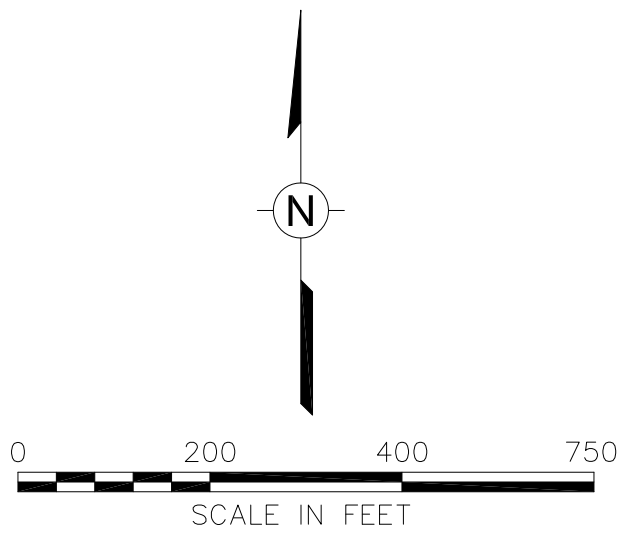
During the reporting period, there were no changes to either key project personnel or conditions relevant to the performance of the ongoing work at the site.

FIGURES



LOCATION MAP
SCALE: 1"=1200'

- LEGEND
- PROPERTY LINE
 - WATER MAIN
 - STREAM
 - INFERRED LIMIT OF 1,1-DCE PLUME
 - WATER BODY
 - CONFINED LOWER PATAPSCO AQUIFER MONITORING WELL
 - UNCONFINED AND CONFINED LOWER PATAPSCO AQUIFER MONITORING WELL
 - STREET NUMBER (FROM PROPERTY ADDRESS)
 - PROPERTY WITH POTABLE WELL IDENTIFIED FOR SAMPLING



REFERENCE:
PARCEL INFORMATION OBTAINED FROM ANNE ARUNDEL COUNTY, DEPARTMENT OF PUBLIC WORKS
<http://gis-world2.aacounty.org/DPWcounter/countermap.html>

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PROPERTIES WITH RESIDENTIAL WELL
SAMPLED IN FIRST QUARTER 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
HERNDON, VA 20117
TEL: +1 703.709.6500

FIGURE 1
Drawing Number
314V0390-095

REVISIONS	
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2	Issue for Review
3	Issue for Review
4	Issue for Review
5	Issue for Review

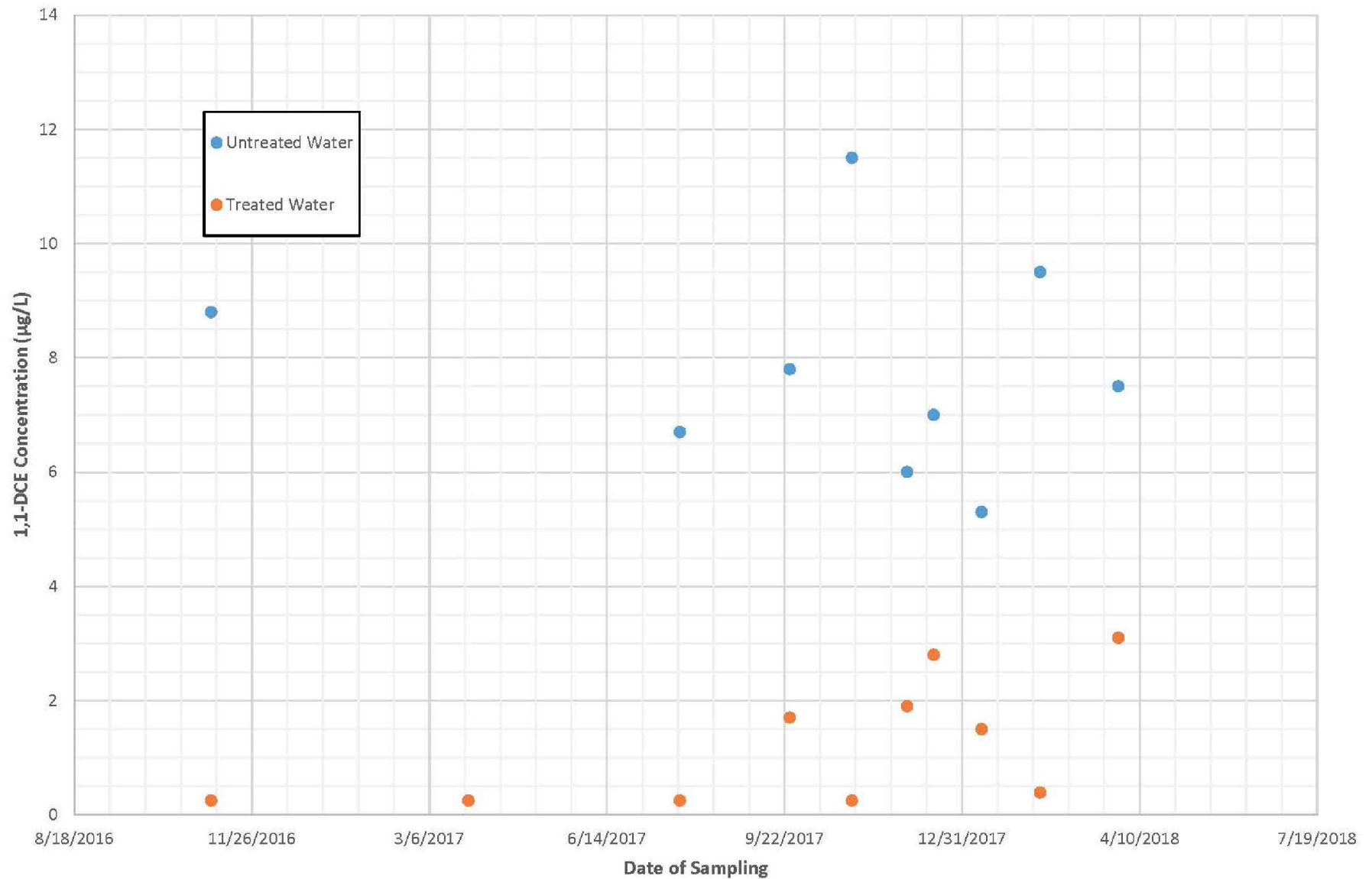
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5/1/2018

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NOTE:
DATA POINTS WITH CONCENTRATIONS OF .025 µg/l CORRESPOND TO NON-DETECT RESULTS. VALUE PLOTTED REPRESENTS 1/2 OF THE METHOD REPORTING LIMIT.

A

Figure 2

1,1-DICHLOROETHENE CONCENTRATIONS
IN WELL WATER SAMPLES FROM
1227 OLD CAMP MEADE ROAD (2016 TO PRESENT)

FORMER KOP-FLEX FACILITY
HANOVER, MARYLAND

PREPARED FOR
EMERSON
ST. LOUIS, MISSOURI

Drawn By: EGC

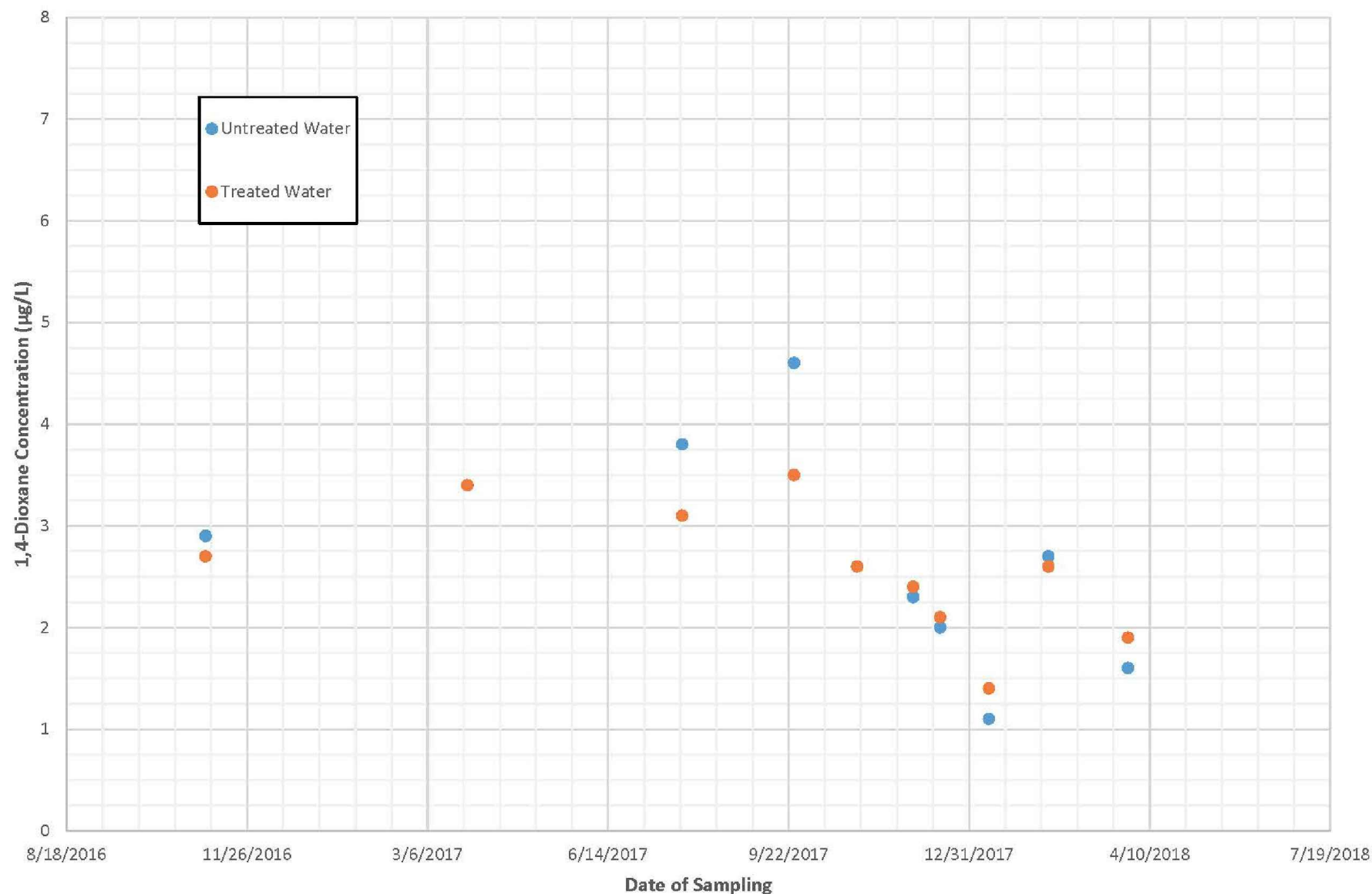
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Approved: *RG* 5/9/2018

DWG Name: 314V0390-077



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A

Figure 3

1,4-DIOXANE CONCENTRATIONS
IN WELL WATER SAMPLES FROM
1227 OLD CAMP MEADE ROAD (2016 TO PRESENT)

FORMER KOP-FLEX FACILITY
HANOVER, MARYLAND

PREPARED FOR
EMERSON
ST. LOUIS, MISSOURI

Drawn By: EGC

Checked:

Approved: *RG* 1/18/2018

DWG Name: 314V0390-077



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LEGEND

- PROPERTY LINE
- STREAM
- WATER BODY
- UNCONFINED AND CONFINED LOWER PATAPSCO AQUIFER MONITORING WELL
- CONFINED LOWER PATAPSCO AQUIFER MONITORING WELL
- RECOVERY WELL
- WELL IDENTIFICATION
- SCREENED INTERVAL (FT-BGS)
- SAMPLE RESULTS IN ppb (RED INDICATE RESULTS ABOVE MDE CLEANUP STANDARDS)
- CONSTITUENTS
- DCA: DICHLOROETHANE
- DCE: DICHLOROETHENE
- TCA: TRICHLOROETHANE
- ND: NOT DETECTED

MW-25D			
	120' - 130'	180' - 190'	
1,1-DCA	6.3	13.7	
1,2-DCA	1.3	ND	
1,1-DCE	154	69.2	
1,4-Dioxane	67.1	42.7	
1,1,1-TCA	6.1	11	

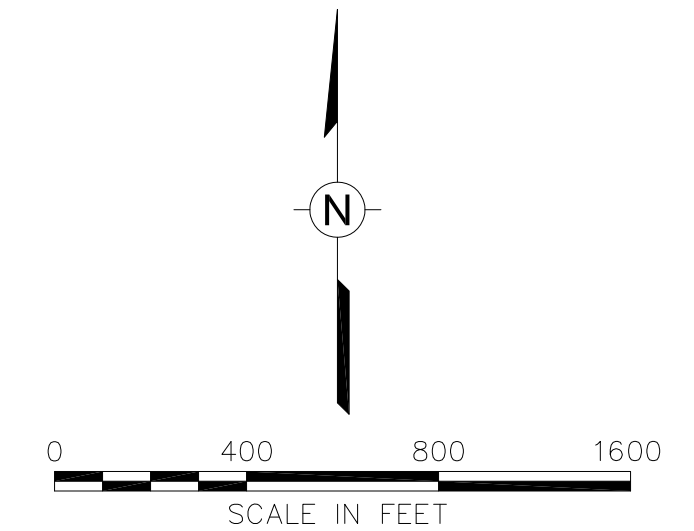
MW-25D	120' - 130'	180' - 190'
1,1-DCA	6.3	13.7
1,2-DCA	1.3	ND
1,1-DCE	154	69.2
1,4-Dioxane	67.1	42.7
1,1,1-TCA	6.1	11

MW-28D	200' - 210'
1,1-DCA	ND
1,2-DCA	ND
1,1-DCE	4.3
1,4-Dioxane	2.8
1,1,1-TCA	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-33D	225' - 235'	285' - 295'
1,1-DCA	ND	ND
1,2-DCA	ND	ND
1,1-DCE	ND	4.6
1,4-Dioxane	ND	6.9
1,1,1-TCA	ND	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



REFERENCE:
PARCEL INFORMATION OBTAINED FROM ANNE ARUNDEL COUNTY, DEPARTMENT OF PUBLIC WORKS
<http://gis-world2.osecounty.org/DPWcounter/countermap.html>

GROUNDWATER MONITORING RESULTS
LOWER PATAPSCO AQUIFER MONITORING WELLS
FEBRUARY 2018
FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 4

Drawing Number
314V0389-017

REVISIONS

REV	DESCRIPTION
1	Initial
2	Revised
3	Revised
4	Revised

SEAL

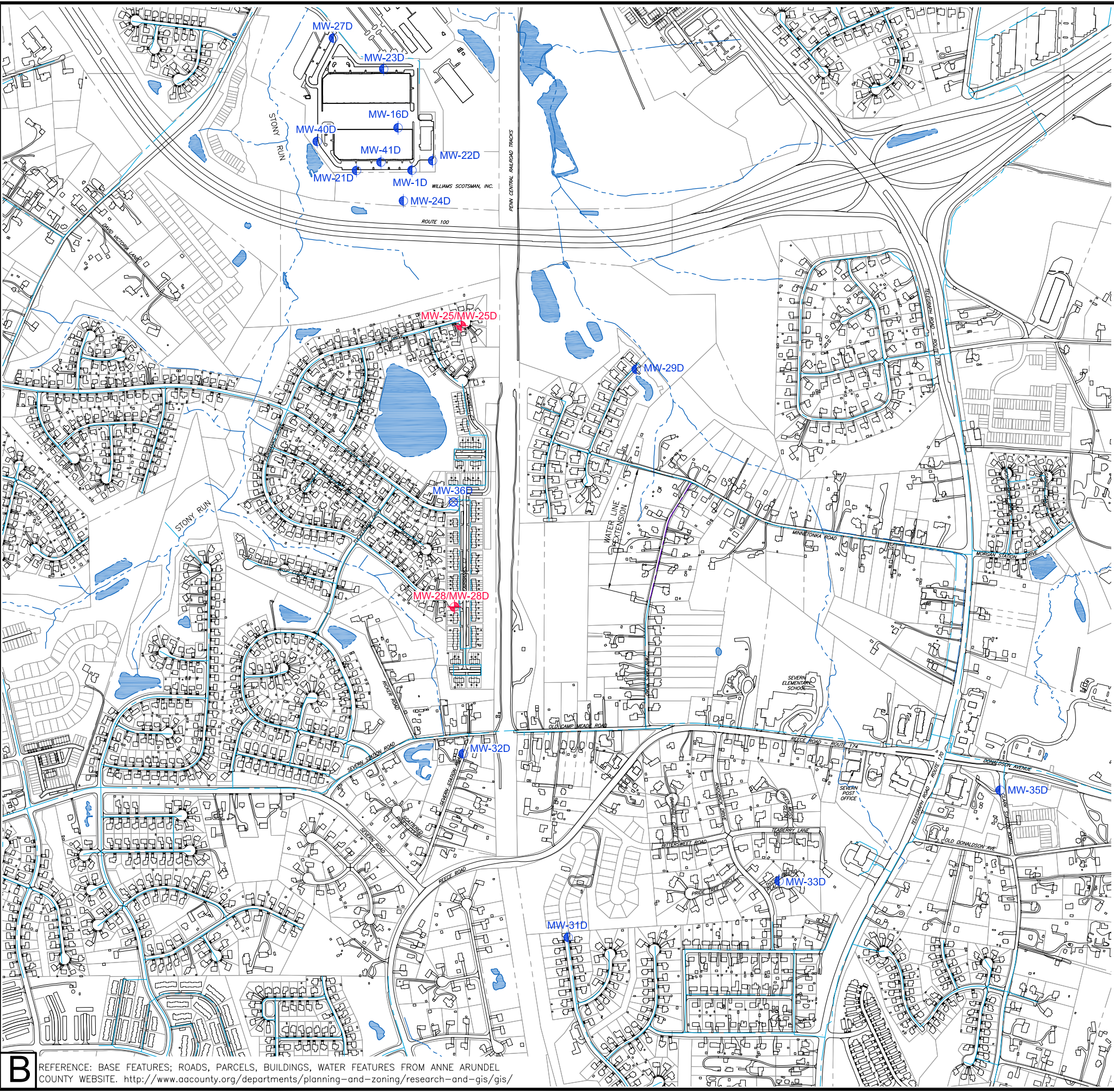
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- LEGEND
- PROPERTY LINE
 - WATER MAIN
 - WATER MAIN EXTENSION
 - STREAM
 - WATER BODY
 - UNCONFINED AND CONFINED LOWER PATAPSCO AQUIFER MONITORING WELLS
 - CONFINED LOWER PATAPSCO AQUIFER MONITORING WELLS
 - PATUXENT AQUIFER MONITORING WELLS

FORMER KOP-FLEX FACILITY HANOVER, MARYLAND		Drawn By: EGC
PREPARED FOR EMERSON		Checked:
MARCH 2018		Approved: <i>RJ</i> 5/11/2018
OFFSITE MONITORING WELL LOCATIONS		DWG Name: 314V0389-019
 WSP USA Inc. 13530 DOLLIES TECHNOLOGY DR SUITE 300 HERNDON, VA 20171 TEL: +1 703.703.6500		

B REFERENCE: BASE FEATURES; ROADS, PARCELS, BUILDINGS, WATER FEATURES FROM ANNE ARUNDEL COUNTY WEBSITE. <http://www.aacounty.org/departments/planning-and-zoning/research-and-gis/gis/>

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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 Units MCL		Acetone µg/l 550 (a)	Bromoform µg/l 80 (a)	Carbon Disulfide µg/l 100 (a)	Chloroform µg/l 80 (a)	1,1-Dichloroethane µg/l 90 (a)	1,1-Dichloroethene µg/l 7	Methyl Tert Butyl Ether µg/l 20 (a)	Toluene µg/l 1,000	1,1,1-Trichloroethane µg/l 200	1,4-Dioxane µg/l 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

(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.

Table 2

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

		UNCONFINED ZONE			CONFINED ZONE						
	Well ID:	MW-25	MW-28	MW-25D-130	MW-25D-190	MW-2500 (d)	MW-28D	MW-31D	MW-33D-235	MW-33D-295	MW-35D
	Sampling Date:	13-Feb-18	14-Feb-18	13-Feb-18	13-Feb-18	13-Feb-18	14-Feb-18	14-Feb-18	13-Feb-18	13-Feb-18	14-Feb-18
Parameters (a)	Groundwater Quality Standards (µg/L) (b)										
Methyl tert-butyl ether	20 (c)	1.0 U	1.0 U	1.0 U	1.0 U	1.17	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	90	1.0 U	1.0 U	6.30	13.7	13.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	1.0 U	1.0 U	154	69.2	66.1	4.3	1.0 U	1.0 U	4.6	1.0 U
1,4-Dioxane	4.6 (c)	2.0 U	2.0 U	67.1	42.7	41.0	2.8	2.0 U	2.0 U	6.9	2.0 U
1,1,1-Trichloroethane	200	1.0 U	1.0 U	6.10	11.0	11.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total CVOCs & 1,4-Dioxane		-	-	233.5	136.6	131.8	7.1	-	-	11.5	-

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](http://www.mde.maryland.gov/assets/document/Final%20Update%20No%202.1%20dated%205-20-08(1).pdf)

c/ Value represents the new MDE risk-based action level. The previous value was 6.7 µg/l.

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

Table 3

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

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 Zone 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
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
MW-45	3/24/2017	1.0 U	1.0 U	1.0 U	1.9	1.0 U	2.3	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 3
Historical Offsite Groundwater Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
2015 to Present

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 Zone Wells												
MW-24D	6/19/2015	20.0 U	92.5	20.0 U	2,100	20.0 U	728	40.0 U	53.3	20.0 U	20.0 U	20.0 U
	3/22/2016	12.5 U	88.0	15.7	1780	12.5 U	561	39.4	38.6	12.5 U	12.5 U	12.5 U
	7/20/2016	12.5 U	95.8	13.9	1970	8.1 J	492	22.6 J	39.2	12.5 U	11.9 J	12.5 U
	12/8/2016	5.0 U	36.1	5.2	701	5.0 U	192	10.0 U	9.0	5.0 U	5.0 U	5.0 U
	5/2/2017	5.0 U	40.4	5.6	830	5.0 U	216	10.0 U	10.2	5.0 U	5.0 U	5.0 U
	8/31/2017	5.0 U	39.8	5.2	663	5.0 U	199	10.0 U	9.5	5.0 U	5.0 U	5.0 U
	11/14/2017	5.0 U	28.1	3.4	803	2.3	212	11.7	10.5	0.52 J	5.9	1.0 U
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
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

Table 3

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

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
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
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

Table 3

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

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-33D-235	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
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
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	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U

a/ U = not detected above the method detection limit; jJ = 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)

Table 4

Monitoring Well MW-29 Groundwater Profiling Results
Former Kop Flex Facility Site
Hanover, Maryland (a,b)

Analyte	Groundwater Quality Standards	Well Location Depth (ft bgs) Sample Date	MW-29 141-146 3/6/2018	MW-29 151-156 3/6/2018	MW-29 181-184 3/6/2018	MW-29 201-206 3/7/2018
1,1-Dichloroethane	90		1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5		1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7		1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	200		1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5		1.0 U	1.0 U	1.0 U	1.0 U
Temperature (°C)			17.25	16.33	5.83	5.95
pH (s.u.)			5.50	5.51	5.57	6.63
Conductivity (mS/cm)			0.09	0.016	0.054	0.137
ORP (mV)			49	82	18	-482

a/ ft = feet, bgs = below ground surface, °C = degrees Celsius, s.u. = standard units,
mS/cm = millisiemens per centimeter, mV = millivolts

b/ All concentrations in micrograms per liter (µg/l)

Table 5

Monitoring Well MW-32 Groundwater Profiling Results
Former Kop Flex Facility Site
Hanover, Maryland (a,b)

Analyte	Groundwater Quality Standards	Well Location Depth (ft bgs) Sample Date	MW-32 171-176 3/13/2018	MW-32 191-196 3/13/2018	MW-32 201-206 3/13/2018	MW-32 211-216 3/14/2018	MW-32 221-226 3/14/2018	MW-32 231-236 3/14/2018	MW-32 261-266 3/15/2018
1,1-Dichloroethane	90		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	200		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Temperature (°C)			15.64	16.1	16	14.73	14.52	14.5	14.99
pH (s.u.)			6.80	5.62	5.58	6.64	6.47	5.99	6.52
Conductivity (mS/cm)			0.066	0.044	0.041	0.048	0.038	0.037	0.046
ORP (mV)			-212	75	-56	-80	27	18	74

a/ ft = feet, bgs = below ground surface, °C = degrees Celsius, s.u. = standard units,

mS/cm = millisiemens per centimeter, mV = millivolts

b/ All concentrations in micrograms per liter (µg/l)

Table 6

Monitoring Well MW-36 Groundwater Profiling Results
Former Kop Flex Facility Site
Hanover, Maryland (a,b)

Analyte	Groundwater Quality Standards (c)	Well Location Depth (ft bgs) Sample Date	MW-36	MW-36	MW-36	MW-36	MW-36	MW-36
			201-206 3/20/2018	211-216 3/20/2018	231-236 3/21/2018	281-286 3/23/2018	351-356 3/26/2018	361-366 3/26/2018
1,1-Dichloroethane	90		5.5	5.0	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	5		1.4	1.4	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7		110	130	7.0	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	200		2.1	2.8	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5		1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U
Temperature (°C)			17.11	16.37	15.4	15.83	16.11	15.21
pH (s.u.)			7.32	6.39	6.76	5.700	7.17	6.93
Conductivity (mS/cm)			0.103	0.058	0.064	0.034	0.090	0.093
ORP (mV)			-209	-173	-288	7.0	21	16

a/ ft = feet, bgs = below ground surface, °C = degrees Celsius, s.u. = standard units,

mS/cm = millisiemens per centimeter, mV = millivolts

b/ All concentrations in micrograms per liter (µg/l)

c/ **Bold** and highlighted values indicate an exceedence of the Groundwater Quality Standards

ENCLOSURE A – LABORATORY ANALYTICAL REPORTS FOR RESIDENTIAL
WELL SAMPLES

JANUARY 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

31400389/03

SGS Job Number: JC58705

Sampling Date: 01/11/18

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: **49**



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 handwritten signature in black ink that reads "Nancy Cole".

Nancy Cole
Laboratory Director

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 (L-A-B L2248)

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Test results relate only to samples analyzed.

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Sample Summary

WSP Environment & Energy

Job No: JC58705

Kop-Flex, Hanover, VA
Project No: 31400389/03

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JC58705-1	01/11/18	13:30 MJK	01/12/18	DW	Drinking Water	RW-12270CM-011118
JC58705-2F	01/11/18	13:35 MJK	01/12/18	DW	Drinking Water Filt	RW-12270CM-011118-F
JC58705-3	01/11/18	14:25 MJK	01/12/18	DW	Drinking Water TB	TB-011118
JC58705-4	01/11/18	14:20 MJK	01/12/18	DW	Drinking Water	RW-1315-011118
JC58705-5F	01/11/18	14:25 MJK	01/12/18	DW	Drinking Water Filt	RW-1315LP-011118-F

Summary of Hits

Page 1 of 1

Job Number: JC58705
Account: WSP Environment & Energy
Project: Kop-Flex, Hanover, VA
Collected: 01/11/18

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC58705-1 RW-12270CM-011118

1,1-Dichloroethane	0.15 J	0.50	0.13	ug/l	EPA 524.2 REV 4.1
1,1-Dichloroethylene	5.3	0.50	0.23	ug/l	EPA 524.2 REV 4.1
1,1,1-Trichloroethane	0.27 J	0.50	0.12	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane	1.1	0.40	0.29	ug/l	SW846 8260C BY SIM

JC58705-2F RW-12270CM-011118-F

1,1-Dichloroethane	0.14 J	0.50	0.13	ug/l	EPA 524.2 REV 4.1
1,1-Dichloroethylene	1.5	0.50	0.23	ug/l	EPA 524.2 REV 4.1
1,1,1-Trichloroethane	0.32 J	0.50	0.12	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane	1.4	0.40	0.29	ug/l	SW846 8260C BY SIM

JC58705-3 TB-011118

No hits reported in this sample.

JC58705-4 RW-1315-011118

Methyl Tert Butyl Ether	0.28 J	0.50	0.080	ug/l	EPA 524.2 REV 4.1
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JC58705-5F RW-1315LP-011118-F

Methyl Tert Butyl Ether	0.23 J	0.50	0.080	ug/l	EPA 524.2 REV 4.1
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Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	RW-12270CM-011118	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-1	Date Received:	01/12/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B113432.D	1	01/17/18 13:09	BK	n/a	n/a	V1B5421
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	3.8	ug/l	
78-93-3	2-Butanone	ND		5.0	2.5	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.36	ug/l	
75-25-2	Bromoform	ND		0.50	0.40	ug/l	
74-83-9	Bromomethane	ND		0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND		0.50	0.071	ug/l	
67-66-3	Chloroform	ND		0.50	0.33	ug/l	
74-87-3	Chloromethane	ND		0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	0.15		0.50	0.13	ug/l	J
75-35-4	1,1-Dichloroethylene	5.3	7.0	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141)

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-011118	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-1	Date Received:	01/12/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
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	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND		2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.23	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	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	1.5	ug/l	
91-20-3	Naphthalene	ND		0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.26	ug/l	
100-42-5	Styrene	ND	100	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	0.27	200	0.50	0.12	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^a	ND		0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^a	ND	70	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.12	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.056	ug/l	
	m,p-Xylene	ND		0.50	0.26	ug/l	
95-47-6	o-Xylene	ND		0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	103%		70-130%
460-00-4	4-Bromofluorobenzene	101%		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-12270CM-011118	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-1	Date Received:	01/12/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
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(a) Associated CCV outside of control limits high, sample was ND.

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

Report of Analysis

Client Sample ID:	RW-12270CM-011118	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-1	Date Received:	01/12/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	SW846 8260C BY SIM		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A158689.D	1	01/15/18 13:45	BM	n/a	n/a	V3A6828
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	0.29	ug/l	

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

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

Report of Analysis

Client Sample ID:	RW-12270CM-011118-F	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-2F	Date Received:	01/12/18
Matrix:	DW - Drinking Water Filt	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B113437.D	1	01/17/18 16:00	BK	n/a	n/a	V1B5421
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	3.8	ug/l	
78-93-3	2-Butanone	ND		5.0	2.5	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.36	ug/l	
75-25-2	Bromoform	ND		0.50	0.40	ug/l	
74-83-9	Bromomethane	ND		0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND		0.50	0.071	ug/l	
67-66-3	Chloroform	ND		0.50	0.33	ug/l	
74-87-3	Chloromethane	ND		0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	0.14		0.50	0.13	ug/l	J
75-35-4	1,1-Dichloroethylene	1.5	7.0	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141)

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-011118-F	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-2F	Date Received:	01/12/18
Matrix:	DW - Drinking Water Filt	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
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	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND		2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.23	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	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	1.5	ug/l	
91-20-3	Naphthalene	ND		0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.26	ug/l	
100-42-5	Styrene	ND	100	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	0.32	200	0.50	0.12	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^a	ND		0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^a	ND	70	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.12	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.056	ug/l	
	m,p-Xylene	ND		0.50	0.26	ug/l	
95-47-6	o-Xylene	ND		0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	100%		70-130%
460-00-4	4-Bromofluorobenzene	97%		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-12270CM-011118-F	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-2F	Date Received:	01/12/18
Matrix:	DW - Drinking Water Filt	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
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(a) Associated CCV outside of control limits high, sample was ND.

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

Report of Analysis

3.2
3

Client Sample ID:	RW-12270CM-011118-F	
Lab Sample ID:	JC58705-2F	Date Sampled: 01/11/18
Matrix:	DW - Drinking Water Filt	Date Received: 01/12/18
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	3A158691.D	1	01/15/18 14:37	BM	n/a	n/a	V3A6828
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	1.4		0.40	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	66%		51-175%

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

Report of Analysis

Client Sample ID:	TB-011118	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-3	Date Received:	01/12/18
Matrix:	DW - Drinking Water TB	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B113438.D	1	01/17/18 16:32	BK	n/a	n/a	V1B5421
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	3.8	ug/l	
78-93-3	2-Butanone	ND		5.0	2.5	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.36	ug/l	
75-25-2	Bromoform	ND		0.50	0.40	ug/l	
74-83-9	Bromomethane	ND		0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND		0.50	0.071	ug/l	
67-66-3	Chloroform	ND		0.50	0.33	ug/l	
74-87-3	Chloromethane	ND		0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	ND		0.50	0.13	ug/l	
75-35-4	1,1-Dichloroethylene	ND	7.0	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141)

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB-011118	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-3	Date Received:	01/12/18
Matrix:	DW - Drinking Water TB	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
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	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND		2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.23	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	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	1.5	ug/l	
91-20-3	Naphthalene	ND		0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.26	ug/l	
100-42-5	Styrene	ND	100	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	200	0.50	0.12	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^a	ND		0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^a	ND	70	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.12	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.056	ug/l	
	m,p-Xylene	ND		0.50	0.26	ug/l	
95-47-6	o-Xylene	ND		0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.24	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	98%		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:	TB-011118	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-3	Date Received:	01/12/18
Matrix:	DW - Drinking Water TB	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
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(a) Associated CCV outside of control limits high, sample was ND.

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

Report of Analysis

Client Sample ID:	TB-011118	
Lab Sample ID:	JC58705-3	Date Sampled: 01/11/18
Matrix:	DW - Drinking Water TB	Date Received: 01/12/18
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	3A158688.D	1	01/15/18 13:19	BM	n/a	n/a	V3A6828
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	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	93%		51-175%

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

Report of Analysis

Client Sample ID:	RW-1315-011118	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-4	Date Received:	01/12/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B113433.D	1	01/17/18 13:42	BK	n/a	n/a	V1B5421
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	3.8	ug/l	
78-93-3	2-Butanone	ND		5.0	2.5	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.36	ug/l	
75-25-2	Bromoform	ND		0.50	0.40	ug/l	
74-83-9	Bromomethane	ND		0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND		0.50	0.071	ug/l	
67-66-3	Chloroform	ND		0.50	0.33	ug/l	
74-87-3	Chloromethane	ND		0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	ND		0.50	0.13	ug/l	
75-35-4	1,1-Dichloroethylene	ND	7.0	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141)

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-1315-011118	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-4	Date Received:	01/12/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
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	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND		2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.23	ug/l	
75-09-2	Methylene chloride	ND	5.0	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	0.28		0.50	0.080	ug/l	J
108-10-1	4-Methyl-2-pentanone	ND		2.0	1.5	ug/l	
91-20-3	Naphthalene	ND		0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.26	ug/l	
100-42-5	Styrene	ND	100	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	200	0.50	0.12	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^a	ND		0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^a	ND	70	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.12	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.056	ug/l	
	m,p-Xylene	ND		0.50	0.26	ug/l	
95-47-6	o-Xylene	ND		0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	100%		70-130%
460-00-4	4-Bromofluorobenzene	98%		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-1315-011118
Lab Sample ID: JC58705-4
Matrix: DW - Drinking Water
Method: EPA 524.2 REV 4.1
Project: Kop-Flex, Hanover, VA

Date Sampled: 01/11/18
Date Received: 01/12/18
Percent Solids: n/a

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
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(a) Associated CCV outside of control limits high, sample was ND.

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

Report of Analysis

Client Sample ID:	RW-1315-011118	
Lab Sample ID:	JC58705-4	Date Sampled: 01/11/18
Matrix:	DW - Drinking Water	Date Received: 01/12/18
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	3A158690.D	1	01/15/18 14:11	BM	n/a	n/a	V3A6828
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	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	83%		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:	RW-1315LP-011118-F	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-5F	Date Received:	01/12/18
Matrix:	DW - Drinking Water Filt	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B113439.D	1	01/17/18 17:05	BK	n/a	n/a	V1B5421
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	3.8	ug/l	
78-93-3	2-Butanone	ND		5.0	2.5	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.36	ug/l	
75-25-2	Bromoform	ND		0.50	0.40	ug/l	
74-83-9	Bromomethane	ND		0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND		0.50	0.071	ug/l	
67-66-3	Chloroform	ND		0.50	0.33	ug/l	
74-87-3	Chloromethane	ND		0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	ND		0.50	0.13	ug/l	
75-35-4	1,1-Dichloroethylene	ND	7.0	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141)

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-1315LP-011118-F	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-5F	Date Received:	01/12/18
Matrix:	DW - Drinking Water Filt	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
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	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND		2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.23	ug/l	
75-09-2	Methylene chloride	ND	5.0	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	0.23		0.50	0.080	ug/l	J
108-10-1	4-Methyl-2-pentanone	ND		2.0	1.5	ug/l	
91-20-3	Naphthalene	ND		0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.26	ug/l	
100-42-5	Styrene	ND	100	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	200	0.50	0.12	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene ^a	ND		0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene ^a	ND	70	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.12	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.056	ug/l	
	m,p-Xylene	ND		0.50	0.26	ug/l	
95-47-6	o-Xylene	ND		0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.24	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	98%		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-1315LP-011118-F	Date Sampled:	01/11/18
Lab Sample ID:	JC58705-5F	Date Received:	01/12/18
Matrix:	DW - Drinking Water Filt	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
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(a) Associated CCV outside of control limits high, sample was ND.

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

Report of Analysis

Client Sample ID:	RW-1315LP-011118-F	
Lab Sample ID:	JC58705-5F	Date Sampled: 01/11/18
Matrix:	DW - Drinking Water Filt	Date Received: 01/12/18
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	3A158692.D	1	01/15/18 15:03	BM	n/a	n/a	V3A6828
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	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	79%		51-175%

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.accutest.com

FED-EX Tracking # **6094-7536-E356** Bottle Order Control #
SGS Accutest Quote # **JC58705**

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)												Matrix Codes	
Company Name WSP	Project Name Kopflex	VOCs (524) 1,4 Dioxane (826054)												DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank			
Street Address 3530 Willes Technology Drive St 300	Street Drive St 300																
City Hampton	City Hampton																
State VA	State MD																
Project Contact Eric Johnson eric.johnson	Project # 3140369103																
Phone # (703) 709-6500	Client Purchase Order #																
Sampler(s) Name(s) MSK + CC	Phone #																
SGS Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	ICI	NaOH	HNO3	H2SO4	NH4OH	DI Water	MEOH	ENCORE	LAB USE ONLY	
1	RW-13370CM-011118		1/11/18	1330	MSK	DW	6	X									
2F	RW-13370CM-011118-F		1/11/18	1335	MR	DW	6	X									
3	TB-011118					DW	4	X									Top Blank
4	RW-1315LP-011118		1/11/18	1430	MSK	DW	6	X									
5F	RW-1315LP-011118-F		1/11/18	1425	MSK	DW	6	X									
Turnaround Time (Business days)																	
Approved By (SGS Accutest PM): / Date:		Data Deliverable Information												Comments / Special Instructions			
☒ Std. 10 Business Days ☐ 5 Day RUSH ☐ 3 Day RUSH ☐ 2 Day RUSH ☐ 1 Day RUSH ☐ other		☐ Commercial "A" (Level 1) ☐ Commercial "B" (Level 2) ☐ FULLT1 (Level 3+4) ☐ NJ Reduced ☐ Commercial "C" ☐ NJ Data of Known Quality Protocol Reporting		☐ NYASP Category A ☐ NYASP Category B ☐ State Forms ☐ EDD Format ☐ Other								INITIAL ASSESSMENT 2A					
Emergency & Rush TIA data available VIA Lablink		Commercial "A" = Results Only, Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data												LABEL VERIFICATION			
Sample inventory is verified upon receipt in the Laboratory																	
Sample Custody must be documented below each time samples change possession, including courier delivery.																	
Relinquished By: 1	Date Time: 1/11/18 1500	Received By: 1	Date Time: 1/11/18 1500	Relinquished By: 2	Date Time: 1/12/18 930	Received By: 2	Date Time: 1/12/18										
Relinquished By: 3	Date Time:	Received By: 3	Date Time:	Relinquished By: 4	Date Time:	Received By: 4	Date Time:										
Relinquished By: 5	Date Time:	Received By: 5	Date Time:	Custody Seal #	☐ Intact ☐ Not Intact	Preserved where applicable	On Ice	Cooler Temp. 2.9°C									

Form SM088-01C Rev. Date: 9/13/16

JC58705: Chain of Custody

Page 1 of 2

SGS Sample Receipt Summary

Job Number: JC58705

Client: _____

Project: _____

Date / Time Received: 1/12/2018 9:30:00 AM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (2.4);

Cooler Temps (Corrected) °C: Cooler 1: (3.3);

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: ☒ ☐ | IR Gun |
| 2. Cooler temp verification: _____ | |
| 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

JC58705: Chain of Custody

Page 2 of 2

MS Volatiles

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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

Page 1 of 3

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5421-MB	1B113430.D	1	01/17/18	BK	n/a	n/a	V1B5421

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	5.0	3.8	ug/l	
78-93-3	2-Butanone	ND	5.0	2.5	ug/l	
71-43-2	Benzene	ND	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.36	ug/l	
75-25-2	Bromoform	ND	0.50	0.40	ug/l	
74-83-9	Bromomethane	ND	0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND	0.50	0.071	ug/l	
67-66-3	Chloroform	ND	0.50	0.33	ug/l	
74-87-3	Chloromethane	ND	0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.13	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.28	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.26	ug/l	

Method Blank Summary

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Job Number: JC58705

Account: ESCVAR WSP Environment & Energy

Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5421-MB	1B113430.D	1	01/17/18	BK	n/a	n/a	V1B5421

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.14	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.23	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	1.5	ug/l	
91-20-3	Naphthalene	ND	0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.26	ug/l	
100-42-5	Styrene	ND	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.12	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.12	ug/l	
108-88-3	Toluene	ND	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.056	ug/l	
	m,p-Xylene	ND	0.50	0.26	ug/l	
95-47-6	o-Xylene	ND	0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.24	ug/l	

CAS No.	Surrogate Recoveries	Limits
2199-69-1	1,2-Dichlorobenzene-d4	102% 70-130%
460-00-4	4-Bromofluorobenzene	100% 70-130%

Method Blank Summary

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5421-MB	1B113430.D	1	01/17/18	BK	n/a	n/a	V1B5421

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

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

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

Method Blank Summary

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6828-MB	3A158685.D	1	01/15/18	BM	n/a	n/a	V3A6828

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

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND	0.40	0.29	ug/l	

CAS No.	Surrogate Recoveries	Limits
17647-74-4	1,4-Dioxane-d8	76% 51-175%

Blank Spike Summary

Page 1 of 2

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5421-BS	1B113431.D	1	01/17/18	BK	n/a	n/a	V1B5421

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	20	22.5	113	70-130
78-93-3	2-Butanone	20	21.1	106	70-130
71-43-2	Benzene	5	5.2	104	70-130
108-86-1	Bromobenzene	5	5.2	104	70-130
74-97-5	Bromochloromethane	5	5.1	102	70-130
75-27-4	Bromodichloromethane	5	5.0	100	70-130
75-25-2	Bromoform	5	4.7	94	70-130
74-83-9	Bromomethane	2	1.9	95	70-130
104-51-8	n-Butylbenzene	5	5.3	106	70-130
135-98-8	sec-Butylbenzene	5	5.2	104	70-130
98-06-6	tert-Butylbenzene	5	5.2	104	70-130
75-15-0	Carbon disulfide	5	4.7	94	70-130
108-90-7	Chlorobenzene	5	4.9	98	70-130
75-00-3	Chloroethane	2	2.0	100	70-130
67-66-3	Chloroform	5	5.1	102	70-130
74-87-3	Chloromethane	2	2.0	100	70-130
95-49-8	o-Chlorotoluene	5	5.3	106	70-130
106-43-4	p-Chlorotoluene	5	5.3	106	70-130
56-23-5	Carbon tetrachloride	5	5.3	106	70-130
75-34-3	1,1-Dichloroethane	5	5.1	102	70-130
75-35-4	1,1-Dichloroethylene	5	4.9	98	70-130
563-58-6	1,1-Dichloropropene	5	5.1	102	70-130
96-12-8	1,2-Dibromo-3-chloropropane	5	5.2	104	70-130
106-93-4	1,2-Dibromoethane	5	5.0	100	70-130
107-06-2	1,2-Dichloroethane	5	5.2	104	70-130
78-87-5	1,2-Dichloropropane	5	5.3	106	70-130
142-28-9	1,3-Dichloropropane	5	5.3	106	70-130
594-20-7	2,2-Dichloropropane	5	5.3	106	70-130
124-48-1	Dibromochloromethane	5	4.9	98	70-130
74-95-3	Dibromomethane	5	5.1	102	70-130
75-71-8	Dichlorodifluoromethane	2	2.1	105	70-130
541-73-1	m-Dichlorobenzene	5	5.3	106	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	4.6	92	70-130
156-59-2	cis-1,2-Dichloroethylene	5	4.9	98	70-130

* = Outside of Control Limits.

Blank Spike Summary

Page 2 of 2

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5421-BS	1B113431.D	1	01/17/18	BK	n/a	n/a	V1B5421

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

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	5.0	100	70-130
100-41-4	Ethylbenzene	5	5.0	100	70-130
87-68-3	Hexachlorobutadiene	5	5.5	110	70-130
591-78-6	2-Hexanone	20	21.4	107	70-130
98-82-8	Isopropylbenzene	5	5.0	100	70-130
99-87-6	p-Isopropyltoluene	5	5.2	104	70-130
75-09-2	Methylene chloride	5	4.7	94	70-130
1634-04-4	Methyl Tert Butyl Ether	5	5.1	102	70-130
108-10-1	4-Methyl-2-pentanone	20	21.4	107	70-130
91-20-3	Naphthalene	5	5.6	112	70-130
103-65-1	n-Propylbenzene	5	5.2	104	70-130
100-42-5	Styrene	5	5.0	100	70-130
630-20-6	1,1,1,2-Tetrachloroethane	5	5.1	102	70-130
71-55-6	1,1,1-Trichloroethane	5	5.1	102	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	5.9	118	70-130
96-18-4	1,2,3-Trichloropropane	5	5.4	108	70-130
120-82-1	1,2,4-Trichlorobenzene	5	5.8	116	70-130
95-63-6	1,2,4-Trimethylbenzene	5	5.2	104	70-130
108-67-8	1,3,5-Trimethylbenzene	5	5.2	104	70-130
127-18-4	Tetrachloroethylene	5	5.1	102	70-130
108-88-3	Toluene	5	5.0	100	70-130
79-01-6	Trichloroethylene	5	5.1	102	70-130
75-69-4	Trichlorofluoromethane	2	2.2	110	70-130
75-01-4	Vinyl chloride	2	2.0	100	70-130
	m,p-Xylene	10	10.0	100	70-130
95-47-6	o-Xylene	5	5.0	100	70-130
1330-20-7	Xylenes (total)	15	15.0	100	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2199-69-1	1,2-Dichlorobenzene-d4	103%	70-130%
460-00-4	4-Bromofluorobenzene	101%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6828-BS	3A158686.D	1	01/15/18	BM	n/a	n/a	V3A6828

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

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
123-91-1	1,4-Dioxane	20	16.9	85	58-138

CAS No.	Surrogate Recoveries	BSP	Limits
17647-74-4	1,4-Dioxane-d8	84%	51-175%

* = Outside of Control Limits.

Matrix Spike Summary

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Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC58705-1MS	1B113435.D	1	01/17/18	BK	n/a	n/a	V1B5421
JC58705-1	1B113432.D	1	01/17/18	BK	n/a	n/a	V1B5421

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	JC58705-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
67-64-1	Acetone	ND		20	17.6	88	41-142
78-93-3	2-Butanone	ND		20	15.0	75	55-129
71-43-2	Benzene	ND		5	3.7	74	53-138
108-86-1	Bromobenzene	ND		5	3.6	72	54-138
74-97-5	Bromochloromethane	ND		5	3.5	70	55-140
75-27-4	Bromodichloromethane	ND		5	3.4	68	57-147
75-25-2	Bromoform	ND		5	3.0	60	47-137
74-83-9	Bromomethane	ND		2	1.7	85	40-162
104-51-8	n-Butylbenzene	ND		5	3.7	74	45-144
135-98-8	sec-Butylbenzene	ND		5	3.6	72	46-145
98-06-6	tert-Butylbenzene	ND		5	3.6	72	48-141
75-15-0	Carbon disulfide	ND		5	3.4	68	35-127
108-90-7	Chlorobenzene	ND		5	3.5	70	54-135
75-00-3	Chloroethane	ND		2	1.8	90	38-153
67-66-3	Chloroform	ND		5	3.6	72	57-151
74-87-3	Chloromethane	ND		2	1.9	95	39-165
95-49-8	o-Chlorotoluene	ND		5	3.7	74	55-142
106-43-4	p-Chlorotoluene	ND		5	3.6	72	55-139
56-23-5	Carbon tetrachloride	ND		5	4.1	82	49-170
75-34-3	1,1-Dichloroethane	0.15	J	5	3.8	73	55-149
75-35-4	1,1-Dichloroethylene	5.3		5	9.1	76	42-142
563-58-6	1,1-Dichloropropene	ND		5	3.8	76	46-151
96-12-8	1,2-Dibromo-3-chloropropane	ND		5	3.6	72	48-141
106-93-4	1,2-Dibromoethane	ND		5	3.4	68	57-135
107-06-2	1,2-Dichloroethane	ND		5	3.7	74	59-166
78-87-5	1,2-Dichloropropane	ND		5	3.7	74	53-142
142-28-9	1,3-Dichloropropane	ND		5	3.7	74	58-143
594-20-7	2,2-Dichloropropane	ND		5	3.8	76	38-165
124-48-1	Dibromochloromethane	ND		5	3.2	64	55-138
74-95-3	Dibromomethane	ND		5	3.5	70	61-144
75-71-8	Dichlorodifluoromethane	ND		2	1.9	95	23-172
541-73-1	m-Dichlorobenzene	ND		5	3.7	74	53-138
95-50-1	o-Dichlorobenzene	ND		5	3.7	74	54-140
106-46-7	p-Dichlorobenzene	ND		5	3.6	72	53-137
156-60-5	trans-1,2-Dichloroethylene	ND		5	3.2	64	47-148
156-59-2	cis-1,2-Dichloroethylene	ND		5	3.5	70	51-146

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC58705-1MS	1B113435.D	1	01/17/18	BK	n/a	n/a	V1B5421
JC58705-1	1B113432.D	1	01/17/18	BK	n/a	n/a	V1B5421

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	JC58705-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	Limits
10061-01-5	cis-1,3-Dichloropropene	ND		5	3.6	72	51-136
10061-02-6	trans-1,3-Dichloropropene	ND		5	3.4	68	54-142
100-41-4	Ethylbenzene	ND		5	3.5	70	51-138
87-68-3	Hexachlorobutadiene	ND		5	3.6	72	40-154
591-78-6	2-Hexanone	ND		20	15.2	76	53-128
98-82-8	Isopropylbenzene	ND		5	3.5	70	49-139
99-87-6	p-Isopropyltoluene	ND		5	3.7	74	45-141
75-09-2	Methylene chloride	ND		5	3.3	66	54-137
1634-04-4	Methyl Tert Butyl Ether	ND		5	3.6	72	53-143
108-10-1	4-Methyl-2-pentanone	ND		20	15.2	76	58-127
91-20-3	Naphthalene	ND		5	3.6	72	44-140
103-65-1	n-Propylbenzene	ND		5	3.7	74	50-142
100-42-5	Styrene	ND		5	3.4	68	23-130
630-20-6	1,1,1,2-Tetrachloroethane	ND		5	3.6	72	57-144
71-55-6	1,1,1-Trichloroethane	0.27	J	5	4.0	75	52-164
79-34-5	1,1,2,2-Tetrachloroethane	ND		5	3.6	72	58-138
79-00-5	1,1,2-Trichloroethane	ND		5	3.5	70	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	3.7	74	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	3.6	72	41-138
108-67-8	1,3,5-Trimethylbenzene	ND		5	3.6	72	45-138
127-18-4	Tetrachloroethylene	ND		5	3.7	74	45-145
108-88-3	Toluene	ND		5	3.5	70	52-134
79-01-6	Trichloroethylene	ND		5	3.7	74	54-143
75-69-4	Trichlorofluoromethane	ND		2	1.9	95	36-167
75-01-4	Vinyl chloride	ND		2	1.8	90	35-162
	m,p-Xylene	ND		10	7.0	70	49-135
95-47-6	o-Xylene	ND		5	3.5	70	49-134
1330-20-7	Xylenes (total)	ND		15	10.5	70	50-134

CAS No.	Surrogate Recoveries	MS	JC58705-1	Limits
2199-69-1	1,2-Dichlorobenzene-d4	104%	103%	70-130%
460-00-4	4-Bromofluorobenzene	101%	101%	70-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC58705-1MS	3A158695.D	1	01/15/18	BM	n/a	n/a	V3A6828
JC58705-1	3A158689.D	1	01/15/18	BM	n/a	n/a	V3A6828

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

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	JC58705-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	Limits
123-91-1	1,4-Dioxane	1.1	20	16.2	76		36-166

CAS No.	Surrogate Recoveries	MS	JC58705-1	Limits
17647-74-4	1,4-Dioxane-d8	78%	51%	51-175%

* = Outside of Control Limits.

Duplicate Summary

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Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC58705-4DUP	1B113436.D	1	01/17/18	BK	n/a	n/a	V1B5421
JC58705-4	1B113433.D	1	01/17/18	BK	n/a	n/a	V1B5421

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	JC58705-4 ug/l	DUP Q 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

Page 2 of 2

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC58705-4DUP	1B113436.D	1	01/17/18	BK	n/a	n/a	V1B5421
JC58705-4	1B113433.D	1	01/17/18	BK	n/a	n/a	V1B5421

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	JC58705-4 ug/l	DUP Q	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	0.28	J	0.29	J	4	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	JC58705-4	Limits
2199-69-1	1,2-Dichlorobenzene-d4	101%	100%	70-130%
460-00-4	4-Bromofluorobenzene	100%	98%	70-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC58705-4DUP	3A158697.D	1	01/15/18	BM	n/a	n/a	V3A6828
JC58705-4	3A158690.D	1	01/15/18	BM	n/a	n/a	V3A6828

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

JC58705-1, JC58705-3, JC58705-4, JC58705-2F, JC58705-5F

CAS No.	Compound	JC58705-4 ug/l	DUP Q	ug/l	Q	RPD	Limits
123-91-1	1,4-Dioxane	ND	ND			nc	37

CAS No.	Surrogate Recoveries	DUP	JC58705-4	Limits
17647-74-4	1,4-Dioxane-d8	80%	83%	51-175%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5420-BFB **Injection Date:** 01/16/18
Lab File ID: 1B113412.D **Injection Time:** 18:13
Instrument ID: GCMS1B

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	3627	17.5	Pass
75	30.0 - 80.0% of mass 95	9504	45.9	Pass
95	Base peak, 100% relative abundance	20720	100.0	Pass
96	5.0 - 9.0% of mass 95	1443	6.96	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	15735	75.9	Pass
175	5.0 - 9.0% of mass 174	1178	5.69 (7.49) ^a	Pass
176	95.0 - 101.0% of mass 174	15157	73.2 (96.3) ^a	Pass
177	5.0 - 9.0% of mass 176	1038	5.01 (6.85) ^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
V1B5420-IC5420	1B113413.D	01/16/18	19:01	00:48	Initial cal 0.2
V1B5420-IC5420	1B113414.D	01/16/18	19:33	01:20	Initial cal 0.5
V1B5420-IC5420	1B113415.D	01/16/18	20:05	01:52	Initial cal 1
V1B5420-IC5420	1B113416.D	01/16/18	20:38	02:25	Initial cal 2
V1B5420-IC5420	1B113417.D	01/16/18	21:11	02:58	Initial cal 5
V1B5420-ICC5420	1B113418.D	01/16/18	21:43	03:30	Initial cal 10
V1B5420-IC5420	1B113419.D	01/16/18	22:15	04:02	Initial cal 20
V1B5420-IC5420	1B113420.D	01/16/18	22:48	04:35	Initial cal 40
V1B5420-IC5420	1B113421.D	01/16/18	23:20	05:07	Initial cal 80
V1B5420-ICV5420	1B113424.D	01/17/18	00:57	06:44	Initial cal verification 10

Instrument Performance Check (BFB)

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample:	V1B5420-BFB2	Injection Date:	01/17/18
Lab File ID:	1B113426.D	Injection Time:	09:11
Instrument ID:	GCMS1B		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	3682	17.5	Pass
75	30.0 - 80.0% of mass 95	9942	47.3	Pass
95	Base peak, 100% relative abundance	21013	100.0	Pass
96	5.0 - 9.0% of mass 95	1390	6.61	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	15936	75.8	Pass
175	5.0 - 9.0% of mass 174	1141	5.43 (7.16) ^a	Pass
176	95.0 - 101.0% of mass 174	15494	73.7 (97.2) ^a	Pass
177	5.0 - 9.0% of mass 176	1032	4.91 (6.66) ^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
V1B5420-ICV5420	1B113427.D	01/17/18	09:51	00:40	Initial cal verification 10

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5421-BFB **Injection Date:** 01/17/18
Lab File ID: 1B113428.D **Injection Time:** 10:24
Instrument ID: GCMS1B

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	3654	17.7	Pass
75	30.0 - 80.0% of mass 95	9578	46.4	Pass
95	Base peak, 100% relative abundance	20635	100.0	Pass
96	5.0 - 9.0% of mass 95	1321	6.40	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	15596	75.6	Pass
175	5.0 - 9.0% of mass 174	1163	5.64 (7.46) ^a	Pass
176	95.0 - 101.0% of mass 174	15029	72.8 (96.4) ^a	Pass
177	5.0 - 9.0% of mass 176	922	4.47 (6.13) ^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
V1B5421-CC5420	1B113429.D	01/17/18	11:05	00:41	Continuing cal 5
V1B5421-MB	1B113430.D	01/17/18	11:37	01:13	Method Blank
V1B5421-BS	1B113431.D	01/17/18	12:10	01:46	Blank Spike
JC58705-1	1B113432.D	01/17/18	13:09	02:45	RW-12270CM-011118
JC58705-4	1B113433.D	01/17/18	13:42	03:18	RW-1315-011118
ZZZZZZ	1B113434.D	01/17/18	14:15	03:51	(unrelated sample)
JC58705-1MS	1B113435.D	01/17/18	14:56	04:32	Matrix Spike
JC58705-4DUP	1B113436.D	01/17/18	15:28	05:04	Duplicate
JC58705-2F	1B113437.D	01/17/18	16:00	05:36	RW-12270CM-011118-F
JC58705-3	1B113438.D	01/17/18	16:32	06:08	TB-011118
JC58705-5F	1B113439.D	01/17/18	17:05	06:41	RW-1315LP-011118-F
ZZZZZZ	1B113440.D	01/17/18	17:37	07:13	(unrelated sample)
ZZZZZZ	1B113441.D	01/17/18	18:09	07:45	(unrelated sample)
ZZZZZZ	1B113442.D	01/17/18	18:42	08:18	(unrelated sample)
ZZZZZZ	1B113443.D	01/17/18	19:14	08:50	(unrelated sample)
ZZZZZZ	1B113444.D	01/17/18	19:46	09:22	(unrelated sample)

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V3A6816-BFB
Lab File ID: 3A158421.D
Instrument ID: GCMS3A
Injection Date: 12/05/17
Injection Time: 16:08

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	5563	18.0	Pass
75	30.0 - 60.0% of mass 95	13825	44.8	Pass
95	Base peak, 100% relative abundance	30872	100.0	Pass
96	5.0 - 9.0% of mass 95	2264	7.33	Pass
173	Less than 2.0% of mass 174	119	0.39 (0.43) ^a	Pass
174	50.0 - 120.0% of mass 95	27528	89.2	Pass
175	5.0 - 9.0% of mass 174	2211	7.16 (8.03) ^a	Pass
176	95.0 - 101.0% of mass 174	26752	86.7 (97.2) ^a	Pass
177	5.0 - 9.0% of mass 176	1714	5.55 (6.41) ^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
V3A6816-IC6816	3A158422.D	12/05/17	16:36	00:28	Initial cal 0.25
V3A6816-IC6816	3A158423.D	12/05/17	17:02	00:54	Initial cal 0.4
V3A6816-IC6816	3A158424.D	12/05/17	17:28	01:20	Initial cal 1
V3A6816-IC6816	3A158425.D	12/05/17	17:54	01:46	Initial cal 2
V3A6816-IC6816	3A158426.D	12/05/17	18:20	02:12	Initial cal 5
V3A6816-ICC6816	3A158427.D	12/05/17	18:46	02:38	Initial cal 20
V3A6816-IC6816	3A158428.D	12/05/17	19:11	03:03	Initial cal 50
V3A6816-IC6816	3A158429.D	12/05/17	19:37	03:29	Initial cal 100
V3A6816-IC6816	3A158430.D	12/05/17	20:03	03:55	Initial cal 200
V3A6816-ICV6816	3A158433.D	12/05/17	21:21	05:13	Initial cal verification 20

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V3A6828-BFB
Lab File ID: 3A158682.D
Instrument ID: GCMS3A
Injection Date: 01/15/18
Injection Time: 10:16

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	9333	20.8	Pass
75	30.0 - 60.0% of mass 95	21602	48.1	Pass
95	Base peak, 100% relative abundance	44944	100.0	Pass
96	5.0 - 9.0% of mass 95	2938	6.54	Pass
173	Less than 2.0% of mass 174	218	0.49 (0.53) ^a	Pass
174	50.0 - 120.0% of mass 95	40848	90.9	Pass
175	5.0 - 9.0% of mass 174	2904	6.46 (7.11) ^a	Pass
176	95.0 - 101.0% of mass 174	38928	86.6 (95.3) ^a	Pass
177	5.0 - 9.0% of mass 176	2637	5.87 (6.77) ^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
V3A6828-CC6816	3A158683.D	01/15/18	10:47	00:31	Continuing cal 20
V3A6828-MB	3A158685.D	01/15/18	11:46	01:30	Method Blank
V3A6828-BS	3A158686.D	01/15/18	12:12	01:56	Blank Spike
JC58705-3	3A158688.D	01/15/18	13:19	03:03	TB-011118
JC58705-1	3A158689.D	01/15/18	13:45	03:29	RW-12270CM-011118
JC58705-4	3A158690.D	01/15/18	14:11	03:55	RW-1315-011118
JC58705-2F	3A158691.D	01/15/18	14:37	04:21	RW-12270CM-011118-F
JC58705-5F	3A158692.D	01/15/18	15:03	04:47	RW-1315LP-011118-F
ZZZZZZ	3A158693.D	01/15/18	15:29	05:13	(unrelated sample)
ZZZZZZ	3A158694.D	01/15/18	15:55	05:39	(unrelated sample)
JC58705-1MS	3A158695.D	01/15/18	16:20	06:04	Matrix Spike
JC58705-4DUP	3A158697.D	01/15/18	17:12	06:56	Duplicate
ZZZZZZ	3A158698.D	01/15/18	17:38	07:22	(unrelated sample)
ZZZZZZ	3A158699.D	01/15/18	18:04	07:48	(unrelated sample)
ZZZZZZ	3A158700.D	01/15/18	18:30	08:14	(unrelated sample)

Surrogate Recovery Summary

Job Number: JC58705
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
JC58705-1	1B113432.D	103	101
JC58705-3	1B113438.D	99	98
JC58705-4	1B113433.D	100	98
JC58705-2F	1B113437.D	100	97
JC58705-5F	1B113439.D	101	98
JC58705-1MS	1B113435.D	104	101
JC58705-4DUP	1B113436.D	101	100
V1B5421-BS	1B113431.D	103	101
V1B5421-MB	1B113430.D	102	100

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

Surrogate Recovery Summary

Job Number: JC58705
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Method: SW846 8260C BY SIM	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1
JC58705-1	3A158689.D	51
JC58705-3	3A158688.D	93
JC58705-4	3A158690.D	83
JC58705-2F	3A158691.D	66
JC58705-5F	3A158692.D	79
JC58705-1MS	3A158695.D	78
JC58705-4DUP	3A158697.D	80
V3A6828-BS	3A158686.D	84
V3A6828-MB	3A158685.D	76

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

5.6.2
5

FEBRUARY 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

31400389/3

SGS Job Number: JC60739

Sampling Date: 02/13/18

Report to:

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ATTN: Eric Johnson

Total number of pages in report: 48



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.

Nancy F. Cole

Nancy Cole
Laboratory Director

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 (L-A-B L2248)

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Test results relate only to samples analyzed.

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Sample Summary

WSP Environment & Energy

Job No: JC60739

Kop-Flex, Hanover, VA
Project No: 31400389/3

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC60739-1	02/13/18	09:50 CC	02/14/18	AQ	Ground Water	RW-12270CM-021318-F
JC60739-2	02/13/18	09:52 CC	02/14/18	AQ	Ground Water	RW-12270CM-021318
JC60739-3	02/13/18	11:40 CC	02/14/18	AQ	Ground Water	RW-7728TO-021318
JC60739-4	02/13/18	14:45 CC	02/14/18	AQ	Ground Water	RW-7742TO-021318
JC60739-5	02/13/18	14:45 CC	02/14/18	AQ	Trip Blank Water	TRIP BLANK

Summary of Hits

Page 1 of 1

Job Number: JC60739
Account: WSP Environment & Energy
Project: Kop-Flex, Hanover, VA
Collected: 02/13/18

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC60739-1 RW-12270CM-021318-F

1,1-Dichloroethane ^a	0.16 J	0.50	0.13	ug/l	EPA 524.2 REV 4.1
1,1-Dichloroethylene ^a	0.39 J	0.50	0.23	ug/l	EPA 524.2 REV 4.1
1,1,1-Trichloroethane ^a	0.38 J	0.50	0.12	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane	2.6	0.40	0.29	ug/l	SW846 8260C BY SIM

JC60739-2 RW-12270CM-021318

1,1-Dichloroethane ^a	0.16 J	0.50	0.13	ug/l	EPA 524.2 REV 4.1
1,1-Dichloroethylene ^a	9.5	0.50	0.23	ug/l	EPA 524.2 REV 4.1
1,1,1-Trichloroethane ^a	0.44 J	0.50	0.12	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane	2.7	0.40	0.29	ug/l	SW846 8260C BY SIM

JC60739-3 RW-7728TO-021318

Methyl Tert Butyl Ether ^a	1.4	0.50	0.080	ug/l	EPA 524.2 REV 4.1
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JC60739-4 RW-7742TO-021318

1,1-Dichloroethylene ^a	2.8	0.50	0.23	ug/l	EPA 524.2 REV 4.1
1,1,1-Trichloroethane ^a	0.21 J	0.50	0.12	ug/l	EPA 524.2 REV 4.1
1,4-Dioxane	1.7	0.40	0.29	ug/l	SW846 8260C BY SIM

JC60739-5 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-021318-F	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-1	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	1B113809.D	1	02/16/18 17:23	BK	n/a	n/a	V1B5440
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	3.8	ug/l	
78-93-3	2-Butanone	ND	5.0	2.5	ug/l	
71-43-2	Benzene	ND	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.36	ug/l	
75-25-2	Bromoform ^b	ND	0.50	0.40	ug/l	
74-83-9	Bromomethane	ND	0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND	0.50	0.071	ug/l	
67-66-3	Chloroform	ND	0.50	0.33	ug/l	
74-87-3	Chloromethane	ND	0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	0.16	0.50	0.13	ug/l	J
75-35-4	1,1-Dichloroethylene	0.39	0.50	0.23	ug/l	J
563-58-6	1,1-Dichloropropene	ND	0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane ^c	ND	0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-021318-F	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-1	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	0.50	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.23	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	1.5	ug/l	
91-20-3	Naphthalene	ND	0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.26	ug/l	
100-42-5	Styrene	ND	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	0.38	0.50	0.12	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.12	ug/l	
108-88-3	Toluene	ND	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.056	ug/l	
	m,p-Xylene	ND	0.50	0.26	ug/l	
95-47-6	o-Xylene	ND	0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.24	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	74%		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-021318-F	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-1	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
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- (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.
- (c) This compound in BS is outside in house QC limits bias high.

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

Report of Analysis

Client Sample ID:	RW-12270CM-021318-F	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-1	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C BY SIM		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A158908.D	1	02/15/18 17:47	RS	n/a	n/a	V3A6840
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	2.6	0.40	0.29	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
17647-74-4	1,4-Dioxane-d8	126%		51-175%		

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

Report of Analysis

Client Sample ID:	RW-12270CM-021318	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-2	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	1B113810.D	1	02/16/18 17:55	BK	n/a	n/a	V1B5440
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	3.8	ug/l	
78-93-3	2-Butanone	ND	5.0	2.5	ug/l	
71-43-2	Benzene	ND	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.36	ug/l	
75-25-2	Bromoform ^b	ND	0.50	0.40	ug/l	
74-83-9	Bromomethane	ND	0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND	0.50	0.071	ug/l	
67-66-3	Chloroform	ND	0.50	0.33	ug/l	
74-87-3	Chloromethane	ND	0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	0.16	0.50	0.13	ug/l	J
75-35-4	1,1-Dichloroethylene	9.5	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane ^c	ND	0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-021318	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-2	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	0.50	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.23	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	1.5	ug/l	
91-20-3	Naphthalene	ND	0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.26	ug/l	
100-42-5	Styrene	ND	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	0.44	0.50	0.12	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.12	ug/l	
108-88-3	Toluene	ND	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.056	ug/l	
	m,p-Xylene	ND	0.50	0.26	ug/l	
95-47-6	o-Xylene	ND	0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.24	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	76%		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-021318	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-2	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
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- (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.
- (c) This compound in BS is outside in house QC limits bias high.

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

Report of Analysis

Client Sample ID:	RW-12270CM-021318	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-2	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C BY SIM		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A158909.D	1	02/15/18 18:14	RS	n/a	n/a	V3A6840
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	2.7	0.40	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	129%		51-175%

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

Report of Analysis

Client Sample ID:	RW-7728TO-021318	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-3	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	1B113811.D	1	02/16/18 18:28	BK	n/a	n/a	V1B5440
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	3.8	ug/l	
78-93-3	2-Butanone	ND	5.0	2.5	ug/l	
71-43-2	Benzene	ND	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.36	ug/l	
75-25-2	Bromoform ^b	ND	0.50	0.40	ug/l	
74-83-9	Bromomethane	ND	0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND	0.50	0.071	ug/l	
67-66-3	Chloroform	ND	0.50	0.33	ug/l	
74-87-3	Chloromethane	ND	0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.13	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane ^c	ND	0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-7728TO-021318	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-3	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	0.50	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.23	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	1.4	0.50	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	1.5	ug/l	
91-20-3	Naphthalene	ND	0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.26	ug/l	
100-42-5	Styrene	ND	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.12	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.12	ug/l	
108-88-3	Toluene	ND	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.056	ug/l	
	m,p-Xylene	ND	0.50	0.26	ug/l	
95-47-6	o-Xylene	ND	0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.24	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	74%		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-7728TO-021318	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-3	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
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- (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.
- (c) This compound in BS is outside in house QC limits bias high.

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

Report of Analysis

Client Sample ID:	RW-7728TO-021318	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-3	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260C BY SIM		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A158910.D	1	02/15/18 18:40	RS	n/a	n/a	V3A6840
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	0.29	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
17647-74-4	1,4-Dioxane-d8	118%		51-175%		

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

Report of Analysis

Client Sample ID:	RW-7742TO-021318	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-4	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	1B113812.D	1	02/16/18 19:00	BK	n/a	n/a	V1B5440
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	3.8	ug/l	
78-93-3	2-Butanone	ND	5.0	2.5	ug/l	
71-43-2	Benzene	ND	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.36	ug/l	
75-25-2	Bromoform ^b	ND	0.50	0.40	ug/l	
74-83-9	Bromomethane	ND	0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND	0.50	0.071	ug/l	
67-66-3	Chloroform	ND	0.50	0.33	ug/l	
74-87-3	Chloromethane	ND	0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.13	ug/l	
75-35-4	1,1-Dichloroethylene	2.8	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane ^c	ND	0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: RW-7742TO-021318
Lab Sample ID: JC60739-4
Matrix: AQ - Ground Water
Method: EPA 524.2 REV 4.1
Project: Kop-Flex, Hanover, VA

Date Sampled: 02/13/18**Date Received:** 02/14/18**Percent Solids:** n/a

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	0.50	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.23	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	1.5	ug/l	
91-20-3	Naphthalene	ND	0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.26	ug/l	
100-42-5	Styrene	ND	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	0.21	0.50	0.12	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.12	ug/l	
108-88-3	Toluene	ND	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.056	ug/l	
	m,p-Xylene	ND	0.50	0.26	ug/l	
95-47-6	o-Xylene	ND	0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	94%		70-130%
460-00-4	4-Bromofluorobenzene	74%		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-7742TO-021318	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-4	Date Received:	02/14/18
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
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- (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.
- (c) This compound in BS is outside in house QC limits bias high.

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

Report of Analysis

Client Sample ID:	RW-7742TO-021318	
Lab Sample ID:	JC60739-4	Date Sampled: 02/13/18
Matrix:	AQ - Ground Water	Date Received: 02/14/18
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	3A158911.D	1	02/15/18 19:07	RS	n/a	n/a	V3A6840
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	1,7	0.40	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	133%		51-175%

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

Report of Analysis

Client Sample ID:	TRIP BLANK	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-5	Date Received:	02/14/18
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	1B113813.D	1	02/16/18 19:33	BK	n/a	n/a	V1B5440
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	3.8	ug/l	
78-93-3	2-Butanone	ND	5.0	2.5	ug/l	
71-43-2	Benzene	ND	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.36	ug/l	
75-25-2	Bromoform ^b	ND	0.50	0.40	ug/l	
74-83-9	Bromomethane	ND	0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND	0.50	0.071	ug/l	
67-66-3	Chloroform	ND	0.50	0.33	ug/l	
74-87-3	Chloromethane	ND	0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.13	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane ^c	ND	0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-5	Date Received:	02/14/18
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
95-50-1	o-Dichlorobenzene	ND	0.50	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.23	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	1.5	ug/l	
91-20-3	Naphthalene	ND	0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.26	ug/l	
100-42-5	Styrene	ND	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.12	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.12	ug/l	
108-88-3	Toluene	ND	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.056	ug/l	
	m,p-Xylene	ND	0.50	0.26	ug/l	
95-47-6	o-Xylene	ND	0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.24	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	76%		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	Date Sampled:	02/13/18
Lab Sample ID:	JC60739-5	Date Received:	02/14/18
Matrix:	AQ - Trip Blank Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

VOA List

CAS No.	Compound	Result	RL	MDL	Units	Q
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- (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.
- (c) This compound in BS is outside in house QC limits bias high.

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

Report of Analysis

Client Sample ID:	TRIP BLANK	
Lab Sample ID:	JC60739-5	Date Sampled: 02/13/18
Matrix:	AQ - Trip Blank Water	Date Received: 02/14/18
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	3A158907.D	1	02/15/18 17:21	RS	n/a	n/a	V3A6840
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	0.29	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
17647-74-4	1,4-Dioxane-d8	126%		51-175%		

ND = Not detected

MDL = Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



ACCUTEST

CHAIN OF CUSTODY

SGS Accutest - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499/3480
www.acctest.com

PAGE 1 OF 1

FED-EX Tracking #	4077 3096	Bottle Order Control #	1747
SGS Accutest Quote #		SGS Accutest Job #	JC60739

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)		Matrix Codes	
Company Name	WSP	Project Name	100-100 Residential Sampling				
Street Address	13530 Dulles Technology Dr. Ste 500	Street					
City	Herndon VA	City	Herndon, MD				
State	VA	State	MD				
Zip	20171	Zip					
Project Contact	Eric Johnson	Project #	31400397/3				
E-mail	eric.johnson@wsp.com	Client Purchase Order #					
Phone #	703 749 6500	City					
Sample(s) Name(s)	Mudhunting Area Creek	State					
Phone #		Zip					
Project Manager	Eric Johnson	Attention:					
SGS Accutest Sample #		Collection					
Field ID / Point of Collection		MEOH/DI Vial #					
1	RW-12270CM-021318-F	Date	2/13/18	Time	0950	Sampled by	CL
2	RW-12270CM-021318	Date	2/13/18	Time	0950	Matrix	GW
3	RW-7728TD-021318	Date	2/13/18	Time	1110	# of bottles	6
4	RW-7728TD-021318	Date	2/13/18	Time	1445	Matrix	GW
5	Trip Blank (Lab provided)						

Number of preserved Bottles											
FG	NI	NOH	HOH	HSO4	NOH2	DI Water	MEOH	ENDORE			
X											
X											
X											
X											
X											

LAB USE ONLY	
DW - Drinking Water	
GW - Ground Water	
WW - Water	
SW - Surface Water	
SO - Soil	
SL - Sludge	
SED - Sediment	
LIQ - Other Liquid	
AIR - Air	
SOL - Other Solid	
WIP - Wipe	
FB - Field Blank	
EB - Equipment Blank	
RB - Rinse Blank	
TB - Trip Blank	

INITIAL ASSESSMENT *[Signature]*

LABEL VERIFICATION *[Signature]*

Turnaround Time (Business days)

Approved By (SGS Accutest PM) / Date:

Emergency & Rush T/A data available VIA Lablink

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: *[Signature]* Date Time: 2/13/18 1030

Received By: *[Signature]* Date Time: 2/14/18

Relinquished by Sampler: *[Signature]* Date Time: 2/14/18

Received By: *[Signature]* Date Time: 2/14/18

Relinquished by: *[Signature]* Date Time: 2/14/18

Received By: *[Signature]* Date Time: 2/14/18

Custody Seal # 597

Intact ☒ Not intact ☐

Preserved where applicable ☐

On Ice ☐ Cooler Temp. 1.4°C

I.P

Form SM088-01C Rev Date 9/13/16

JC60739: Chain of Custody

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SGS Sample Receipt Summary

Job Number: JC60739

Client: _____

Project: _____

Date / Time Received: 2/14/2018 10:00:00 AM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (1.4);

Cooler Temps (Corrected) °C: Cooler 1: (2.9);

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: ☒ ☐ | IR Gun |
| 2. Cooler temp verification: _____ | |
| 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

JC60739: Chain of Custody

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MS Volatiles

5

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

Page 1 of 2

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5440-MB	1B113800.D	1	02/16/18	BK	n/a	n/a	V1B5440

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	5.0	3.8	ug/l	
78-93-3	2-Butanone	ND	5.0	2.5	ug/l	
71-43-2	Benzene	ND	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.36	ug/l	
75-25-2	Bromoform	ND	0.50	0.40	ug/l	
74-83-9	Bromomethane	ND	0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND	0.50	0.071	ug/l	
67-66-3	Chloroform	ND	0.50	0.33	ug/l	
74-87-3	Chloromethane	ND	0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.13	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.28	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.26	ug/l	

Method Blank Summary

Page 2 of 2

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5440-MB	1B113800.D	1	02/16/18	BK	n/a	n/a	V1B5440

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.14	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.23	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	1.5	ug/l	
91-20-3	Naphthalene	ND	0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.26	ug/l	
100-42-5	Styrene	ND	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.12	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.12	ug/l	
108-88-3	Toluene	ND	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.056	ug/l	
	m,p-Xylene	ND	0.50	0.26	ug/l	
95-47-6	o-Xylene	ND	0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.24	ug/l	

CAS No.	Surrogate Recoveries	Limits
2199-69-1	1,2-Dichlorobenzene-d4	93%
460-00-4	4-Bromofluorobenzene	81%

Method Blank Summary

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6840-MB	3A158899.D	1	02/15/18	RS	n/a	n/a	V3A6840

The QC reported here applies to the following samples: Method: SW846 8260C BY SIM
JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND	0.40	0.29	ug/l	

CAS No.	Surrogate Recoveries	Limits
17647-74-4	1,4-Dioxane-d8	93% 51-175%

Blank Spike Summary

Page 1 of 3

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5440-BS	1B113799.D	1	02/16/18	BK	n/a	n/a	V1B5440

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	20	18.1	91	70-130
78-93-3	2-Butanone	20	17.1	86	70-130
71-43-2	Benzene	5	4.7	94	70-130
108-86-1	Bromobenzene	5	5.0	100	70-130
74-97-5	Bromochloromethane	5	5.2	104	70-130
75-27-4	Bromodichloromethane	5	5.3	106	70-130
75-25-2	Bromoform	5	6.7	134* a	70-130
74-83-9	Bromomethane	5	5.7	114	70-130
104-51-8	n-Butylbenzene	5	4.0	80	70-130
135-98-8	sec-Butylbenzene	5	4.3	86	70-130
98-06-6	tert-Butylbenzene	5	4.0	80	70-130
75-15-0	Carbon disulfide	5	6.1	122	70-130
108-90-7	Chlorobenzene	5	4.9	98	70-130
75-00-3	Chloroethane	5	5.0	100	70-130
67-66-3	Chloroform	5	5.0	100	70-130
74-87-3	Chloromethane	5	4.4	88	70-130
95-49-8	o-Chlorotoluene	5	4.6	92	70-130
106-43-4	p-Chlorotoluene	5	4.5	90	70-130
56-23-5	Carbon tetrachloride	5	5.9	118	70-130
75-34-3	1,1-Dichloroethane	5	4.8	96	70-130
75-35-4	1,1-Dichloroethylene	5	5.2	104	70-130
563-58-6	1,1-Dichloropropene	5	4.5	90	70-130
96-12-8	1,2-Dibromo-3-chloropropane	5	4.7	94	70-130
106-93-4	1,2-Dibromoethane	5	4.7	94	70-130
107-06-2	1,2-Dichloroethane	5	4.9	98	70-130
78-87-5	1,2-Dichloropropane	5	4.6	92	70-130
142-28-9	1,3-Dichloropropane	5	4.6	92	70-130
594-20-7	2,2-Dichloropropane	5	5.6	112	70-130
124-48-1	Dibromochloromethane	5	5.6	112	70-130
74-95-3	Dibromomethane	5	5.0	100	70-130
75-71-8	Dichlorodifluoromethane	5	6.8	136* a	70-130
541-73-1	m-Dichlorobenzene	5	5.1	102	70-130
95-50-1	o-Dichlorobenzene	5	4.9	98	70-130
106-46-7	p-Dichlorobenzene	5	4.9	98	70-130
156-60-5	trans-1,2-Dichloroethylene	5	4.9	98	70-130
156-59-2	cis-1,2-Dichloroethylene	5	4.9	98	70-130

* = Outside of Control Limits.

Blank Spike Summary

Page 2 of 3

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5440-BS	1B113799.D	1	02/16/18	BK	n/a	n/a	V1B5440

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
10061-01-5	cis-1,3-Dichloropropene	5	4.3	86	70-130
10061-02-6	trans-1,3-Dichloropropene	5	4.6	92	70-130
100-41-4	Ethylbenzene	5	4.5	90	70-130
87-68-3	Hexachlorobutadiene	5	5.2	104	70-130
591-78-6	2-Hexanone	20	15.4	77	70-130
98-82-8	Isopropylbenzene	5	4.1	82	70-130
99-87-6	p-Isopropyltoluene	5	4.1	82	70-130
75-09-2	Methylene chloride	5	5.4	108	70-130
1634-04-4	Methyl Tert Butyl Ether	5	4.4	88	70-130
108-10-1	4-Methyl-2-pentanone	20	16.3	82	70-130
91-20-3	Naphthalene	5	3.8	76	70-130
103-65-1	n-Propylbenzene	5	4.5	90	70-130
100-42-5	Styrene	5	4.3	86	70-130
630-20-6	1,1,1,2-Tetrachloroethane	5	5.5	110	70-130
71-55-6	1,1,1-Trichloroethane	5	5.4	108	70-130
79-34-5	1,1,2,2-Tetrachloroethane	5	4.6	92	70-130
79-00-5	1,1,2-Trichloroethane	5	4.7	94	70-130
87-61-6	1,2,3-Trichlorobenzene	5	4.4	88	70-130
96-18-4	1,2,3-Trichloropropane	5	4.8	96	70-130
120-82-1	1,2,4-Trichlorobenzene	5	4.4	88	70-130
95-63-6	1,2,4-Trimethylbenzene	5	4.4	88	70-130
108-67-8	1,3,5-Trimethylbenzene	5	4.4	88	70-130
127-18-4	Tetrachloroethylene	5	5.4	108	70-130
108-88-3	Toluene	5	4.4	88	70-130
79-01-6	Trichloroethylene	5	5.0	100	70-130
75-69-4	Trichlorofluoromethane	5	5.8	116	70-130
75-01-4	Vinyl chloride	5	4.2	84	70-130
	m,p-Xylene	10	9.3	93	70-130
95-47-6	o-Xylene	5	4.4	88	70-130
1330-20-7	Xylenes (total)	15	13.7	91	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2199-69-1	1,2-Dichlorobenzene-d4	103%	70-130%
460-00-4	4-Bromofluorobenzene	89%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5440-BS	1B113799.D	1	02/16/18	BK	n/a	n/a	V1B5440

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

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

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6840-BS	3A158897.D	1	02/15/18	RS	n/a	n/a	V3A6840

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

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
123-91-1	1,4-Dioxane	20	18.2	91	58-138

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

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 3

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC60882-1MS	1B113805.D	1	02/16/18	BK	n/a	n/a	V1B5440
JC60882-1MSD	1B113814.D	1	02/16/18	BK	n/a	n/a	V1B5440
JC60882-1	1B113801.D	1	02/16/18	BK	n/a	n/a	V1B5440

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	JC60882-1 ug/l	Spike Q	Spike ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		20	18.1	91	20	19.0	95	5	41-142/24
78-93-3	2-Butanone	ND		20	15.3	77	20	15.2	76	1	55-129/31
71-43-2	Benzene	ND		5	4.3	86	5	4.7	94	9	53-138/16
108-86-1	Bromobenzene	ND		5	4.1	82	5	4.2	84	2	54-138/17
74-97-5	Bromochloromethane	ND		5	4.6	92	5	4.9	98	6	55-140/13
75-27-4	Bromodichloromethane	ND		5	4.8	96	5	5.2	104	8	57-147/11
75-25-2	Bromoform	ND		5	5.3	106	5	5.3	106	0	47-137/13
74-83-9	Bromomethane	ND		5	5.2	104	5	4.5	90	14	40-162/27
104-51-8	n-Butylbenzene	ND		5	3.1	62	5	2.9	58	7	45-144/19
135-98-8	sec-Butylbenzene	ND		5	3.2	64	5	3.1	62	3	46-145/20
98-06-6	tert-Butylbenzene	ND		5	3.1	62	5	3.1	62	0	48-141/17
75-15-0	Carbon disulfide	0.41	J	5	5.4	100	5	6.1	114	12	35-127/32
108-90-7	Chlorobenzene	ND		5	4.2	84	5	4.5	90	7	54-135/15
75-00-3	Chloroethane	ND		5	5.5	110	5	4.7	94	16	38-153/43
67-66-3	Chloroform	ND		5	4.4	88	5	4.8	96	9	57-151/13
74-87-3	Chloromethane	ND		5	5.4	108	5	4.7	94	14	39-165/35
95-49-8	o-Chlorotoluene	ND		5	3.6	72	5	4.2	84	15	55-142/15
106-43-4	p-Chlorotoluene	ND		5	3.4	68	5	3.7	74	8	55-139/20
56-23-5	Carbon tetrachloride	ND		5	5.3	106	5	5.8	116	9	49-170/24
75-34-3	1,1-Dichloroethane	ND		5	4.2	84	5	4.7	94	11	55-149/13
75-35-4	1,1-Dichloroethylene	ND		5	4.6	92	5	5.1	102	10	42-142/20
563-58-6	1,1-Dichloropropene	ND		5	3.9	78	5	3.6	72	8	46-151/21
96-12-8	1,2-Dibromo-3-chloropropane	ND		5	4.2	84	5	4.2	84	0	48-141/27
106-93-4	1,2-Dibromoethane	ND		5	4.2	84	5	4.4	88	5	57-135/10
107-06-2	1,2-Dichloroethane	ND		5	4.4	88	5	4.9	98	11	59-166/15
78-87-5	1,2-Dichloropropane	ND		5	4.1	82	5	4.4	88	7	53-142/11
142-28-9	1,3-Dichloropropane	ND		5	4.3	86	5	4.5	90	5	58-143/13
594-20-7	2,2-Dichloropropane	ND		5	4.7	94	5	5.1	102	8	38-165/19
124-48-1	Dibromochloromethane	ND		5	4.8	96	5	5.0	100	4	55-138/15
74-95-3	Dibromomethane	ND		5	4.3	86	5	4.8	96	11* a	61-144/10
75-71-8	Dichlorodifluoromethane	ND		5	8.1	162	5	6.6	132	20	23-172/30
541-73-1	m-Dichlorobenzene	ND		5	4.2	84	5	4.4	88	5	53-138/17
95-50-1	o-Dichlorobenzene	ND		5	4.2	84	5	4.4	88	5	54-140/11
106-46-7	p-Dichlorobenzene	ND		5	4.1	82	5	4.1	82	0	53-137/14
156-60-5	trans-1,2-Dichloroethylene	ND		5	4.7	94	5	5.2	104	10	47-148/22
156-59-2	cis-1,2-Dichloroethylene	ND		5	4.1	82	5	4.5	90	9	51-146/14

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

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Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC60882-1MS	1B113805.D	1	02/16/18	BK	n/a	n/a	V1B5440
JC60882-1MSD	1B113814.D	1	02/16/18	BK	n/a	n/a	V1B5440
JC60882-1	1B113801.D	1	02/16/18	BK	n/a	n/a	V1B5440

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	JC60882-1 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
10061-01-5	cis-1,3-Dichloropropene	ND	5	3.4	68	5	3.3	66	3	51-136/11
10061-02-6	trans-1,3-Dichloropropene	ND	5	3.7	74	5	3.6	72	3	54-142/10
100-41-4	Ethylbenzene	ND	5	3.7	74	5	3.7	74	0	51-138/18
87-68-3	Hexachlorobutadiene	ND	5	4.9	98	5	5.1	102	4	40-154/21
591-78-6	2-Hexanone	ND	20	13.1	66	20	12.8	64	2	53-128/29
98-82-8	Isopropylbenzene	ND	5	3.1	62	5	3.0	60	3	49-139/16
99-87-6	p-Isopropyltoluene	ND	5	2.9	58	5	1.7	34* a	52* a	45-141/17
75-09-2	Methylene chloride	ND	5	5.1	102	5	5.5	110	8	54-137/14
1634-04-4	Methyl Tert Butyl Ether	ND	5	3.9	78	5	4.0	80	3	53-143/10
108-10-1	4-Methyl-2-pentanone	ND	20	14.4	72	20	14.6	73	1	58-127/32
91-20-3	Naphthalene	ND	5	1.2	24* a	5	ND	0* a	200* a	44-140/14
103-65-1	n-Propylbenzene	ND	5	3.4	68	5	3.3	66	3	50-142/20
100-42-5	Styrene	ND	5	ND	0* a	5	ND	0* a	nc	23-130/20
630-20-6	1,1,1,2-Tetrachloroethane	ND	5	4.8	96	5	5.1	102	6	57-144/11
71-55-6	1,1,1-Trichloroethane	ND	5	4.8	96	5	5.3	106	10	52-164/13
79-34-5	1,1,2,2-Tetrachloroethane	ND	5	4.1	82	5	4.3	86	5	58-138/10
79-00-5	1,1,2-Trichloroethane	ND	5	4.4	88	5	4.6	92	4	59-139/11
87-61-6	1,2,3-Trichlorobenzene	ND	5	4.0	80	5	3.8	76	5	47-141/17
96-18-4	1,2,3-Trichloropropane	ND	5	4.2	84	5	4.2	84	0	56-148/15
120-82-1	1,2,4-Trichlorobenzene	ND	5	3.9	78	5	3.9	78	0	46-137/17
95-63-6	1,2,4-Trimethylbenzene	ND	5	ND	0* a	5	ND	0* a	nc	41-138/16
108-67-8	1,3,5-Trimethylbenzene	ND	5	ND	0* a	5	ND	0* a	nc	45-138/16
127-18-4	Tetrachloroethylene	ND	5	5.0	100	5	5.1	102	2	45-145/19
108-88-3	Toluene	ND	5	3.8	76	5	3.6	72	5	52-134/19
79-01-6	Trichloroethylene	ND	5	4.3	86	5	4.9	98	13	54-143/15
75-69-4	Trichlorofluoromethane	ND	5	6.4	128	5	5.2	104	21	36-167/28
75-01-4	Vinyl chloride	ND	5	3.4	68	5	1.0	20* a	109* a	35-162/30
	m,p-Xylene	ND	10	3.1	31* a	10	1.6	16* a	64* a	49-135/18
95-47-6	o-Xylene	ND	5	3.0	60	5	1.5	30* a	67* a	49-134/19
1330-20-7	Xylenes (total)	ND	15	6.2	41* a	15	3.1	21* a	67* a	50-134/18

CAS No.	Surrogate Recoveries	MS	MSD	JC60882-1	Limits
2199-69-1	1,2-Dichlorobenzene-d4	99%	95%	96%	70-130%
460-00-4	4-Bromofluorobenzene	79%	77%	79%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC60882-1MS	1B113805.D	1	02/16/18	BK	n/a	n/a	V1B5440
JC60882-1MSD	1B113814.D	1	02/16/18	BK	n/a	n/a	V1B5440
JC60882-1	1B113801.D	1	02/16/18	BK	n/a	n/a	V1B5440

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

(a) Outside in house control limits.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC60696-6MS	3A158903.D	1	02/15/18	RS	n/a	n/a	V3A6840
JC60696-6MSD	3A158904.D	1	02/15/18	RS	n/a	n/a	V3A6840
JC60696-6	3A158901.D	1	02/15/18	RS	n/a	n/a	V3A6840

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

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	JC60696-6 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
123-91-1	1,4-Dioxane	ND	20	20.4	102	20	21.1	106	3	36-166/26

CAS No.	Surrogate Recoveries	MS	MSD	JC60696-6	Limits
17647-74-4	1,4-Dioxane-d8	119%	124%	90%	51-175%

* = Outside of Control Limits.

Duplicate Summary

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Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC60882-2DUP	1B113806.D	1	02/16/18	BK	n/a	n/a	V1B5440
JC60882-2	1B113802.D	1	02/16/18	BK	n/a	n/a	V1B5440

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	JC60882-2 ug/l	DUP Q 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

Page 2 of 2

Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC60882-2DUP	1B113806.D	1	02/16/18	BK	n/a	n/a	V1B5440
JC60882-2	1B113802.D	1	02/16/18	BK	n/a	n/a	V1B5440

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC60739-1, JC60739-2, JC60739-3, JC60739-4, JC60739-5

CAS No.	Compound	JC60882-2 ug/l	DUP Q 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	JC60882-2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	92%	91%	70-130%
460-00-4	4-Bromofluorobenzene	77%	76%	70-130%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

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Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5436-BFB
Lab File ID: 1B113698.D
Instrument ID: GCMS1B
Injection Date: 02/09/18
Injection Time: 22:19

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	2538	19.6	Pass
75	30.0 - 80.0% of mass 95	6641	51.2	Pass
95	Base peak, 100% relative abundance	12974	100.0	Pass
96	5.0 - 9.0% of mass 95	878	6.77	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	10090	77.8	Pass
175	5.0 - 9.0% of mass 174	760	5.86 (7.53) ^a	Pass
176	95.0 - 101.0% of mass 174	9874	76.1 (97.9) ^a	Pass
177	5.0 - 9.0% of mass 176	613	4.72 (6.21) ^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
V1B5436-IC5436	1B113699.D	02/09/18	23:10	00:51	Initial cal 0.2
V1B5436-IC5436	1B113700.D	02/09/18	23:43	01:24	Initial cal 0.5
V1B5436-IC5436	1B113701.D	02/10/18	00:16	01:57	Initial cal 1
V1B5436-IC5436	1B113702.D	02/10/18	00:48	02:29	Initial cal 2
V1B5436-IC5436	1B113703.D	02/10/18	01:21	03:02	Initial cal 5
V1B5436-ICC5436	1B113704.D	02/10/18	01:53	03:34	Initial cal 10
V1B5436-IC5436	1B113705.D	02/10/18	02:26	04:07	Initial cal 20
V1B5436-IC5436	1B113706.D	02/10/18	02:58	04:39	Initial cal 40
V1B5436-IC5436	1B113707.D	02/10/18	03:31	05:12	Initial cal 80
V1B5436-ICV5436	1B113710.D	02/10/18	05:09	06:50	Initial cal verification 10

Instrument Performance Check (BFB)

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Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5440-BFB
Lab File ID: 1B113797.D
Instrument ID: GCMS1B
Injection Date: 02/16/18
Injection Time: 09:58

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	2746	20.2	Pass
75	30.0 - 80.0% of mass 95	7070	52.0	Pass
95	Base peak, 100% relative abundance	13592	100.0	Pass
96	5.0 - 9.0% of mass 95	1049	7.72	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	12093	89.0	Pass
175	5.0 - 9.0% of mass 174	861	6.33 (7.12) ^a	Pass
176	95.0 - 101.0% of mass 174	11547	85.0 (95.5) ^a	Pass
177	5.0 - 9.0% of mass 176	880	6.47 (7.62) ^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
V1B5440-CC5436	1B113798.D	02/16/18	10:50	00:52	Continuing cal 10
V1B5440-BS	1B113799.D	02/16/18	11:47	01:49	Blank Spike
V1B5440-MB	1B113800.D	02/16/18	12:19	02:21	Method Blank
JC60882-1	1B113801.D	02/16/18	13:00	03:02	(used for QC only; not part of job JC60739)
JC60882-2	1B113802.D	02/16/18	13:32	03:34	(used for QC only; not part of job JC60739)
ZZZZZZ	1B113803.D	02/16/18	14:05	04:07	(unrelated sample)
ZZZZZZ	1B113804.D	02/16/18	14:39	04:41	(unrelated sample)
JC60882-1MS	1B113805.D	02/16/18	15:12	05:14	Matrix Spike
JC60882-2DUP	1B113806.D	02/16/18	15:45	05:47	Duplicate
ZZZZZZ	1B113807.D	02/16/18	16:17	06:19	(unrelated sample)
JC60739-1	1B113809.D	02/16/18	17:23	07:25	RW-12270CM-021318-F
JC60739-2	1B113810.D	02/16/18	17:55	07:57	RW-12270CM-021318
JC60739-3	1B113811.D	02/16/18	18:28	08:30	RW-7728TO-021318
JC60739-4	1B113812.D	02/16/18	19:00	09:02	RW-7742TO-021318
JC60739-5	1B113813.D	02/16/18	19:33	09:35	TRIP BLANK
JC60882-1MSD	1B113814.D	02/16/18	20:06	10:08	Matrix Spike Duplicate
ZZZZZZ	1B113815.D	02/16/18	20:38	10:40	(unrelated sample)
ZZZZZZ	1B113816.D	02/16/18	21:10	11:12	(unrelated sample)
ZZZZZZ	1B113817.D	02/16/18	21:42	11:44	(unrelated sample)

Instrument Performance Check (BFB)

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Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V3A6816-BFB
Lab File ID: 3A158421.D
Instrument ID: GCMS3A
Injection Date: 12/05/17
Injection Time: 16:08

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	5563	18.0	Pass
75	30.0 - 60.0% of mass 95	13825	44.8	Pass
95	Base peak, 100% relative abundance	30872	100.0	Pass
96	5.0 - 9.0% of mass 95	2264	7.33	Pass
173	Less than 2.0% of mass 174	119	0.39 (0.43) ^a	Pass
174	50.0 - 120.0% of mass 95	27528	89.2	Pass
175	5.0 - 9.0% of mass 174	2211	7.16 (8.03) ^a	Pass
176	95.0 - 101.0% of mass 174	26752	86.7 (97.2) ^a	Pass
177	5.0 - 9.0% of mass 176	1714	5.55 (6.41) ^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
V3A6816-IC6816	3A158422.D	12/05/17	16:36	00:28	Initial cal 0.25
V3A6816-IC6816	3A158423.D	12/05/17	17:02	00:54	Initial cal 0.4
V3A6816-IC6816	3A158424.D	12/05/17	17:28	01:20	Initial cal 1
V3A6816-IC6816	3A158425.D	12/05/17	17:54	01:46	Initial cal 2
V3A6816-IC6816	3A158426.D	12/05/17	18:20	02:12	Initial cal 5
V3A6816-ICC6816	3A158427.D	12/05/17	18:46	02:38	Initial cal 20
V3A6816-IC6816	3A158428.D	12/05/17	19:11	03:03	Initial cal 50
V3A6816-IC6816	3A158429.D	12/05/17	19:37	03:29	Initial cal 100
V3A6816-IC6816	3A158430.D	12/05/17	20:03	03:55	Initial cal 200
V3A6816-ICV6816	3A158433.D	12/05/17	21:21	05:13	Initial cal verification 20

Instrument Performance Check (BFB)

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Job Number: JC60739
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V3A6840-BFB
Lab File ID: 3A158895.D
Instrument ID: GCMS3A
Injection Date: 02/15/18
Injection Time: 11:26

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	31429	19.5	Pass
75	30.0 - 60.0% of mass 95	78477	48.7	Pass
95	Base peak, 100% relative abundance	161280	100.0	Pass
96	5.0 - 9.0% of mass 95	10985	6.81	Pass
173	Less than 2.0% of mass 174	1598	0.99 (1.13) ^a	Pass
174	50.0 - 120.0% of mass 95	141666	87.8	Pass
175	5.0 - 9.0% of mass 174	10171	6.31 (7.18) ^a	Pass
176	95.0 - 101.0% of mass 174	136520	84.6 (96.4) ^a	Pass
177	5.0 - 9.0% of mass 176	8286	5.14 (6.07) ^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
V3A6840-CC6816	3A158896.D	02/15/18	11:58	00:32	Continuing cal 20
V3A6840-BS	3A158897.D	02/15/18	12:39	01:13	Blank Spike
V3A6840-MB	3A158899.D	02/15/18	13:32	02:06	Method Blank
ZZZZZZ	3A158900.D	02/15/18	14:09	02:43	(unrelated sample)
JC60696-6	3A158901.D	02/15/18	14:41	03:15	(used for QC only; not part of job JC60739)
ZZZZZZ	3A158902.D	02/15/18	15:09	03:43	(unrelated sample)
JC60696-6MS	3A158903.D	02/15/18	15:35	04:09	Matrix Spike
JC60696-6MSD	3A158904.D	02/15/18	16:02	04:36	Matrix Spike Duplicate
ZZZZZZ	3A158906.D	02/15/18	16:55	05:29	(unrelated sample)
JC60739-5	3A158907.D	02/15/18	17:21	05:55	TRIP BLANK
JC60739-1	3A158908.D	02/15/18	17:47	06:21	RW-12270CM-021318-F
JC60739-2	3A158909.D	02/15/18	18:14	06:48	RW-12270CM-021318
JC60739-3	3A158910.D	02/15/18	18:40	07:14	RW-7728TO-021318
JC60739-4	3A158911.D	02/15/18	19:07	07:41	RW-7742TO-021318
ZZZZZZ	3A158912.D	02/15/18	19:33	08:07	(unrelated sample)
ZZZZZZ	3A158913.D	02/15/18	19:59	08:33	(unrelated sample)
ZZZZZZ	3A158914.D	02/15/18	20:25	08:59	(unrelated sample)
ZZZZZZ	3A158915.D	02/15/18	20:52	09:26	(unrelated sample)

Surrogate Recovery Summary

Job Number: JC60739
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
JC60739-1	1B113809.D	91	74
JC60739-2	1B113810.D	93	76
JC60739-3	1B113811.D	93	74
JC60739-4	1B113812.D	94	74
JC60739-5	1B113813.D	93	76
JC60882-1MS	1B113805.D	99	79
JC60882-1MSD	1B113814.D	95	77
JC60882-2DUP	1B113806.D	92	77
V1B5440-BS	1B113799.D	103	89
V1B5440-MB	1B113800.D	93	81

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

5.6.1
5

Surrogate Recovery Summary

Job Number: JC60739
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
JC60739-1	3A158908.D	126
JC60739-2	3A158909.D	129
JC60739-3	3A158910.D	118
JC60739-4	3A158911.D	133
JC60739-5	3A158907.D	126
JC60696-6MS	3A158903.D	119
JC60696-6MSD	3A158904.D	124
V3A6840-BS	3A158897.D	101
V3A6840-MB	3A158899.D	93

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

5.6.2
5

MARCH 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

31400389/03

SGS Job Number: JC63247

Sampling Date: 03/29/18

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: 38



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.

Nancy F. Cole

Nancy Cole
Laboratory Director

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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Test results relate only to samples analyzed.

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Sample Summary

WSP Environment & Energy

Job No: JC63247

Kop-Flex, Hanover, VA
Project No: 31400389/03

Sample Number	Collected		Matrix Code	Type	Client Sample ID
	Date	Time By			
JC63247-1	03/29/18	10:33 MJ/RJ	03/30/18	DW Drinking Water	RW-12270CM-032918
JC63247-2	03/29/18	10:40 MJ/RJ	03/30/18	DW Drinking Water	RW-12270CM-032918-F
JC63247-3	03/29/18	10:40 MJ/RJ	03/30/18	DW Drinking Water TB	TB-032918

Summary of Hits

Page 1 of 1

Job Number: JC63247
Account: WSP Environment & Energy
Project: Kop-Flex, Hanover, VA
Collected: 03/29/18

Lab Sample ID	Client Sample ID	Result/ Analyte Qual	RL	MDL	Units	Method
JC63247-1	RW-12270CM-032918					
		1,1-Dichloroethane 0.14 J	0.50	0.13	ug/l	EPA 524.2 REV 4.1
		1,1-Dichloroethylene 3.1	0.50	0.23	ug/l	EPA 524.2 REV 4.1
		1,1,1-Trichloroethane 0.34 J	0.50	0.12	ug/l	EPA 524.2 REV 4.1
		1,4-Dioxane 1.9	0.40	0.29	ug/l	SW846 8260C BY SIM
JC63247-2	RW-12270CM-032918-F					
		1,1-Dichloroethane 0.14 J	0.50	0.13	ug/l	EPA 524.2 REV 4.1
		1,1-Dichloroethylene 7.5	0.50	0.23	ug/l	EPA 524.2 REV 4.1
		1,1,1-Trichloroethane 0.35 J	0.50	0.12	ug/l	EPA 524.2 REV 4.1
		1,4-Dioxane 1.6	0.40	0.29	ug/l	SW846 8260C BY SIM
JC63247-3	TB-032918					
		Acetone 13.9	5.0	3.8	ug/l	EPA 524.2 REV 4.1

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	RW-12270CM-032918	Date Sampled:	03/29/18
Lab Sample ID:	JC63247-1	Date Received:	03/30/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B114414.D	1	04/05/18 14:21	CSF	n/a	n/a	V1B5484
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	3.8	ug/l	
78-93-3	2-Butanone	ND		5.0	2.5	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.36	ug/l	
75-25-2	Bromoform	ND		0.50	0.40	ug/l	
74-83-9	Bromomethane	ND		0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND		0.50	0.071	ug/l	
67-66-3	Chloroform	ND		0.50	0.33	ug/l	
74-87-3	Chloromethane	ND		0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	0.14		0.50	0.13	ug/l	J
75-35-4	1,1-Dichloroethylene	3.1	7.0	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141)

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-032918	Date Sampled:	03/29/18
Lab Sample ID:	JC63247-1	Date Received:	03/30/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
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	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND		2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.23	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	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	1.5	ug/l	
91-20-3	Naphthalene	ND		0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.26	ug/l	
100-42-5	Styrene	ND	100	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	0.34	200	0.50	0.12	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	70	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.12	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.056	ug/l	
	m,p-Xylene	ND		0.50	0.26	ug/l	
95-47-6	o-Xylene	ND		0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	94%		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:	RW-12270CM-032918	
Lab Sample ID:	JC63247-1	Date Sampled: 03/29/18
Matrix:	DW - Drinking Water	Date Received: 03/30/18
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	3A159306.D	1	04/02/18 16:44	HT	n/a	n/a	V3A6867
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	1.9		0.40	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	91%		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:	RW-12270CM-032918-F	Date Sampled:	03/29/18
Lab Sample ID:	JC63247-2	Date Received:	03/30/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B114415.D	1	04/05/18 14:53	CSF	n/a	n/a	V1B5484
Run #2							

Run #	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	3.8	ug/l	
78-93-3	2-Butanone	ND		5.0	2.5	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.36	ug/l	
75-25-2	Bromoform	ND		0.50	0.40	ug/l	
74-83-9	Bromomethane	ND		0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND		0.50	0.071	ug/l	
67-66-3	Chloroform	ND		0.50	0.33	ug/l	
74-87-3	Chloromethane	ND		0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	0.14		0.50	0.13	ug/l	J
75-35-4	1,1-Dichloroethylene	7.5	7.0	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141)

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RW-12270CM-032918-F	Date Sampled:	03/29/18
Lab Sample ID:	JC63247-2	Date Received:	03/30/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
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	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND		2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.23	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	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	1.5	ug/l	
91-20-3	Naphthalene	ND		0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.26	ug/l	
100-42-5	Styrene	ND	100	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	0.35	200	0.50	0.12	ug/l	J
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	70	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.12	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.056	ug/l	
	m,p-Xylene	ND		0.50	0.26	ug/l	
95-47-6	o-Xylene	ND		0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	96%		70-130%
460-00-4	4-Bromofluorobenzene	94%		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-12270CM-032918-F	Date Sampled:	03/29/18
Lab Sample ID:	JC63247-2	Date Received:	03/30/18
Matrix:	DW - Drinking Water	Percent Solids:	n/a
Method:	SW846 8260C BY SIM		
Project:	Kop-Flex, Hanover, VA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3A159307.D	1	04/02/18 17:11	HT	n/a	n/a	V3A6867
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	1.6		0.40	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	74%		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:	TB-032918	Date Sampled:	03/29/18
Lab Sample ID:	JC63247-3	Date Received:	03/30/18
Matrix:	DW - Drinking Water TB	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
Project:	Kop-Flex, Hanover, VA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	1B114416.D	1	04/05/18 15:25	CSF	n/a	n/a	V1B5484
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

VOA List

CAS No.	Compound	Result	MCL	RL	MDL	Units	Q
67-64-1	Acetone	13.9		5.0	3.8	ug/l	
78-93-3	2-Butanone	ND		5.0	2.5	ug/l	
71-43-2	Benzene	ND	5.0	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND		0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND		0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND		0.50	0.36	ug/l	
75-25-2	Bromoform	ND		0.50	0.40	ug/l	
74-83-9	Bromomethane	ND		0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND		0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND		0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND		0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND		0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	100	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND		0.50	0.071	ug/l	
67-66-3	Chloroform	ND		0.50	0.33	ug/l	
74-87-3	Chloromethane	ND		0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND		0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND		0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	5.0	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	ND		0.50	0.13	ug/l	
75-35-4	1,1-Dichloroethylene	ND	7.0	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND		0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.20	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.050	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	5.0	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	5.0	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND		0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND		0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND		0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND		0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND		0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND		0.50	0.28	ug/l	

ND = Not detected MDL = Method Detection Limit

J = Indicates an estimated value

MCL = Maximum Contamination Level (40 CFR 141)

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TB-032918	Date Sampled:	03/29/18
Lab Sample ID:	JC63247-3	Date Received:	03/30/18
Matrix:	DW - Drinking Water TB	Percent Solids:	n/a
Method:	EPA 524.2 REV 4.1		
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	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	75	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	100	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	70	0.50	0.26	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND		0.50	0.14	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND		0.50	0.25	ug/l	
100-41-4	Ethylbenzene	ND	700	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND		0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND		2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND		0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND		0.50	0.23	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	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND		2.0	1.5	ug/l	
91-20-3	Naphthalene	ND		0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND		0.50	0.26	ug/l	
100-42-5	Styrene	ND	100	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND		0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	200	0.50	0.12	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND		0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	5.0	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND		0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND		0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	70	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND		0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND		0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	5.0	0.50	0.12	ug/l	
108-88-3	Toluene	ND	1000	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	5.0	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND		1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	2.0	0.50	0.056	ug/l	
	m,p-Xylene	ND		0.50	0.26	ug/l	
95-47-6	o-Xylene	ND		0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	10000	0.50	0.24	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2199-69-1	1,2-Dichlorobenzene-d4	100%		70-130%
460-00-4	4-Bromofluorobenzene	97%		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:	TB-032918						
Lab Sample ID:	JC63247-3					Date Sampled:	03/29/18
Matrix:	DW - Drinking Water TB					Date Received:	03/30/18
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	3A159308.D	1	04/02/18 17:37	HT	n/a	n/a	V3A6867
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	0.29	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17647-74-4	1,4-Dioxane-d8	94%		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

[illegible]

SGS Sample Receipt Summary

Job Number: JC63247

Client: _____

Project: _____

Date / Time Received: 3/30/2018 9:25:00 AM

Delivery Method: _____

Airbill #'s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (3.8);

Cooler SecurityY or NY or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | ☒ | ☐ | 3. COC Present: | ☒ | ☐ |
| 2. Custody Seals Intact: | ☒ | ☐ | 4. Smpl Dates/Time OK | ☒ | ☐ |

Cooler TemperatureY or N

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | ☒ | ☐ |
| 2. Cooler temp verification: | IR Gun | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 1 | |

Quality Control PreservationY or NN/A

- | | | | |
|---------------------------------|-------------------------------------|--------------------------|--------------------------|
| 1. Trip Blank present / cooler: | ☒ | ☐ | ☐ |
| 2. Trip Blank listed on COC: | ☒ | ☐ | ☐ |
| 3. Samples preserved properly: | ☒ | ☐ | |
| 4. VOCs headspace free: | ☒ | ☐ | ☐ |

Sample Integrity - DocumentationY or N

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | ☒ | ☐ |
| 2. Container labeling complete: | ☒ | ☐ |
| 3. Sample container label / COC agree: | ☒ | ☐ |

Sample Integrity - ConditionY or N

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | ☒ | ☐ |
| 2. All containers accounted for: | ☒ | ☐ |
| 3. Condition of sample: | Intact | |

Sample Integrity - InstructionsY or NN/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

JC63247: Chain of Custody

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MS Volatiles

5

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

Page 1 of 3

Job Number: JC63247**Account:** ESCVAR WSP Environment & Energy**Project:** Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5484-MB	1B114409.D	1	04/05/18	CSF	n/a	n/a	V1B5484

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

JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	5.0	3.8	ug/l	
78-93-3	2-Butanone	ND	5.0	2.5	ug/l	
71-43-2	Benzene	ND	0.50	0.26	ug/l	
108-86-1	Bromobenzene	ND	0.50	0.25	ug/l	
74-97-5	Bromochloromethane	ND	0.50	0.42	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.36	ug/l	
75-25-2	Bromoform	ND	0.50	0.40	ug/l	
74-83-9	Bromomethane	ND	0.50	0.081	ug/l	
104-51-8	n-Butylbenzene	ND	0.50	0.22	ug/l	
135-98-8	sec-Butylbenzene	ND	0.50	0.26	ug/l	
98-06-6	tert-Butylbenzene	ND	0.50	0.25	ug/l	
75-15-0	Carbon disulfide	ND	0.50	0.39	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.27	ug/l	
75-00-3	Chloroethane	ND	0.50	0.071	ug/l	
67-66-3	Chloroform	ND	0.50	0.33	ug/l	
74-87-3	Chloromethane	ND	0.50	0.39	ug/l	
95-49-8	o-Chlorotoluene	ND	0.50	0.30	ug/l	
106-43-4	p-Chlorotoluene	ND	0.50	0.27	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.13	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.13	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.23	ug/l	
563-58-6	1,1-Dichloropropene	ND	0.50	0.21	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	1.0	0.25	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.50	0.29	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.28	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.29	ug/l	
142-28-9	1,3-Dichloropropane	ND	0.50	0.24	ug/l	
594-20-7	2,2-Dichloropropane	ND	0.50	0.24	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.094	ug/l	
74-95-3	Dibromomethane	ND	0.50	0.085	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.44	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.28	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.26	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.28	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.098	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.26	ug/l	

Method Blank Summary

Page 2 of 3

Job Number: JC63247**Account:** ESCVAR WSP Environment & Energy**Project:** Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5484-MB	1B114409.D	1	04/05/18	CSF	n/a	n/a	V1B5484

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

JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	Result	RL	MDL	Units	Q
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.25	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.14	ug/l	
100-41-4	Ethylbenzene	ND	0.50	0.26	ug/l	
87-68-3	Hexachlorobutadiene	ND	0.50	0.32	ug/l	
591-78-6	2-Hexanone	ND	2.0	1.3	ug/l	
98-82-8	Isopropylbenzene	ND	0.50	0.25	ug/l	
99-87-6	p-Isopropyltoluene	ND	0.50	0.23	ug/l	
75-09-2	Methylene chloride	ND	0.50	0.37	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	0.50	0.080	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	2.0	1.5	ug/l	
91-20-3	Naphthalene	ND	0.50	0.18	ug/l	
103-65-1	n-Propylbenzene	ND	0.50	0.26	ug/l	
100-42-5	Styrene	ND	0.50	0.21	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	0.50	0.13	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.12	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.099	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.12	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	0.50	0.11	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	0.50	0.26	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	0.50	0.14	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	0.50	0.24	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	0.50	0.24	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.12	ug/l	
108-88-3	Toluene	ND	0.50	0.13	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.11	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.48	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.056	ug/l	
	m,p-Xylene	ND	0.50	0.26	ug/l	
95-47-6	o-Xylene	ND	0.50	0.24	ug/l	
1330-20-7	Xylenes (total)	ND	0.50	0.24	ug/l	

CAS No.	Surrogate Recoveries	Limits
2199-69-1	1,2-Dichlorobenzene-d4	96%
460-00-4	4-Bromofluorobenzene	95%

Method Blank Summary

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5484-MB	1B114409.D	1	04/05/18	CSF	n/a	n/a	V1B5484

The QC reported here applies to the following samples:

Method:

JC63247-1, JC63247-2, JC63247-3

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

Method Blank Summary

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6867-MB	3A159305.D	1	04/02/18	HT	n/a	n/a	V3A6867

The QC reported here applies to the following samples: Method: SW846 8260C BY SIM
JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND	0.40	0.29	ug/l	

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

Blank Spike Summary

Page 1 of 2

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5484-BS	1B114408.D	1	04/05/18	CSF	n/a	n/a	V1B5484

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
67-64-1	Acetone	20	21.2	106	70-130
78-93-3	2-Butanone	20	19.8	99	70-130
71-43-2	Benzene	5	5.0	100	70-130
108-86-1	Bromobenzene	5	4.9	98	70-130
74-97-5	Bromochloromethane	5	5.0	100	70-130
75-27-4	Bromodichloromethane	5	5.3	106	70-130
75-25-2	Bromoform	5	5.5	110	70-130
74-83-9	Bromomethane	5	4.7	94	70-130
104-51-8	n-Butylbenzene	5	5.2	104	70-130
135-98-8	sec-Butylbenzene	5	5.1	102	70-130
98-06-6	tert-Butylbenzene	5	4.9	98	70-130
75-15-0	Carbon disulfide	5	4.9	98	70-130
108-90-7	Chlorobenzene	5	5.0	100	70-130
75-00-3	Chloroethane	5	4.7	94	70-130
67-66-3	Chloroform	5	4.9	98	70-130
74-87-3	Chloromethane	5	4.8	96	70-130
95-49-8	o-Chlorotoluene	5	4.9	98	70-130
106-43-4	p-Chlorotoluene	5	5.1	102	70-130
56-23-5	Carbon tetrachloride	5	5.8	116	70-130
75-34-3	1,1-Dichloroethane	5	5.0	100	70-130
75-35-4	1,1-Dichloroethylene	5	5.0	100	70-130
563-58-6	1,1-Dichloropropene	5	5.1	102	70-130
96-12-8	1,2-Dibromo-3-chloropropane	5	5.2	104	70-130
106-93-4	1,2-Dibromoethane	5	4.9	98	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	5.0	100	70-130
594-20-7	2,2-Dichloropropane	5	5.7	114	70-130
124-48-1	Dibromochloromethane	5	5.3	106	70-130
74-95-3	Dibromomethane	5	5.1	102	70-130
75-71-8	Dichlorodifluoromethane	5	6.2	124	70-130
541-73-1	m-Dichlorobenzene	5	5.0	100	70-130
95-50-1	o-Dichlorobenzene	5	5.0	100	70-130
106-46-7	p-Dichlorobenzene	5	5.1	102	70-130
156-60-5	trans-1,2-Dichloroethylene	5	4.6	92	70-130
156-59-2	cis-1,2-Dichloroethylene	5	4.9	98	70-130

* = Outside of Control Limits.

Blank Spike Summary

Page 2 of 2

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V1B5484-BS	1B114408.D	1	04/05/18	CSF	n/a	n/a	V1B5484

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC63247-1, JC63247-2, JC63247-3

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	19.5	98	70-130
98-82-8	Isopropylbenzene	5	4.9	98	70-130
99-87-6	p-Isopropyltoluene	5	5.0	100	70-130
75-09-2	Methylene chloride	5	4.4	88	70-130
1634-04-4	Methyl Tert Butyl Ether	10	9.2	92	70-130
108-10-1	4-Methyl-2-pentanone	20	19.5	98	70-130
91-20-3	Naphthalene	5	4.7	94	70-130
103-65-1	n-Propylbenzene	5	5.1	102	70-130
100-42-5	Styrene	5	4.9	98	70-130
630-20-6	1,1,1,2-Tetrachloroethane	5	5.3	106	70-130
71-55-6	1,1,1-Trichloroethane	5	5.2	104	70-130
79-34-5	1,1,2,2-Tetrachloroethane	5	5.0	100	70-130
79-00-5	1,1,2-Trichloroethane	5	5.0	100	70-130
87-61-6	1,2,3-Trichlorobenzene	5	5.1	102	70-130
96-18-4	1,2,3-Trichloropropane	5	5.1	102	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	4.9	98	70-130
79-01-6	Trichloroethylene	5	4.9	98	70-130
75-69-4	Trichlorofluoromethane	5	5.8	116	70-130
75-01-4	Vinyl chloride	5	4.9	98	70-130
	m,p-Xylene	10	10.0	100	70-130
95-47-6	o-Xylene	5	4.9	98	70-130
1330-20-7	Xylenes (total)	15	14.9	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2199-69-1	1,2-Dichlorobenzene-d4	106%	70-130%
460-00-4	4-Bromofluorobenzene	105%	70-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V3A6867-BS	3A159303.D	1	04/02/18	HT	n/a	n/a	V3A6867

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

JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
123-91-1	1,4-Dioxane	20	12.2	61	58-138

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

* = Outside of Control Limits.

Matrix Spike Summary

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Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC63311-1MS	1B114417.D	1	04/05/18	CSF	n/a	n/a	V1B5484
JC63311-1	1B114411.D	1	04/05/18	CSF	n/a	n/a	V1B5484

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	JC63311-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
67-64-1	Acetone	ND		20	21.6	108	41-142
78-93-3	2-Butanone	ND		20	20.9	105	55-129
71-43-2	Benzene	ND		5	5.5	110	53-138
108-86-1	Bromobenzene	ND		5	5.3	106	54-138
74-97-5	Bromochloromethane	ND		5	5.3	106	55-140
75-27-4	Bromodichloromethane	ND		5	5.7	114	57-147
75-25-2	Bromoform	ND		5	5.6	112	47-137
74-83-9	Bromomethane	ND		5	5.5	110	40-162
104-51-8	n-Butylbenzene	ND		5	5.6	112	45-144
135-98-8	sec-Butylbenzene	ND		5	5.4	108	46-145
98-06-6	tert-Butylbenzene	ND		5	5.2	104	48-141
75-15-0	Carbon disulfide	ND		5	5.3	106	35-127
108-90-7	Chlorobenzene	ND		5	5.4	108	54-135
75-00-3	Chloroethane	ND		5	5.6	112	38-153
67-66-3	Chloroform	ND		5	5.4	108	57-151
74-87-3	Chloromethane	ND		5	5.6	112	39-165
95-49-8	o-Chlorotoluene	ND		5	5.4	108	55-142
106-43-4	p-Chlorotoluene	ND		5	5.3	106	55-139
56-23-5	Carbon tetrachloride	ND		5	6.4	128	49-170
75-34-3	1,1-Dichloroethane	ND		5	5.5	110	55-149
75-35-4	1,1-Dichloroethylene	ND		5	5.9	118	42-142
563-58-6	1,1-Dichloropropene	ND		5	5.6	112	46-151
96-12-8	1,2-Dibromo-3-chloropropane	ND		5	5.6	112	48-141
106-93-4	1,2-Dibromoethane	ND		5	5.2	104	57-135
107-06-2	1,2-Dichloroethane	ND		5	5.6	112	59-166
78-87-5	1,2-Dichloropropane	ND		5	5.7	114	53-142
142-28-9	1,3-Dichloropropane	ND		5	5.6	112	58-143
594-20-7	2,2-Dichloropropane	ND		5	6.2	124	38-165
124-48-1	Dibromochloromethane	ND		5	5.7	114	55-138
74-95-3	Dibromomethane	ND		5	5.5	110	61-144
75-71-8	Dichlorodifluoromethane	ND		5	7.6	152	23-172
541-73-1	m-Dichlorobenzene	ND		5	5.3	106	53-138
95-50-1	o-Dichlorobenzene	ND		5	5.3	106	54-140
106-46-7	p-Dichlorobenzene	ND		5	5.3	106	53-137
156-60-5	trans-1,2-Dichloroethylene	ND		5	4.9	98	47-148
156-59-2	cis-1,2-Dichloroethylene	ND		5	5.2	104	51-146

* = Outside of Control Limits.

Matrix Spike Summary

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Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC63311-1MS	1B114417.D	1	04/05/18	CSF	n/a	n/a	V1B5484
JC63311-1	1B114411.D	1	04/05/18	CSF	n/a	n/a	V1B5484

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	JC63311-1 ug/l	Spike Q	MS ug/l	MS %	Limits	
10061-01-5	cis-1, 3-Dichloropropene	ND	5	5.5	110	51-136	
10061-02-6	trans-1, 3-Dichloropropene	ND	5	5.5	110	54-142	
100-41-4	Ethylbenzene	ND	5	5.4	108	51-138	
87-68-3	Hexachlorobutadiene	ND	5	5.6	112	40-154	
591-78-6	2-Hexanone	ND	20	20.6	103	53-128	
98-82-8	Isopropylbenzene	ND	5	5.3	106	49-139	
99-87-6	p-Isopropyltoluene	ND	5	5.3	106	45-141	
75-09-2	Methylene chloride	ND	5	4.8	96	54-137	
1634-04-4	Methyl Tert Butyl Ether	ND	10	10	100	53-143	
108-10-1	4-Methyl-2-pentanone	ND	20	21.0	105	58-127	
91-20-3	Naphthalene	ND	5	4.8	96	44-140	
103-65-1	n-Propylbenzene	ND	5	5.4	108	50-142	
100-42-5	Styrene	ND	5	5.2	104	23-130	
630-20-6	1, 1, 1, 2-Tetrachloroethane	ND	5	5.6	112	57-144	
71-55-6	1, 1, 1-Trichloroethane	ND	5	6.0	120	52-164	
79-34-5	1, 1, 2, 2-Tetrachloroethane	ND	5	5.4	108	58-138	
79-00-5	1, 1, 2-Trichloroethane	ND	5	5.5	110	59-139	
87-61-6	1, 2, 3-Trichlorobenzene	ND	5	5.0	100	47-141	
96-18-4	1, 2, 3-Trichloropropane	ND	5	5.4	108	56-148	
120-82-1	1, 2, 4-Trichlorobenzene	ND	5	5.1	102	46-137	
95-63-6	1, 2, 4-Trimethylbenzene	ND	5	5.3	106	41-138	
108-67-8	1, 3, 5-Trimethylbenzene	ND	5	5.3	106	45-138	
127-18-4	Tetrachloroethylene	0.16	J	5	5.6	109	45-145
108-88-3	Toluene	ND	5	5.4	108	52-134	
79-01-6	Trichloroethylene	0.49	J	5	5.9	108	54-143
75-69-4	Trichlorofluoromethane	ND	5	7.0	140	36-167	
75-01-4	Vinyl chloride	ND	5	6.0	120	35-162	
	m,p-Xylene	ND	10	10.7	107	49-135	
95-47-6	o-Xylene	ND	5	5.4	108	49-134	
1330-20-7	Xylenes (total)	ND	15	16.1	107	50-134	

CAS No.	Surrogate Recoveries	MS	JC63311-1	Limits
2199-69-1	1,2-Dichlorobenzene-d4	104%	96%	70-130%
460-00-4	4-Bromofluorobenzene	103%	95%	70-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC63247-1MS	3A159310.D	1	04/02/18	HT	n/a	n/a	V3A6867
JC63247-1	3A159306.D	1	04/02/18	HT	n/a	n/a	V3A6867

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

JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	JC63247-1 ug/l	Spike Q	ug/l	MS ug/l	MS %	Limits
123-91-1	1,4-Dioxane	1.9	20	17.9	80		36-166

CAS No.	Surrogate Recoveries	MS	JC63247-1	Limits
17647-74-4	1,4-Dioxane-d8	99%	91%	51-175%

* = Outside of Control Limits.

Duplicate Summary

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Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC63189-9DUP	1B114418.D	1	04/05/18	CSF	n/a	n/a	V1B5484
JC63189-9	1B114412.D	1	04/05/18	CSF	n/a	n/a	V1B5484

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	JC63189-9 ug/l	DUP Q 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

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Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC63189-9DUP	1B114418.D	1	04/05/18	CSF	n/a	n/a	V1B5484
JC63189-9	1B114412.D	1	04/05/18	CSF	n/a	n/a	V1B5484

The QC reported here applies to the following samples:

Method: EPA 524.2 REV 4.1

JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	JC63189-9 ug/l	DUP Q 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	JC63189-9	Limits
2199-69-1	1,2-Dichlorobenzene-d4	97%	96%	70-130%
460-00-4	4-Bromofluorobenzene	95%	96%	70-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JC63247-2DUP	3A159309.D	1	04/02/18	HT	n/a	n/a	V3A6867
JC63247-2	3A159307.D	1	04/02/18	HT	n/a	n/a	V3A6867

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

JC63247-1, JC63247-2, JC63247-3

CAS No.	Compound	JC63247-2 ug/l	DUP Q	ug/l	Q	RPD	Limits
123-91-1	1,4-Dioxane	1.6		2.1		27	37

CAS No.	Surrogate Recoveries	DUP	JC63247-2	Limits
17647-74-4	1,4-Dioxane-d8	101%	74%	51-175%

* = Outside of Control Limits.

Instrument Performance Check (BFB)

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Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5481-BFB
Lab File ID: 1B114369.D
Instrument ID: GCMS1B
Injection Date: 04/03/18
Injection Time: 18:56

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	3169	18.2	Pass
75	30.0 - 80.0% of mass 95	7964	45.8	Pass
95	Base peak, 100% relative abundance	17374	100.0	Pass
96	5.0 - 9.0% of mass 95	1183	6.81	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	13809	79.5	Pass
175	5.0 - 9.0% of mass 174	973	5.60 (7.05) ^a	Pass
176	95.0 - 101.0% of mass 174	13376	77.0 (96.9) ^a	Pass
177	5.0 - 9.0% of mass 176	892	5.13 (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
V1B5481-IC5481	1B114370.D	04/03/18	19:48	00:52	Initial cal 0.2
V1B5481-IC5481	1B114371.D	04/03/18	20:20	01:24	Initial cal 0.5
V1B5481-IC5481	1B114372.D	04/03/18	20:54	01:58	Initial cal 1
V1B5481-IC5481	1B114373.D	04/03/18	21:26	02:30	Initial cal 2
V1B5481-IC5481	1B114374.D	04/03/18	21:59	03:03	Initial cal 5
V1B5481-ICC5481	1B114375.D	04/03/18	22:31	03:35	Initial cal 10
V1B5481-IC5481	1B114376.D	04/03/18	23:04	04:08	Initial cal 20
V1B5481-IC5481	1B114377.D	04/03/18	23:36	04:40	Initial cal 40
V1B5481-IC5481	1B114378.D	04/04/18	00:08	05:12	Initial cal 80
V1B5481-ICV5481	1B114381.D	04/04/18	01:45	06:49	Initial cal verification 10

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5481-BFB2
Lab File ID: 1B114385.D
Instrument ID: GCMS1B
Injection Date: 04/04/18
Injection Time: 10:45

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	2841	17.7	Pass
75	30.0 - 80.0% of mass 95	7627	47.4	Pass
95	Base peak, 100% relative abundance	16088	100.0	Pass
96	5.0 - 9.0% of mass 95	1148	7.14	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	12720	79.1	Pass
175	5.0 - 9.0% of mass 174	953	5.92 (7.49) ^a	Pass
176	95.0 - 101.0% of mass 174	12333	76.7 (97.0) ^a	Pass
177	5.0 - 9.0% of mass 176	938	5.83 (7.61) ^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
V1B5481-ICV5481	1B114386.D	04/04/18	11:58	01:13	Initial cal verification 10
V1B5481-ICV5481	1B114387.D	04/04/18	12:31	01:46	Initial cal verification 10

Instrument Performance Check (BFB)

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Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V1B5484-BFB
Lab File ID: 1B114406.D
Instrument ID: GCMS1B
Injection Date: 04/05/18
Injection Time: 09:11

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	14.99 - 40.0% of mass 95	2741	18.6	Pass
75	30.0 - 80.0% of mass 95	7172	48.7	Pass
95	Base peak, 100% relative abundance	14722	100.0	Pass
96	5.0 - 9.0% of mass 95	1114	7.57	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	11145	75.7	Pass
175	5.0 - 9.0% of mass 174	848	5.76 (7.61) ^a	Pass
176	95.0 - 101.0% of mass 174	10854	73.7 (97.4) ^a	Pass
177	5.0 - 9.0% of mass 176	765	5.20 (7.05) ^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
V1B5484-CC5481	1B114407.D	04/05/18	10:23	01:12	Continuing cal 10
V1B5484-BS	1B114408.D	04/05/18	11:23	02:12	Blank Spike
V1B5484-MB	1B114409.D	04/05/18	11:56	02:45	Method Blank
JC63311-1	1B114411.D	04/05/18	12:43	03:32	(used for QC only; not part of job JC63247)
JC63189-9	1B114412.D	04/05/18	13:16	04:05	(used for QC only; not part of job JC63247)
ZZZZZZ	1B114413.D	04/05/18	13:48	04:37	(unrelated sample)
JC63247-1	1B114414.D	04/05/18	14:21	05:10	RW-12270CM-032918
JC63247-2	1B114415.D	04/05/18	14:53	05:42	RW-12270CM-032918-F
JC63247-3	1B114416.D	04/05/18	15:25	06:14	TB-032918
JC63311-1MS	1B114417.D	04/05/18	15:58	06:47	Matrix Spike
JC63189-9DUP	1B114418.D	04/05/18	16:30	07:19	Duplicate
ZZZZZZ	1B114419.D	04/05/18	17:03	07:52	(unrelated sample)
ZZZZZZ	1B114420.D	04/05/18	17:36	08:25	(unrelated sample)
ZZZZZZ	1B114421.D	04/05/18	18:09	08:58	(unrelated sample)
ZZZZZZ	1B114422.D	04/05/18	18:41	09:30	(unrelated sample)
ZZZZZZ	1B114423.D	04/05/18	19:14	10:03	(unrelated sample)
ZZZZZZ	1B114424.D	04/05/18	19:47	10:36	(unrelated sample)
ZZZZZZ	1B114425.D	04/05/18	20:19	11:08	(unrelated sample)
ZZZZZZ	1B114426.D	04/05/18	20:52	11:41	(unrelated sample)
ZZZZZZ	1B114427.D	04/05/18	21:25	12:14	(unrelated sample)
ZZZZZZ	1B114428.D	04/05/18	21:57	12:46	(unrelated sample)

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V3A6845-BFB
Lab File ID: 3A158978.D
Instrument ID: GCMS3A
Injection Date: 02/26/18
Injection Time: 10:39

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	12675	20.0	Pass
75	30.0 - 60.0% of mass 95	30581	48.1	Pass
95	Base peak, 100% relative abundance	63517	100.0	Pass
96	5.0 - 9.0% of mass 95	3746	5.90	Pass
173	Less than 2.0% of mass 174	364	0.57 (0.68) ^a	Pass
174	50.0 - 120.0% of mass 95	53424	84.1	Pass
175	5.0 - 9.0% of mass 174	4094	6.45 (7.66) ^a	Pass
176	95.0 - 101.0% of mass 174	52872	83.2 (99.0) ^a	Pass
177	5.0 - 9.0% of mass 176	3577	5.63 (6.77) ^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
V3A6845-IC6845	3A158982.D	02/26/18	12:27	01:48	Initial cal 2
V3A6845-IC6845	3A158983.D	02/26/18	12:53	02:14	Initial cal 5
V3A6845-ICC6845	3A158984.D	02/26/18	13:19	02:40	Initial cal 20
V3A6845-IC6845	3A158985.D	02/26/18	13:46	03:07	Initial cal 50
V3A6845-IC6845	3A158986.D	02/26/18	14:13	03:34	Initial cal 100
V3A6845-IC6845	3A158987.D	02/26/18	14:39	04:00	Initial cal 200
V3A6845-IC6845	3A158993.D	02/26/18	18:57	08:18	Initial cal 1
V3A6845-IC6845	3A158994.D	02/26/18	19:24	08:45	Initial cal 0.4
V3A6845-IC6845	3A158995.D	02/26/18	19:50	09:11	Initial cal 0.25
V3A6845-ICV6845	3A158996.D	02/26/18	20:17	09:38	Initial cal verification 20

Instrument Performance Check (BFB)

Page 1 of 1

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Sample: V3A6867-BFB
Lab File ID: 3A159301.D
Instrument ID: GCMS3A
Injection Date: 04/02/18
Injection Time: 12:21

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	3035	21.2	Pass
75	30.0 - 60.0% of mass 95	7500	52.5	Pass
95	Base peak, 100% relative abundance	14294	100.0	Pass
96	5.0 - 9.0% of mass 95	1057	7.39	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) ^a	Pass
174	50.0 - 120.0% of mass 95	13500	94.4	Pass
175	5.0 - 9.0% of mass 174	1077	7.53 (7.98) ^a	Pass
176	95.0 - 101.0% of mass 174	13560	94.9 (100.4) ^a	Pass
177	5.0 - 9.0% of mass 176	1140	7.98 (8.41) ^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
V3A6867-CC6845	3A159302.D	04/02/18	14:16	01:55	Continuing cal 20
V3A6867-BS	3A159303.D	04/02/18	14:51	02:30	Blank Spike
V3A6867-MB	3A159305.D	04/02/18	15:44	03:23	Method Blank
JC63247-1	3A159306.D	04/02/18	16:44	04:23	RW-12270CM-032918
JC63247-2	3A159307.D	04/02/18	17:11	04:50	RW-12270CM-032918-F
JC63247-3	3A159308.D	04/02/18	17:37	05:16	TB-032918
JC63247-2DUP	3A159309.D	04/02/18	18:04	05:43	Duplicate
JC63247-1MS	3A159310.D	04/02/18	18:31	06:10	Matrix Spike

Surrogate Recovery Summary

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Method: EPA 524.2 REV 4.1	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2
JC63247-1	1B114414.D	94	92
JC63247-2	1B114415.D	96	94
JC63247-3	1B114416.D	100	97
JC63189-9DUP	1B114418.D	97	95
JC63311-1MS	1B114417.D	104	103
V1B5484-BS	1B114408.D	106	105
V1B5484-MB	1B114409.D	96	95

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

5.6.1
5

Surrogate Recovery Summary

Job Number: JC63247
Account: ESCVAR WSP Environment & Energy
Project: Kop-Flex, Hanover, VA

Method: SW846 8260C BY SIM	Matrix: AQ
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1
JC63247-1	3A159306.D	91
JC63247-2	3A159307.D	74
JC63247-3	3A159308.D	94
JC63247-1MS	3A159310.D	99
JC63247-2DUP	3A159309.D	101
V3A6867-BS	3A159303.D	61
V3A6867-MB	3A159305.D	97

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

5.6.2
5

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

February 21, 2018

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

RE: Project: KOPFLEX 3140038912
Pace Project No.: 92373521

Dear Eric Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on February 15, 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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

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

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SAMPLE SUMMARY

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92373521001	MW-33D-235	Water	02/13/18 10:30	02/15/18 10:15
92373521002	MW-33D-295	Water	02/13/18 10:45	02/15/18 10:15
92373521003	MW-25	Water	02/13/18 12:55	02/15/18 10:15
92373521004	MW-25D-130	Water	02/13/18 13:10	02/15/18 10:15
92373521005	MW-25D-190	Water	02/13/18 13:25	02/15/18 10:15
92373521006	MW-2500	Water	02/13/18 09:00	02/15/18 10:15
92373521007	MW-28	Water	02/14/18 09:20	02/15/18 10:15
92373521008	MW-28D	Water	02/14/18 09:30	02/15/18 10:15
92373521009	MW-31D	Water	02/14/18 10:55	02/15/18 10:15
92373521010	MW-35D	Water	02/14/18 10:20	02/15/18 10:15
92373521011	Trip Blank	Water	02/13/18 00:00	02/15/18 10:15

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SAMPLE ANALYTE COUNT

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92373521001	MW-33D-235	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92373521002	MW-33D-295	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92373521003	MW-25	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92373521004	MW-25D-130	EPA 8260	SWB	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92373521005	MW-25D-190	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92373521006	MW-2500	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92373521007	MW-28	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92373521008	MW-28D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92373521009	MW-31D	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92373521010	MW-35D	EPA 8260	SWB	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C
92373521011	Trip Blank	EPA 8260	GAW	63	PASI-C
		EPA 8260B Mod.	DLK	3	PASI-C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-33D-235		Lab ID: 92373521001		Collected: 02/13/18 10:30		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	1		02/16/18 15:43	67-64-1		
Benzene	ND	ug/L	1.0	1		02/16/18 15:43	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		02/16/18 15:43	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		02/16/18 15:43	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		02/16/18 15:43	75-27-4		
Bromoform	ND	ug/L	1.0	1		02/16/18 15:43	75-25-2		
Bromomethane	ND	ug/L	2.0	1		02/16/18 15:43	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		02/16/18 15:43	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		02/16/18 15:43	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		02/16/18 15:43	108-90-7		
Chloroethane	ND	ug/L	1.0	1		02/16/18 15:43	75-00-3		
Chloroform	ND	ug/L	1.0	1		02/16/18 15:43	67-66-3		
Chloromethane	ND	ug/L	1.0	1		02/16/18 15:43	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		02/16/18 15:43	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		02/16/18 15:43	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		02/16/18 15:43	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		02/16/18 15:43	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		02/16/18 15:43	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		02/16/18 15:43	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 15:43	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 15:43	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 15:43	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		02/16/18 15:43	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		02/16/18 15:43	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		02/16/18 15:43	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		02/16/18 15:43	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		02/16/18 15:43	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		02/16/18 15:43	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		02/16/18 15:43	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		02/16/18 15:43	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		02/16/18 15:43	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		02/16/18 15:43	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		02/16/18 15:43	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		02/16/18 15:43	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		02/16/18 15:43	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		02/16/18 15:43	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		02/16/18 15:43	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		02/16/18 15:43	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		02/16/18 15:43	99-87-6		
Methylene Chloride	ND	ug/L	2.0	1		02/16/18 15:43	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		02/16/18 15:43	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		02/16/18 15:43	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		02/16/18 15:43	91-20-3		
Styrene	ND	ug/L	1.0	1		02/16/18 15:43	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		02/16/18 15:43	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		02/16/18 15:43	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		02/16/18 15:43	127-18-4		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-33D-235		Lab ID: 92373521001		Collected: 02/13/18 10:30		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1		02/16/18 15:43	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 15:43	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 15:43	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		02/16/18 15:43	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		02/16/18 15:43	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		02/16/18 15:43	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		02/16/18 15:43	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		02/16/18 15:43	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		02/16/18 15:43	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		02/16/18 15:43	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		02/16/18 15:43	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		02/16/18 15:43	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		02/16/18 15:43	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1		02/16/18 15:43	460-00-4		
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		02/16/18 15:43	17060-07-0		
Toluene-d8 (S)	107	%	70-130	1		02/16/18 15:43	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		02/16/18 19:33	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%	50-150	1		02/16/18 19:33	17060-07-0		
Toluene-d8 (S)	102	%	50-150	1		02/16/18 19:33	2037-26-5		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-33D-295		Lab ID: 92373521002		Collected: 02/13/18 10:45		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		02/16/18 16:16	67-64-1	M1	
Benzene	ND	ug/L	1.0	1		02/16/18 16:16	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		02/16/18 16:16	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		02/16/18 16:16	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		02/16/18 16:16	75-27-4		
Bromoform	ND	ug/L	1.0	1		02/16/18 16:16	75-25-2		
Bromomethane	ND	ug/L	2.0	1		02/16/18 16:16	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		02/16/18 16:16	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		02/16/18 16:16	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		02/16/18 16:16	108-90-7		
Chloroethane	ND	ug/L	1.0	1		02/16/18 16:16	75-00-3		
Chloroform	ND	ug/L	1.0	1		02/16/18 16:16	67-66-3		
Chloromethane	ND	ug/L	1.0	1		02/16/18 16:16	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		02/16/18 16:16	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		02/16/18 16:16	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		02/16/18 16:16	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		02/16/18 16:16	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		02/16/18 16:16	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		02/16/18 16:16	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 16:16	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 16:16	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 16:16	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		02/16/18 16:16	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		02/16/18 16:16	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		02/16/18 16:16	107-06-2		
1,1-Dichloroethene	4.6	ug/L	1.0	1		02/16/18 16:16	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		02/16/18 16:16	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		02/16/18 16:16	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		02/16/18 16:16	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		02/16/18 16:16	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		02/16/18 16:16	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		02/16/18 16:16	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		02/16/18 16:16	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		02/16/18 16:16	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		02/16/18 16:16	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		02/16/18 16:16	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		02/16/18 16:16	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		02/16/18 16:16	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		02/16/18 16:16	99-87-6		
Methylene Chloride	ND	ug/L	2.0	1		02/16/18 16:16	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		02/16/18 16:16	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		02/16/18 16:16	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		02/16/18 16:16	91-20-3		
Styrene	ND	ug/L	1.0	1		02/16/18 16:16	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		02/16/18 16:16	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		02/16/18 16:16	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		02/16/18 16:16	127-18-4		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-33D-295		Lab ID: 92373521002		Collected: 02/13/18 10:45		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1		02/16/18 16:16	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 16:16	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 16:16	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		02/16/18 16:16	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		02/16/18 16:16	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		02/16/18 16:16	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		02/16/18 16:16	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		02/16/18 16:16	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		02/16/18 16:16	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		02/16/18 16:16	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		02/16/18 16:16	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		02/16/18 16:16	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		02/16/18 16:16	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130	1		02/16/18 16:16	460-00-4		
1,2-Dichloroethane-d4 (S)	98	%	70-130	1		02/16/18 16:16	17060-07-0		
Toluene-d8 (S)	106	%	70-130	1		02/16/18 16:16	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	6.9	ug/L	2.0	1		02/16/18 20:32	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%	50-150	1		02/16/18 20:32	17060-07-0		
Toluene-d8 (S)	100	%	50-150	1		02/16/18 20:32	2037-26-5		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-25		Lab ID: 92373521003		Collected: 02/13/18 12:55		Received: 02/15/18 10:15		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1			02/16/18 16:33	67-64-1	
Benzene	ND	ug/L	1.0	1			02/16/18 16:33	71-43-2	
Bromobenzene	ND	ug/L	1.0	1			02/16/18 16:33	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1			02/16/18 16:33	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1			02/16/18 16:33	75-27-4	
Bromoform	ND	ug/L	1.0	1			02/16/18 16:33	75-25-2	
Bromomethane	ND	ug/L	2.0	1			02/16/18 16:33	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1			02/16/18 16:33	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1			02/16/18 16:33	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1			02/16/18 16:33	108-90-7	
Chloroethane	ND	ug/L	1.0	1			02/16/18 16:33	75-00-3	
Chloroform	ND	ug/L	1.0	1			02/16/18 16:33	67-66-3	
Chloromethane	ND	ug/L	1.0	1			02/16/18 16:33	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1			02/16/18 16:33	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1			02/16/18 16:33	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1			02/16/18 16:33	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1			02/16/18 16:33	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1			02/16/18 16:33	106-93-4	
Dibromomethane	ND	ug/L	1.0	1			02/16/18 16:33	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1			02/16/18 16:33	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1			02/16/18 16:33	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1			02/16/18 16:33	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1			02/16/18 16:33	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1			02/16/18 16:33	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1			02/16/18 16:33	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1			02/16/18 16:33	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1			02/16/18 16:33	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1			02/16/18 16:33	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1			02/16/18 16:33	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1			02/16/18 16:33	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1			02/16/18 16:33	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1			02/16/18 16:33	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1			02/16/18 16:33	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1			02/16/18 16:33	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1			02/16/18 16:33	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1			02/16/18 16:33	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1			02/16/18 16:33	87-68-3	
2-Hexanone	ND	ug/L	5.0	1			02/16/18 16:33	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1			02/16/18 16:33	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1			02/16/18 16:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1			02/16/18 16:33	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1			02/16/18 16:33	1634-04-4	
Naphthalene	ND	ug/L	1.0	1			02/16/18 16:33	91-20-3	
Styrene	ND	ug/L	1.0	1			02/16/18 16:33	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1			02/16/18 16:33	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1			02/16/18 16:33	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1			02/16/18 16:33	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-25		Lab ID: 92373521003		Collected: 02/13/18 12:55		Received: 02/15/18 10:15		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1			02/16/18 16:33	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1			02/16/18 16:33	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1			02/16/18 16:33	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1			02/16/18 16:33	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1			02/16/18 16:33	79-00-5	
Trichloroethene	ND	ug/L	1.0	1			02/16/18 16:33	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1			02/16/18 16:33	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1			02/16/18 16:33	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1			02/16/18 16:33	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1			02/16/18 16:33	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1			02/16/18 16:33	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1			02/16/18 16:33	179601-23-1	
o-Xylene	ND	ug/L	1.0	1			02/16/18 16:33	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130	1			02/16/18 16:33	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130	1			02/16/18 16:33	17060-07-0	
Toluene-d8 (S)	107	%	70-130	1			02/16/18 16:33	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1			02/16/18 20:51	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%	50-150	1			02/16/18 20:51	17060-07-0	
Toluene-d8 (S)	97	%	50-150	1			02/16/18 20:51	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-25D-130		Lab ID: 92373521004		Collected: 02/13/18 13:10		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Acetone	ND	ug/L	50.0	2		02/19/18 21:40	67-64-1		
Benzene	ND	ug/L	2.0	2		02/19/18 21:40	71-43-2		
Bromobenzene	ND	ug/L	2.0	2		02/19/18 21:40	108-86-1		
Bromochloromethane	ND	ug/L	2.0	2		02/19/18 21:40	74-97-5		
Bromodichloromethane	ND	ug/L	2.0	2		02/19/18 21:40	75-27-4		
Bromoform	ND	ug/L	2.0	2		02/19/18 21:40	75-25-2		
Bromomethane	ND	ug/L	4.0	2		02/19/18 21:40	74-83-9		
2-Butanone (MEK)	ND	ug/L	10.0	2		02/19/18 21:40	78-93-3		
Carbon tetrachloride	ND	ug/L	2.0	2		02/19/18 21:40	56-23-5		
Chlorobenzene	ND	ug/L	2.0	2		02/19/18 21:40	108-90-7		
Chloroethane	ND	ug/L	2.0	2		02/19/18 21:40	75-00-3		
Chloroform	ND	ug/L	2.0	2		02/19/18 21:40	67-66-3		
Chloromethane	ND	ug/L	2.0	2		02/19/18 21:40	74-87-3		
2-Chlorotoluene	ND	ug/L	2.0	2		02/19/18 21:40	95-49-8		
4-Chlorotoluene	ND	ug/L	2.0	2		02/19/18 21:40	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	2		02/19/18 21:40	96-12-8		
Dibromochloromethane	ND	ug/L	2.0	2		02/19/18 21:40	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	2.0	2		02/19/18 21:40	106-93-4		
Dibromomethane	ND	ug/L	2.0	2		02/19/18 21:40	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	2.0	2		02/19/18 21:40	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	2.0	2		02/19/18 21:40	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	2.0	2		02/19/18 21:40	106-46-7		
Dichlorodifluoromethane	ND	ug/L	2.0	2		02/19/18 21:40	75-71-8		
1,1-Dichloroethane	6.3	ug/L	2.0	2		02/19/18 21:40	75-34-3		
1,2-Dichloroethane	ND	ug/L	2.0	2		02/19/18 21:40	107-06-2		
1,1-Dichloroethene	154	ug/L	2.0	2		02/19/18 21:40	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	2.0	2		02/19/18 21:40	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	2.0	2		02/19/18 21:40	156-60-5		
1,2-Dichloropropane	ND	ug/L	2.0	2		02/19/18 21:40	78-87-5		
1,3-Dichloropropane	ND	ug/L	2.0	2		02/19/18 21:40	142-28-9		
2,2-Dichloropropane	ND	ug/L	2.0	2		02/19/18 21:40	594-20-7		
1,1-Dichloropropene	ND	ug/L	2.0	2		02/19/18 21:40	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	2.0	2		02/19/18 21:40	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	2.0	2		02/19/18 21:40	10061-02-6		
Diisopropyl ether	ND	ug/L	2.0	2		02/19/18 21:40	108-20-3		
Ethylbenzene	ND	ug/L	2.0	2		02/19/18 21:40	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	2.0	2		02/19/18 21:40	87-68-3		
2-Hexanone	ND	ug/L	10.0	2		02/19/18 21:40	591-78-6		
p-Isopropyltoluene	ND	ug/L	2.0	2		02/19/18 21:40	99-87-6		
Methylene Chloride	ND	ug/L	4.0	2		02/19/18 21:40	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	2		02/19/18 21:40	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	2.0	2		02/19/18 21:40	1634-04-4		
Naphthalene	ND	ug/L	2.0	2		02/19/18 21:40	91-20-3		
Styrene	ND	ug/L	2.0	2		02/19/18 21:40	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	2		02/19/18 21:40	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	2		02/19/18 21:40	79-34-5		
Tetrachloroethene	ND	ug/L	2.0	2		02/19/18 21:40	127-18-4		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-25D-130		Lab ID: 92373521004		Collected: 02/13/18 13:10		Received: 02/15/18 10:15		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	2.0	2			02/19/18 21:40	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	2			02/19/18 21:40	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	2			02/19/18 21:40	120-82-1	
1,1,1-Trichloroethane	6.1	ug/L	2.0	2			02/19/18 21:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	2			02/19/18 21:40	79-00-5	
Trichloroethene	ND	ug/L	2.0	2			02/19/18 21:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.0	2			02/19/18 21:40	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.0	2			02/19/18 21:40	96-18-4	
Vinyl acetate	ND	ug/L	4.0	2			02/19/18 21:40	108-05-4	
Vinyl chloride	ND	ug/L	2.0	2			02/19/18 21:40	75-01-4	
Xylene (Total)	ND	ug/L	2.0	2			02/19/18 21:40	1330-20-7	
m&p-Xylene	ND	ug/L	4.0	2			02/19/18 21:40	179601-23-1	
o-Xylene	ND	ug/L	2.0	2			02/19/18 21:40	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130	2			02/19/18 21:40	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	70-130	2			02/19/18 21:40	17060-07-0	
Toluene-d8 (S)	101	%	70-130	2			02/19/18 21:40	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	67.1	ug/L	2.0	1			02/16/18 21:11	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%	50-150	1			02/16/18 21:11	17060-07-0	
Toluene-d8 (S)	99	%	50-150	1			02/16/18 21:11	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-25D-190		Lab ID: 92373521005		Collected: 02/13/18 13:25		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	1		02/16/18 17:07	67-64-1		
Benzene	ND	ug/L	1.0	1		02/16/18 17:07	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		02/16/18 17:07	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		02/16/18 17:07	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		02/16/18 17:07	75-27-4		
Bromoform	ND	ug/L	1.0	1		02/16/18 17:07	75-25-2		
Bromomethane	ND	ug/L	2.0	1		02/16/18 17:07	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		02/16/18 17:07	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		02/16/18 17:07	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		02/16/18 17:07	108-90-7		
Chloroethane	ND	ug/L	1.0	1		02/16/18 17:07	75-00-3		
Chloroform	ND	ug/L	1.0	1		02/16/18 17:07	67-66-3		
Chloromethane	ND	ug/L	1.0	1		02/16/18 17:07	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		02/16/18 17:07	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		02/16/18 17:07	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		02/16/18 17:07	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		02/16/18 17:07	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		02/16/18 17:07	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		02/16/18 17:07	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:07	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:07	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:07	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		02/16/18 17:07	75-71-8		
1,1-Dichloroethane	13.7	ug/L	1.0	1		02/16/18 17:07	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		02/16/18 17:07	107-06-2		
1,1-Dichloroethene	69.2	ug/L	1.0	1		02/16/18 17:07	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		02/16/18 17:07	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		02/16/18 17:07	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		02/16/18 17:07	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		02/16/18 17:07	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		02/16/18 17:07	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		02/16/18 17:07	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		02/16/18 17:07	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		02/16/18 17:07	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		02/16/18 17:07	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		02/16/18 17:07	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		02/16/18 17:07	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		02/16/18 17:07	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		02/16/18 17:07	99-87-6		
Methylene Chloride	ND	ug/L	2.0	1		02/16/18 17:07	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		02/16/18 17:07	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		02/16/18 17:07	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		02/16/18 17:07	91-20-3		
Styrene	ND	ug/L	1.0	1		02/16/18 17:07	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		02/16/18 17:07	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		02/16/18 17:07	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		02/16/18 17:07	127-18-4		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-25D-190		Lab ID: 92373521005		Collected: 02/13/18 13:25		Received: 02/15/18 10:15		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1			02/16/18 17:07	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1			02/16/18 17:07	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1			02/16/18 17:07	120-82-1	
1,1,1-Trichloroethane	11.0	ug/L	1.0	1			02/16/18 17:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1			02/16/18 17:07	79-00-5	
Trichloroethene	ND	ug/L	1.0	1			02/16/18 17:07	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1			02/16/18 17:07	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1			02/16/18 17:07	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1			02/16/18 17:07	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1			02/16/18 17:07	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1			02/16/18 17:07	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1			02/16/18 17:07	179601-23-1	
o-Xylene	ND	ug/L	1.0	1			02/16/18 17:07	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130	1			02/16/18 17:07	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-130	1			02/16/18 17:07	17060-07-0	
Toluene-d8 (S)	105	%	70-130	1			02/16/18 17:07	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	42.7	ug/L	2.0	1			02/16/18 21:30	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%	50-150	1			02/16/18 21:30	17060-07-0	
Toluene-d8 (S)	101	%	50-150	1			02/16/18 21:30	2037-26-5	

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-2500		Lab ID: 92373521006		Collected: 02/13/18 09:00		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level	Analytical Method: EPA 8260								
Acetone	ND	ug/L	25.0	1		02/16/18 17:24	67-64-1		
Benzene	ND	ug/L	1.0	1		02/16/18 17:24	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		02/16/18 17:24	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		02/16/18 17:24	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		02/16/18 17:24	75-27-4		
Bromoform	ND	ug/L	1.0	1		02/16/18 17:24	75-25-2		
Bromomethane	ND	ug/L	2.0	1		02/16/18 17:24	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		02/16/18 17:24	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		02/16/18 17:24	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		02/16/18 17:24	108-90-7		
Chloroethane	ND	ug/L	1.0	1		02/16/18 17:24	75-00-3		
Chloroform	ND	ug/L	1.0	1		02/16/18 17:24	67-66-3		
Chloromethane	ND	ug/L	1.0	1		02/16/18 17:24	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		02/16/18 17:24	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		02/16/18 17:24	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		02/16/18 17:24	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		02/16/18 17:24	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		02/16/18 17:24	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		02/16/18 17:24	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:24	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:24	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:24	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		02/16/18 17:24	75-71-8		
1,1-Dichloroethane	13.7	ug/L	1.0	1		02/16/18 17:24	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		02/16/18 17:24	107-06-2		
1,1-Dichloroethene	66.1	ug/L	1.0	1		02/16/18 17:24	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		02/16/18 17:24	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		02/16/18 17:24	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		02/16/18 17:24	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		02/16/18 17:24	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		02/16/18 17:24	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		02/16/18 17:24	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		02/16/18 17:24	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		02/16/18 17:24	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		02/16/18 17:24	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		02/16/18 17:24	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		02/16/18 17:24	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		02/16/18 17:24	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		02/16/18 17:24	99-87-6		
Methylene Chloride	ND	ug/L	2.0	1		02/16/18 17:24	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		02/16/18 17:24	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		02/16/18 17:24	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		02/16/18 17:24	91-20-3		
Styrene	ND	ug/L	1.0	1		02/16/18 17:24	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		02/16/18 17:24	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		02/16/18 17:24	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		02/16/18 17:24	127-18-4		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-2500		Lab ID: 92373521006		Collected: 02/13/18 09:00		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1		02/16/18 17:24	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:24	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:24	120-82-1		
1,1,1-Trichloroethane	11.0	ug/L	1.0	1		02/16/18 17:24	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		02/16/18 17:24	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		02/16/18 17:24	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		02/16/18 17:24	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		02/16/18 17:24	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		02/16/18 17:24	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		02/16/18 17:24	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		02/16/18 17:24	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		02/16/18 17:24	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		02/16/18 17:24	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1		02/16/18 17:24	460-00-4		
1,2-Dichloroethane-d4 (S)	102	%	70-130	1		02/16/18 17:24	17060-07-0		
Toluene-d8 (S)	105	%	70-130	1		02/16/18 17:24	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	41.0	ug/L	2.0	1		02/16/18 21:50	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	102	%	50-150	1		02/16/18 21:50	17060-07-0		
Toluene-d8 (S)	103	%	50-150	1		02/16/18 21:50	2037-26-5		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-28		Lab ID: 92373521007		Collected: 02/14/18 09:20		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		02/16/18 17:41	67-64-1		
Benzene	ND	ug/L	1.0	1		02/16/18 17:41	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		02/16/18 17:41	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		02/16/18 17:41	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		02/16/18 17:41	75-27-4		
Bromoform	ND	ug/L	1.0	1		02/16/18 17:41	75-25-2		
Bromomethane	ND	ug/L	2.0	1		02/16/18 17:41	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		02/16/18 17:41	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		02/16/18 17:41	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		02/16/18 17:41	108-90-7		
Chloroethane	ND	ug/L	1.0	1		02/16/18 17:41	75-00-3		
Chloroform	ND	ug/L	1.0	1		02/16/18 17:41	67-66-3		
Chloromethane	ND	ug/L	1.0	1		02/16/18 17:41	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		02/16/18 17:41	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		02/16/18 17:41	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		02/16/18 17:41	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		02/16/18 17:41	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		02/16/18 17:41	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		02/16/18 17:41	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:41	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:41	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:41	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		02/16/18 17:41	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		02/16/18 17:41	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		02/16/18 17:41	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		02/16/18 17:41	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		02/16/18 17:41	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		02/16/18 17:41	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		02/16/18 17:41	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		02/16/18 17:41	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		02/16/18 17:41	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		02/16/18 17:41	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		02/16/18 17:41	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		02/16/18 17:41	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		02/16/18 17:41	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		02/16/18 17:41	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		02/16/18 17:41	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		02/16/18 17:41	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		02/16/18 17:41	99-87-6		
Methylene Chloride	ND	ug/L	2.0	1		02/16/18 17:41	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		02/16/18 17:41	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		02/16/18 17:41	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		02/16/18 17:41	91-20-3		
Styrene	ND	ug/L	1.0	1		02/16/18 17:41	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		02/16/18 17:41	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		02/16/18 17:41	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		02/16/18 17:41	127-18-4		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-28		Lab ID: 92373521007		Collected: 02/14/18 09:20		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1		02/16/18 17:41	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:41	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:41	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		02/16/18 17:41	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		02/16/18 17:41	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		02/16/18 17:41	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		02/16/18 17:41	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		02/16/18 17:41	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		02/16/18 17:41	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		02/16/18 17:41	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		02/16/18 17:41	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		02/16/18 17:41	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		02/16/18 17:41	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130	1		02/16/18 17:41	460-00-4		
1,2-Dichloroethane-d4 (S)	100	%	70-130	1		02/16/18 17:41	17060-07-0		
Toluene-d8 (S)	103	%	70-130	1		02/16/18 17:41	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		02/16/18 22:10	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	94	%	50-150	1		02/16/18 22:10	17060-07-0		
Toluene-d8 (S)	96	%	50-150	1		02/16/18 22:10	2037-26-5		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-28D		Lab ID: 92373521008		Collected: 02/14/18 09:30		Received: 02/15/18 10:15		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1			02/16/18 17:58	67-64-1	
Benzene	ND	ug/L	1.0	1			02/16/18 17:58	71-43-2	
Bromobenzene	ND	ug/L	1.0	1			02/16/18 17:58	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1			02/16/18 17:58	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1			02/16/18 17:58	75-27-4	
Bromoform	ND	ug/L	1.0	1			02/16/18 17:58	75-25-2	
Bromomethane	ND	ug/L	2.0	1			02/16/18 17:58	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1			02/16/18 17:58	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1			02/16/18 17:58	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1			02/16/18 17:58	108-90-7	
Chloroethane	ND	ug/L	1.0	1			02/16/18 17:58	75-00-3	
Chloroform	ND	ug/L	1.0	1			02/16/18 17:58	67-66-3	
Chloromethane	ND	ug/L	1.0	1			02/16/18 17:58	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1			02/16/18 17:58	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1			02/16/18 17:58	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1			02/16/18 17:58	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1			02/16/18 17:58	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1			02/16/18 17:58	106-93-4	
Dibromomethane	ND	ug/L	1.0	1			02/16/18 17:58	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1			02/16/18 17:58	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1			02/16/18 17:58	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1			02/16/18 17:58	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1			02/16/18 17:58	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1			02/16/18 17:58	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1			02/16/18 17:58	107-06-2	
1,1-Dichloroethene	4.3	ug/L	1.0	1			02/16/18 17:58	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1			02/16/18 17:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1			02/16/18 17:58	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1			02/16/18 17:58	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1			02/16/18 17:58	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1			02/16/18 17:58	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1			02/16/18 17:58	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1			02/16/18 17:58	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1			02/16/18 17:58	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1			02/16/18 17:58	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1			02/16/18 17:58	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1			02/16/18 17:58	87-68-3	
2-Hexanone	ND	ug/L	5.0	1			02/16/18 17:58	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1			02/16/18 17:58	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1			02/16/18 17:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1			02/16/18 17:58	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1			02/16/18 17:58	1634-04-4	
Naphthalene	ND	ug/L	1.0	1			02/16/18 17:58	91-20-3	
Styrene	ND	ug/L	1.0	1			02/16/18 17:58	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1			02/16/18 17:58	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1			02/16/18 17:58	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1			02/16/18 17:58	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-28D		Lab ID: 92373521008		Collected: 02/14/18 09:30		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1		02/16/18 17:58	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:58	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 17:58	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		02/16/18 17:58	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		02/16/18 17:58	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		02/16/18 17:58	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		02/16/18 17:58	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		02/16/18 17:58	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		02/16/18 17:58	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		02/16/18 17:58	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		02/16/18 17:58	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		02/16/18 17:58	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		02/16/18 17:58	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130	1		02/16/18 17:58	460-00-4		
1,2-Dichloroethane-d4 (S)	97	%	70-130	1		02/16/18 17:58	17060-07-0		
Toluene-d8 (S)	107	%	70-130	1		02/16/18 17:58	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	2.8	ug/L	2.0	1		02/16/18 22:29	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	91	%	50-150	1		02/16/18 22:29	17060-07-0		
Toluene-d8 (S)	97	%	50-150	1		02/16/18 22:29	2037-26-5		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-31D		Lab ID: 92373521009		Collected: 02/14/18 10:55		Received: 02/15/18 10:15		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1			02/16/18 18:14	67-64-1	
Benzene	ND	ug/L	1.0	1			02/16/18 18:14	71-43-2	
Bromobenzene	ND	ug/L	1.0	1			02/16/18 18:14	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1			02/16/18 18:14	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1			02/16/18 18:14	75-27-4	
Bromoform	ND	ug/L	1.0	1			02/16/18 18:14	75-25-2	
Bromomethane	ND	ug/L	2.0	1			02/16/18 18:14	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1			02/16/18 18:14	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1			02/16/18 18:14	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1			02/16/18 18:14	108-90-7	
Chloroethane	ND	ug/L	1.0	1			02/16/18 18:14	75-00-3	
Chloroform	ND	ug/L	1.0	1			02/16/18 18:14	67-66-3	
Chloromethane	ND	ug/L	1.0	1			02/16/18 18:14	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1			02/16/18 18:14	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1			02/16/18 18:14	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1			02/16/18 18:14	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1			02/16/18 18:14	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1			02/16/18 18:14	106-93-4	
Dibromomethane	ND	ug/L	1.0	1			02/16/18 18:14	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1			02/16/18 18:14	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1			02/16/18 18:14	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1			02/16/18 18:14	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1			02/16/18 18:14	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1			02/16/18 18:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1			02/16/18 18:14	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1			02/16/18 18:14	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1			02/16/18 18:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1			02/16/18 18:14	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1			02/16/18 18:14	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1			02/16/18 18:14	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1			02/16/18 18:14	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1			02/16/18 18:14	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1			02/16/18 18:14	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1			02/16/18 18:14	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1			02/16/18 18:14	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1			02/16/18 18:14	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1			02/16/18 18:14	87-68-3	
2-Hexanone	ND	ug/L	5.0	1			02/16/18 18:14	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1			02/16/18 18:14	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1			02/16/18 18:14	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1			02/16/18 18:14	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1			02/16/18 18:14	1634-04-4	
Naphthalene	ND	ug/L	1.0	1			02/16/18 18:14	91-20-3	
Styrene	ND	ug/L	1.0	1			02/16/18 18:14	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1			02/16/18 18:14	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1			02/16/18 18:14	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1			02/16/18 18:14	127-18-4	

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-31D		Lab ID: 92373521009		Collected: 02/14/18 10:55		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1		02/16/18 18:14	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 18:14	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		02/16/18 18:14	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		02/16/18 18:14	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		02/16/18 18:14	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		02/16/18 18:14	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		02/16/18 18:14	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		02/16/18 18:14	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		02/16/18 18:14	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		02/16/18 18:14	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		02/16/18 18:14	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		02/16/18 18:14	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		02/16/18 18:14	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130	1		02/16/18 18:14	460-00-4		
1,2-Dichloroethane-d4 (S)	103	%	70-130	1		02/16/18 18:14	17060-07-0		
Toluene-d8 (S)	105	%	70-130	1		02/16/18 18:14	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		02/16/18 22:49	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	94	%	50-150	1		02/16/18 22:49	17060-07-0		
Toluene-d8 (S)	96	%	50-150	1		02/16/18 22:49	2037-26-5		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-35D		Lab ID: 92373521010		Collected: 02/14/18 10:20		Received: 02/15/18 10:15		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1		02/21/18 04:26	67-64-1		
Benzene	ND	ug/L	1.0	1		02/21/18 04:26	71-43-2		
Bromobenzene	ND	ug/L	1.0	1		02/21/18 04:26	108-86-1		
Bromochloromethane	ND	ug/L	1.0	1		02/21/18 04:26	74-97-5		
Bromodichloromethane	ND	ug/L	1.0	1		02/21/18 04:26	75-27-4		
Bromoform	ND	ug/L	1.0	1		02/21/18 04:26	75-25-2		
Bromomethane	ND	ug/L	2.0	1		02/21/18 04:26	74-83-9		
2-Butanone (MEK)	ND	ug/L	5.0	1		02/21/18 04:26	78-93-3		
Carbon tetrachloride	ND	ug/L	1.0	1		02/21/18 04:26	56-23-5		
Chlorobenzene	ND	ug/L	1.0	1		02/21/18 04:26	108-90-7		
Chloroethane	ND	ug/L	1.0	1		02/21/18 04:26	75-00-3		
Chloroform	ND	ug/L	1.0	1		02/21/18 04:26	67-66-3		
Chloromethane	ND	ug/L	1.0	1		02/21/18 04:26	74-87-3		
2-Chlorotoluene	ND	ug/L	1.0	1		02/21/18 04:26	95-49-8		
4-Chlorotoluene	ND	ug/L	1.0	1		02/21/18 04:26	106-43-4		
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1		02/21/18 04:26	96-12-8		
Dibromochloromethane	ND	ug/L	1.0	1		02/21/18 04:26	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		02/21/18 04:26	106-93-4		
Dibromomethane	ND	ug/L	1.0	1		02/21/18 04:26	74-95-3		
1,2-Dichlorobenzene	ND	ug/L	1.0	1		02/21/18 04:26	95-50-1		
1,3-Dichlorobenzene	ND	ug/L	1.0	1		02/21/18 04:26	541-73-1		
1,4-Dichlorobenzene	ND	ug/L	1.0	1		02/21/18 04:26	106-46-7		
Dichlorodifluoromethane	ND	ug/L	1.0	1		02/21/18 04:26	75-71-8		
1,1-Dichloroethane	ND	ug/L	1.0	1		02/21/18 04:26	75-34-3		
1,2-Dichloroethane	ND	ug/L	1.0	1		02/21/18 04:26	107-06-2		
1,1-Dichloroethene	ND	ug/L	1.0	1		02/21/18 04:26	75-35-4		
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		02/21/18 04:26	156-59-2		
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		02/21/18 04:26	156-60-5		
1,2-Dichloropropane	ND	ug/L	1.0	1		02/21/18 04:26	78-87-5		
1,3-Dichloropropane	ND	ug/L	1.0	1		02/21/18 04:26	142-28-9		
2,2-Dichloropropane	ND	ug/L	1.0	1		02/21/18 04:26	594-20-7		
1,1-Dichloropropene	ND	ug/L	1.0	1		02/21/18 04:26	563-58-6		
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		02/21/18 04:26	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		02/21/18 04:26	10061-02-6		
Diisopropyl ether	ND	ug/L	1.0	1		02/21/18 04:26	108-20-3		
Ethylbenzene	ND	ug/L	1.0	1		02/21/18 04:26	100-41-4		
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		02/21/18 04:26	87-68-3		
2-Hexanone	ND	ug/L	5.0	1		02/21/18 04:26	591-78-6		
p-Isopropyltoluene	ND	ug/L	1.0	1		02/21/18 04:26	99-87-6		
Methylene Chloride	ND	ug/L	2.0	1		02/21/18 04:26	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		02/21/18 04:26	108-10-1		
Methyl-tert-butyl ether	ND	ug/L	1.0	1		02/21/18 04:26	1634-04-4		
Naphthalene	ND	ug/L	1.0	1		02/21/18 04:26	91-20-3		
Styrene	ND	ug/L	1.0	1		02/21/18 04:26	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		02/21/18 04:26	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		02/21/18 04:26	79-34-5		
Tetrachloroethene	ND	ug/L	1.0	1		02/21/18 04:26	127-18-4		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: MW-35D		Lab ID: 92373521010		Collected: 02/14/18 10:20		Received: 02/15/18 10:15		Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual	
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1		02/21/18 04:26	108-88-3		
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		02/21/18 04:26	87-61-6		
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		02/21/18 04:26	120-82-1		
1,1,1-Trichloroethane	ND	ug/L	1.0	1		02/21/18 04:26	71-55-6		
1,1,2-Trichloroethane	ND	ug/L	1.0	1		02/21/18 04:26	79-00-5		
Trichloroethene	ND	ug/L	1.0	1		02/21/18 04:26	79-01-6		
Trichlorofluoromethane	ND	ug/L	1.0	1		02/21/18 04:26	75-69-4		
1,2,3-Trichloropropane	ND	ug/L	1.0	1		02/21/18 04:26	96-18-4		
Vinyl acetate	ND	ug/L	2.0	1		02/21/18 04:26	108-05-4		
Vinyl chloride	ND	ug/L	1.0	1		02/21/18 04:26	75-01-4		
Xylene (Total)	ND	ug/L	1.0	1		02/21/18 04:26	1330-20-7		
m&p-Xylene	ND	ug/L	2.0	1		02/21/18 04:26	179601-23-1		
o-Xylene	ND	ug/L	1.0	1		02/21/18 04:26	95-47-6		
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130	1		02/21/18 04:26	460-00-4		
1,2-Dichloroethane-d4 (S)	99	%	70-130	1		02/21/18 04:26	17060-07-0		
Toluene-d8 (S)	103	%	70-130	1		02/21/18 04:26	2037-26-5		
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1		02/16/18 23:08	123-91-1		
Surrogates									
1,2-Dichloroethane-d4 (S)	96	%	50-150	1		02/16/18 23:08	17060-07-0		
Toluene-d8 (S)	97	%	50-150	1		02/16/18 23:08	2037-26-5		

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: Trip Blank		Lab ID: 92373521011		Collected: 02/13/18 00:00		Received: 02/15/18 10:15		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260							
Acetone	ND	ug/L	25.0	1			02/15/18 23:25	67-64-1	
Benzene	ND	ug/L	1.0	1			02/15/18 23:25	71-43-2	
Bromobenzene	ND	ug/L	1.0	1			02/15/18 23:25	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1			02/15/18 23:25	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1			02/15/18 23:25	75-27-4	
Bromoform	ND	ug/L	1.0	1			02/15/18 23:25	75-25-2	
Bromomethane	ND	ug/L	2.0	1			02/15/18 23:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1			02/15/18 23:25	78-93-3	
Carbon tetrachloride	ND	ug/L	1.0	1			02/15/18 23:25	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1			02/15/18 23:25	108-90-7	
Chloroethane	ND	ug/L	1.0	1			02/15/18 23:25	75-00-3	
Chloroform	ND	ug/L	1.0	1			02/15/18 23:25	67-66-3	
Chloromethane	ND	ug/L	1.0	1			02/15/18 23:25	74-87-3	L2
2-Chlorotoluene	ND	ug/L	1.0	1			02/15/18 23:25	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1			02/15/18 23:25	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.0	1			02/15/18 23:25	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1			02/15/18 23:25	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1			02/15/18 23:25	106-93-4	
Dibromomethane	ND	ug/L	1.0	1			02/15/18 23:25	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1			02/15/18 23:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1			02/15/18 23:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1			02/15/18 23:25	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1			02/15/18 23:25	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1			02/15/18 23:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1			02/15/18 23:25	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1			02/15/18 23:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1			02/15/18 23:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1			02/15/18 23:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1			02/15/18 23:25	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1			02/15/18 23:25	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1			02/15/18 23:25	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1			02/15/18 23:25	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1			02/15/18 23:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1			02/15/18 23:25	10061-02-6	
Diisopropyl ether	ND	ug/L	1.0	1			02/15/18 23:25	108-20-3	
Ethylbenzene	ND	ug/L	1.0	1			02/15/18 23:25	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1			02/15/18 23:25	87-68-3	
2-Hexanone	ND	ug/L	5.0	1			02/15/18 23:25	591-78-6	
p-Isopropyltoluene	ND	ug/L	1.0	1			02/15/18 23:25	99-87-6	
Methylene Chloride	ND	ug/L	2.0	1			02/15/18 23:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1			02/15/18 23:25	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1			02/15/18 23:25	1634-04-4	
Naphthalene	ND	ug/L	1.0	1			02/15/18 23:25	91-20-3	
Styrene	ND	ug/L	1.0	1			02/15/18 23:25	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1			02/15/18 23:25	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1			02/15/18 23:25	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1			02/15/18 23:25	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Sample: Trip Blank		Lab ID: 92373521011		Collected: 02/13/18 00:00		Received: 02/15/18 10:15		Matrix: Water	
Parameters		Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level		Analytical Method: EPA 8260							
Toluene	ND	ug/L	1.0	1			02/15/18 23:25	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1			02/15/18 23:25	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1			02/15/18 23:25	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1			02/15/18 23:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1			02/15/18 23:25	79-00-5	
Trichloroethene	ND	ug/L	1.0	1			02/15/18 23:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1			02/15/18 23:25	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	1			02/15/18 23:25	96-18-4	
Vinyl acetate	ND	ug/L	2.0	1			02/15/18 23:25	108-05-4	
Vinyl chloride	ND	ug/L	1.0	1			02/15/18 23:25	75-01-4	
Xylene (Total)	ND	ug/L	1.0	1			02/15/18 23:25	1330-20-7	
m&p-Xylene	ND	ug/L	2.0	1			02/15/18 23:25	179601-23-1	
o-Xylene	ND	ug/L	1.0	1			02/15/18 23:25	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130	1			02/15/18 23:25	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-130	1			02/15/18 23:25	17060-07-0	
Toluene-d8 (S)	103	%	70-130	1			02/15/18 23:25	2037-26-5	
8260 MSV SIM		Analytical Method: EPA 8260B Mod.							
1,4-Dioxane (p-Dioxane)	ND	ug/L	2.0	1			02/16/18 14:19	123-91-1	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%	50-150	1			02/16/18 14:19	17060-07-0	
Toluene-d8 (S)	98	%	50-150	1			02/16/18 14:19	2037-26-5	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912
Pace Project No.: 92373521

QC Batch:	398249	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV Low Level
Associated Lab Samples:	92373521011		

METHOD BLANK:	2209151	Matrix:	Water
Associated Lab Samples:	92373521011		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	02/15/18 22:52	
1,1,1-Trichloroethane	ug/L	ND	1.0	02/15/18 22:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	02/15/18 22:52	
1,1,2-Trichloroethane	ug/L	ND	1.0	02/15/18 22:52	
1,1-Dichloroethane	ug/L	ND	1.0	02/15/18 22:52	
1,1-Dichloroethene	ug/L	ND	1.0	02/15/18 22:52	
1,1-Dichloropropene	ug/L	ND	1.0	02/15/18 22:52	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	02/15/18 22:52	
1,2,3-Trichloropropane	ug/L	ND	1.0	02/15/18 22:52	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	02/15/18 22:52	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	02/15/18 22:52	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	02/15/18 22:52	
1,2-Dichlorobenzene	ug/L	ND	1.0	02/15/18 22:52	
1,2-Dichloroethane	ug/L	ND	1.0	02/15/18 22:52	
1,2-Dichloropropane	ug/L	ND	1.0	02/15/18 22:52	
1,3-Dichlorobenzene	ug/L	ND	1.0	02/15/18 22:52	
1,3-Dichloropropane	ug/L	ND	1.0	02/15/18 22:52	
1,4-Dichlorobenzene	ug/L	ND	1.0	02/15/18 22:52	
2,2-Dichloropropane	ug/L	ND	1.0	02/15/18 22:52	
2-Butanone (MEK)	ug/L	ND	5.0	02/15/18 22:52	
2-Chlorotoluene	ug/L	ND	1.0	02/15/18 22:52	
2-Hexanone	ug/L	ND	5.0	02/15/18 22:52	
4-Chlorotoluene	ug/L	ND	1.0	02/15/18 22:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	02/15/18 22:52	
Acetone	ug/L	ND	25.0	02/15/18 22:52	
Benzene	ug/L	ND	1.0	02/15/18 22:52	
Bromobenzene	ug/L	ND	1.0	02/15/18 22:52	
Bromochloromethane	ug/L	ND	1.0	02/15/18 22:52	
Bromodichloromethane	ug/L	ND	1.0	02/15/18 22:52	
Bromoform	ug/L	ND	1.0	02/15/18 22:52	
Bromomethane	ug/L	ND	2.0	02/15/18 22:52	
Carbon tetrachloride	ug/L	ND	1.0	02/15/18 22:52	
Chlorobenzene	ug/L	ND	1.0	02/15/18 22:52	
Chloroethane	ug/L	ND	1.0	02/15/18 22:52	
Chloroform	ug/L	ND	1.0	02/15/18 22:52	
Chloromethane	ug/L	ND	1.0	02/15/18 22:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	02/15/18 22:52	
cis-1,3-Dichloropropene	ug/L	ND	1.0	02/15/18 22:52	
Dibromochloromethane	ug/L	ND	1.0	02/15/18 22:52	
Dibromomethane	ug/L	ND	1.0	02/15/18 22:52	
Dichlorodifluoromethane	ug/L	ND	1.0	02/15/18 22:52	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

METHOD BLANK: 2209151

Matrix: Water

Associated Lab Samples: 92373521011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	02/15/18 22:52	
Ethylbenzene	ug/L	ND	1.0	02/15/18 22:52	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	02/15/18 22:52	
m&p-Xylene	ug/L	ND	2.0	02/15/18 22:52	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/15/18 22:52	
Methylene Chloride	ug/L	2.2	2.0	02/15/18 22:52	C9
Naphthalene	ug/L	ND	1.0	02/15/18 22:52	
o-Xylene	ug/L	ND	1.0	02/15/18 22:52	
p-Isopropyltoluene	ug/L	ND	1.0	02/15/18 22:52	
Styrene	ug/L	ND	1.0	02/15/18 22:52	
Tetrachloroethene	ug/L	ND	1.0	02/15/18 22:52	
Toluene	ug/L	ND	1.0	02/15/18 22:52	
trans-1,2-Dichloroethene	ug/L	ND	1.0	02/15/18 22:52	
trans-1,3-Dichloropropene	ug/L	ND	1.0	02/15/18 22:52	
Trichloroethene	ug/L	ND	1.0	02/15/18 22:52	
Trichlorofluoromethane	ug/L	ND	1.0	02/15/18 22:52	
Vinyl acetate	ug/L	ND	2.0	02/15/18 22:52	
Vinyl chloride	ug/L	ND	1.0	02/15/18 22:52	
Xylene (Total)	ug/L	ND	1.0	02/15/18 22:52	
1,2-Dichloroethane-d4 (S)	%	99	70-130	02/15/18 22:52	
4-Bromofluorobenzene (S)	%	95	70-130	02/15/18 22:52	
Toluene-d8 (S)	%	105	70-130	02/15/18 22:52	

LABORATORY CONTROL SAMPLE: 2209152

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	56.0	112	80-125	
1,1,1-Trichloroethane	ug/L	50	46.9	94	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	54.0	108	79-124	
1,1,2-Trichloroethane	ug/L	50	53.0	106	85-125	
1,1-Dichloroethane	ug/L	50	42.7	85	73-126	
1,1-Dichloroethene	ug/L	50	45.4	91	66-135	
1,1-Dichloropropene	ug/L	50	49.0	98	74-135	
1,2,3-Trichlorobenzene	ug/L	50	50.1	100	73-135	
1,2,3-Trichloropropane	ug/L	50	54.0	108	75-130	
1,2,4-Trichlorobenzene	ug/L	50	51.5	103	75-134	
1,2-Dibromo-3-chloropropane	ug/L	50	53.5	107	71-133	
1,2-Dibromoethane (EDB)	ug/L	50	56.0	112	83-124	
1,2-Dichlorobenzene	ug/L	50	51.9	104	80-133	
1,2-Dichloroethane	ug/L	50	44.4	89	67-128	
1,2-Dichloropropane	ug/L	50	51.0	102	75-132	
1,3-Dichlorobenzene	ug/L	50	52.4	105	77-130	
1,3-Dichloropropane	ug/L	50	56.6	113	76-131	
1,4-Dichlorobenzene	ug/L	50	51.2	102	78-130	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

LABORATORY CONTROL SAMPLE: 2209152

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	45.2	90	40-160	
2-Butanone (MEK)	ug/L	100	102	102	61-144	
2-Chlorotoluene	ug/L	50	53.8	108	74-132	
2-Hexanone	ug/L	100	123	123	68-143	
4-Chlorotoluene	ug/L	50	53.6	107	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	112	112	72-135	
Acetone	ug/L	100	110	110	48-146	
Benzene	ug/L	50	51.4	103	80-125	
Bromobenzene	ug/L	50	54.6	109	75-125	
Bromochloromethane	ug/L	50	45.6	91	71-125	
Bromodichloromethane	ug/L	50	50.5	101	78-124	
Bromoform	ug/L	50	48.2	96	71-128	
Bromomethane	ug/L	50	34.8	70	40-160	
Carbon tetrachloride	ug/L	50	47.7	95	69-131	
Chlorobenzene	ug/L	50	51.0	102	81-122	
Chloroethane	ug/L	50	51.5	103	39-148	
Chloroform	ug/L	50	50.3	101	73-127	
Chloromethane	ug/L	50	28.5	57	44-146	L2
cis-1,2-Dichloroethene	ug/L	50	46.2	92	74-124	
cis-1,3-Dichloropropene	ug/L	50	53.9	108	72-132	
Dibromochloromethane	ug/L	50	56.1	112	78-125	
Dibromomethane	ug/L	50	47.2	94	82-120	
Dichlorodifluoromethane	ug/L	50	37.0	74	34-157	
Diisopropyl ether	ug/L	50	53.5	107	69-135	
Ethylbenzene	ug/L	50	50.7	101	79-121	
Hexachloro-1,3-butadiene	ug/L	50	45.6	91	72-131	
m&p-Xylene	ug/L	100	103	103	81-124	
Methyl-tert-butyl ether	ug/L	50	51.1	102	74-131	
Methylene Chloride	ug/L	50	52.2	104	64-133	
Naphthalene	ug/L	50	55.8	112	73-133	
o-Xylene	ug/L	50	52.9	106	79-131	
p-Isopropyltoluene	ug/L	50	53.3	107	80-131	
Styrene	ug/L	50	50.4	101	84-126	
Tetrachloroethene	ug/L	50	48.9	98	78-122	
Toluene	ug/L	50	48.1	96	80-121	
trans-1,2-Dichloroethene	ug/L	50	46.5	93	71-127	
trans-1,3-Dichloropropene	ug/L	50	47.9	96	69-141	
Trichloroethene	ug/L	50	50.3	101	78-122	
Trichlorofluoromethane	ug/L	50	39.3	79	53-137	
Vinyl acetate	ug/L	100	98.6	99	40-160	
Vinyl chloride	ug/L	50	45.2	90	50-150	
Xylene (Total)	ug/L	150	156	104	81-126	
1,2-Dichloroethane-d4 (S)	%			91	70-130	
4-Bromofluorobenzene (S)	%			95	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2209153 2209154											
Parameter	Units	92373141009		MS	MSD	MS		MSD	% Rec		Max
		Result	Conc.	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD
1,1,1,2-Tetrachloroethane	ug/L	ND	2000	2000	2000	2170	2160	109	108	70-130	0
1,1,1-Trichloroethane	ug/L	ND	2000	2000	2000	1990	2180	100	109	70-130	9
1,1,2,2-Tetrachloroethane	ug/L	ND	2000	2000	2000	2210	2120	111	106	70-130	4
1,1,2-Trichloroethane	ug/L	ND	2000	2000	2000	2240	2220	112	111	70-130	1
1,1-Dichloroethane	ug/L	ND	2000	2000	2000	1950	2000	98	100	70-130	3
1,1-Dichloroethene	ug/L	ND	2000	2000	2000	2200	2210	110	110	70-166	0
1,1-Dichloropropene	ug/L	ND	2000	2000	2000	2260	2250	113	112	70-130	1
1,2,3-Trichlorobenzene	ug/L	ND	2000	2000	2000	1990	2070	100	104	70-130	4
1,2,3-Trichloropropane	ug/L	ND	2000	2000	2000	2220	2090	111	105	70-130	6
1,2,4-Trichlorobenzene	ug/L	ND	2000	2000	2000	2090	2010	105	100	70-130	4
1,2-Dibromo-3-chloropropane	ug/L	ND	2000	2000	2000	2040	1960	102	98	70-130	4
1,2-Dibromoethane (EDB)	ug/L	ND	2000	2000	2000	2190	2190	109	109	70-130	0
1,2-Dichlorobenzene	ug/L	ND	2000	2000	2000	2160	2130	108	106	70-130	2
1,2-Dichloroethane	ug/L	ND	2000	2000	2000	1960	2010	98	100	70-130	2
1,2-Dichloropropane	ug/L	ND	2000	2000	2000	2220	2260	111	113	70-130	2
1,3-Dichlorobenzene	ug/L	ND	2000	2000	2000	2160	2190	108	109	70-130	1
1,3-Dichloropropane	ug/L	ND	2000	2000	2000	2330	2280	117	114	70-130	2
1,4-Dichlorobenzene	ug/L	ND	2000	2000	2000	2140	2080	107	104	70-130	3
2,2-Dichloropropane	ug/L	ND	2000	2000	2000	1470	1710	73	85	70-130	15
2-Butanone (MEK)	ug/L	ND	4000	4000	4000	3930	3910	98	98	70-130	1
2-Chlorotoluene	ug/L	ND	2000	2000	2000	2260	2240	113	112	70-130	1
2-Hexanone	ug/L	ND	4000	4000	4000	4570	4340	114	109	70-130	5
4-Chlorotoluene	ug/L	ND	2000	2000	2000	2210	2210	111	110	70-130	0
4-Methyl-2-pentanone (MIBK)	ug/L	ND	4000	4000	4000	4330	4150	108	104	70-130	4
Acetone	ug/L	ND	4000	4000	4000	4080	4190	102	105	70-130	3
Benzene	ug/L	ND	2000	2000	2000	2250	2240	113	112	70-148	1
Bromobenzene	ug/L	ND	2000	2000	2000	2250	2260	112	113	70-130	1
Bromochloromethane	ug/L	ND	2000	2000	2000	2050	2180	103	109	70-130	6
Bromodichloromethane	ug/L	ND	2000	2000	2000	2190	2190	110	110	70-130	0
Bromoform	ug/L	ND	2000	2000	2000	2050	2010	102	101	70-130	2
Bromomethane	ug/L	ND	2000	2000	2000	1760	1860	88	93	70-130	5
Carbon tetrachloride	ug/L	ND	2000	2000	2000	2160	2250	108	112	70-130	4
Chlorobenzene	ug/L	ND	2000	2000	2000	2280	2210	114	111	70-146	3
Chloroethane	ug/L	ND	2000	2000	2000	2420	2570	121	129	70-130	6
Chloroform	ug/L	ND	2000	2000	2000	2190	2280	109	114	70-130	4
Chloromethane	ug/L	ND	2000	2000	2000	1680	1790	84	90	70-130	7
cis-1,2-Dichloroethene	ug/L	ND	2000	2000	2000	2050	2100	102	105	70-130	2
cis-1,3-Dichloropropene	ug/L	ND	2000	2000	2000	2110	2140	106	107	70-130	1
Dibromochloromethane	ug/L	ND	2000	2000	2000	2220	2200	111	110	70-130	1
Dibromomethane	ug/L	ND	2000	2000	2000	2100	2060	105	103	70-130	2
Dichlorodifluoromethane	ug/L	ND	2000	2000	2000	2040	2040	102	102	70-130	0
Diisopropyl ether	ug/L	ND	2000	2000	2000	2150	2270	107	113	70-130	6
Ethylbenzene	ug/L	ND	2000	2000	2000	2300	2260	113	111	70-130	2
Hexachloro-1,3-butadiene	ug/L	ND	2000	2000	2000	1880	1960	94	98	70-130	4

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2209153 2209154											
Parameter	Units	92373141009 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max	
			Spike Conc.	Conc.	Result	Result				RPD	RPD
m&p-Xylene	ug/L	21100	4000	4000	25800	24600	117	85	70-130	5	30
Methyl-tert-butyl ether	ug/L	ND	2000	2000	2040	2070	102	103	70-130	1	30
Methylene Chloride	ug/L	ND	2000	2000	2430	2570	114	121	70-130	6	30
Naphthalene	ug/L	ND	2000	2000	2110	2110	106	105	70-130	0	30
o-Xylene	ug/L	ND	2000	2000	2300	2290	115	114	70-130	1	30
p-Isopropyltoluene	ug/L	ND	2000	2000	2230	2200	111	110	70-130	1	30
Styrene	ug/L	ND	2000	2000	2190	2160	110	108	70-130	1	30
Tetrachloroethene	ug/L	ND	2000	2000	2090	2150	104	108	70-130	3	30
Toluene	ug/L	ND	2000	2000	2160	2160	108	108	70-155	0	30
trans-1,2-Dichloroethene	ug/L	ND	2000	2000	2150	2200	108	110	70-130	2	30
trans-1,3-Dichloropropene	ug/L	ND	2000	2000	1910	1940	96	97	70-130	1	30
Trichloroethene	ug/L	ND	2000	2000	2250	2270	112	114	69-151	1	30
Trichlorofluoromethane	ug/L	ND	2000	2000	2060	2080	103	104	70-130	1	30
Vinyl acetate	ug/L	ND	4000	4000	4030	4020	101	101	70-130	0	30
Vinyl chloride	ug/L	ND	2000	2000	2280	2330	114	117	70-130	2	30
Xylene (Total)	ug/L	21100	6000	6000	28100	26800	116	95	70-130	5	30
1,2-Dichloroethane-d4 (S)	%						93	94	70-130		
4-Bromofluorobenzene (S)	%						98	97	70-130		
Toluene-d8 (S)	%						99	98	70-130		

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

QC Batch:	398387	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV Low Level
Associated Lab Samples:	92373521001, 92373521002, 92373521003, 92373521005, 92373521006, 92373521007, 92373521008, 92373521009		

METHOD BLANK:	2209652	Matrix:	Water
Associated Lab Samples:	92373521001, 92373521002, 92373521003, 92373521005, 92373521006, 92373521007, 92373521008, 92373521009		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	02/16/18 11:31	
1,1,1-Trichloroethane	ug/L	ND	1.0	02/16/18 11:31	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	02/16/18 11:31	
1,1,2-Trichloroethane	ug/L	ND	1.0	02/16/18 11:31	
1,1-Dichloroethane	ug/L	ND	1.0	02/16/18 11:31	
1,1-Dichloroethene	ug/L	ND	1.0	02/16/18 11:31	
1,1-Dichloropropene	ug/L	ND	1.0	02/16/18 11:31	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	02/16/18 11:31	
1,2,3-Trichloropropane	ug/L	ND	1.0	02/16/18 11:31	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	02/16/18 11:31	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	02/16/18 11:31	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	02/16/18 11:31	
1,2-Dichlorobenzene	ug/L	ND	1.0	02/16/18 11:31	
1,2-Dichloroethane	ug/L	ND	1.0	02/16/18 11:31	
1,2-Dichloropropane	ug/L	ND	1.0	02/16/18 11:31	
1,3-Dichlorobenzene	ug/L	ND	1.0	02/16/18 11:31	
1,3-Dichloropropane	ug/L	ND	1.0	02/16/18 11:31	
1,4-Dichlorobenzene	ug/L	ND	1.0	02/16/18 11:31	
2,2-Dichloropropane	ug/L	ND	1.0	02/16/18 11:31	
2-Butanone (MEK)	ug/L	ND	5.0	02/16/18 11:31	
2-Chlorotoluene	ug/L	ND	1.0	02/16/18 11:31	
2-Hexanone	ug/L	ND	5.0	02/16/18 11:31	
4-Chlorotoluene	ug/L	ND	1.0	02/16/18 11:31	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	02/16/18 11:31	
Acetone	ug/L	ND	25.0	02/16/18 11:31	
Benzene	ug/L	ND	1.0	02/16/18 11:31	
Bromobenzene	ug/L	ND	1.0	02/16/18 11:31	
Bromochloromethane	ug/L	ND	1.0	02/16/18 11:31	
Bromodichloromethane	ug/L	ND	1.0	02/16/18 11:31	
Bromoform	ug/L	ND	1.0	02/16/18 11:31	
Bromomethane	ug/L	ND	2.0	02/16/18 11:31	
Carbon tetrachloride	ug/L	ND	1.0	02/16/18 11:31	
Chlorobenzene	ug/L	ND	1.0	02/16/18 11:31	
Chloroethane	ug/L	ND	1.0	02/16/18 11:31	
Chloroform	ug/L	ND	1.0	02/16/18 11:31	
Chloromethane	ug/L	ND	1.0	02/16/18 11:31	
cis-1,2-Dichloroethene	ug/L	ND	1.0	02/16/18 11:31	
cis-1,3-Dichloropropene	ug/L	ND	1.0	02/16/18 11:31	
Dibromochloromethane	ug/L	ND	1.0	02/16/18 11:31	
Dibromomethane	ug/L	ND	1.0	02/16/18 11:31	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

METHOD BLANK: 2209652

Matrix: Water

Associated Lab Samples: 92373521001, 92373521002, 92373521003, 92373521005, 92373521006, 92373521007, 92373521008, 92373521009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/L	ND	1.0	02/16/18 11:31	
Diisopropyl ether	ug/L	ND	1.0	02/16/18 11:31	
Ethylbenzene	ug/L	ND	1.0	02/16/18 11:31	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	02/16/18 11:31	
m&p-Xylene	ug/L	ND	2.0	02/16/18 11:31	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/16/18 11:31	
Methylene Chloride	ug/L	ND	2.0	02/16/18 11:31	
Naphthalene	ug/L	ND	1.0	02/16/18 11:31	
o-Xylene	ug/L	ND	1.0	02/16/18 11:31	
p-Isopropyltoluene	ug/L	ND	1.0	02/16/18 11:31	
Styrene	ug/L	ND	1.0	02/16/18 11:31	
Tetrachloroethene	ug/L	ND	1.0	02/16/18 11:31	
Toluene	ug/L	ND	1.0	02/16/18 11:31	
trans-1,2-Dichloroethene	ug/L	ND	1.0	02/16/18 11:31	
trans-1,3-Dichloropropene	ug/L	ND	1.0	02/16/18 11:31	
Trichloroethene	ug/L	ND	1.0	02/16/18 11:31	
Trichlorofluoromethane	ug/L	ND	1.0	02/16/18 11:31	
Vinyl acetate	ug/L	ND	2.0	02/16/18 11:31	
Vinyl chloride	ug/L	ND	1.0	02/16/18 11:31	
Xylene (Total)	ug/L	ND	1.0	02/16/18 11:31	
1,2-Dichloroethane-d4 (S)	%	98	70-130	02/16/18 11:31	
4-Bromofluorobenzene (S)	%	96	70-130	02/16/18 11:31	
Toluene-d8 (S)	%	105	70-130	02/16/18 11:31	

LABORATORY CONTROL SAMPLE: 2209677

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	55.8	112	80-125	
1,1,1-Trichloroethane	ug/L	50	50.4	101	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	54.8	110	79-124	
1,1,2-Trichloroethane	ug/L	50	55.8	112	85-125	
1,1-Dichloroethane	ug/L	50	46.9	94	73-126	
1,1-Dichloroethene	ug/L	50	48.4	97	66-135	
1,1-Dichloropropene	ug/L	50	51.0	102	74-135	
1,2,3-Trichlorobenzene	ug/L	50	51.6	103	73-135	
1,2,3-Trichloropropane	ug/L	50	54.6	109	75-130	
1,2,4-Trichlorobenzene	ug/L	50	53.7	107	75-134	
1,2-Dibromo-3-chloropropane	ug/L	50	54.5	109	71-133	
1,2-Dibromoethane (EDB)	ug/L	50	55.2	110	83-124	
1,2-Dichlorobenzene	ug/L	50	52.4	105	80-133	
1,2-Dichloroethane	ug/L	50	46.3	93	67-128	
1,2-Dichloropropane	ug/L	50	53.8	108	75-132	
1,3-Dichlorobenzene	ug/L	50	53.6	107	77-130	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

LABORATORY CONTROL SAMPLE: 2209677

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,3-Dichloropropane	ug/L	50	57.2	114	76-131	
1,4-Dichlorobenzene	ug/L	50	51.7	103	78-130	
2,2-Dichloropropane	ug/L	50	51.1	102	40-160	
2-Butanone (MEK)	ug/L	100	104	104	61-144	
2-Chlorotoluene	ug/L	50	54.0	108	74-132	
2-Hexanone	ug/L	100	122	122	68-143	
4-Chlorotoluene	ug/L	50	54.4	109	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	114	114	72-135	
Acetone	ug/L	100	109	109	48-146	
Benzene	ug/L	50	53.6	107	80-125	
Bromobenzene	ug/L	50	55.1	110	75-125	
Bromochloromethane	ug/L	50	47.6	95	71-125	
Bromodichloromethane	ug/L	50	51.5	103	78-124	
Bromoform	ug/L	50	49.1	98	71-128	
Bromomethane	ug/L	50	44.8	90	40-160	
Carbon tetrachloride	ug/L	50	51.2	102	69-131	
Chlorobenzene	ug/L	50	52.0	104	81-122	
Chloroethane	ug/L	50	55.5	111	39-148	
Chloroform	ug/L	50	51.2	102	73-127	
Chloromethane	ug/L	50	39.6	79	44-146	
cis-1,2-Dichloroethene	ug/L	50	48.9	98	74-124	
cis-1,3-Dichloropropene	ug/L	50	57.0	114	72-132	
Dibromochloromethane	ug/L	50	56.5	113	78-125	
Dibromomethane	ug/L	50	49.3	99	82-120	
Dichlorodifluoromethane	ug/L	50	42.7	85	34-157	
Diisopropyl ether	ug/L	50	55.1	110	69-135	
Ethylbenzene	ug/L	50	51.4	103	79-121	
Hexachloro-1,3-butadiene	ug/L	50	50.0	100	72-131	
m&p-Xylene	ug/L	100	104	104	81-124	
Methyl-tert-butyl ether	ug/L	50	52.3	105	74-131	
Methylene Chloride	ug/L	50	52.9	106	64-133	
Naphthalene	ug/L	50	55.8	112	73-133	
o-Xylene	ug/L	50	52.5	105	79-131	
p-Isopropyltoluene	ug/L	50	55.0	110	80-131	
Styrene	ug/L	50	51.3	103	84-126	
Tetrachloroethene	ug/L	50	48.7	97	78-122	
Toluene	ug/L	50	50.4	101	80-121	
trans-1,2-Dichloroethene	ug/L	50	49.6	99	71-127	
trans-1,3-Dichloropropene	ug/L	50	50.8	102	69-141	
Trichloroethene	ug/L	50	51.7	103	78-122	
Trichlorofluoromethane	ug/L	50	40.6	81	53-137	
Vinyl acetate	ug/L	100	104	104	40-160	
Vinyl chloride	ug/L	50	50.9	102	50-150	
Xylene (Total)	ug/L	150	156	104	81-126	
1,2-Dichloroethane-d4 (S)	%			95	70-130	
4-Bromofluorobenzene (S)	%			94	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

MATRIX SPIKE SAMPLE:		2209679	92373521002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers	
1,1,1,2-Tetrachloroethane	ug/L	ND	20	22.3	112	70-130		
1,1,1-Trichloroethane	ug/L	ND	20	23.3	116	70-130		
1,1,2,2-Tetrachloroethane	ug/L	ND	20	21.7	108	70-130		
1,1,2-Trichloroethane	ug/L	ND	20	22.3	111	70-130		
1,1-Dichloroethane	ug/L	ND	20	21.5	108	70-130		
1,1-Dichloroethene	ug/L	4.6	20	28.1	118	70-166		
1,1-Dichloropropene	ug/L	ND	20	23.7	118	70-130		
1,2,3-Trichlorobenzene	ug/L	ND	20	20.5	103	70-130		
1,2,3-Trichloropropane	ug/L	ND	20	21.6	108	70-130		
1,2,4-Trichlorobenzene	ug/L	ND	20	20.8	104	70-130		
1,2-Dibromo-3-chloropropane	ug/L	ND	20	20.4	102	70-130		
1,2-Dibromoethane (EDB)	ug/L	ND	20	22.4	112	70-130		
1,2-Dichlorobenzene	ug/L	ND	20	21.2	106	70-130		
1,2-Dichloroethane	ug/L	ND	20	20.6	103	70-130		
1,2-Dichloropropane	ug/L	ND	20	22.8	114	70-130		
1,3-Dichlorobenzene	ug/L	ND	20	21.4	107	70-130		
1,3-Dichloropropane	ug/L	ND	20	23.9	119	70-130		
1,4-Dichlorobenzene	ug/L	ND	20	20.9	105	70-130		
2,2-Dichloropropane	ug/L	ND	20	20.3	102	70-130		
2-Butanone (MEK)	ug/L	ND	40	41.6	104	70-130		
2-Chlorotoluene	ug/L	ND	20	22.3	111	70-130		
2-Hexanone	ug/L	ND	40	48.2	121	70-130		
4-Chlorotoluene	ug/L	ND	20	21.9	109	70-130		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	40	43.0	107	70-130		
Acetone	ug/L	ND	40	45.4	113	70-130		
Benzene	ug/L	ND	20	22.8	114	70-148		
Bromobenzene	ug/L	ND	20	22.5	112	70-130		
Bromochloromethane	ug/L	ND	20	21.4	107	70-130		
Bromodichloromethane	ug/L	ND	20	21.8	109	70-130		
Bromoform	ug/L	ND	20	19.7	99	70-130		
Bromomethane	ug/L	ND	20	23.2	116	70-130		
Carbon tetrachloride	ug/L	ND	20	22.5	113	70-130		
Chlorobenzene	ug/L	ND	20	22.2	111	70-146		
Chloroethane	ug/L	ND	20	26.2	131	70-130 M1		
Chloroform	ug/L	ND	20	22.2	111	70-130		
Chloromethane	ug/L	ND	20	21.5	107	70-130		
cis-1,2-Dichloroethene	ug/L	ND	20	22.1	111	70-130		
cis-1,3-Dichloropropene	ug/L	ND	20	22.1	110	70-130		
Dibromochloromethane	ug/L	ND	20	22.4	112	70-130		
Dibromomethane	ug/L	ND	20	20.6	103	70-130		
Dichlorodifluoromethane	ug/L	ND	20	20.0	100	70-130		
Diisopropyl ether	ug/L	ND	20	21.5	108	70-130		
Ethylbenzene	ug/L	ND	20	22.9	115	70-130		
Hexachloro-1,3-butadiene	ug/L	ND	20	21.1	105	70-130		
m&p-Xylene	ug/L	ND	40	46.3	116	70-130		
Methyl-tert-butyl ether	ug/L	ND	20	21.2	106	70-130		
Methylene Chloride	ug/L	ND	20	23.0	115	70-130		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

MATRIX SPIKE SAMPLE: 2209679		92373521002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Naphthalene	ug/L	ND	20	21.6	108	70-130	
o-Xylene	ug/L	ND	20	23.3	117	70-130	
p-Isopropyltoluene	ug/L	ND	20	23.0	115	70-130	
Styrene	ug/L	ND	20	21.9	109	70-130	
Tetrachloroethene	ug/L	ND	20	21.6	108	70-130	
Toluene	ug/L	ND	20	21.8	109	70-155	
trans-1,2-Dichloroethene	ug/L	ND	20	23.3	116	70-130	
trans-1,3-Dichloropropene	ug/L	ND	20	19.9	99	70-130	
Trichloroethene	ug/L	ND	20	22.8	114	69-151	
Trichlorofluoromethane	ug/L	ND	20	20.5	103	70-130	
Vinyl acetate	ug/L	ND	40	35.3	88	70-130	
Vinyl chloride	ug/L	ND	20	24.9	125	70-130	
Xylene (Total)	ug/L	ND	60	69.6	116	70-130	
1,2-Dichloroethane-d4 (S)	%				93	70-130	
4-Bromofluorobenzene (S)	%				97	70-130	
Toluene-d8 (S)	%				98	70-130	

SAMPLE DUPLICATE: 2209678

Parameter	Units	92373521001	Dup	RPD	Max	
		Result	Result		RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	ND		30	
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
2-Hexanone	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

SAMPLE DUPLICATE: 2209678

Parameter	Units	92373521001 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl acetate	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	97	99	3		
4-Bromofluorobenzene (S)	%	95	96	0		
Toluene-d8 (S)	%	107	105	2		

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912
Pace Project No.: 92373521

QC Batch:	398725	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV Low Level
Associated Lab Samples:	92373521004		

METHOD BLANK:	2211646	Matrix:	Water
Associated Lab Samples:	92373521004		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	02/19/18 17:33	
1,1,1-Trichloroethane	ug/L	ND	1.0	02/19/18 17:33	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	02/19/18 17:33	
1,1,2-Trichloroethane	ug/L	ND	1.0	02/19/18 17:33	
1,1-Dichloroethane	ug/L	ND	1.0	02/19/18 17:33	
1,1-Dichloroethene	ug/L	ND	1.0	02/19/18 17:33	
1,1-Dichloropropene	ug/L	ND	1.0	02/19/18 17:33	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	02/19/18 17:33	
1,2,3-Trichloropropane	ug/L	ND	1.0	02/19/18 17:33	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	02/19/18 17:33	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	02/19/18 17:33	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	02/19/18 17:33	
1,2-Dichlorobenzene	ug/L	ND	1.0	02/19/18 17:33	
1,2-Dichloroethane	ug/L	ND	1.0	02/19/18 17:33	
1,2-Dichloropropane	ug/L	ND	1.0	02/19/18 17:33	
1,3-Dichlorobenzene	ug/L	ND	1.0	02/19/18 17:33	
1,3-Dichloropropane	ug/L	ND	1.0	02/19/18 17:33	
1,4-Dichlorobenzene	ug/L	ND	1.0	02/19/18 17:33	
2,2-Dichloropropane	ug/L	ND	1.0	02/19/18 17:33	
2-Butanone (MEK)	ug/L	ND	5.0	02/19/18 17:33	
2-Chlorotoluene	ug/L	ND	1.0	02/19/18 17:33	
2-Hexanone	ug/L	ND	5.0	02/19/18 17:33	
4-Chlorotoluene	ug/L	ND	1.0	02/19/18 17:33	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	02/19/18 17:33	
Acetone	ug/L	ND	25.0	02/19/18 17:33	
Benzene	ug/L	ND	1.0	02/19/18 17:33	
Bromobenzene	ug/L	ND	1.0	02/19/18 17:33	
Bromochloromethane	ug/L	ND	1.0	02/19/18 17:33	
Bromodichloromethane	ug/L	ND	1.0	02/19/18 17:33	
Bromoform	ug/L	ND	1.0	02/19/18 17:33	
Bromomethane	ug/L	ND	2.0	02/19/18 17:33	
Carbon tetrachloride	ug/L	ND	1.0	02/19/18 17:33	
Chlorobenzene	ug/L	ND	1.0	02/19/18 17:33	
Chloroethane	ug/L	ND	1.0	02/19/18 17:33	
Chloroform	ug/L	ND	1.0	02/19/18 17:33	
Chloromethane	ug/L	ND	1.0	02/19/18 17:33	
cis-1,2-Dichloroethene	ug/L	ND	1.0	02/19/18 17:33	
cis-1,3-Dichloropropene	ug/L	ND	1.0	02/19/18 17:33	
Dibromochloromethane	ug/L	ND	1.0	02/19/18 17:33	
Dibromomethane	ug/L	ND	1.0	02/19/18 17:33	
Dichlorodifluoromethane	ug/L	ND	1.0	02/19/18 17:33	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

METHOD BLANK: 2211646

Matrix: Water

Associated Lab Samples: 92373521004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	02/19/18 17:33	
Ethylbenzene	ug/L	ND	1.0	02/19/18 17:33	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	02/19/18 17:33	
m&p-Xylene	ug/L	ND	2.0	02/19/18 17:33	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/19/18 17:33	
Methylene Chloride	ug/L	ND	2.0	02/19/18 17:33	
Naphthalene	ug/L	ND	1.0	02/19/18 17:33	
o-Xylene	ug/L	ND	1.0	02/19/18 17:33	
p-Isopropyltoluene	ug/L	ND	1.0	02/19/18 17:33	
Styrene	ug/L	ND	1.0	02/19/18 17:33	
Tetrachloroethene	ug/L	ND	1.0	02/19/18 17:33	
Toluene	ug/L	ND	1.0	02/19/18 17:33	
trans-1,2-Dichloroethene	ug/L	ND	1.0	02/19/18 17:33	
trans-1,3-Dichloropropene	ug/L	ND	1.0	02/19/18 17:33	
Trichloroethene	ug/L	ND	1.0	02/19/18 17:33	
Trichlorofluoromethane	ug/L	ND	1.0	02/19/18 17:33	
Vinyl acetate	ug/L	ND	2.0	02/19/18 17:33	
Vinyl chloride	ug/L	ND	1.0	02/19/18 17:33	
Xylene (Total)	ug/L	ND	1.0	02/19/18 17:33	
1,2-Dichloroethane-d4 (S)	%	91	70-130	02/19/18 17:33	
4-Bromofluorobenzene (S)	%	99	70-130	02/19/18 17:33	
Toluene-d8 (S)	%	100	70-130	02/19/18 17:33	

LABORATORY CONTROL SAMPLE: 2211647

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	43.3	87	80-125	
1,1,1-Trichloroethane	ug/L	50	47.0	94	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	48.0	96	79-124	
1,1,2-Trichloroethane	ug/L	50	49.7	99	85-125	
1,1-Dichloroethane	ug/L	50	43.7	87	73-126	
1,1-Dichloroethene	ug/L	50	45.8	92	66-135	
1,1-Dichloropropene	ug/L	50	49.5	99	74-135	
1,2,3-Trichlorobenzene	ug/L	50	49.2	98	73-135	
1,2,3-Trichloropropane	ug/L	50	47.4	95	75-130	
1,2,4-Trichlorobenzene	ug/L	50	48.6	97	75-134	
1,2-Dibromo-3-chloropropane	ug/L	50	48.3	97	71-133	
1,2-Dibromoethane (EDB)	ug/L	50	47.5	95	83-124	
1,2-Dichlorobenzene	ug/L	50	48.8	98	80-133	
1,2-Dichloroethane	ug/L	50	42.5	85	67-128	
1,2-Dichloropropane	ug/L	50	44.8	90	75-132	
1,3-Dichlorobenzene	ug/L	50	47.3	95	77-130	
1,3-Dichloropropane	ug/L	50	49.3	99	76-131	
1,4-Dichlorobenzene	ug/L	50	46.7	93	78-130	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

LABORATORY CONTROL SAMPLE: 2211647

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	45.8	92	40-160	
2-Butanone (MEK)	ug/L	100	89.0	89	61-144	
2-Chlorotoluene	ug/L	50	49.4	99	74-132	
2-Hexanone	ug/L	100	88.6	89	68-143	
4-Chlorotoluene	ug/L	50	49.4	99	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	83.8	84	72-135	
Acetone	ug/L	100	95.5	96	48-146	
Benzene	ug/L	50	48.4	97	80-125	
Bromobenzene	ug/L	50	49.4	99	75-125	
Bromochloromethane	ug/L	50	51.3	103	71-125	
Bromodichloromethane	ug/L	50	45.3	91	78-124	
Bromoform	ug/L	50	41.2	82	71-128	
Bromomethane	ug/L	50	50.9	102	40-160	
Carbon tetrachloride	ug/L	50	44.6	89	69-131	
Chlorobenzene	ug/L	50	46.2	92	81-122	
Chloroethane	ug/L	50	45.9	92	39-148	
Chloroform	ug/L	50	46.6	93	73-127	
Chloromethane	ug/L	50	38.7	77	44-146	
cis-1,2-Dichloroethene	ug/L	50	45.7	91	74-124	
cis-1,3-Dichloropropene	ug/L	50	47.2	94	72-132	
Dibromochloromethane	ug/L	50	45.1	90	78-125	
Dibromomethane	ug/L	50	43.4	87	82-120	
Dichlorodifluoromethane	ug/L	50	48.0	96	34-157	
Diisopropyl ether	ug/L	50	43.9	88	69-135	
Ethylbenzene	ug/L	50	46.6	93	79-121	
Hexachloro-1,3-butadiene	ug/L	50	46.8	94	72-131	
m&p-Xylene	ug/L	100	94.8	95	81-124	
Methyl-tert-butyl ether	ug/L	50	48.7	97	74-131	
Methylene Chloride	ug/L	50	42.2	84	64-133	
Naphthalene	ug/L	50	54.7	109	73-133	
o-Xylene	ug/L	50	48.1	96	79-131	
p-Isopropyltoluene	ug/L	50	50.4	101	80-131	
Styrene	ug/L	50	46.1	92	84-126	
Tetrachloroethene	ug/L	50	40.9	82	78-122	
Toluene	ug/L	50	46.4	93	80-121	
trans-1,2-Dichloroethene	ug/L	50	46.2	92	71-127	
trans-1,3-Dichloropropene	ug/L	50	46.0	92	69-141	
Trichloroethene	ug/L	50	43.6	87	78-122	
Trichlorofluoromethane	ug/L	50	45.9	92	53-137	
Vinyl acetate	ug/L	100	89.3	89	40-160	
Vinyl chloride	ug/L	50	49.1	98	50-150	
Xylene (Total)	ug/L	150	143	95	81-126	
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			99	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2211648 2211649											
Parameter	Units	92373773010		MS	MSD	MS		MSD	% Rec		Max
		Result	Conc.	Spike	Spike	Result	Result	% Rec	% Rec	Limits	RPD
1,1,1,2-Tetrachloroethane	ug/L	ND	200	200	200	144	149	72	75	70-130	3
1,1,1-Trichloroethane	ug/L	ND	200	200	200	161	169	80	84	70-130	5
1,1,2,2-Tetrachloroethane	ug/L	ND	200	200	200	153	169	77	85	70-130	10
1,1,2-Trichloroethane	ug/L	ND	200	200	200	162	181	81	91	70-130	12
1,1-Dichloroethane	ug/L	ND	200	200	200	148	164	74	82	70-130	10
1,1-Dichloroethene	ug/L	ND	200	200	200	159	172	79	86	70-166	8
1,1-Dichloropropene	ug/L	ND	200	200	200	172	175	86	88	70-130	2
1,2,3-Trichlorobenzene	ug/L	ND	200	200	200	154	161	77	80	70-130	4
1,2,3-Trichloropropane	ug/L	ND	200	200	200	168	180	84	90	70-130	7
1,2,4-Trichlorobenzene	ug/L	ND	200	200	200	156	159	78	79	70-130	2
1,2-Dibromo-3-chloropropane	ug/L	ND	200	200	200	146	164	73	82	70-130	12
1,2-Dibromoethane (EDB)	ug/L	ND	200	200	200	155	167	78	84	70-130	7
1,2-Dichlorobenzene	ug/L	ND	200	200	200	163	169	79	82	70-130	4
1,2-Dichloroethane	ug/L	ND	200	200	200	141	154	71	77	70-130	9
1,2-Dichloropropane	ug/L	ND	200	200	200	150	169	75	84	70-130	12
1,3-Dichlorobenzene	ug/L	ND	200	200	200	166	167	79	80	70-130	0
1,3-Dichloropropane	ug/L	ND	200	200	200	163	177	82	89	70-130	8
1,4-Dichlorobenzene	ug/L	14.3	200	200	200	170	173	78	79	70-130	2
2,2-Dichloropropane	ug/L	ND	200	200	200	142	154	71	77	70-130	8
2-Butanone (MEK)	ug/L	ND	400	400	400	276	310	69	77	70-130	12
2-Chlorotoluene	ug/L	ND	200	200	200	168	167	84	84	70-130	1
2-Hexanone	ug/L	ND	400	400	400	268	301	67	75	70-130	11
4-Chlorotoluene	ug/L	ND	200	200	200	164	164	82	82	70-130	0
4-Methyl-2-pentanone (MIBK)	ug/L	ND	400	400	400	264	298	66	74	70-130	12
Acetone	ug/L	ND	400	400	400	289	318	72	80	70-130	10
Benzene	ug/L	ND	200	200	200	175	188	84	90	70-148	7
Bromobenzene	ug/L	ND	200	200	200	165	174	83	87	70-130	5
Bromochloromethane	ug/L	ND	200	200	200	165	185	83	93	70-130	11
Bromodichloromethane	ug/L	ND	200	200	200	149	169	75	84	70-130	12
Bromoform	ug/L	ND	200	200	200	129	145	64	72	70-130	12
Bromomethane	ug/L	ND	200	200	200	144	158	72	79	70-130	9
Carbon tetrachloride	ug/L	ND	200	200	200	163	161	82	81	70-130	1
Chlorobenzene	ug/L	1350	200	200	200	1500	1380	77	19	70-146	8
Chloroethane	ug/L	ND	200	200	200	172	194	86	97	70-130	12
Chloroform	ug/L	ND	200	200	200	154	174	75	86	70-130	12
Chloromethane	ug/L	ND	200	200	200	130	142	65	71	70-130	9
cis-1,2-Dichloroethene	ug/L	ND	200	200	200	152	170	75	85	70-130	12
cis-1,3-Dichloropropene	ug/L	ND	200	200	200	156	168	78	84	70-130	7
Dibromochloromethane	ug/L	ND	200	200	200	145	162	72	81	70-130	11
Dibromomethane	ug/L	ND	200	200	200	145	166	73	83	70-130	13
Dichlorodifluoromethane	ug/L	ND	200	200	200	170	170	85	85	70-130	0
Diisopropyl ether	ug/L	ND	200	200	200	139	158	69	79	70-130	13
Ethylbenzene	ug/L	ND	200	200	200	160	158	80	79	70-130	2
Hexachloro-1,3-butadiene	ug/L	ND	200	200	200	156	150	78	75	70-130	4

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2211648 2211649											
Parameter	Units	92373773010 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max	
			Spike Conc.	MS Conc.	Result	Result				RPD	RPD
m&p-Xylene	ug/L	ND	400	400	328	322	82	80	70-130	2	30
Methyl-tert-butyl ether	ug/L	ND	200	200	156	186	78	93	70-130	18	30
Methylene Chloride	ug/L	ND	200	200	149	165	75	82	70-130	10	30
Naphthalene	ug/L	ND	200	200	169	183	84	92	70-130	8	30
o-Xylene	ug/L	ND	200	200	163	165	81	83	70-130	2	30
p-Isopropyltoluene	ug/L	ND	200	200	176	166	88	83	70-130	6	30
Styrene	ug/L	ND	200	200	155	156	77	78	70-130	1	30
Tetrachloroethene	ug/L	ND	200	200	145	140	71	69	70-130	3	30 M1
Toluene	ug/L	ND	200	200	163	172	80	84	70-155	5	30
trans-1,2-Dichloroethene	ug/L	ND	200	200	158	174	79	87	70-130	9	30
trans-1,3-Dichloropropene	ug/L	ND	200	200	150	165	75	83	70-130	10	30
Trichloroethene	ug/L	ND	200	200	158	168	79	84	69-151	6	30
Trichlorofluoromethane	ug/L	ND	200	200	162	170	81	85	70-130	5	30
Vinyl acetate	ug/L	ND	400	400	280	316	70	79	70-130	12	30
Vinyl chloride	ug/L	ND	200	200	171	184	86	92	70-130	7	30
Xylene (Total)	ug/L	ND	600	600	491	487	82	81	70-130	1	30
1,2-Dichloroethane-d4 (S)	%						88	91	70-130		
4-Bromofluorobenzene (S)	%						101	99	70-130		
Toluene-d8 (S)	%						99	101	70-130		

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912
Pace Project No.: 92373521

QC Batch:	398917	Analysis Method:	EPA 8260
QC Batch Method:	EPA 8260	Analysis Description:	8260 MSV Low Level
Associated Lab Samples:	92373521010		

METHOD BLANK:	2212736	Matrix:	Water
Associated Lab Samples:	92373521010		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	02/21/18 00:06	
1,1,1-Trichloroethane	ug/L	ND	1.0	02/21/18 00:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	02/21/18 00:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	02/21/18 00:06	
1,1-Dichloroethane	ug/L	ND	1.0	02/21/18 00:06	
1,1-Dichloroethene	ug/L	ND	1.0	02/21/18 00:06	
1,1-Dichloropropene	ug/L	ND	1.0	02/21/18 00:06	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	02/21/18 00:06	
1,2,3-Trichloropropane	ug/L	ND	1.0	02/21/18 00:06	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	02/21/18 00:06	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.0	02/21/18 00:06	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	02/21/18 00:06	
1,2-Dichlorobenzene	ug/L	ND	1.0	02/21/18 00:06	
1,2-Dichloroethane	ug/L	ND	1.0	02/21/18 00:06	
1,2-Dichloropropane	ug/L	ND	1.0	02/21/18 00:06	
1,3-Dichlorobenzene	ug/L	ND	1.0	02/21/18 00:06	
1,3-Dichloropropane	ug/L	ND	1.0	02/21/18 00:06	
1,4-Dichlorobenzene	ug/L	ND	1.0	02/21/18 00:06	
2,2-Dichloropropane	ug/L	ND	1.0	02/21/18 00:06	
2-Butanone (MEK)	ug/L	ND	5.0	02/21/18 00:06	
2-Chlorotoluene	ug/L	ND	1.0	02/21/18 00:06	
2-Hexanone	ug/L	ND	5.0	02/21/18 00:06	
4-Chlorotoluene	ug/L	ND	1.0	02/21/18 00:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	02/21/18 00:06	
Acetone	ug/L	ND	25.0	02/21/18 00:06	
Benzene	ug/L	ND	1.0	02/21/18 00:06	
Bromobenzene	ug/L	ND	1.0	02/21/18 00:06	
Bromochloromethane	ug/L	ND	1.0	02/21/18 00:06	
Bromodichloromethane	ug/L	ND	1.0	02/21/18 00:06	
Bromoform	ug/L	ND	1.0	02/21/18 00:06	
Bromomethane	ug/L	ND	2.0	02/21/18 00:06	
Carbon tetrachloride	ug/L	ND	1.0	02/21/18 00:06	
Chlorobenzene	ug/L	ND	1.0	02/21/18 00:06	
Chloroethane	ug/L	ND	1.0	02/21/18 00:06	
Chloroform	ug/L	ND	1.0	02/21/18 00:06	
Chloromethane	ug/L	ND	1.0	02/21/18 00:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	02/21/18 00:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	02/21/18 00:06	
Dibromochloromethane	ug/L	ND	1.0	02/21/18 00:06	
Dibromomethane	ug/L	ND	1.0	02/21/18 00:06	
Dichlorodifluoromethane	ug/L	ND	1.0	02/21/18 00:06	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

METHOD BLANK: 2212736

Matrix: Water

Associated Lab Samples: 92373521010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diisopropyl ether	ug/L	ND	1.0	02/21/18 00:06	
Ethylbenzene	ug/L	ND	1.0	02/21/18 00:06	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	02/21/18 00:06	
m&p-Xylene	ug/L	ND	2.0	02/21/18 00:06	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/21/18 00:06	
Methylene Chloride	ug/L	ND	2.0	02/21/18 00:06	
Naphthalene	ug/L	ND	1.0	02/21/18 00:06	
o-Xylene	ug/L	ND	1.0	02/21/18 00:06	
p-Isopropyltoluene	ug/L	ND	1.0	02/21/18 00:06	
Styrene	ug/L	ND	1.0	02/21/18 00:06	
Tetrachloroethene	ug/L	ND	1.0	02/21/18 00:06	
Toluene	ug/L	ND	1.0	02/21/18 00:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	02/21/18 00:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	02/21/18 00:06	
Trichloroethene	ug/L	ND	1.0	02/21/18 00:06	
Trichlorofluoromethane	ug/L	ND	1.0	02/21/18 00:06	
Vinyl acetate	ug/L	ND	2.0	02/21/18 00:06	
Vinyl chloride	ug/L	ND	1.0	02/21/18 00:06	
Xylene (Total)	ug/L	ND	1.0	02/21/18 00:06	
1,2-Dichloroethane-d4 (S)	%	89	70-130	02/21/18 00:06	
4-Bromofluorobenzene (S)	%	97	70-130	02/21/18 00:06	
Toluene-d8 (S)	%	98	70-130	02/21/18 00:06	

LABORATORY CONTROL SAMPLE: 2212737

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	45.6	91	80-125	
1,1,1-Trichloroethane	ug/L	50	49.9	100	71-129	
1,1,2,2-Tetrachloroethane	ug/L	50	50.2	100	79-124	
1,1,2-Trichloroethane	ug/L	50	50.8	102	85-125	
1,1-Dichloroethane	ug/L	50	44.6	89	73-126	
1,1-Dichloroethene	ug/L	50	47.5	95	66-135	
1,1-Dichloropropene	ug/L	50	46.0	92	74-135	
1,2,3-Trichlorobenzene	ug/L	50	50.2	100	73-135	
1,2,3-Trichloropropane	ug/L	50	48.9	98	75-130	
1,2,4-Trichlorobenzene	ug/L	50	50.0	100	75-134	
1,2-Dibromo-3-chloropropane	ug/L	50	44.1	88	71-133	
1,2-Dibromoethane (EDB)	ug/L	50	59.2	118	83-124	
1,2-Dichlorobenzene	ug/L	50	47.8	96	80-133	
1,2-Dichloroethane	ug/L	50	45.9	92	67-128	
1,2-Dichloropropane	ug/L	50	50.2	100	75-132	
1,3-Dichlorobenzene	ug/L	50	49.1	98	77-130	
1,3-Dichloropropane	ug/L	50	54.5	109	76-131	
1,4-Dichlorobenzene	ug/L	50	49.3	99	78-130	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

LABORATORY CONTROL SAMPLE: 2212737

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,2-Dichloropropane	ug/L	50	53.2	106	40-160	
2-Butanone (MEK)	ug/L	100	89.1	89	61-144	
2-Chlorotoluene	ug/L	50	47.0	94	74-132	
2-Hexanone	ug/L	100	92.1	92	68-143	
4-Chlorotoluene	ug/L	50	48.4	97	76-133	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.9	99	72-135	
Acetone	ug/L	100	94.8	95	48-146	
Benzene	ug/L	50	50.3	101	80-125	
Bromobenzene	ug/L	50	47.2	94	75-125	
Bromochloromethane	ug/L	50	48.1	96	71-125	
Bromodichloromethane	ug/L	50	51.9	104	78-124	
Bromoform	ug/L	50	40.8	82	71-128	
Bromomethane	ug/L	50	40.0	80	40-160	
Carbon tetrachloride	ug/L	50	46.6	93	69-131	
Chlorobenzene	ug/L	50	50.1	100	81-122	
Chloroethane	ug/L	50	56.7	113	39-148	
Chloroform	ug/L	50	47.2	94	73-127	
Chloromethane	ug/L	50	41.6	83	44-146	
cis-1,2-Dichloroethene	ug/L	50	45.6	91	74-124	
cis-1,3-Dichloropropene	ug/L	50	52.2	104	72-132	
Dibromochloromethane	ug/L	50	46.8	94	78-125	
Dibromomethane	ug/L	50	51.8	104	82-120	
Dichlorodifluoromethane	ug/L	50	56.5	113	34-157	
Diisopropyl ether	ug/L	50	46.7	93	69-135	
Ethylbenzene	ug/L	50	50.5	101	79-121	
Hexachloro-1,3-butadiene	ug/L	50	48.8	98	72-131	
m&p-Xylene	ug/L	100	102	102	81-124	
Methyl-tert-butyl ether	ug/L	50	52.8	106	74-131	
Methylene Chloride	ug/L	50	52.4	105	64-133	
Naphthalene	ug/L	50	52.7	105	73-133	
o-Xylene	ug/L	50	51.9	104	79-131	
p-Isopropyltoluene	ug/L	50	50.5	101	80-131	
Styrene	ug/L	50	50.0	100	84-126	
Tetrachloroethene	ug/L	50	46.2	92	78-122	
Toluene	ug/L	50	49.2	98	80-121	
trans-1,2-Dichloroethene	ug/L	50	46.9	94	71-127	
trans-1,3-Dichloropropene	ug/L	50	49.2	98	69-141	
Trichloroethene	ug/L	50	47.5	95	78-122	
Trichlorofluoromethane	ug/L	50	46.7	93	53-137	
Vinyl acetate	ug/L	100	89.0	89	40-160	
Vinyl chloride	ug/L	50	55.2	110	50-150	
Xylene (Total)	ug/L	150	154	103	81-126	
1,2-Dichloroethane-d4 (S)	%			93	70-130	
4-Bromofluorobenzene (S)	%			100	70-130	
Toluene-d8 (S)	%			98	70-130	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

MATRIX SPIKE SAMPLE: 2212738		92373622001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	400	271	68	70-130	M1
1,1,1-Trichloroethane	ug/L	2130	400	2240	27	70-130	M1
1,1,2,2-Tetrachloroethane	ug/L	ND	400	290	73	70-130	
1,1,2-Trichloroethane	ug/L	ND	400	295	74	70-130	
1,1-Dichloroethane	ug/L	ND	400	272	68	70-130	M1
1,1-Dichloroethene	ug/L	533	400	765	58	70-166	M1
1,1-Dichloropropene	ug/L	ND	400	295	74	70-130	
1,2,3-Trichlorobenzene	ug/L	ND	400	286	71	70-130	
1,2,3-Trichloropropane	ug/L	ND	400	284	71	70-130	
1,2,4-Trichlorobenzene	ug/L	ND	400	293	73	70-130	
1,2-Dibromo-3-chloropropane	ug/L	ND	400	258	65	70-130	M1
1,2-Dibromoethane (EDB)	ug/L	ND	400	339	85	70-130	
1,2-Dichlorobenzene	ug/L	ND	400	306	77	70-130	
1,2-Dichloroethane	ug/L	ND	400	271	68	70-130	M1
1,2-Dichloropropane	ug/L	ND	400	300	75	70-130	
1,3-Dichlorobenzene	ug/L	ND	400	312	78	70-130	
1,3-Dichloropropane	ug/L	ND	400	321	80	70-130	
1,4-Dichlorobenzene	ug/L	ND	400	302	76	70-130	
2,2-Dichloropropane	ug/L	ND	400	278	69	70-130	M1
2-Butanone (MEK)	ug/L	ND	800	475	59	70-130	M1
2-Chlorotoluene	ug/L	ND	400	320	80	70-130	
2-Hexanone	ug/L	ND	800	575	72	70-130	
4-Chlorotoluene	ug/L	ND	400	317	79	70-130	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	800	537	67	70-130	M1
Acetone	ug/L	ND	800	481J	60	70-130	M1
Benzene	ug/L	ND	400	314	78	70-148	
Bromobenzene	ug/L	ND	400	309	77	70-130	
Bromochloromethane	ug/L	ND	400	277	69	70-130	M1
Bromodichloromethane	ug/L	ND	400	287	72	70-130	
Bromoform	ug/L	ND	400	247	62	70-130	M1
Bromomethane	ug/L	5.9J	400	222	54	70-130	M1
Carbon tetrachloride	ug/L	ND	400	272	68	70-130	M1
Chlorobenzene	ug/L	ND	400	321	80	70-146	
Chloroethane	ug/L	ND	400	346	87	70-130	
Chloroform	ug/L	ND	400	280	70	70-130	
Chloromethane	ug/L	ND	400	305	76	70-130	
cis-1,2-Dichloroethene	ug/L	4.6J	400	280	69	70-130	M1
cis-1,3-Dichloropropene	ug/L	ND	400	317	79	70-130	
Dibromochloromethane	ug/L	ND	400	259	65	70-130	M1
Dibromomethane	ug/L	ND	400	303	76	70-130	
Dichlorodifluoromethane	ug/L	ND	400	351	88	70-130	
Diisopropyl ether	ug/L	ND	400	263	66	70-130	M1
Ethylbenzene	ug/L	ND	400	328	82	70-130	
Hexachloro-1,3-butadiene	ug/L	ND	400	331	83	70-130	
m&p-Xylene	ug/L	ND	800	642	80	70-130	
Methyl-tert-butyl ether	ug/L	ND	400	286	72	70-130	
Methylene Chloride	ug/L	33.0J	400	307	68	70-130	M1

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

MATRIX SPIKE SAMPLE: 2212738

Parameter	Units	92373622001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	ND	400	287	72	70-130	
o-Xylene	ug/L	ND	400	326	81	70-130	
p-Isopropyltoluene	ug/L	ND	400	331	83	70-130	
Styrene	ug/L	ND	400	303	76	70-130	
Tetrachloroethene	ug/L	ND	400	299	75	70-130	
Toluene	ug/L	ND	400	323	81	70-155	
trans-1,2-Dichloroethene	ug/L	ND	400	275	69	70-130	M1
trans-1,3-Dichloropropene	ug/L	ND	400	321	80	70-130	
Trichloroethene	ug/L	53.8	400	370	79	69-151	
Trichlorofluoromethane	ug/L	126	400	401	69	70-130	M1
Vinyl acetate	ug/L	ND	800	541	68	70-130	M1
Vinyl chloride	ug/L	ND	400	322	80	70-130	
Xylene (Total)	ug/L	ND	1200	968	81	70-130	
1,2-Dichloroethane-d4 (S)	%				90	70-130	
4-Bromofluorobenzene (S)	%				100	70-130	
Toluene-d8 (S)	%				97	70-130	

SAMPLE DUPLICATE: 2213246

Parameter	Units	92373545002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	ND		30	
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
2-Hexanone	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	

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QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

SAMPLE DUPLICATE: 2213246

Parameter	Units	92373545002 Result	Dup Result	RPD	Max RPD	Qualifiers
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Diisopropyl ether	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
m&p-Xylene	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
o-Xylene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl acetate	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%	95	90	5		
4-Bromofluorobenzene (S)	%	98	97	2		
Toluene-d8 (S)	%	103	102	1		

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

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALITY CONTROL DATA

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

QC Batch:	398409	Analysis Method:	EPA 8260B Mod.
QC Batch Method:	EPA 8260B Mod.	Analysis Description:	8260 MSV SIM
Associated Lab Samples:	92373521001, 92373521002, 92373521003, 92373521004, 92373521005, 92373521006, 92373521007, 92373521008, 92373521009, 92373521010, 92373521011		

METHOD BLANK:	2209860	Matrix:	Water
Associated Lab Samples:	92373521001, 92373521002, 92373521003, 92373521004, 92373521005, 92373521006, 92373521007, 92373521008, 92373521009, 92373521010, 92373521011		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,4-Dioxane (p-Dioxane)	ug/L	ND	2.0	02/16/18 12:45	
1,2-Dichloroethane-d4 (S)	%	109	50-150	02/16/18 12:45	
Toluene-d8 (S)	%	104	50-150	02/16/18 12:45	

LABORATORY CONTROL SAMPLE: 2209861						
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)	%			111	50-150	
Toluene-d8 (S)	%			105	50-150	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2209862 2209863												
Parameter	Units	92373521001 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	19.5	20.1	97	101	50-150	3	30	
1,2-Dichloroethane-d4 (S)	%						98	96	50-150		150	
Toluene-d8 (S)	%						101	98	50-150		150	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

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.

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.

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: KOPFLEX 3140038912

Pace Project No.: 92373521

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92373521001	MW-33D-235	EPA 8260	398387		
92373521002	MW-33D-295	EPA 8260	398387		
92373521003	MW-25	EPA 8260	398387		
92373521004	MW-25D-130	EPA 8260	398725		
92373521005	MW-25D-190	EPA 8260	398387		
92373521006	MW-2500	EPA 8260	398387		
92373521007	MW-28	EPA 8260	398387		
92373521008	MW-28D	EPA 8260	398387		
92373521009	MW-31D	EPA 8260	398387		
92373521010	MW-35D	EPA 8260	398917		
92373521011	Trip Blank	EPA 8260	398249		
92373521001	MW-33D-235	EPA 8260B Mod.	398409		
92373521002	MW-33D-295	EPA 8260B Mod.	398409		
92373521003	MW-25	EPA 8260B Mod.	398409		
92373521004	MW-25D-130	EPA 8260B Mod.	398409		
92373521005	MW-25D-190	EPA 8260B Mod.	398409		
92373521006	MW-2500	EPA 8260B Mod.	398409		
92373521007	MW-28	EPA 8260B Mod.	398409		
92373521008	MW-28D	EPA 8260B Mod.	398409		
92373521009	MW-31D	EPA 8260B Mod.	398409		
92373521010	MW-35D	EPA 8260B Mod.	398409		
92373521011	Trip Blank	EPA 8260B Mod.	398409		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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	Document Name:	Document Revised: February 7, 2018
	Sample Condition Upon Receipt(SCUR)	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 ☐

WO# : 92373521



Date/Initials Person Examining Contents: AP 2/18/18

Sample Condition
Upon Receipt

Client Name: WSP

Project #

Courier:

☐ Commercial

☒ Fed Ex

☐ Pace

☐ UPS

☐ USPS

☐ Other: _____

☐ Client

Custody Seal Present?

☒ Yes

☐ No

Seals Intact?

☒ Yes

☐ No

Packing Material:

☐ Bubble Wrap

☒ Bubble Bags

☐ None

☐ Other

Thermometer:

☒ IR Gun ID: 92T036

Type of Ice:

☒ Wet

☐ Blue

☐ None

Biological Tissue Frozen?

☐ Yes

☒ No

☐ N/A

Cooler Temp (°C): 4.4

Correction Factor: Add/Subtract (°C) +0.1

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: <u>W</u>		
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

Lot ID of split containers:

CLIENT NOTIFICATION/RESOLUTION

Person contacted: _____

Date/Time: _____

Project Manager SCURF Review: _____

Date: 2/19

Project Manager SRF Review: _____

Date: 2/19

	Document Name:	Document Revised: February 7, 2018
	Sample Condition Upon Receipt(SCUR)	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# : 92373521

PM: PTE

Due Date: 02/22/18

CLIENT: 92-WSP

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 Na2SO3 (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)	SPST-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)	
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

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

Page 1 of 1

WSP USA Office Address

13530 Buies Technology Dr. Ste. 300 Skaneateles, NY 13152

Project Name: *Enclava* WSP USA Contact Name: *Eric Johnson*

Project Location: *Enclava MD* WSP USA Contact E-mail: *eric.johnson@wsp.com*

Project Number & Task: *31420389/2* WSP USA Contact Phone: *703 203 7046500*

Sample(s) Name(s): *Molly Long* Sample(s) Signature(s): *Molly Long*

Chris Cresci *2/13/18*

Sample Identification: Matrix: *MMW-33D-235* Collection Start: *2/13/18* Date: *2/13/18* Time: *10:30*

Number of Containers

VOC
1,4-dioxane

Requested Analyses & Preservatives

No. 008242

WSP

Laboratory Name & Location

Pace, NC

Laboratory Project Manager

Taylor Ezell

Requested Turn-Around-Time

☒ Standard ☐ 24 HR ☐ 48 HR ☐ 72 HR

Sample Comments

92373521

Tracking Number(s)

001

002

003

004

005

006

007

008

009

010

Lab provided

Lab provided

Lab provided

Lab provided

Lab provided

Lab provided

Lab provided

Lab provided

Lab provided

Lab provided

Relinquished By (Signature): *[Signature]* Date: *2/14/18* Time: *11:00* Received By (Signature): *[Signature]* Date: *2/15/18* Time: *10:15* Shipment Method: *FedEx* Tracking Number(s): *8117 5794 4696*

Relinquished By (Signature): *[Signature]* Date: *2/14/18* Time: *11:00* Received By (Signature): *[Signature]* Date: *2/15/18* Time: *10:15* Shipment Method: *FedEx* Tracking Number(s): *8117 5794 4696*

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

ENCLOSURE C – LABORATORY ANALYTICAL REPORTS FOR DEPTH-
DISCRETE GROUNDWATERS SAMPLES FROM THE MW-
29, MW-32, AND MW-36 BOREHOLES

MW-29 BOREHOLE

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 18030618

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400389.01



March 7, 2018
Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
Phone: (410) 747-8770
Fax: (410) 788-8723

OFFICES:
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ROUTE 40 WEST
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800-932-9047
FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



March 7, 2018

Eric Johnson

WSP USA - Herndon

13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Work Order(s) No: **18030618**

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID.: 31400389.01

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **18030618**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 10, 2018, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop Flex

Work Order Number(s): 18030618

Project ID: 31400389.01

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/06/2018 at 04:20 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18030618-001	MW-29-IDW-Drill Cuttings	SOIL	03/06/18 08:45
18030618-002	MW-29-(136-146)	WATER	03/06/18 09:50
18030618-003	MW-29-(146-156)	WATER	03/06/18 12:05
18030618-004	MW-29-Drill Water	WATER	03/06/18 14:05
18030618-005	Trip Blank	WATER	03/06/18 16:20

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030618

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID: 31400389.01

Sample ID: MW-29-IDW-Drill Cuttings	Date/Time Sampled: 03/06/2018 08:45	PSS Sample ID: 18030618-001
Matrix: SOIL	Date/Time Received: 03/06/2018 16:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/kg	20		1	03/06/18	03/06/18 20:11	1035
Benzene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Bromochloromethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Bromodichloromethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Bromoform	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Bromomethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
2-Butanone (MEK)	ND	ug/kg	20		1	03/06/18	03/06/18 20:11	1035
Carbon Disulfide	ND	ug/kg	10		1	03/06/18	03/06/18 20:11	1035
Carbon tetrachloride	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Chlorobenzene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Chloroethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Chloroform	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Chloromethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Cyclohexane	ND	ug/kg	20		1	03/06/18	03/06/18 20:11	1035
1,2-Dibromo-3-chloropropane	ND	ug/kg	40		1	03/06/18	03/06/18 20:11	1035
Dibromochloromethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,2-Dibromoethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,2-Dichlorobenzene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,3-Dichlorobenzene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,4-Dichlorobenzene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Dichlorodifluoromethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,1-Dichloroethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,2-Dichloroethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,1-Dichloroethene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
cis-1,2-Dichloroethene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,2-Dichloropropane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
cis-1,3-Dichloropropene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
trans-1,2-Dichloroethene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
trans-1,3-Dichloropropene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Ethylbenzene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035

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800-932-9047
FAX 410-788-8723

PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030618

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID: 31400389.01

Sample ID: MW-29-IDW-Drill Cuttings	Date/Time Sampled: 03/06/2018 08:45	PSS Sample ID: 18030618-001
Matrix: SOIL	Date/Time Received: 03/06/2018 16:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/kg	20		1	03/06/18	03/06/18 20:11	1035
Isopropylbenzene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Methyl Acetate	ND	ug/kg	20		1	03/06/18	03/06/18 20:11	1035
Methylcyclohexane	ND	ug/kg	20		1	03/06/18	03/06/18 20:11	1035
Methylene chloride	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	20		1	03/06/18	03/06/18 20:11	1035
Methyl-t-Butyl Ether	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Naphthalene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Styrene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Tetrachloroethene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Toluene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,2,3-Trichlorobenzene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,2,4-Trichlorobenzene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,1,1-Trichloroethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,1,2-Trichloroethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Trichloroethene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Trichlorofluoromethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
Vinyl chloride	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035
m&p-Xylene	ND	ug/kg	10		1	03/06/18	03/06/18 20:11	1035
o-Xylene	ND	ug/kg	5.0		1	03/06/18	03/06/18 20:11	1035

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030618

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389.01

Sample ID: MW-29-(136-146)	Date/Time Sampled: 03/06/2018 09:50	PSS Sample ID: 18030618-002
Matrix: WATER	Date/Time Received: 03/06/2018 16:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/06/18	03/06/18 17:46	1011
Benzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Bromochloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Bromoform	ND	ug/L	5.0		1	03/06/18	03/06/18 17:46	1011
Bromomethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/06/18	03/06/18 17:46	1011
Carbon Disulfide	ND	ug/L	10		1	03/06/18	03/06/18 17:46	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Chlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Chloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Chloroform	3.5	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Chloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Cyclohexane	ND	ug/L	10		1	03/06/18	03/06/18 17:46	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/06/18	03/06/18 17:46	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Ethylbenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030618

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389.01

Sample ID: MW-29-(136-146)	Date/Time Sampled: 03/06/2018 09:50	PSS Sample ID: 18030618-002
Matrix: WATER	Date/Time Received: 03/06/2018 16:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/06/18	03/06/18 17:46	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Methyl Acetate	ND	ug/L	10		1	03/06/18	03/06/18 17:46	1011
Methylcyclohexane	ND	ug/L	10		1	03/06/18	03/06/18 17:46	1011
Methylene chloride	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/06/18	03/06/18 17:46	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Naphthalene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Styrene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Toluene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Trichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/06/18	03/06/18 17:46	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
Vinyl chloride	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011
m&p-Xylene	ND	ug/L	2.0		1	03/06/18	03/06/18 17:46	1011
o-Xylene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:46	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030618

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389.01

Sample ID: MW-29-(146-156)	Date/Time Sampled: 03/06/2018 12:05	PSS Sample ID: 18030618-003
Matrix: WATER	Date/Time Received: 03/06/2018 16:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/06/18	03/06/18 18:07	1011
Benzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Bromochloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Bromoform	ND	ug/L	5.0		1	03/06/18	03/06/18 18:07	1011
Bromomethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/06/18	03/06/18 18:07	1011
Carbon Disulfide	ND	ug/L	10		1	03/06/18	03/06/18 18:07	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Chlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Chloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Chloroform	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Chloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Cyclohexane	ND	ug/L	10		1	03/06/18	03/06/18 18:07	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/06/18	03/06/18 18:07	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Ethylbenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030618

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389.01

Sample ID: MW-29-(146-156)	Date/Time Sampled: 03/06/2018 12:05	PSS Sample ID: 18030618-003
Matrix: WATER	Date/Time Received: 03/06/2018 16:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/06/18	03/06/18 18:07	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Methyl Acetate	ND	ug/L	10		1	03/06/18	03/06/18 18:07	1011
Methylcyclohexane	ND	ug/L	10		1	03/06/18	03/06/18 18:07	1011
Methylene chloride	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/06/18	03/06/18 18:07	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Naphthalene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Styrene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Toluene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Trichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/06/18	03/06/18 18:07	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
Vinyl chloride	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011
m&p-Xylene	ND	ug/L	2.0		1	03/06/18	03/06/18 18:07	1011
o-Xylene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:07	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030618

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389.01

Sample ID: MW-29-Drill Water	Date/Time Sampled: 03/06/2018 14:05	PSS Sample ID: 18030618-004
Matrix: WATER	Date/Time Received: 03/06/2018 16:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	16	ug/L	10		1	03/06/18	03/06/18 18:30	1011
Benzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Bromochloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Bromoform	ND	ug/L	5.0		1	03/06/18	03/06/18 18:30	1011
Bromomethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
2-Butanone (MEK)	1,600	ug/L	200		20	03/06/18	03/07/18 08:13	1011
Carbon Disulfide	ND	ug/L	10		1	03/06/18	03/06/18 18:30	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Chlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Chloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Chloroform	2.5	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Chloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Cyclohexane	ND	ug/L	10		1	03/06/18	03/06/18 18:30	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/06/18	03/06/18 18:30	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Ethylbenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030618

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389.01

Sample ID: MW-29-Drill Water	Date/Time Sampled: 03/06/2018 14:05	PSS Sample ID: 18030618-004
Matrix: WATER	Date/Time Received: 03/06/2018 16:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/06/18	03/06/18 18:30	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Methyl Acetate	ND	ug/L	10		1	03/06/18	03/06/18 18:30	1011
Methylcyclohexane	ND	ug/L	10		1	03/06/18	03/06/18 18:30	1011
Methylene chloride	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/06/18	03/06/18 18:30	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Naphthalene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Styrene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Toluene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Trichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/06/18	03/06/18 18:30	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
Vinyl chloride	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011
m&p-Xylene	ND	ug/L	2.0		1	03/06/18	03/06/18 18:30	1011
o-Xylene	ND	ug/L	1.0		1	03/06/18	03/06/18 18:30	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030618

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389.01

Sample ID: Trip Blank	Date/Time Sampled: 03/06/2018 16:20	PSS Sample ID: 18030618-005
Matrix: WATER	Date/Time Received: 03/06/2018 16:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/06/18	03/06/18 17:22	1011
Benzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Bromochloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Bromoform	ND	ug/L	5.0		1	03/06/18	03/06/18 17:22	1011
Bromomethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/06/18	03/06/18 17:22	1011
Carbon Disulfide	ND	ug/L	10		1	03/06/18	03/06/18 17:22	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Chlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Chloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Chloroform	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Chloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Cyclohexane	ND	ug/L	10		1	03/06/18	03/06/18 17:22	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/06/18	03/06/18 17:22	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Ethylbenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030618

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389.01

Sample ID: Trip Blank	Date/Time Sampled: 03/06/2018 16:20	PSS Sample ID: 18030618-005
Matrix: WATER	Date/Time Received: 03/06/2018 16:20	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/06/18	03/06/18 17:22	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Methyl Acetate	ND	ug/L	10		1	03/06/18	03/06/18 17:22	1011
Methylcyclohexane	ND	ug/L	10		1	03/06/18	03/06/18 17:22	1011
Methylene chloride	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/06/18	03/06/18 17:22	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Naphthalene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Styrene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Toluene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Trichloroethene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/06/18	03/06/18 17:22	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
Vinyl chloride	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011
m&p-Xylene	ND	ug/L	2.0		1	03/06/18	03/06/18 17:22	1011
o-Xylene	ND	ug/L	1.0		1	03/06/18	03/06/18 17:22	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18030618

Project ID: 31400389.01

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

General Comments:

Results reported on an as received basis.

Analytical:

TCL Volatile Organic Compounds

Batch: 151084

Surrogate recoveries affected by sample matrix.

Batch: 151089

Laboratory control sample and/or laboratory control sample duplicate (LCS/LCSD) exceedances identified; see LCS summary form.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18030618

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	MW-29-IDW-Drill Cuttings	Initial	18030618-001	1035	S	70287	151084	03/06/2018	03/06/2018 11:39	03/06/2018 20:11
	70287-1-BKS	BKS	70287-1-BKS	1035	S	70287	151084	-----	03/06/2018 11:39	03/06/2018 14:09
	70287-1-BLK	BLK	70287-1-BLK	1035	S	70287	151084	-----	03/06/2018 11:39	03/06/2018 14:49
	PRC-15R, 0'-10' S	MS	18030105-001 S	1035	S	70287	151084	02/26/2018	03/06/2018 11:39	03/06/2018 22:51
	PRC-15R, 0'-10' SD	MSD	18030105-001 SD	1035	S	70287	151084	02/26/2018	03/06/2018 11:39	03/06/2018 23:31
	MW-29-(136-146)	Initial	18030618-002	1011	W	70288	151085	03/06/2018	03/06/2018 12:47	03/06/2018 17:46
	MW-29-(146-156)	Initial	18030618-003	1011	W	70288	151085	03/06/2018	03/06/2018 12:47	03/06/2018 18:07
	MW-29-Drill Water	Initial	18030618-004	1011	W	70288	151085	03/06/2018	03/06/2018 12:47	03/06/2018 18:30
	Trip Blank	Initial	18030618-005	1011	W	70288	151085	03/06/2018	03/06/2018 12:47	03/06/2018 17:22
	70288-1-BKS	BKS	70288-1-BKS	1011	W	70288	151085	-----	03/06/2018 12:47	03/06/2018 13:51
	70288-1-BLK	BLK	70288-1-BLK	1011	W	70288	151085	-----	03/06/2018 12:47	03/06/2018 15:00
	MW-1s S	MS	18022806-001 S	1011	W	70288	151085	02/27/2018	03/06/2018 12:47	03/06/2018 15:51
	MW-1s SD	MSD	18022806-001 SD	1011	W	70288	151085	02/27/2018	03/06/2018 12:47	03/06/2018 16:12
	70289-1-BKS	BKS	70289-1-BKS	1011	W	70289	151089	-----	03/07/2018 00:18	03/07/2018 01:25
	70289-1-BLK	BLK	70289-1-BLK	1011	W	70289	151089	-----	03/07/2018 00:18	03/07/2018 02:51
	MW-12 S	MS	18022806-017 S	1011	W	70289	151089	02/27/2018	03/07/2018 00:18	03/07/2018 03:34
	MW-12 SD	MSD	18022806-017 SD	1011	W	70289	151089	02/27/2018	03/07/2018 00:18	03/07/2018 03:55
	MW-29-Drill Water	Reanalysis	18030618-004	1011	W	70288	151089	03/06/2018	03/06/2018 12:47	03/07/2018 08:13

PHASE SEPARATION SCIENCE, INC.

QC Summary 18030618

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151084

Matrix: Soil

Prep Method: SW5030

Date Prep: 03/06/2018

PSS Sample ID: 18030618-001

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	128	*	82-126	%	03/06/18 20:11
Dibromofluoromethane	102		92-113	%	03/06/18 20:11
Toluene-D8	98		94-105	%	03/06/18 20:11

Analytical Method: SW-846 8260 B

Seq Number: 151085

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/06/2018

PSS Sample ID: 18030618-002

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	103		86-111	%	03/06/18 17:46
Dibromofluoromethane	111		91-119	%	03/06/18 17:46
Toluene-D8	103		90-117	%	03/06/18 17:46

Analytical Method: SW-846 8260 B

Seq Number: 151085

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/06/2018

PSS Sample ID: 18030618-003

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	99		86-111	%	03/06/18 18:07
Dibromofluoromethane	105		91-119	%	03/06/18 18:07
Toluene-D8	100		90-117	%	03/06/18 18:07

Analytical Method: SW-846 8260 B

Seq Number: 151085

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/06/2018

PSS Sample ID: 18030618-004

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	98		86-111	%	03/06/18 18:30
Dibromofluoromethane	105		91-119	%	03/06/18 18:30
Toluene-D8	98		90-117	%	03/06/18 18:30

PHASE SEPARATION SCIENCE, INC.

QC Summary 18030618

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151085

PSS Sample ID: 18030618-005

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/06/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		86-111	%	03/06/18 17:22
Dibromofluoromethane	104		91-119	%	03/06/18 17:22
Toluene-D8	98		90-117	%	03/06/18 17:22

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 18030618

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151084

MB Sample Id: 70287-1-BLK

Matrix: Solid

LCS Sample Id: 70287-1-BKS

Prep Method: SW5030

Date Prep: 03/06/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	48	60	100	167	46-127	ug/kg	03/06/18 14:09	H
Benzene	<5.0	60	62	103	70-127	ug/kg	03/06/18 14:09	
Bromochloromethane	<5.0	60	62	103	68-122	ug/kg	03/06/18 14:09	
Bromodichloromethane	<5.0	60	60	100	68-122	ug/kg	03/06/18 14:09	
Bromoform	<5.0	60	55	92	57-127	ug/kg	03/06/18 14:09	
Bromomethane	<5.0	60	63	105	68-123	ug/kg	03/06/18 14:09	
2-Butanone (MEK)	<20	60	75	125	41-136	ug/kg	03/06/18 14:09	
Carbon Disulfide	<10	60	63	105	66-135	ug/kg	03/06/18 14:09	
Carbon tetrachloride	<5.0	60	59	98	64-147	ug/kg	03/06/18 14:09	
Chlorobenzene	<5.0	60	55	92	70-121	ug/kg	03/06/18 14:09	
Chloroethane	<5.0	60	63	105	66-142	ug/kg	03/06/18 14:09	
Chloroform	<5.0	60	61	102	68-123	ug/kg	03/06/18 14:09	
Chloromethane	<5.0	60	66	110	65-136	ug/kg	03/06/18 14:09	
Cyclohexane	<20	60	62	103	62-138	ug/kg	03/06/18 14:09	
1,2-Dibromo-3-chloropropane	<40	60	60	100	55-122	ug/kg	03/06/18 14:09	
Dibromochloromethane	<5.0	60	58	97	61-122	ug/kg	03/06/18 14:09	
1,2-Dibromoethane	<5.0	60	61	102	63-119	ug/kg	03/06/18 14:09	
1,2-Dichlorobenzene	<5.0	60	44	73	65-121	ug/kg	03/06/18 14:09	
1,3-Dichlorobenzene	<5.0	60	46	77	69-121	ug/kg	03/06/18 14:09	
1,4-Dichlorobenzene	<5.0	60	44	73	69-118	ug/kg	03/06/18 14:09	
Dichlorodifluoromethane	<5.0	60	67	112	53-162	ug/kg	03/06/18 14:09	
1,1-Dichloroethane	<5.0	60	64	107	70-127	ug/kg	03/06/18 14:09	
1,2-Dichloroethane	<5.0	60	63	105	68-118	ug/kg	03/06/18 14:09	
1,1-Dichloroethene	<5.0	60	61	102	69-133	ug/kg	03/06/18 14:09	
1,2-Dichloropropane	<5.0	60	64	107	70-122	ug/kg	03/06/18 14:09	
cis-1,2-Dichloroethene	<5.0	60	63	105	68-126	ug/kg	03/06/18 14:09	
cis-1,3-Dichloropropene	<5.0	60	62	103	68-121	ug/kg	03/06/18 14:09	
trans-1,2-Dichloroethene	<5.0	60	62	103	70-132	ug/kg	03/06/18 14:09	
trans-1,3-Dichloropropene	<5.0	60	61	102	67-115	ug/kg	03/06/18 14:09	
Ethylbenzene	<5.0	60	56	93	70-125	ug/kg	03/06/18 14:09	
2-Hexanone (MBK)	<20	60	73	122	40-121	ug/kg	03/06/18 14:09	H
Isopropylbenzene	<5.0	60	56	93	68-130	ug/kg	03/06/18 14:09	
Methyl Acetate	<20	60	70	117	60-125	ug/kg	03/06/18 14:09	
Methylcyclohexane	<20	60	54	90	62-150	ug/kg	03/06/18 14:09	
Methylene chloride	<5.0	60	60	100	67-121	ug/kg	03/06/18 14:09	
4-Methyl-2-Pentanone (MIBK)	<20	60	69	115	48-117	ug/kg	03/06/18 14:09	
Methyl-t-Butyl Ether	<5.0	60	65	108	66-119	ug/kg	03/06/18 14:09	
Naphthalene	<5.0	60	36	60	54-115	ug/kg	03/06/18 14:09	
Styrene	<5.0	60	54	90	71-120	ug/kg	03/06/18 14:09	
1,1,2,2-Tetrachloroethane	<5.0	60	64	107	59-122	ug/kg	03/06/18 14:09	
Tetrachloroethene	<5.0	60	55	92	65-145	ug/kg	03/06/18 14:09	
Toluene	<5.0	60	61	102	69-129	ug/kg	03/06/18 14:09	
1,2,3-Trichlorobenzene	<5.0	60	30	50	60-114	ug/kg	03/06/18 14:09	L
1,2,4-Trichlorobenzene	<5.0	60	31	52	64-115	ug/kg	03/06/18 14:09	L
1,1,1-Trichloroethane	<5.0	60	60	100	65-139	ug/kg	03/06/18 14:09	
1,1,2-Trichloroethane	<5.0	60	63	105	64-125	ug/kg	03/06/18 14:09	
Trichloroethene	<5.0	60	60	100	69-133	ug/kg	03/06/18 14:09	
Trichlorofluoromethane	<5.0	60	65	108	59-153	ug/kg	03/06/18 14:09	
1,1,2-Trichlorotrifluoroethane	<5.0	60	59	98	62-139	ug/kg	03/06/18 14:09	
Vinyl chloride	<5.0	60	62	103	69-142	ug/kg	03/06/18 14:09	
m&p-Xylene	<10	120	110	92	71-124	ug/kg	03/06/18 14:09	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18030618

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151084

MB Sample Id: 70287-1-BLK

Matrix: Solid

LCS Sample Id: 70287-1-BKS

Prep Method: SW5030

Date Prep: 03/06/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<5.0	60	56	93	72-123	ug/kg	03/06/18 14:09	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	122		102		82-126	%	03/06/18 14:09
Dibromofluoromethane	102		102		92-113	%	03/06/18 14:09
Toluene-D8	98		98		94-105	%	03/06/18 14:09

PHASE SEPARATION SCIENCE, INC.

QC Summary 18030618

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151085

MB Sample Id: 70288-1-BLK

Matrix: Water

LCS Sample Id: 70288-1-BKS

Prep Method: SW5030B

Date Prep: 03/06/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	47.87	96	29-149	ug/L	03/06/18 13:51	
Benzene	<1.000	50.00	57.62	115	85-123	ug/L	03/06/18 13:51	
Bromochloromethane	<1.000	50.00	60.67	121	82-136	ug/L	03/06/18 13:51	
Bromodichloromethane	<1.000	50.00	56.34	113	88-133	ug/L	03/06/18 13:51	
Bromoform	<5.000	50.00	55.85	112	80-126	ug/L	03/06/18 13:51	
Bromomethane	<1.000	50.00	66.72	133	64-139	ug/L	03/06/18 13:51	
2-Butanone (MEK)	<10.00	50.00	53.82	108	39-135	ug/L	03/06/18 13:51	
Carbon Disulfide	<10.00	50.00	56.10	112	85-124	ug/L	03/06/18 13:51	
Carbon tetrachloride	<1.000	50.00	58.56	117	81-138	ug/L	03/06/18 13:51	
Chlorobenzene	<1.000	50.00	58.76	118	85-120	ug/L	03/06/18 13:51	
Chloroethane	<1.000	50.00	55.38	111	75-129	ug/L	03/06/18 13:51	
Chloroform	<1.000	50.00	57.76	116	85-128	ug/L	03/06/18 13:51	
Chloromethane	<1.000	50.00	44.59	89	60-139	ug/L	03/06/18 13:51	
Cyclohexane	<10.00	50.00	55.87	112	55-131	ug/L	03/06/18 13:51	
1,2-Dibromo-3-chloropropane	<5.000	50.00	61.88	124	69-127	ug/L	03/06/18 13:51	
Dibromochloromethane	<1.000	50.00	60.57	121	82-127	ug/L	03/06/18 13:51	
1,2-Dibromoethane	<1.000	50.00	57.14	114	82-121	ug/L	03/06/18 13:51	
1,2-Dichlorobenzene	<1.000	50.00	59.33	119	82-123	ug/L	03/06/18 13:51	
1,3-Dichlorobenzene	<1.000	50.00	57.80	116	81-123	ug/L	03/06/18 13:51	
1,4-Dichlorobenzene	<1.000	50.00	60.10	120	81-121	ug/L	03/06/18 13:51	
Dichlorodifluoromethane	<1.000	50.00	55.60	111	69-147	ug/L	03/06/18 13:51	
1,1-Dichloroethane	<1.000	50.00	54.64	109	83-123	ug/L	03/06/18 13:51	
1,2-Dichloroethane	<1.000	50.00	58.02	116	86-138	ug/L	03/06/18 13:51	
1,1-Dichloroethene	<1.000	50.00	55.71	111	85-127	ug/L	03/06/18 13:51	
cis-1,2-Dichloroethene	<1.000	50.00	58.09	116	87-127	ug/L	03/06/18 13:51	
1,2-Dichloropropane	<1.000	50.00	54.71	109	79-125	ug/L	03/06/18 13:51	
cis-1,3-Dichloropropene	<1.000	50.00	53.06	106	79-131	ug/L	03/06/18 13:51	
trans-1,3-Dichloropropene	<1.000	50.00	54.19	108	82-133	ug/L	03/06/18 13:51	
trans-1,2-Dichloroethene	<1.000	50.00	55.28	111	85-125	ug/L	03/06/18 13:51	
Ethylbenzene	<1.000	50.00	58.07	116	83-123	ug/L	03/06/18 13:51	
2-Hexanone (MBK)	<5.000	50.00	45.70	91	37-137	ug/L	03/06/18 13:51	
Isopropylbenzene	<1.000	50.00	55.81	112	70-131	ug/L	03/06/18 13:51	
Methyl Acetate	<10.00	50.00	57.26	115	69-127	ug/L	03/06/18 13:51	
Methylcyclohexane	<10.00	50.00	56.59	113	75-129	ug/L	03/06/18 13:51	
Methylene chloride	<1.000	50.00	55.65	111	86-124	ug/L	03/06/18 13:51	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	48.08	96	39-143	ug/L	03/06/18 13:51	
Methyl-t-Butyl Ether	<1.000	50.00	39.89	80	75-134	ug/L	03/06/18 13:51	
Naphthalene	<1.000	50.00	47.88	96	61-118	ug/L	03/06/18 13:51	
Styrene	<1.000	50.00	56.05	112	80-120	ug/L	03/06/18 13:51	
1,1,2,2-Tetrachloroethane	<1.000	50.00	62.20	124	64-125	ug/L	03/06/18 13:51	
Tetrachloroethene	<1.000	50.00	54.34	109	83-138	ug/L	03/06/18 13:51	
Toluene	<1.000	50.00	57.65	115	88-126	ug/L	03/06/18 13:51	
1,2,3-Trichlorobenzene	<1.000	50.00	53.43	107	75-124	ug/L	03/06/18 13:51	
1,2,4-Trichlorobenzene	<1.000	50.00	48.96	98	77-131	ug/L	03/06/18 13:51	
1,1,1-Trichloroethane	<1.000	50.00	55.98	112	68-146	ug/L	03/06/18 13:51	
1,1,2-Trichloroethane	<1.000	50.00	58.64	117	85-124	ug/L	03/06/18 13:51	
Trichloroethene	<1.000	50.00	56.27	113	87-127	ug/L	03/06/18 13:51	
Trichlorofluoromethane	<5.000	50.00	57.23	114	77-147	ug/L	03/06/18 13:51	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	58.33	117	68-135	ug/L	03/06/18 13:51	
Vinyl chloride	<1.000	50.00	56.47	113	74-138	ug/L	03/06/18 13:51	
m&p-Xylene	<2.000	100	111.5	112	84-124	ug/L	03/06/18 13:51	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18030618

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151085

MB Sample Id: 70288-1-BLK

Matrix: Water

LCS Sample Id: 70288-1-BKS

Prep Method: SW5030B

Date Prep: 03/06/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	58.42	117	79-126	ug/L	03/06/18 13:51	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	99		98		86-111	%	03/06/18 13:51
Dibromofluoromethane	105		107		91-119	%	03/06/18 13:51
Toluene-D8	97		102		90-117	%	03/06/18 13:51

Analytical Method: SW-846 8260 B

Seq Number: 151089

MB Sample Id: 70289-1-BLK

Matrix: Water

LCS Sample Id: 70289-1-BKS

Prep Method: SW5030B

Date Prep: 03/07/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
2-Butanone (MEK)	<10.00	50.00	62.96	126	39-135	ug/L	03/07/18 01:25	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		96		86-111	%	03/07/18 01:25
Dibromofluoromethane	106		104		91-119	%	03/07/18 01:25
Toluene-D8	99		99		90-117	%	03/07/18 01:25

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

18030618

Page 1 of 1

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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18030618

Client Name WSP USA - Herndon

Project Name Kop Flex

Project Number 31400389.01

Disposal Date 04/10/2018

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 5

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Chris Cresci

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 5

Total No. of Containers Received 15

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 03/06/2018

PM Review and Approval:

Lynn Jackson

Date: 03/06/2018

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 18030714

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400389/01



March 7, 2018
Phase Separation Science, Inc.
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PHASE SEPARATION SCIENCE, INC.



March 7, 2018

Eric Johnson

WSP USA - Herndon

13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Work Order(s) No: **18030714**

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID.: 31400389/01

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **18030714**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 11, 2018, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop Flex

Work Order Number(s): 18030714

Project ID: 31400389/01

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/07/2018 at 12:24 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18030714-001	MW-29 (174-184)	WATER	03/06/18 16:10
18030714-002	MW-29 (196-206)	WATER	03/07/18 10:20
18030714-003	Trip Blank	WATER	03/07/18 12:24

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030714

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: MW-29 (174-184)	Date/Time Sampled: 03/06/2018 16:10	PSS Sample ID: 18030714-001
Matrix: WATER	Date/Time Received: 03/07/2018 12:24	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/07/18	03/07/18 16:04	1011
Benzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Bromochloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Bromoform	ND	ug/L	5.0		1	03/07/18	03/07/18 16:04	1011
Bromomethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/07/18	03/07/18 16:04	1011
Carbon Disulfide	ND	ug/L	10		1	03/07/18	03/07/18 16:04	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Chlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Chloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Chloroform	2.2	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Chloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Cyclohexane	ND	ug/L	10		1	03/07/18	03/07/18 16:04	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/07/18	03/07/18 16:04	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Ethylbenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030714

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: MW-29 (174-184)	Date/Time Sampled: 03/06/2018 16:10	PSS Sample ID: 18030714-001
Matrix: WATER	Date/Time Received: 03/07/2018 12:24	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/07/18	03/07/18 16:04	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Methyl Acetate	ND	ug/L	10		1	03/07/18	03/07/18 16:04	1011
Methylcyclohexane	ND	ug/L	10		1	03/07/18	03/07/18 16:04	1011
Methylene chloride	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/07/18	03/07/18 16:04	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Naphthalene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Styrene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Toluene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Trichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/07/18	03/07/18 16:04	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
Vinyl chloride	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011
m&p-Xylene	ND	ug/L	2.0		1	03/07/18	03/07/18 16:04	1011
o-Xylene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:04	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030714

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: MW-29 (196-206)	Date/Time Sampled: 03/07/2018 10:20	PSS Sample ID: 18030714-002
Matrix: WATER	Date/Time Received: 03/07/2018 12:24	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/07/18	03/07/18 16:25	1011
Benzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Bromochloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Bromodichloromethane	1.5	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Bromoform	ND	ug/L	5.0		1	03/07/18	03/07/18 16:25	1011
Bromomethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/07/18	03/07/18 16:25	1011
Carbon Disulfide	ND	ug/L	10		1	03/07/18	03/07/18 16:25	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Chlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Chloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Chloroform	5.5	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Chloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Cyclohexane	ND	ug/L	10		1	03/07/18	03/07/18 16:25	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/07/18	03/07/18 16:25	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Ethylbenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030714

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: MW-29 (196-206)	Date/Time Sampled: 03/07/2018 10:20	PSS Sample ID: 18030714-002
Matrix: WATER	Date/Time Received: 03/07/2018 12:24	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/07/18	03/07/18 16:25	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Methyl Acetate	ND	ug/L	10		1	03/07/18	03/07/18 16:25	1011
Methylcyclohexane	ND	ug/L	10		1	03/07/18	03/07/18 16:25	1011
Methylene chloride	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/07/18	03/07/18 16:25	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Naphthalene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Styrene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Toluene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Trichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/07/18	03/07/18 16:25	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
Vinyl chloride	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011
m&p-Xylene	ND	ug/L	2.0		1	03/07/18	03/07/18 16:25	1011
o-Xylene	ND	ug/L	1.0		1	03/07/18	03/07/18 16:25	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030714

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: Trip Blank	Date/Time Sampled: 03/07/2018 12:24	PSS Sample ID: 18030714-003
Matrix: WATER	Date/Time Received: 03/07/2018 12:24	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/07/18	03/07/18 15:37	1011
Benzene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Bromochloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Bromoform	ND	ug/L	5.0		1	03/07/18	03/07/18 15:37	1011
Bromomethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/07/18	03/07/18 15:37	1011
Carbon Disulfide	ND	ug/L	10		1	03/07/18	03/07/18 15:37	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Chlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Chloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Chloroform	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Chloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Cyclohexane	ND	ug/L	10		1	03/07/18	03/07/18 15:37	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/07/18	03/07/18 15:37	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Ethylbenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18030714

WSP USA - Herndon, Herndon, VA

March 7, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: Trip Blank	Date/Time Sampled: 03/07/2018 12:24	PSS Sample ID: 18030714-003
Matrix: WATER	Date/Time Received: 03/07/2018 12:24	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/07/18	03/07/18 15:37	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Methyl Acetate	ND	ug/L	10		1	03/07/18	03/07/18 15:37	1011
Methylcyclohexane	ND	ug/L	10		1	03/07/18	03/07/18 15:37	1011
Methylene chloride	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/07/18	03/07/18 15:37	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Naphthalene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Styrene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Toluene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Trichloroethene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/07/18	03/07/18 15:37	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
Vinyl chloride	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011
m&p-Xylene	ND	ug/L	2.0		1	03/07/18	03/07/18 15:37	1011
o-Xylene	ND	ug/L	1.0		1	03/07/18	03/07/18 15:37	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18030714

Project ID: 31400389/01

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18030714

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	MW-29 (174-184)	Initial	18030714-001	1011	W	70300	151123	03/06/2018	03/07/2018 12:38	03/07/2018 16:04
	MW-29 (196-206)	Initial	18030714-002	1011	W	70300	151123	03/07/2018	03/07/2018 12:38	03/07/2018 16:25
	Trip Blank	Initial	18030714-003	1011	W	70300	151123	03/07/2018	03/07/2018 12:38	03/07/2018 15:37
	70300-1-BKS	BKS	70300-1-BKS	1011	W	70300	151123	-----	03/07/2018 12:38	03/07/2018 14:07
	70300-1-BLK	BLK	70300-1-BLK	1011	W	70300	151123	-----	03/07/2018 12:38	03/07/2018 15:16

PHASE SEPARATION SCIENCE, INC.

QC Summary 18030714

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151123

PSS Sample ID: 18030714-001

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/07/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		86-111	%	03/07/18 16:04
Dibromofluoromethane	108		91-119	%	03/07/18 16:04
Toluene-D8	97		90-117	%	03/07/18 16:04

Analytical Method: SW-846 8260 B

Seq Number: 151123

PSS Sample ID: 18030714-002

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/07/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		86-111	%	03/07/18 16:25
Dibromofluoromethane	110		91-119	%	03/07/18 16:25
Toluene-D8	100		90-117	%	03/07/18 16:25

Analytical Method: SW-846 8260 B

Seq Number: 151123

PSS Sample ID: 18030714-003

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/07/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	108		86-111	%	03/07/18 15:37
Dibromofluoromethane	108		91-119	%	03/07/18 15:37
Toluene-D8	99		90-117	%	03/07/18 15:37

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS, BSD or both exceeded the laboratory control limits

L = Recovery of BS, BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 18030714

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151123

MB Sample Id: 70300-1-BLK

Matrix: Water

LCS Sample Id: 70300-1-BKS

Prep Method: SW5030B

Date Prep: 03/07/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	47.86	96	29-149	ug/L	03/07/18 14:07	
Benzene	<1.000	50.00	57.70	115	85-123	ug/L	03/07/18 14:07	
Bromochloromethane	<1.000	50.00	64.72	129	82-136	ug/L	03/07/18 14:07	
Bromodichloromethane	<1.000	50.00	59.83	120	88-133	ug/L	03/07/18 14:07	
Bromoform	<5.000	50.00	57.41	115	80-126	ug/L	03/07/18 14:07	
Bromomethane	<1.000	50.00	71.92	144	64-139	ug/L	03/07/18 14:07	H
2-Butanone (MEK)	<10.00	50.00	54.00	108	39-135	ug/L	03/07/18 14:07	
Carbon Disulfide	<10.00	50.00	59.89	120	85-124	ug/L	03/07/18 14:07	
Carbon tetrachloride	<1.000	50.00	59.67	119	81-138	ug/L	03/07/18 14:07	
Chlorobenzene	<1.000	50.00	61.18	122	85-120	ug/L	03/07/18 14:07	H
Chloroethane	<1.000	50.00	58.30	117	75-129	ug/L	03/07/18 14:07	
Chloroform	<1.000	50.00	61.38	123	85-128	ug/L	03/07/18 14:07	
Chloromethane	<1.000	50.00	46.79	94	60-139	ug/L	03/07/18 14:07	
Cyclohexane	<10.00	50.00	57.31	115	55-131	ug/L	03/07/18 14:07	
1,2-Dibromo-3-chloropropane	<5.000	50.00	62.13	124	69-127	ug/L	03/07/18 14:07	
Dibromochloromethane	<1.000	50.00	62.40	125	82-127	ug/L	03/07/18 14:07	
1,2-Dibromoethane	<1.000	50.00	61.17	122	82-121	ug/L	03/07/18 14:07	H
1,2-Dichlorobenzene	<1.000	50.00	59.76	120	82-123	ug/L	03/07/18 14:07	
1,3-Dichlorobenzene	<1.000	50.00	60.66	121	81-123	ug/L	03/07/18 14:07	
1,4-Dichlorobenzene	<1.000	50.00	60.49	121	81-121	ug/L	03/07/18 14:07	
Dichlorodifluoromethane	<1.000	50.00	59.09	118	69-147	ug/L	03/07/18 14:07	
1,1-Dichloroethane	<1.000	50.00	56.43	113	83-123	ug/L	03/07/18 14:07	
1,2-Dichloroethane	<1.000	50.00	59.58	119	86-138	ug/L	03/07/18 14:07	
1,1-Dichloroethene	<1.000	50.00	55.14	110	85-127	ug/L	03/07/18 14:07	
cis-1,2-Dichloroethene	<1.000	50.00	60.94	122	87-127	ug/L	03/07/18 14:07	
1,2-Dichloropropane	<1.000	50.00	58.70	117	79-125	ug/L	03/07/18 14:07	
cis-1,3-Dichloropropene	<1.000	50.00	55.64	111	79-131	ug/L	03/07/18 14:07	
trans-1,3-Dichloropropene	<1.000	50.00	52.07	104	82-133	ug/L	03/07/18 14:07	
trans-1,2-Dichloroethene	<1.000	50.00	56.81	114	85-125	ug/L	03/07/18 14:07	
Ethylbenzene	<1.000	50.00	58.80	118	83-123	ug/L	03/07/18 14:07	
2-Hexanone (MBK)	<5.000	50.00	46.09	92	37-137	ug/L	03/07/18 14:07	
Isopropylbenzene	<1.000	50.00	58.48	117	70-131	ug/L	03/07/18 14:07	
Methyl Acetate	<10.00	50.00	62.65	125	69-127	ug/L	03/07/18 14:07	
Methylcyclohexane	<10.00	50.00	59.78	120	75-129	ug/L	03/07/18 14:07	
Methylene chloride	<1.000	50.00	56.59	113	86-124	ug/L	03/07/18 14:07	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	48.95	98	39-143	ug/L	03/07/18 14:07	
Methyl-t-Butyl Ether	<1.000	50.00	31.54	63	75-134	ug/L	03/07/18 14:07	L
Naphthalene	<1.000	50.00	50.53	101	61-118	ug/L	03/07/18 14:07	
Styrene	<1.000	50.00	61.07	122	80-120	ug/L	03/07/18 14:07	H
1,1,2,2-Tetrachloroethane	<1.000	50.00	62.89	126	64-125	ug/L	03/07/18 14:07	H
Tetrachloroethene	<1.000	50.00	57.14	114	83-138	ug/L	03/07/18 14:07	
Toluene	<1.000	50.00	59.17	118	88-126	ug/L	03/07/18 14:07	
1,2,3-Trichlorobenzene	<1.000	50.00	52.08	104	75-124	ug/L	03/07/18 14:07	
1,2,4-Trichlorobenzene	<1.000	50.00	51.58	103	77-131	ug/L	03/07/18 14:07	
1,1,1-Trichloroethane	<1.000	50.00	55.31	111	68-146	ug/L	03/07/18 14:07	
1,1,2-Trichloroethane	<1.000	50.00	61.76	124	85-124	ug/L	03/07/18 14:07	
Trichloroethene	<1.000	50.00	59.63	119	87-127	ug/L	03/07/18 14:07	
Trichlorofluoromethane	<5.000	50.00	61.47	123	77-147	ug/L	03/07/18 14:07	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	61.04	122	68-135	ug/L	03/07/18 14:07	
Vinyl chloride	<1.000	50.00	57.14	114	74-138	ug/L	03/07/18 14:07	
m&p-Xylene	<2.000	100	120.9	121	84-124	ug/L	03/07/18 14:07	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18030714

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151123

MB Sample Id: 70300-1-BLK

Matrix: Water

LCS Sample Id: 70300-1-BKS

Prep Method: SW5030B

Date Prep: 03/07/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	60.27	121	79-126	ug/L	03/07/18 14:07	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	104		97		86-111	%	03/07/18 14:07
Dibromofluoromethane	105		108		91-119	%	03/07/18 14:07
Toluene-D8	97		98		90-117	%	03/07/18 14:07

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

CHAIN-OF-CUSTODY RECORD ~~1803~~ 18030714

Page 1 of 1

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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18030714

Client Name WSP USA - Herndon

Project Name Kop Flex

Project Number 31400389/01

Disposal Date 04/11/2018

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Received By Thomas Wingate

Date Received 03/07/2018 12:24:00 PM

Delivered By Client

Tracking No Not Applicable

Logged In By Thomas Wingate

Ice Present

Temp (deg C) 3

Temp Blank Present Yes

Sampler Name Chris Cresci

MD DW Cert. No. N/A

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 3

Total No. of Containers Received 8

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 03/07/2018

PM Review and Approval:

Amber Confer

Date: 03/07/2018

MW-32 BOREHOLE

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 18031316

Project Manager: Eric Johnson

Project Name : Kop-Flex

Project Location: Hanover, MD

Project ID : 31400389/1



March 14, 2018
Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
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PHASE SEPARATION SCIENCE, INC.



March 14, 2018

Eric Johnson

WSP USA - Herndon

13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Work Order(s) No: **18031316**

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID.: 31400389/1

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **18031316**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 17, 2018, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop-Flex

Work Order Number(s): 18031316

Project ID: 31400389/1

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/13/2018 at 05:15 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18031316-001	MW-32 (166-176)	GROUND WATER	03/13/18 10:35
18031316-002	MW-32 (191-196)	GROUND WATER	03/13/18 15:35
18031316-003	Trip Blank	WATER	03/13/18 17:15

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031316

WSP USA - Herndon, Herndon, VA

March 14, 2018

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31400389/1

Sample ID: MW-32 (166-176)	Date/Time Sampled: 03/13/2018 10:35	PSS Sample ID: 18031316-001
Matrix: GROUND WATER	Date/Time Received: 03/13/2018 17:15	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/13/18	03/13/18 18:08	1011
Benzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Bromochloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Bromoform	ND	ug/L	5.0		1	03/13/18	03/13/18 18:08	1011
Bromomethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/13/18	03/13/18 18:08	1011
Carbon Disulfide	ND	ug/L	10		1	03/13/18	03/13/18 18:08	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Chlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Chloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Chloroform	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Chloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Cyclohexane	ND	ug/L	10		1	03/13/18	03/13/18 18:08	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/13/18	03/13/18 18:08	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Ethylbenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031316

WSP USA - Herndon, Herndon, VA

March 14, 2018

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31400389/1

Sample ID: MW-32 (166-176)	Date/Time Sampled: 03/13/2018 10:35	PSS Sample ID: 18031316-001
Matrix: GROUND WATER	Date/Time Received: 03/13/2018 17:15	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/13/18	03/13/18 18:08	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Methyl Acetate	ND	ug/L	10		1	03/13/18	03/13/18 18:08	1011
Methylcyclohexane	ND	ug/L	10		1	03/13/18	03/13/18 18:08	1011
Methylene chloride	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/13/18	03/13/18 18:08	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Naphthalene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Styrene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Toluene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Trichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/13/18	03/13/18 18:08	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
Vinyl chloride	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011
m&p-Xylene	ND	ug/L	2.0		1	03/13/18	03/13/18 18:08	1011
o-Xylene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:08	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031316

WSP USA - Herndon, Herndon, VA

March 14, 2018

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: MW-32 (191-196)	Date/Time Sampled: 03/13/2018 15:35	PSS Sample ID: 18031316-002
Matrix: GROUND WATER	Date/Time Received: 03/13/2018 17:15	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/13/18	03/13/18 18:29	1011
Benzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Bromochloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Bromoform	ND	ug/L	5.0		1	03/13/18	03/13/18 18:29	1011
Bromomethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/13/18	03/13/18 18:29	1011
Carbon Disulfide	ND	ug/L	10		1	03/13/18	03/13/18 18:29	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Chlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Chloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Chloroform	1.0	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Chloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Cyclohexane	ND	ug/L	10		1	03/13/18	03/13/18 18:29	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/13/18	03/13/18 18:29	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Ethylbenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031316

WSP USA - Herndon, Herndon, VA

March 14, 2018

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: MW-32 (191-196)	Date/Time Sampled: 03/13/2018 15:35	PSS Sample ID: 18031316-002
Matrix: GROUND WATER	Date/Time Received: 03/13/2018 17:15	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/13/18	03/13/18 18:29	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Methyl Acetate	ND	ug/L	10		1	03/13/18	03/13/18 18:29	1011
Methylcyclohexane	ND	ug/L	10		1	03/13/18	03/13/18 18:29	1011
Methylene chloride	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/13/18	03/13/18 18:29	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Naphthalene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Styrene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Toluene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Trichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/13/18	03/13/18 18:29	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
Vinyl chloride	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011
m&p-Xylene	ND	ug/L	2.0		1	03/13/18	03/13/18 18:29	1011
o-Xylene	ND	ug/L	1.0		1	03/13/18	03/13/18 18:29	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031316

WSP USA - Herndon, Herndon, VA

March 14, 2018

Project Name: Kop-Flex

Project Location: Hanover, MD

Project ID: 31400389/1

Sample ID: Trip Blank	Date/Time Sampled: 03/13/2018 17:15	PSS Sample ID: 18031316-003
Matrix: WATER	Date/Time Received: 03/13/2018 17:15	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/13/18	03/13/18 17:47	1011
Benzene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Bromochloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Bromoform	ND	ug/L	5.0		1	03/13/18	03/13/18 17:47	1011
Bromomethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/13/18	03/13/18 17:47	1011
Carbon Disulfide	ND	ug/L	10		1	03/13/18	03/13/18 17:47	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Chlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Chloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Chloroform	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Chloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Cyclohexane	ND	ug/L	10		1	03/13/18	03/13/18 17:47	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/13/18	03/13/18 17:47	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Ethylbenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031316

WSP USA - Herndon, Herndon, VA

March 14, 2018

Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: Trip Blank	Date/Time Sampled: 03/13/2018 17:15	PSS Sample ID: 18031316-003
Matrix: WATER	Date/Time Received: 03/13/2018 17:15	

TCL Volatile Organic Compounds
pH=7

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/13/18	03/13/18 17:47	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Methyl Acetate	ND	ug/L	10		1	03/13/18	03/13/18 17:47	1011
Methylcyclohexane	ND	ug/L	10		1	03/13/18	03/13/18 17:47	1011
Methylene chloride	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/13/18	03/13/18 17:47	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Naphthalene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Styrene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Toluene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Trichloroethene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/13/18	03/13/18 17:47	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
Vinyl chloride	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011
m&p-Xylene	ND	ug/L	2.0		1	03/13/18	03/13/18 17:47	1011
o-Xylene	ND	ug/L	1.0		1	03/13/18	03/13/18 17:47	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Flex

Work Order Number(s): 18031316

Project ID: 31400389/1

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18031316

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	MW-32 (166-176)	Initial	18031316-001	1011	W	70394	151321	03/13/2018	03/13/2018 10:00	03/13/2018 18:08
	MW-32 (191-196)	Initial	18031316-002	1011	W	70394	151321	03/13/2018	03/13/2018 10:00	03/13/2018 18:29
	Trip Blank	Initial	18031316-003	1011	W	70394	151321	03/13/2018	03/13/2018 10:00	03/13/2018 17:47
	70394-1-BKS	BKS	70394-1-BKS	1011	W	70394	151321	-----	03/13/2018 10:00	03/13/2018 11:44
	70394-1-BLK	BLK	70394-1-BLK	1011	W	70394	151321	-----	03/13/2018 10:00	03/13/2018 12:56
	Sys Eff S	MS	18030819-001 S	1011	W	70394	151321	03/08/2018	03/13/2018 10:00	03/13/2018 14:19
	Sys Eff SD	MSD	18030819-001 SD	1011	W	70394	151321	03/08/2018	03/13/2018 10:00	03/13/2018 14:40

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031316

WSP USA - Herndon Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 151321

PSS Sample ID: 18031316-001

Matrix: Ground Water

Prep Method: SW5030B

Date Prep: 03/13/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	100		86-111	%	03/13/18 18:08
Dibromofluoromethane	104		91-119	%	03/13/18 18:08
Toluene-D8	106		90-117	%	03/13/18 18:08

Analytical Method: SW-846 8260 B

Seq Number: 151321

PSS Sample ID: 18031316-002

Matrix: Ground Water

Prep Method: SW5030B

Date Prep: 03/13/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	98		86-111	%	03/13/18 18:29
Dibromofluoromethane	101		91-119	%	03/13/18 18:29
Toluene-D8	105		90-117	%	03/13/18 18:29

Analytical Method: SW-846 8260 B

Seq Number: 151321

PSS Sample ID: 18031316-003

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/13/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	98		86-111	%	03/13/18 17:47
Dibromofluoromethane	101		91-119	%	03/13/18 17:47
Toluene-D8	104		90-117	%	03/13/18 17:47

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS, BSD or both exceeded the laboratory control limits

L = Recovery of BS, BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031316

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 151321

MB Sample Id: 70394-1-BLK

Matrix: Water

LCS Sample Id: 70394-1-BKS

Prep Method: SW5030B

Date Prep: 03/13/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	37.27	75	29-149	ug/L	03/13/18 11:44	
Benzene	<1.000	50.00	47.76	96	85-123	ug/L	03/13/18 11:44	
Bromochloromethane	<1.000	50.00	45.03	90	82-136	ug/L	03/13/18 11:44	
Bromodichloromethane	<1.000	50.00	49.56	99	88-133	ug/L	03/13/18 11:44	
Bromoform	<5.000	50.00	40.89	82	80-126	ug/L	03/13/18 11:44	
Bromomethane	<1.000	50.00	48.58	97	64-139	ug/L	03/13/18 11:44	
2-Butanone (MEK)	<10.00	50.00	34.87	70	39-135	ug/L	03/13/18 11:44	
Carbon Disulfide	<10.00	50.00	50.51	101	85-124	ug/L	03/13/18 11:44	
Carbon tetrachloride	<1.000	50.00	49.18	98	81-138	ug/L	03/13/18 11:44	
Chlorobenzene	<1.000	50.00	49.05	98	85-120	ug/L	03/13/18 11:44	
Chloroethane	<1.000	50.00	48.47	97	75-129	ug/L	03/13/18 11:44	
Chloroform	<1.000	50.00	46.21	92	85-128	ug/L	03/13/18 11:44	
Chloromethane	<1.000	50.00	46.94	94	60-139	ug/L	03/13/18 11:44	
Cyclohexane	<10.00	50.00	47.60	95	55-131	ug/L	03/13/18 11:44	
1,2-Dibromo-3-chloropropane	<5.000	50.00	37.68	75	69-127	ug/L	03/13/18 11:44	
Dibromochloromethane	<1.000	50.00	44.20	88	82-127	ug/L	03/13/18 11:44	
1,2-Dibromoethane	<1.000	50.00	49.59	99	82-121	ug/L	03/13/18 11:44	
1,2-Dichlorobenzene	<1.000	50.00	48.57	97	82-123	ug/L	03/13/18 11:44	
1,3-Dichlorobenzene	<1.000	50.00	49.40	99	81-123	ug/L	03/13/18 11:44	
1,4-Dichlorobenzene	<1.000	50.00	48.14	96	81-121	ug/L	03/13/18 11:44	
Dichlorodifluoromethane	<1.000	50.00	50.19	100	69-147	ug/L	03/13/18 11:44	
1,1-Dichloroethane	<1.000	50.00	46.94	94	83-123	ug/L	03/13/18 11:44	
1,2-Dichloroethane	<1.000	50.00	47.47	95	86-138	ug/L	03/13/18 11:44	
1,1-Dichloroethene	<1.000	50.00	47.46	95	85-127	ug/L	03/13/18 11:44	
cis-1,2-Dichloroethene	<1.000	50.00	48.39	97	87-127	ug/L	03/13/18 11:44	
1,2-Dichloropropane	<1.000	50.00	47.85	96	79-125	ug/L	03/13/18 11:44	
cis-1,3-Dichloropropene	<1.000	50.00	51.42	103	79-131	ug/L	03/13/18 11:44	
trans-1,3-Dichloropropene	<1.000	50.00	46.59	93	82-133	ug/L	03/13/18 11:44	
trans-1,2-Dichloroethene	<1.000	50.00	47.87	96	85-125	ug/L	03/13/18 11:44	
Ethylbenzene	<1.000	50.00	49.80	100	83-123	ug/L	03/13/18 11:44	
2-Hexanone (MBK)	<5.000	50.00	41.08	82	37-137	ug/L	03/13/18 11:44	
Isopropylbenzene	<1.000	50.00	49.74	99	70-131	ug/L	03/13/18 11:44	
Methyl Acetate	<10.00	50.00	41.39	83	69-127	ug/L	03/13/18 11:44	
Methylcyclohexane	<10.00	50.00	50.77	102	75-129	ug/L	03/13/18 11:44	
Methylene chloride	<1.000	50.00	48.69	97	86-124	ug/L	03/13/18 11:44	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	38.72	77	39-143	ug/L	03/13/18 11:44	
Methyl-t-Butyl Ether	<1.000	50.00	46.22	92	75-134	ug/L	03/13/18 11:44	
Naphthalene	<1.000	50.00	41.82	84	61-118	ug/L	03/13/18 11:44	
Styrene	<1.000	50.00	44.14	88	80-120	ug/L	03/13/18 11:44	
1,1,2,2-Tetrachloroethane	<1.000	50.00	45.71	91	64-125	ug/L	03/13/18 11:44	
Tetrachloroethene	<1.000	50.00	52.98	106	83-138	ug/L	03/13/18 11:44	
Toluene	<1.000	50.00	51.84	104	88-126	ug/L	03/13/18 11:44	
1,2,3-Trichlorobenzene	<1.000	50.00	50.17	100	75-124	ug/L	03/13/18 11:44	
1,2,4-Trichlorobenzene	<1.000	50.00	50.42	101	77-131	ug/L	03/13/18 11:44	
1,1,1-Trichloroethane	<1.000	50.00	48.39	97	68-146	ug/L	03/13/18 11:44	
1,1,2-Trichloroethane	<1.000	50.00	50.44	101	85-124	ug/L	03/13/18 11:44	
Trichloroethene	<1.000	50.00	49.54	99	87-127	ug/L	03/13/18 11:44	
Trichlorofluoromethane	<5.000	50.00	49.55	99	77-147	ug/L	03/13/18 11:44	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	50.93	102	68-135	ug/L	03/13/18 11:44	
Vinyl chloride	<1.000	50.00	45.49	91	74-138	ug/L	03/13/18 11:44	
m&p-Xylene	<2.000	100	88.62	89	84-124	ug/L	03/13/18 11:44	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031316

WSP USA - Herndon

Kop-Flex

Analytical Method: SW-846 8260 B

Seq Number: 151321

MB Sample Id: 70394-1-BLK

Matrix: Water

LCS Sample Id: 70394-1-BKS

Prep Method: SW5030B

Date Prep: 03/13/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	44.48	89	79-126	ug/L	03/13/18 11:44	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	100		97		86-111	%	03/13/18 11:44
Dibromofluoromethane	99		100		91-119	%	03/13/18 11:44
Toluene-D8	104		105		90-117	%	03/13/18 11:44

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18031316

Client Name WSP USA - Herndon

Project Name Kop-Flex

Project Number 31400389/1

Disposal Date 04/17/2018

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 7

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Not Provided

N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 3

Total No. of Containers Received 8

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Amber Confer

Amber Confer

Date: 03/14/2018

PM Review and Approval:

Lynn Jackson

Lynn Jackson

Date: 03/14/2018

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 18031426

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400389



March 15, 2018
Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
Phone: (410) 747-8770
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PHASE SEPARATION SCIENCE, INC.



March 15, 2018

Eric Johnson

WSP USA - Herndon

13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Work Order(s) No: **18031426**

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID.: 31400389

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **18031426**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 18, 2018, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop Flex

Work Order Number(s): 18031426

Project ID: 31400389

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/14/2018 at 04:05 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18031426-001	MW-32 (221-226)	WATER	03/14/18 12:50
18031426-002	MW-32 (211-216)	WATER	03/14/18 09:20
18031426-003	MW-32 (201-206)	WATER	03/13/18 17:45
18031426-004	MW-32 (231-236)	WATER	03/14/18 15:25
18031426-005	Trip Blank	WATER	03/14/18 16:05

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031426

WSP USA - Herndon, Herndon, VA

March 15, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: MW-32 (221-226)	Date/Time Sampled: 03/14/2018 12:50	PSS Sample ID: 18031426-001
Matrix: WATER	Date/Time Received: 03/14/2018 16:05	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/14/18	03/14/18 20:18	1011
Benzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Bromochloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Bromoform	ND	ug/L	5.0		1	03/14/18	03/14/18 20:18	1011
Bromomethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/14/18	03/14/18 20:18	1011
Carbon Disulfide	ND	ug/L	10		1	03/14/18	03/14/18 20:18	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Chlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Chloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Chloroform	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Chloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Cyclohexane	ND	ug/L	10		1	03/14/18	03/14/18 20:18	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/14/18	03/14/18 20:18	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Ethylbenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031426

WSP USA - Herndon, Herndon, VA

March 15, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: MW-32 (221-226)	Date/Time Sampled: 03/14/2018 12:50	PSS Sample ID: 18031426-001
Matrix: WATER	Date/Time Received: 03/14/2018 16:05	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/14/18	03/14/18 20:18	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Methyl Acetate	ND	ug/L	10		1	03/14/18	03/14/18 20:18	1011
Methylcyclohexane	ND	ug/L	10		1	03/14/18	03/14/18 20:18	1011
Methylene chloride	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/14/18	03/14/18 20:18	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Naphthalene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Styrene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Toluene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Trichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/14/18	03/14/18 20:18	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
Vinyl chloride	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011
m&p-Xylene	ND	ug/L	2.0		1	03/14/18	03/14/18 20:18	1011
o-Xylene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:18	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031426

WSP USA - Herndon, Herndon, VA

March 15, 2018

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID: 31400389

Sample ID: MW-32 (211-216)	Date/Time Sampled: 03/14/2018 09:20	PSS Sample ID: 18031426-002
Matrix: WATER	Date/Time Received: 03/14/2018 16:05	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/14/18	03/14/18 20:39	1011
Benzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Bromochloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Bromoform	ND	ug/L	5.0		1	03/14/18	03/14/18 20:39	1011
Bromomethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/14/18	03/14/18 20:39	1011
Carbon Disulfide	ND	ug/L	10		1	03/14/18	03/14/18 20:39	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Chlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Chloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Chloroform	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Chloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Cyclohexane	ND	ug/L	10		1	03/14/18	03/14/18 20:39	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/14/18	03/14/18 20:39	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Ethylbenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031426

WSP USA - Herndon, Herndon, VA

March 15, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: MW-32 (211-216)	Date/Time Sampled: 03/14/2018 09:20	PSS Sample ID: 18031426-002
Matrix: WATER	Date/Time Received: 03/14/2018 16:05	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/14/18	03/14/18 20:39	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Methyl Acetate	ND	ug/L	10		1	03/14/18	03/14/18 20:39	1011
Methylcyclohexane	ND	ug/L	10		1	03/14/18	03/14/18 20:39	1011
Methylene chloride	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/14/18	03/14/18 20:39	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Naphthalene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Styrene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Toluene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Trichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/14/18	03/14/18 20:39	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
Vinyl chloride	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011
m&p-Xylene	ND	ug/L	2.0		1	03/14/18	03/14/18 20:39	1011
o-Xylene	ND	ug/L	1.0		1	03/14/18	03/14/18 20:39	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031426

WSP USA - Herndon, Herndon, VA

March 15, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: MW-32 (201-206)	Date/Time Sampled: 03/13/2018 17:45	PSS Sample ID: 18031426-003
Matrix: WATER	Date/Time Received: 03/14/2018 16:05	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/14/18	03/14/18 21:00	1011
Benzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Bromochloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Bromoform	ND	ug/L	5.0		1	03/14/18	03/14/18 21:00	1011
Bromomethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/14/18	03/14/18 21:00	1011
Carbon Disulfide	ND	ug/L	10		1	03/14/18	03/14/18 21:00	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Chlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Chloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Chloroform	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Chloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Cyclohexane	ND	ug/L	10		1	03/14/18	03/14/18 21:00	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/14/18	03/14/18 21:00	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Ethylbenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031426

WSP USA - Herndon, Herndon, VA

March 15, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: MW-32 (201-206)	Date/Time Sampled: 03/13/2018 17:45	PSS Sample ID: 18031426-003
Matrix: WATER	Date/Time Received: 03/14/2018 16:05	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/14/18	03/14/18 21:00	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Methyl Acetate	ND	ug/L	10		1	03/14/18	03/14/18 21:00	1011
Methylcyclohexane	ND	ug/L	10		1	03/14/18	03/14/18 21:00	1011
Methylene chloride	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/14/18	03/14/18 21:00	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Naphthalene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Styrene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Toluene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Trichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/14/18	03/14/18 21:00	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
Vinyl chloride	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011
m&p-Xylene	ND	ug/L	2.0		1	03/14/18	03/14/18 21:00	1011
o-Xylene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:00	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031426

WSP USA - Herndon, Herndon, VA

March 15, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: MW-32 (231-236)	Date/Time Sampled: 03/14/2018 15:25	PSS Sample ID: 18031426-004
Matrix: WATER	Date/Time Received: 03/14/2018 16:05	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/14/18	03/14/18 21:21	1011
Benzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Bromochloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Bromoform	ND	ug/L	5.0		1	03/14/18	03/14/18 21:21	1011
Bromomethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/14/18	03/14/18 21:21	1011
Carbon Disulfide	ND	ug/L	10		1	03/14/18	03/14/18 21:21	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Chlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Chloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Chloroform	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Chloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Cyclohexane	ND	ug/L	10		1	03/14/18	03/14/18 21:21	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/14/18	03/14/18 21:21	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Ethylbenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031426

WSP USA - Herndon, Herndon, VA

March 15, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: MW-32 (231-236)	Date/Time Sampled: 03/14/2018 15:25	PSS Sample ID: 18031426-004
Matrix: WATER	Date/Time Received: 03/14/2018 16:05	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/14/18	03/14/18 21:21	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Methyl Acetate	ND	ug/L	10		1	03/14/18	03/14/18 21:21	1011
Methylcyclohexane	ND	ug/L	10		1	03/14/18	03/14/18 21:21	1011
Methylene chloride	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/14/18	03/14/18 21:21	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Naphthalene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Styrene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Toluene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Trichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/14/18	03/14/18 21:21	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
Vinyl chloride	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011
m&p-Xylene	ND	ug/L	2.0		1	03/14/18	03/14/18 21:21	1011
o-Xylene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:21	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031426

WSP USA - Herndon, Herndon, VA

March 15, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: Trip Blank	Date/Time Sampled: 03/14/2018 16:05	PSS Sample ID: 18031426-005
Matrix: WATER	Date/Time Received: 03/14/2018 16:05	

TCL Volatile Organic Compounds
pH=7

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/14/18	03/14/18 21:42	1011
Benzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Bromochloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Bromoform	ND	ug/L	5.0		1	03/14/18	03/14/18 21:42	1011
Bromomethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/14/18	03/14/18 21:42	1011
Carbon Disulfide	ND	ug/L	10		1	03/14/18	03/14/18 21:42	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Chlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Chloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Chloroform	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Chloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Cyclohexane	ND	ug/L	10		1	03/14/18	03/14/18 21:42	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/14/18	03/14/18 21:42	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Ethylbenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031426

WSP USA - Herndon, Herndon, VA

March 15, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: Trip Blank	Date/Time Sampled: 03/14/2018 16:05	PSS Sample ID: 18031426-005
Matrix: WATER	Date/Time Received: 03/14/2018 16:05	

TCL Volatile Organic Compounds
pH=7

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/14/18	03/14/18 21:42	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Methyl Acetate	ND	ug/L	10		1	03/14/18	03/14/18 21:42	1011
Methylcyclohexane	ND	ug/L	10		1	03/14/18	03/14/18 21:42	1011
Methylene chloride	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/14/18	03/14/18 21:42	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Naphthalene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Styrene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Toluene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Trichloroethene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/14/18	03/14/18 21:42	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
Vinyl chloride	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011
m&p-Xylene	ND	ug/L	2.0		1	03/14/18	03/14/18 21:42	1011
o-Xylene	ND	ug/L	1.0		1	03/14/18	03/14/18 21:42	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18031426

Project ID: 31400389

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18031426

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	MW-32 (221-226)	Initial	18031426-001	1011	W	70412	151361	03/14/2018	03/14/2018 09:58	03/14/2018 20:18
	MW-32 (211-216)	Initial	18031426-002	1011	W	70412	151361	03/14/2018	03/14/2018 09:58	03/14/2018 20:39
	MW-32 (201-206)	Initial	18031426-003	1011	W	70412	151361	03/13/2018	03/14/2018 09:58	03/14/2018 21:00
	MW-32 (231-236)	Initial	18031426-004	1011	W	70412	151361	03/14/2018	03/14/2018 09:58	03/14/2018 21:21
	Trip Blank	Initial	18031426-005	1011	W	70412	151361	03/14/2018	03/14/2018 09:58	03/14/2018 21:42
	70412-1-BKS	BKS	70412-1-BKS	1011	W	70412	151361	-----	03/14/2018 09:58	03/14/2018 11:02
	70412-1-BLK	BLK	70412-1-BLK	1011	W	70412	151361	-----	03/14/2018 09:58	03/14/2018 12:17
	AM-BA S	MS	18030905-001 S	1011	W	70412	151361	03/09/2018	03/14/2018 09:58	03/14/2018 15:27
	AM-BA SD	MSD	18030905-001 SD	1011	W	70412	151361	03/09/2018	03/14/2018 09:58	03/14/2018 15:48

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031426

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151361

PSS Sample ID: 18031426-001

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/14/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	96		86-111	%	03/14/18 20:18
Dibromofluoromethane	101		91-119	%	03/14/18 20:18
Toluene-D8	103		90-117	%	03/14/18 20:18

Analytical Method: SW-846 8260 B

Seq Number: 151361

PSS Sample ID: 18031426-002

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/14/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	98		86-111	%	03/14/18 20:39
Dibromofluoromethane	100		91-119	%	03/14/18 20:39
Toluene-D8	103		90-117	%	03/14/18 20:39

Analytical Method: SW-846 8260 B

Seq Number: 151361

PSS Sample ID: 18031426-003

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/14/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	97		86-111	%	03/14/18 21:00
Dibromofluoromethane	100		91-119	%	03/14/18 21:00
Toluene-D8	105		90-117	%	03/14/18 21:00

Analytical Method: SW-846 8260 B

Seq Number: 151361

PSS Sample ID: 18031426-004

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/14/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	98		86-111	%	03/14/18 21:21
Dibromofluoromethane	102		91-119	%	03/14/18 21:21
Toluene-D8	101		90-117	%	03/14/18 21:21

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031426

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151361

PSS Sample ID: 18031426-005

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/14/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	104		86-111	%	03/14/18 21:42
Dibromofluoromethane	100		91-119	%	03/14/18 21:42
Toluene-D8	104		90-117	%	03/14/18 21:42

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031426

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151361

MB Sample Id: 70412-1-BLK

Matrix: Water

LCS Sample Id: 70412-1-BKS

Prep Method: SW5030B

Date Prep: 03/14/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	41.56	83	29-149	ug/L	03/14/18 11:02	
Benzene	<1.000	50.00	53.28	107	85-123	ug/L	03/14/18 11:02	
Bromochloromethane	<1.000	50.00	50.18	100	82-136	ug/L	03/14/18 11:02	
Bromodichloromethane	<1.000	50.00	54.19	108	88-133	ug/L	03/14/18 11:02	
Bromoform	<5.000	50.00	46.31	93	80-126	ug/L	03/14/18 11:02	
Bromomethane	<1.000	50.00	54.03	108	64-139	ug/L	03/14/18 11:02	
2-Butanone (MEK)	<10.00	50.00	36.55	73	39-135	ug/L	03/14/18 11:02	
Carbon Disulfide	<10.00	50.00	53.48	107	85-124	ug/L	03/14/18 11:02	
Carbon tetrachloride	<1.000	50.00	53.89	108	81-138	ug/L	03/14/18 11:02	
Chlorobenzene	<1.000	50.00	54.53	109	85-120	ug/L	03/14/18 11:02	
Chloroethane	<1.000	50.00	54.07	108	75-129	ug/L	03/14/18 11:02	
Chloroform	<1.000	50.00	50.89	102	85-128	ug/L	03/14/18 11:02	
Chloromethane	<1.000	50.00	55.95	112	60-139	ug/L	03/14/18 11:02	
Cyclohexane	<10.00	50.00	49.81	100	55-131	ug/L	03/14/18 11:02	
1,2-Dibromo-3-chloropropane	<5.000	50.00	44.37	89	69-127	ug/L	03/14/18 11:02	
Dibromochloromethane	<1.000	50.00	48.94	98	82-127	ug/L	03/14/18 11:02	
1,2-Dibromoethane	<1.000	50.00	53.76	108	82-121	ug/L	03/14/18 11:02	
1,2-Dichlorobenzene	<1.000	50.00	53.24	106	82-123	ug/L	03/14/18 11:02	
1,3-Dichlorobenzene	<1.000	50.00	54.29	109	81-123	ug/L	03/14/18 11:02	
1,4-Dichlorobenzene	<1.000	50.00	53.75	108	81-121	ug/L	03/14/18 11:02	
Dichlorodifluoromethane	<1.000	50.00	52.33	105	69-147	ug/L	03/14/18 11:02	
1,1-Dichloroethane	<1.000	50.00	51.93	104	83-123	ug/L	03/14/18 11:02	
1,2-Dichloroethane	<1.000	50.00	53.94	108	86-138	ug/L	03/14/18 11:02	
1,1-Dichloroethene	<1.000	50.00	53.59	107	85-127	ug/L	03/14/18 11:02	
cis-1,2-Dichloroethene	<1.000	50.00	53.56	107	87-127	ug/L	03/14/18 11:02	
1,2-Dichloropropane	<1.000	50.00	53.45	107	79-125	ug/L	03/14/18 11:02	
cis-1,3-Dichloropropene	<1.000	50.00	56.54	113	79-131	ug/L	03/14/18 11:02	
trans-1,3-Dichloropropene	<1.000	50.00	50.99	102	82-133	ug/L	03/14/18 11:02	
trans-1,2-Dichloroethene	<1.000	50.00	53.59	107	85-125	ug/L	03/14/18 11:02	
Ethylbenzene	<1.000	50.00	55.17	110	83-123	ug/L	03/14/18 11:02	
2-Hexanone (MBK)	<5.000	50.00	42.49	85	37-137	ug/L	03/14/18 11:02	
Isopropylbenzene	<1.000	50.00	55.04	110	70-131	ug/L	03/14/18 11:02	
Methyl Acetate	<10.00	50.00	46.24	92	69-127	ug/L	03/14/18 11:02	
Methylcyclohexane	<10.00	50.00	51.99	104	75-129	ug/L	03/14/18 11:02	
Methylene chloride	<1.000	50.00	54.13	108	86-124	ug/L	03/14/18 11:02	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	39.67	79	39-143	ug/L	03/14/18 11:02	
Methyl-t-Butyl Ether	<1.000	50.00	52.49	105	75-134	ug/L	03/14/18 11:02	
Naphthalene	<1.000	50.00	46.85	94	61-118	ug/L	03/14/18 11:02	
Styrene	<1.000	50.00	49.97	100	80-120	ug/L	03/14/18 11:02	
1,1,2,2-Tetrachloroethane	<1.000	50.00	52.18	104	64-125	ug/L	03/14/18 11:02	
Tetrachloroethene	<1.000	50.00	58.22	116	83-138	ug/L	03/14/18 11:02	
Toluene	<1.000	50.00	56.56	113	88-126	ug/L	03/14/18 11:02	
1,2,3-Trichlorobenzene	<1.000	50.00	54.61	109	75-124	ug/L	03/14/18 11:02	
1,2,4-Trichlorobenzene	<1.000	50.00	54.43	109	77-131	ug/L	03/14/18 11:02	
1,1,1-Trichloroethane	<1.000	50.00	52.96	106	68-146	ug/L	03/14/18 11:02	
1,1,2-Trichloroethane	<1.000	50.00	56.50	113	85-124	ug/L	03/14/18 11:02	
Trichloroethene	<1.000	50.00	54.41	109	87-127	ug/L	03/14/18 11:02	
Trichlorofluoromethane	<5.000	50.00	52.39	105	77-147	ug/L	03/14/18 11:02	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	52.76	106	68-135	ug/L	03/14/18 11:02	
Vinyl chloride	<1.000	50.00	44.94	90	74-138	ug/L	03/14/18 11:02	
m&p-Xylene	<2.000	100	98.57	99	84-124	ug/L	03/14/18 11:02	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031426

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151361

MB Sample Id: 70412-1-BLK

Matrix: Water

LCS Sample Id: 70412-1-BKS

Prep Method: SW5030B

Date Prep: 03/14/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	49.31	99	79-126	ug/L	03/14/18 11:02	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	97		97		86-111	%	03/14/18 11:02
Dibromofluoromethane	102		100		91-119	%	03/14/18 11:02
Toluene-D8	103		104		90-117	%	03/14/18 11:02

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com
email: info@phaseonline.com

1 *CLIENT: WSP		*OFFICE LOC: Herndon VA		PSS Work Order #: 18031426				PAGE 1 OF 1	
*PROJECT MGR: Eric Johnson		*PHONE NO.: (703) 709 6500		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe					
EMAIL: eric.johnson@wsp.com		FAX NO.: +		No. CONTAINERS					
*PROJECT NAME: Kapfuk		PROJECT NO.: 3400389		SAMPLE TYPE		Preservatives Used		Analysis/Method Required	
SITE LOCATION: Herndon, MD		P.O. NO.:		C = COMP		3		Hcl	
SAMPLER(S): MML		DW CERT NO.:		G = GRAB		*		bcl	
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)					REMARKS
1	MW-32 (221-226)	3/14/18	1250	Aq	3	G	X		
2	MW-32 (211-216)	3/14/18	0920	Aq	3	G	X		
3	MW-32 (201-206)	3/13/18	1745	Aq	3	G	X		
4	MW-32 (231-236)	3/14/18	1525	Aq	3	G	X		
5	Top Blank				2		X		
[Signature]									
5 Relinquished By: (1) R. [Signature]		Date	Time	Received By: [Signature]		4 *Requested TAT (One TAT per COC)		# of Coolers: 1 Temp Blank 1°C	
Relinquished By: (2)		Date	Time	Received By:		☐ 5-Day ☐ 3-Day ☐ 2-Day ☐ Next Day ☒ Emergency ☐ Other		Custody Seal: ABS	
Relinquished By: (3)		Date	Time	Received By:		Data Deliverables Required: COA QC SUMM CLP LIKE OTHER		Ice Present: PRES Temp: 5°-5°C	
Relinquished By: (4)		Date	Time	Received By:		Special Instructions: trip blank was provided by the lab		Shipping Carrier: Client	
						DW COMPLIANCE? YES ☐		EDD FORMAT TYPE	
								STATE RESULTS REPORTED TO: MD ☒ DE ☐ PA ☐ VA ☐ WV ☐ OTHER	

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The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18031426
Client Name WSP USA - Herndon
Project Name Kop Flex
Project Number 31400389
Disposal Date 04/18/2018
Shipping Container(s)
No. of Coolers 1

Received By Thomas Wingate
Date Received 03/14/2018 04:05:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Thomas Wingate

Custody Seal(s) Intact? N/A
Seal(s) Signed / Dated? N/A
Ice Present
Temp (deg C) 5
Temp Blank Present Yes

Documentation

COC agrees with sample labels? Yes
Chain of Custody Yes

Sampler Name Not Provided
N/A

Sample Container

Appropriate for Specified Analysis? Yes
Intact? Yes
Labeled and Labels Legible? Yes

Custody Seal(s) Intact? Not Applicable
Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 5

Total No. of Containers Received 14

Preservation

Total Metals (pH<2) N/A
Dissolved Metals, filtered within 15 minutes of collection (pH<2) N/A
Orthophosphorus, filtered within 15 minutes of collection N/A
Cyanides (pH>12) N/A
Sulfide (pH>9) N/A
TOC, DOC (field filtered), COD, Phenols (pH<2) N/A
TOX, TKN, NH3, Total Phos (pH<2) N/A
VOC, BTEX (VOA Vials Rcvd Preserved) (pH<2) Yes
Do VOA vials have zero headspace? Yes
624 VOC (Rcvd at least one unpreserved VOA vial) N/A
524 VOC (Rcvd with trip blanks) (pH<2) N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 03/14/2018

PM Review and Approval:

Lynn Jackson

Date: 03/14/2018

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 18031513

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400389



March 16, 2018
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PHASE SEPARATION SCIENCE, INC.



March 16, 2018

Eric Johnson

WSP USA - Herndon

13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Work Order(s) No: **18031513**

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID.: 31400389

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **18031513**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 19, 2018, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop Flex

Work Order Number(s): 18031513

Project ID: 31400389

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/15/2018 at 01:30 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18031513-001	MW-32 (261-266)	GROUND WATER	03/15/18 12:15
18031513-002	Trip Blank	WATER	03/15/18 12:47

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031513

WSP USA - Herndon, Herndon, VA

March 16, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: MW-32 (261-266)	Date/Time Sampled: 03/15/2018 12:15	PSS Sample ID: 18031513-001
Matrix: GROUND WATER	Date/Time Received: 03/15/2018 13:30	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/15/18	03/15/18 17:00	1011
Benzene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Bromochloromethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Bromoform	ND	ug/L	5.0		1	03/15/18	03/15/18 17:00	1011
Bromomethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/15/18	03/15/18 17:00	1011
Carbon Disulfide	ND	ug/L	10		1	03/15/18	03/15/18 17:00	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Chlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Chloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Chloroform	2.9	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Chloromethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Cyclohexane	ND	ug/L	10		1	03/15/18	03/15/18 17:00	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/15/18	03/15/18 17:00	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Ethylbenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011

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CERTIFICATE OF ANALYSIS

No: 18031513

WSP USA - Herndon, Herndon, VA

March 16, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: MW-32 (261-266)	Date/Time Sampled: 03/15/2018 12:15	PSS Sample ID: 18031513-001
Matrix: GROUND WATER	Date/Time Received: 03/15/2018 13:30	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/15/18	03/15/18 17:00	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Methyl Acetate	ND	ug/L	10		1	03/15/18	03/15/18 17:00	1011
Methylcyclohexane	ND	ug/L	10		1	03/15/18	03/15/18 17:00	1011
Methylene chloride	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/15/18	03/15/18 17:00	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Naphthalene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Styrene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Toluene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Trichloroethene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/15/18	03/15/18 17:00	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
Vinyl chloride	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011
m&p-Xylene	ND	ug/L	2.0		1	03/15/18	03/15/18 17:00	1011
o-Xylene	ND	ug/L	1.0		1	03/15/18	03/15/18 17:00	1011

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CERTIFICATE OF ANALYSIS

No: 18031513

WSP USA - Herndon, Herndon, VA

March 16, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: Trip Blank	Date/Time Sampled: 03/15/2018 12:47	PSS Sample ID: 18031513-002
Matrix: WATER	Date/Time Received: 03/15/2018 13:30	

TCL Volatile Organic Compounds
pH=7

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/15/18	03/15/18 16:40	1011
Benzene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Bromochloromethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Bromoform	ND	ug/L	5.0		1	03/15/18	03/15/18 16:40	1011
Bromomethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/15/18	03/15/18 16:40	1011
Carbon Disulfide	ND	ug/L	10		1	03/15/18	03/15/18 16:40	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Chlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Chloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Chloroform	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Chloromethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Cyclohexane	ND	ug/L	10		1	03/15/18	03/15/18 16:40	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/15/18	03/15/18 16:40	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Ethylbenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18031513

WSP USA - Herndon, Herndon, VA

March 16, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389

Sample ID: Trip Blank	Date/Time Sampled: 03/15/2018 12:47	PSS Sample ID: 18031513-002
Matrix: WATER	Date/Time Received: 03/15/2018 13:30	

TCL Volatile Organic Compounds
pH=7

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/15/18	03/15/18 16:40	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Methyl Acetate	ND	ug/L	10		1	03/15/18	03/15/18 16:40	1011
Methylcyclohexane	ND	ug/L	10		1	03/15/18	03/15/18 16:40	1011
Methylene chloride	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/15/18	03/15/18 16:40	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Naphthalene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Styrene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Toluene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Trichloroethene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/15/18	03/15/18 16:40	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
Vinyl chloride	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011
m&p-Xylene	ND	ug/L	2.0		1	03/15/18	03/15/18 16:40	1011
o-Xylene	ND	ug/L	1.0		1	03/15/18	03/15/18 16:40	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18031513

Project ID: 31400389

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18031513

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	MW-32 (261-266)	Initial	18031513-001	1011	W	70433	151416	03/15/2018	03/15/2018 08:12	03/15/2018 17:00
	Trip Blank	Initial	18031513-002	1011	W	70433	151416	03/15/2018	03/15/2018 08:12	03/15/2018 16:40
	70433-1-BKS	BKS	70433-1-BKS	1011	W	70433	151416	-----	03/15/2018 08:12	03/15/2018 10:37
	70433-1-BLK	BLK	70433-1-BLK	1011	W	70433	151416	-----	03/15/2018 08:12	03/15/2018 11:39
	Sinclair DW S	MS	18031508-001 S	1011	W	70433	151416	03/14/2018	03/15/2018 08:12	03/15/2018 15:16
	Sinclair DW SD	MSD	18031508-001 SD	1011	W	70433	151416	03/14/2018	03/15/2018 08:12	03/15/2018 15:37

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031513

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151416

PSS Sample ID: 18031513-001

Matrix: Ground Water

Prep Method: SW5030B

Date Prep: 03/15/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	94		86-111	%	03/15/18 17:00
Dibromofluoromethane	99		91-119	%	03/15/18 17:00
Toluene-D8	104		90-117	%	03/15/18 17:00

Analytical Method: SW-846 8260 B

Seq Number: 151416

PSS Sample ID: 18031513-002

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/15/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	98		86-111	%	03/15/18 16:40
Dibromofluoromethane	99		91-119	%	03/15/18 16:40
Toluene-D8	105		90-117	%	03/15/18 16:40

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031513

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151416

MB Sample Id: 70433-1-BLK

Matrix: Water

LCS Sample Id: 70433-1-BKS

Prep Method: SW5030B

Date Prep: 03/15/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	47.39	95	29-149	ug/L	03/15/18 10:37	
Benzene	<1.000	50.00	49.80	100	85-123	ug/L	03/15/18 10:37	
Bromochloromethane	<1.000	50.00	48.55	97	82-136	ug/L	03/15/18 10:37	
Bromodichloromethane	<1.000	50.00	52.05	104	88-133	ug/L	03/15/18 10:37	
Bromoform	<5.000	50.00	45.46	91	80-126	ug/L	03/15/18 10:37	
Bromomethane	<1.000	50.00	48.98	98	64-139	ug/L	03/15/18 10:37	
2-Butanone (MEK)	<10.00	50.00	43.88	88	39-135	ug/L	03/15/18 10:37	
Carbon Disulfide	<10.00	50.00	49.80	100	85-124	ug/L	03/15/18 10:37	
Carbon tetrachloride	<1.000	50.00	50.61	101	81-138	ug/L	03/15/18 10:37	
Chlorobenzene	<1.000	50.00	51.68	103	85-120	ug/L	03/15/18 10:37	
Chloroethane	<1.000	50.00	49.46	99	75-129	ug/L	03/15/18 10:37	
Chloroform	<1.000	50.00	48.35	97	85-128	ug/L	03/15/18 10:37	
Chloromethane	<1.000	50.00	49.54	99	60-139	ug/L	03/15/18 10:37	
Cyclohexane	<10.00	50.00	47.69	95	55-131	ug/L	03/15/18 10:37	
1,2-Dibromo-3-chloropropane	<5.000	50.00	46.68	93	69-127	ug/L	03/15/18 10:37	
Dibromochloromethane	<1.000	50.00	47.35	95	82-127	ug/L	03/15/18 10:37	
1,2-Dibromoethane	<1.000	50.00	53.07	106	82-121	ug/L	03/15/18 10:37	
1,2-Dichlorobenzene	<1.000	50.00	51.06	102	82-123	ug/L	03/15/18 10:37	
1,3-Dichlorobenzene	<1.000	50.00	52.03	104	81-123	ug/L	03/15/18 10:37	
1,4-Dichlorobenzene	<1.000	50.00	51.03	102	81-121	ug/L	03/15/18 10:37	
Dichlorodifluoromethane	<1.000	50.00	48.46	97	69-147	ug/L	03/15/18 10:37	
1,1-Dichloroethane	<1.000	50.00	48.81	98	83-123	ug/L	03/15/18 10:37	
1,2-Dichloroethane	<1.000	50.00	51.91	104	86-138	ug/L	03/15/18 10:37	
1,1-Dichloroethene	<1.000	50.00	50.05	100	85-127	ug/L	03/15/18 10:37	
cis-1,2-Dichloroethene	<1.000	50.00	50.70	101	87-127	ug/L	03/15/18 10:37	
1,2-Dichloropropane	<1.000	50.00	50.60	101	79-125	ug/L	03/15/18 10:37	
cis-1,3-Dichloropropene	<1.000	50.00	54.04	108	79-131	ug/L	03/15/18 10:37	
trans-1,3-Dichloropropene	<1.000	50.00	49.35	99	82-133	ug/L	03/15/18 10:37	
trans-1,2-Dichloroethene	<1.000	50.00	50.05	100	85-125	ug/L	03/15/18 10:37	
Ethylbenzene	<1.000	50.00	51.81	104	83-123	ug/L	03/15/18 10:37	
2-Hexanone (MBK)	<5.000	50.00	48.98	98	37-137	ug/L	03/15/18 10:37	
Isopropylbenzene	<1.000	50.00	51.83	104	70-131	ug/L	03/15/18 10:37	
Methyl Acetate	<10.00	50.00	47.08	94	69-127	ug/L	03/15/18 10:37	
Methylcyclohexane	<10.00	50.00	50.30	101	75-129	ug/L	03/15/18 10:37	
Methylene chloride	<1.000	50.00	52.33	105	86-124	ug/L	03/15/18 10:37	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	45.45	91	39-143	ug/L	03/15/18 10:37	
Methyl-t-Butyl Ether	<1.000	50.00	51.15	102	75-134	ug/L	03/15/18 10:37	
Naphthalene	<1.000	50.00	45.02	90	61-118	ug/L	03/15/18 10:37	
Styrene	<1.000	50.00	47.08	94	80-120	ug/L	03/15/18 10:37	
1,1,2,2-Tetrachloroethane	<1.000	50.00	52.26	105	64-125	ug/L	03/15/18 10:37	
Tetrachloroethene	<1.000	50.00	55.00	110	83-138	ug/L	03/15/18 10:37	
Toluene	<1.000	50.00	53.67	107	88-126	ug/L	03/15/18 10:37	
1,2,3-Trichlorobenzene	<1.000	50.00	50.76	102	75-124	ug/L	03/15/18 10:37	
1,2,4-Trichlorobenzene	<1.000	50.00	50.21	100	77-131	ug/L	03/15/18 10:37	
1,1,1-Trichloroethane	<1.000	50.00	49.98	100	68-146	ug/L	03/15/18 10:37	
1,1,2-Trichloroethane	<1.000	50.00	54.79	110	85-124	ug/L	03/15/18 10:37	
Trichloroethene	<1.000	50.00	50.89	102	87-127	ug/L	03/15/18 10:37	
Trichlorofluoromethane	<5.000	50.00	49.65	99	77-147	ug/L	03/15/18 10:37	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	50.50	101	68-135	ug/L	03/15/18 10:37	
Vinyl chloride	<1.000	50.00	40.26	81	74-138	ug/L	03/15/18 10:37	
m&p-Xylene	<2.000	100	93.34	93	84-124	ug/L	03/15/18 10:37	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18031513

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151416

MB Sample Id: 70433-1-BLK

Matrix: Water

LCS Sample Id: 70433-1-BKS

Prep Method: SW5030B

Date Prep: 03/15/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	46.69	93	79-126	ug/L	03/15/18 10:37	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	105		97		86-111	%	03/15/18 10:37
Dibromofluoromethane	99		100		91-119	%	03/15/18 10:37
Toluene-D8	105		104		90-117	%	03/15/18 10:37

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com
email: info@phaseonline.com

1 *CLIENT: WSP		*OFFICE LOC. Herndon, VA		PSS Work Order #: 18031513				PAGE 1 OF 1	
*PROJECT MGR: Eric Johnson		*PHONE NO.: (703) 799 6500		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe					
EMAIL: eric.johnson@wsp.com		FAX NO.: ()		No. CONTAINERS		SAMPLE TYPE C = COMP G = GRAB		Preservatives Used	
*PROJECT NAME: Knpflex		PROJECT NO.: 31400 389						Analysis/Method Required	
SITE LOCATION: Harover, MD		P.O. NO.:						(3)	
SAMPLER(S): MMK		DW CERT NO.:						*	
2	LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	No.	CONTAINERS	REMARKS	
		MW-32(261-266)	3/15/18	1215	GW	3	G		
		Trip Blank	3/15/18	1247		2	G		
									
5									
Relinquished By: (1) Molly Kelly		Date 3/15/18	Time 1330	Received By: [Signature]		4		*Requested TAT (One TAT per COC) ☐ 5-Day ☐ 3-Day ☐ 2-Day ☒ Next Day ☒ Emergency ☐ Other	
Relinquished By: (2)		Date	Time	Received By:		Data Deliverables Required: COA QC SUMM CLP LIKE OTHER		# of Coolers: 1 Temp Blank: 1°C Custody Seal: ABS	
Relinquished By: (3)		Date	Time	Received By:		Shipping Carrier: Client		Ice Present: PRES Temp: 5°-10°C	
Relinquished By: (4)		Date	Time	Received By:		Special Instructions: 24 hr. TAT			
				DW COMPLIANCE? YES ☐		EDD FORMAT TYPE		STATE RESULTS REPORTED TO: MD ☒ DE ☐ PA ☐ VA ☐ WV ☐ OTHER	

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18031513

Client Name WSP USA - Herndon

Project Name Kop Flex

Project Number 31400389

Disposal Date 04/19/2018

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 10

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name ML

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 2

Total No. of Containers Received 5

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 03/15/2018

PM Review and Approval:

Amber Confer

Date: 03/15/2018

MW-36 BOREHOLE

Analytical Report for

WSP USA - Herndon

Certificate of Analysis No.: 18032037

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400389/1



March 22, 2018

Phase Separation Science, Inc.

6630 Baltimore National Pike

Baltimore, MD 21228

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PHASE SEPARATION SCIENCE, INC.



March 22, 2018

Eric Johnson

WSP USA - Herndon

13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Work Order(s) No: **18032037**

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID.: 31400389/1

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **18032037**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 24, 2018, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop Flex

Work Order Number(s): 18032037

Project ID: 31400389/1

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/20/2018 at 05:10 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18032037-001	MW-36 (201-206)	GROUND WATER	03/20/18 16:20
18032037-002	Trip Blank	WATER	03/20/18 17:10

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032037

WSP USA - Herndon, Herndon, VA

March 22, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: MW-36 (201-206)	Date/Time Sampled: 03/20/2018 16:20	PSS Sample ID: 18032037-001
Matrix: GROUND WATER	Date/Time Received: 03/20/2018 17:10	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/20/18	03/20/18 20:42	1011
Benzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Bromochloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Bromoform	ND	ug/L	5.0		1	03/20/18	03/20/18 20:42	1011
Bromomethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/20/18	03/20/18 20:42	1011
Carbon Disulfide	ND	ug/L	10		1	03/20/18	03/20/18 20:42	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Chlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Chloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Chloroform	1.4	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Chloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Cyclohexane	ND	ug/L	10		1	03/20/18	03/20/18 20:42	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/20/18	03/20/18 20:42	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,1-Dichloroethane	5.5	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,2-Dichloroethane	1.4	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,1-Dichloroethene	110	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Ethylbenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032037

WSP USA - Herndon, Herndon, VA

March 22, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: MW-36 (201-206)	Date/Time Sampled: 03/20/2018 16:20	PSS Sample ID: 18032037-001
Matrix: GROUND WATER	Date/Time Received: 03/20/2018 17:10	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/20/18	03/20/18 20:42	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Methyl Acetate	ND	ug/L	10		1	03/20/18	03/20/18 20:42	1011
Methylcyclohexane	ND	ug/L	10		1	03/20/18	03/20/18 20:42	1011
Methylene chloride	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/20/18	03/20/18 20:42	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Naphthalene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Styrene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Toluene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,1,1-Trichloroethane	2.1	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Trichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/20/18	03/20/18 20:42	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
Vinyl chloride	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011
m&p-Xylene	ND	ug/L	2.0		1	03/20/18	03/20/18 20:42	1011
o-Xylene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:42	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032037

WSP USA - Herndon, Herndon, VA

March 22, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: Trip Blank	Date/Time Sampled: 03/20/2018 17:10	PSS Sample ID: 18032037-002
Matrix: WATER	Date/Time Received: 03/20/2018 17:10	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/20/18	03/20/18 20:20	1011
Benzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Bromochloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Bromoform	ND	ug/L	5.0		1	03/20/18	03/20/18 20:20	1011
Bromomethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/20/18	03/20/18 20:20	1011
Carbon Disulfide	ND	ug/L	10		1	03/20/18	03/20/18 20:20	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Chlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Chloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Chloroform	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Chloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Cyclohexane	ND	ug/L	10		1	03/20/18	03/20/18 20:20	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/20/18	03/20/18 20:20	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Ethylbenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032037

WSP USA - Herndon, Herndon, VA

March 22, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: Trip Blank	Date/Time Sampled: 03/20/2018 17:10	PSS Sample ID: 18032037-002
Matrix: WATER	Date/Time Received: 03/20/2018 17:10	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/20/18	03/20/18 20:20	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Methyl Acetate	ND	ug/L	10		1	03/20/18	03/20/18 20:20	1011
Methylcyclohexane	ND	ug/L	10		1	03/20/18	03/20/18 20:20	1011
Methylene chloride	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/20/18	03/20/18 20:20	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Naphthalene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Styrene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Toluene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Trichloroethene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/20/18	03/20/18 20:20	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
Vinyl chloride	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011
m&p-Xylene	ND	ug/L	2.0		1	03/20/18	03/20/18 20:20	1011
o-Xylene	ND	ug/L	1.0		1	03/20/18	03/20/18 20:20	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18032037

Project ID: 31400389/1

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18032037

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	MW-36 (201-206)	Initial	18032037-001	1011	W	70509	151553	03/20/2018	03/20/2018 08:55	03/20/2018 20:42
	Trip Blank	Initial	18032037-002	1011	W	70509	151553	03/20/2018	03/20/2018 08:55	03/20/2018 20:20
	70509-1-BKS	BKS	70509-1-BKS	1011	W	70509	151553	-----	03/20/2018 08:55	03/20/2018 10:00
	70509-1-BLK	BLK	70509-1-BLK	1011	W	70509	151553	-----	03/20/2018 08:55	03/20/2018 11:37
	12815-MW101-3/18 S	MS	18031619-001 S	1011	W	70509	151553	03/15/2018	03/20/2018 08:55	03/20/2018 13:31
	12815-MW101-3/18 SD	MSD	18031619-001 SD	1011	W	70509	151553	03/15/2018	03/20/2018 08:55	03/20/2018 13:56

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032037

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151553

PSS Sample ID: 18032037-001

Matrix: Ground Water

Prep Method: SW5030B

Date Prep: 03/20/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	102		86-111	%	03/20/18 20:42
Dibromofluoromethane	101		91-119	%	03/20/18 20:42
Toluene-D8	100		90-117	%	03/20/18 20:42

Analytical Method: SW-846 8260 B

Seq Number: 151553

PSS Sample ID: 18032037-002

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/20/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		86-111	%	03/20/18 20:20
Dibromofluoromethane	107		91-119	%	03/20/18 20:20
Toluene-D8	105		90-117	%	03/20/18 20:20

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032037

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151553

MB Sample Id: 70509-1-BLK

Matrix: Water

LCS Sample Id: 70509-1-BKS

Prep Method: SW5030B

Date Prep: 03/20/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	49.57	99	29-149	ug/L	03/20/18 10:00	
Benzene	<1.000	50.00	48.74	97	85-123	ug/L	03/20/18 10:00	
Bromochloromethane	<1.000	50.00	51.74	103	82-136	ug/L	03/20/18 10:00	
Bromodichloromethane	<1.000	50.00	53.11	106	88-133	ug/L	03/20/18 10:00	
Bromoform	<5.000	50.00	54.28	109	80-126	ug/L	03/20/18 10:00	
Bromomethane	<1.000	50.00	47.38	95	64-139	ug/L	03/20/18 10:00	
2-Butanone (MEK)	<10.00	50.00	44.51	89	39-135	ug/L	03/20/18 10:00	
Carbon Disulfide	<10.00	50.00	52.60	105	85-124	ug/L	03/20/18 10:00	
Carbon tetrachloride	<1.000	50.00	47.94	96	81-138	ug/L	03/20/18 10:00	
Chlorobenzene	<1.000	50.00	50.58	101	85-120	ug/L	03/20/18 10:00	
Chloroethane	<1.000	50.00	49.00	98	75-129	ug/L	03/20/18 10:00	
Chloroform	<1.000	50.00	48.16	96	85-128	ug/L	03/20/18 10:00	
Chloromethane	<1.000	50.00	46.17	92	60-139	ug/L	03/20/18 10:00	
Cyclohexane	<10.00	50.00	50.47	101	55-131	ug/L	03/20/18 10:00	
1,2-Dibromo-3-chloropropane	<5.000	50.00	48.94	98	69-127	ug/L	03/20/18 10:00	
Dibromochloromethane	<1.000	50.00	56.16	112	82-127	ug/L	03/20/18 10:00	
1,2-Dibromoethane	<1.000	50.00	52.69	105	82-121	ug/L	03/20/18 10:00	
1,2-Dichlorobenzene	<1.000	50.00	52.59	105	82-123	ug/L	03/20/18 10:00	
1,3-Dichlorobenzene	<1.000	50.00	52.57	105	81-123	ug/L	03/20/18 10:00	
1,4-Dichlorobenzene	<1.000	50.00	51.65	103	81-121	ug/L	03/20/18 10:00	
Dichlorodifluoromethane	<1.000	50.00	50.18	100	69-147	ug/L	03/20/18 10:00	
1,1-Dichloroethane	<1.000	50.00	49.13	98	83-123	ug/L	03/20/18 10:00	
1,2-Dichloroethane	<1.000	50.00	49.22	98	86-138	ug/L	03/20/18 10:00	
1,1-Dichloroethene	<1.000	50.00	48.94	98	85-127	ug/L	03/20/18 10:00	
cis-1,2-Dichloroethene	<1.000	50.00	48.72	97	87-127	ug/L	03/20/18 10:00	
1,2-Dichloropropane	<1.000	50.00	49.84	100	79-125	ug/L	03/20/18 10:00	
cis-1,3-Dichloropropene	<1.000	50.00	53.77	108	79-131	ug/L	03/20/18 10:00	
trans-1,3-Dichloropropene	<1.000	50.00	47.54	95	82-133	ug/L	03/20/18 10:00	
trans-1,2-Dichloroethene	<1.000	50.00	49.64	99	85-125	ug/L	03/20/18 10:00	
Ethylbenzene	<1.000	50.00	51.65	103	83-123	ug/L	03/20/18 10:00	
2-Hexanone (MBK)	<5.000	50.00	45.86	92	37-137	ug/L	03/20/18 10:00	
Isopropylbenzene	<1.000	50.00	50.99	102	70-131	ug/L	03/20/18 10:00	
Methyl Acetate	<10.00	50.00	43.90	88	69-127	ug/L	03/20/18 10:00	
Methylcyclohexane	<10.00	50.00	51.48	103	75-129	ug/L	03/20/18 10:00	
Methylene chloride	<1.000	50.00	49.04	98	86-124	ug/L	03/20/18 10:00	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	46.79	94	39-143	ug/L	03/20/18 10:00	
Methyl-t-Butyl Ether	<1.000	50.00	50.08	100	75-134	ug/L	03/20/18 10:00	
Naphthalene	<1.000	50.00	48.31	97	61-118	ug/L	03/20/18 10:00	
Styrene	<1.000	50.00	51.97	104	80-120	ug/L	03/20/18 10:00	
1,1,2,2-Tetrachloroethane	<1.000	50.00	52.41	105	64-125	ug/L	03/20/18 10:00	
Tetrachloroethene	<1.000	50.00	51.99	104	83-138	ug/L	03/20/18 10:00	
Toluene	<1.000	50.00	50.82	102	88-126	ug/L	03/20/18 10:00	
1,2,3-Trichlorobenzene	<1.000	50.00	48.10	96	75-124	ug/L	03/20/18 10:00	
1,2,4-Trichlorobenzene	<1.000	50.00	46.69	93	77-131	ug/L	03/20/18 10:00	
1,1,1-Trichloroethane	<1.000	50.00	50.40	101	68-146	ug/L	03/20/18 10:00	
1,1,2-Trichloroethane	<1.000	50.00	51.14	102	85-124	ug/L	03/20/18 10:00	
Trichloroethene	<1.000	50.00	50.36	101	87-127	ug/L	03/20/18 10:00	
Trichlorofluoromethane	<5.000	50.00	51.79	104	77-147	ug/L	03/20/18 10:00	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	46.66	93	68-135	ug/L	03/20/18 10:00	
Vinyl chloride	<1.000	50.00	50.84	102	74-138	ug/L	03/20/18 10:00	
m&p-Xylene	<2.000	100	104.6	105	84-124	ug/L	03/20/18 10:00	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032037

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151553

MB Sample Id: 70509-1-BLK

Matrix: Water

LCS Sample Id: 70509-1-BKS

Prep Method: SW5030B

Date Prep: 03/20/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	51.34	103	79-126	ug/L	03/20/18 10:00	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	101		101		86-111	%	03/20/18 10:00
Dibromofluoromethane	100		103		91-119	%	03/20/18 10:00
Toluene-D8	99		100		90-117	%	03/20/18 10:00

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com

email: info@phaseonline.com

[illegible]



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18032037

Client Name WSP USA - Herndon

Project Name Kop Flex

Project Number 31400389/1

Disposal Date 04/24/2018

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 4

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name MML

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 2

Total No. of Containers Received 5

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 03/20/2018

PM Review and Approval:

Lynn Jackson

Date: 03/20/2018

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 18032206

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400389/1



March 22, 2018
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PHASE SEPARATION SCIENCE, INC.



March 22, 2018

Eric Johnson

WSP USA - Herndon

13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Work Order(s) No: **18032206**

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID.: 31400389/1

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **18032206**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 26, 2018, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop Flex

Work Order Number(s): 18032206

Project ID: 31400389/1

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/22/2018 at 10:25 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18032206-001	MW-36 (231-236)	GROUND WATER	03/21/18 12:40
18032206-002	MW-36 (211-216)	GROUND WATER	03/20/18 18:55
18032206-003	Trip Blank	WATER	03/22/18 10:25

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032206

WSP USA - Herndon, Herndon, VA

March 22, 2018

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID: 31400389/1

Sample ID: MW-36 (231-236)	Date/Time Sampled: 03/21/2018 12:40	PSS Sample ID: 18032206-001
Matrix: GROUND WATER	Date/Time Received: 03/22/2018 10:25	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/22/18	03/22/18 13:22	1011
Benzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Bromochloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Bromoform	ND	ug/L	5.0		1	03/22/18	03/22/18 13:22	1011
Bromomethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/22/18	03/22/18 13:22	1011
Carbon Disulfide	ND	ug/L	10		1	03/22/18	03/22/18 13:22	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Chlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Chloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Chloroform	1.3	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Chloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Cyclohexane	ND	ug/L	10		1	03/22/18	03/22/18 13:22	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/22/18	03/22/18 13:22	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,1-Dichloroethene	7.0	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Ethylbenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032206

WSP USA - Herndon, Herndon, VA

March 22, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: MW-36 (231-236)	Date/Time Sampled: 03/21/2018 12:40	PSS Sample ID: 18032206-001
Matrix: GROUND WATER	Date/Time Received: 03/22/2018 10:25	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/22/18	03/22/18 13:22	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Methyl Acetate	ND	ug/L	10		1	03/22/18	03/22/18 13:22	1011
Methylcyclohexane	ND	ug/L	10		1	03/22/18	03/22/18 13:22	1011
Methylene chloride	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/22/18	03/22/18 13:22	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Naphthalene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Styrene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Toluene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Trichloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/22/18	03/22/18 13:22	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
Vinyl chloride	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011
m&p-Xylene	ND	ug/L	2.0		1	03/22/18	03/22/18 13:22	1011
o-Xylene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:22	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032206

WSP USA - Herndon, Herndon, VA

March 22, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: MW-36 (211-216)	Date/Time Sampled: 03/20/2018 18:55	PSS Sample ID: 18032206-002
Matrix: GROUND WATER	Date/Time Received: 03/22/2018 10:25	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/22/18	03/22/18 13:43	1011
Benzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Bromochloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Bromoform	ND	ug/L	5.0		1	03/22/18	03/22/18 13:43	1011
Bromomethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/22/18	03/22/18 13:43	1011
Carbon Disulfide	ND	ug/L	10		1	03/22/18	03/22/18 13:43	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Chlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Chloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Chloroform	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Chloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Cyclohexane	ND	ug/L	10		1	03/22/18	03/22/18 13:43	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/22/18	03/22/18 13:43	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,1-Dichloroethane	5.0	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,2-Dichloroethane	1.4	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,1-Dichloroethene	130	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Ethylbenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032206

WSP USA - Herndon, Herndon, VA

March 22, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: MW-36 (211-216)	Date/Time Sampled: 03/20/2018 18:55	PSS Sample ID: 18032206-002
Matrix: GROUND WATER	Date/Time Received: 03/22/2018 10:25	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/22/18	03/22/18 13:43	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Methyl Acetate	ND	ug/L	10		1	03/22/18	03/22/18 13:43	1011
Methylcyclohexane	ND	ug/L	10		1	03/22/18	03/22/18 13:43	1011
Methylene chloride	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/22/18	03/22/18 13:43	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Naphthalene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Styrene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Toluene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,1,1-Trichloroethane	2.8	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Trichloroethene	1.2	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/22/18	03/22/18 13:43	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
Vinyl chloride	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011
m&p-Xylene	ND	ug/L	2.0		1	03/22/18	03/22/18 13:43	1011
o-Xylene	ND	ug/L	1.0		1	03/22/18	03/22/18 13:43	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032206

WSP USA - Herndon, Herndon, VA

March 22, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: Trip Blank	Date/Time Sampled: 03/22/2018 10:25	PSS Sample ID: 18032206-003
Matrix: WATER	Date/Time Received: 03/22/2018 10:25	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/22/18	03/22/18 12:41	1011
Benzene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Bromochloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Bromoform	ND	ug/L	5.0		1	03/22/18	03/22/18 12:41	1011
Bromomethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/22/18	03/22/18 12:41	1011
Carbon Disulfide	ND	ug/L	10		1	03/22/18	03/22/18 12:41	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Chlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Chloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Chloroform	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Chloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Cyclohexane	ND	ug/L	10		1	03/22/18	03/22/18 12:41	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/22/18	03/22/18 12:41	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Ethylbenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011

OFFICES:
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032206

WSP USA - Herndon, Herndon, VA

March 22, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: Trip Blank	Date/Time Sampled: 03/22/2018 10:25	PSS Sample ID: 18032206-003
Matrix: WATER	Date/Time Received: 03/22/2018 10:25	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/22/18	03/22/18 12:41	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Methyl Acetate	ND	ug/L	10		1	03/22/18	03/22/18 12:41	1011
Methylcyclohexane	ND	ug/L	10		1	03/22/18	03/22/18 12:41	1011
Methylene chloride	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/22/18	03/22/18 12:41	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Naphthalene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Styrene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Toluene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Trichloroethene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/22/18	03/22/18 12:41	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
Vinyl chloride	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011
m&p-Xylene	ND	ug/L	2.0		1	03/22/18	03/22/18 12:41	1011
o-Xylene	ND	ug/L	1.0		1	03/22/18	03/22/18 12:41	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18032206

Project ID: 31400389/1

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

General Comments:

Changed TAT to emergency, per client.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18032206

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	MW-36 (231-236)	Initial	18032206-001	1011	W	70520	151557	03/21/2018	03/22/2018 09:08	03/22/2018 13:22
	MW-36 (211-216)	Initial	18032206-002	1011	W	70520	151557	03/20/2018	03/22/2018 09:08	03/22/2018 13:43
	Trip Blank	Initial	18032206-003	1011	W	70520	151557	03/22/2018	03/22/2018 09:08	03/22/2018 12:41
	70520-1-BKS	BKS	70520-1-BKS	1011	W	70520	151557	-----	03/22/2018 09:08	03/22/2018 11:07
	70520-1-BLK	BLK	70520-1-BLK	1011	W	70520	151557	-----	03/22/2018 09:08	03/22/2018 11:49

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032206

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151557

PSS Sample ID: 18032206-001

Matrix: Ground Water

Prep Method: SW5030B

Date Prep: 03/22/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	100		86-111	%	03/22/18 13:22
Dibromofluoromethane	99		91-119	%	03/22/18 13:22
Toluene-D8	104		90-117	%	03/22/18 13:22

Analytical Method: SW-846 8260 B

Seq Number: 151557

PSS Sample ID: 18032206-002

Matrix: Ground Water

Prep Method: SW5030B

Date Prep: 03/22/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	99		86-111	%	03/22/18 13:43
Dibromofluoromethane	99		91-119	%	03/22/18 13:43
Toluene-D8	105		90-117	%	03/22/18 13:43

Analytical Method: SW-846 8260 B

Seq Number: 151557

PSS Sample ID: 18032206-003

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/22/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	95		86-111	%	03/22/18 12:41
Dibromofluoromethane	100		91-119	%	03/22/18 12:41
Toluene-D8	106		90-117	%	03/22/18 12:41

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS, BSD or both exceeded the laboratory control limits

L = Recovery of BS, BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032206

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151557

MB Sample Id: 70520-1-BLK

Matrix: Water

LCS Sample Id: 70520-1-BKS

Prep Method: SW5030B

Date Prep: 03/22/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	44.72	89	29-149	ug/L	03/22/18 11:07	
Benzene	<1.000	50.00	48.48	97	85-123	ug/L	03/22/18 11:07	
Bromochloromethane	<1.000	50.00	46.66	93	82-136	ug/L	03/22/18 11:07	
Bromodichloromethane	<1.000	50.00	49.50	99	88-133	ug/L	03/22/18 11:07	
Bromoform	<5.000	50.00	42.64	85	80-126	ug/L	03/22/18 11:07	
Bromomethane	<1.000	50.00	49.59	99	64-139	ug/L	03/22/18 11:07	
2-Butanone (MEK)	<10.00	50.00	41.30	83	39-135	ug/L	03/22/18 11:07	
Carbon Disulfide	<10.00	50.00	50.63	101	85-124	ug/L	03/22/18 11:07	
Carbon tetrachloride	<1.000	50.00	50.61	101	81-138	ug/L	03/22/18 11:07	
Chlorobenzene	<1.000	50.00	50.39	101	85-120	ug/L	03/22/18 11:07	
Chloroethane	<1.000	50.00	48.98	98	75-129	ug/L	03/22/18 11:07	
Chloroform	<1.000	50.00	46.79	94	85-128	ug/L	03/22/18 11:07	
Chloromethane	<1.000	50.00	49.84	100	60-139	ug/L	03/22/18 11:07	
Cyclohexane	<10.00	50.00	48.01	96	55-131	ug/L	03/22/18 11:07	
1,2-Dibromo-3-chloropropane	<5.000	50.00	39.90	80	69-127	ug/L	03/22/18 11:07	
Dibromochloromethane	<1.000	50.00	44.24	88	82-127	ug/L	03/22/18 11:07	
1,2-Dibromoethane	<1.000	50.00	48.89	98	82-121	ug/L	03/22/18 11:07	
1,2-Dichlorobenzene	<1.000	50.00	49.88	100	82-123	ug/L	03/22/18 11:07	
1,3-Dichlorobenzene	<1.000	50.00	50.37	101	81-123	ug/L	03/22/18 11:07	
1,4-Dichlorobenzene	<1.000	50.00	49.44	99	81-121	ug/L	03/22/18 11:07	
Dichlorodifluoromethane	<1.000	50.00	51.12	102	69-147	ug/L	03/22/18 11:07	
1,1-Dichloroethane	<1.000	50.00	46.94	94	83-123	ug/L	03/22/18 11:07	
1,2-Dichloroethane	<1.000	50.00	47.66	95	86-138	ug/L	03/22/18 11:07	
1,1-Dichloroethene	<1.000	50.00	48.17	96	85-127	ug/L	03/22/18 11:07	
cis-1,2-Dichloroethene	<1.000	50.00	49.30	99	87-127	ug/L	03/22/18 11:07	
1,2-Dichloropropane	<1.000	50.00	48.12	96	79-125	ug/L	03/22/18 11:07	
cis-1,3-Dichloropropene	<1.000	50.00	51.04	102	79-131	ug/L	03/22/18 11:07	
trans-1,3-Dichloropropene	<1.000	50.00	46.21	92	82-133	ug/L	03/22/18 11:07	
trans-1,2-Dichloroethene	<1.000	50.00	49.00	98	85-125	ug/L	03/22/18 11:07	
Ethylbenzene	<1.000	50.00	50.40	101	83-123	ug/L	03/22/18 11:07	
2-Hexanone (MBK)	<5.000	50.00	47.43	95	37-137	ug/L	03/22/18 11:07	
Isopropylbenzene	<1.000	50.00	50.39	101	70-131	ug/L	03/22/18 11:07	
Methyl Acetate	<10.00	50.00	44.04	88	69-127	ug/L	03/22/18 11:07	
Methylcyclohexane	<10.00	50.00	53.33	107	75-129	ug/L	03/22/18 11:07	
Methylene chloride	<1.000	50.00	49.09	98	86-124	ug/L	03/22/18 11:07	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	43.87	88	39-143	ug/L	03/22/18 11:07	
Methyl-t-Butyl Ether	<1.000	50.00	46.02	92	75-134	ug/L	03/22/18 11:07	
Naphthalene	<1.000	50.00	43.09	86	61-118	ug/L	03/22/18 11:07	
Styrene	<1.000	50.00	45.66	91	80-120	ug/L	03/22/18 11:07	
1,1,2,2-Tetrachloroethane	<1.000	50.00	46.69	93	64-125	ug/L	03/22/18 11:07	
Tetrachloroethene	<1.000	50.00	56.90	114	83-138	ug/L	03/22/18 11:07	
Toluene	<1.000	50.00	52.58	105	88-126	ug/L	03/22/18 11:07	
1,2,3-Trichlorobenzene	<1.000	50.00	50.88	102	75-124	ug/L	03/22/18 11:07	
1,2,4-Trichlorobenzene	<1.000	50.00	51.50	103	77-131	ug/L	03/22/18 11:07	
1,1,1-Trichloroethane	<1.000	50.00	48.70	97	68-146	ug/L	03/22/18 11:07	
1,1,2-Trichloroethane	<1.000	50.00	51.87	104	85-124	ug/L	03/22/18 11:07	
Trichloroethene	<1.000	50.00	50.49	101	87-127	ug/L	03/22/18 11:07	
Trichlorofluoromethane	<5.000	50.00	50.94	102	77-147	ug/L	03/22/18 11:07	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	54.35	109	68-135	ug/L	03/22/18 11:07	
Vinyl chloride	<1.000	50.00	39.70	79	74-138	ug/L	03/22/18 11:07	
m&p-Xylene	<2.000	100	90.91	91	84-124	ug/L	03/22/18 11:07	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032206

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151557

MB Sample Id: 70520-1-BLK

Matrix: Water

LCS Sample Id: 70520-1-BKS

Prep Method: SW5030B

Date Prep: 03/22/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	45.26	91	79-126	ug/L	03/22/18 11:07	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	97		96		86-111	%	03/22/18 11:07
Dibromofluoromethane	99		100		91-119	%	03/22/18 11:07
Toluene-D8	105		105		90-117	%	03/22/18 11:07

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

18032206

Page 1 of 1

Version 1.000
Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18032206

Client Name WSP USA - Herndon

Project Name Kop Flex

Project Number 31400389/1

Disposal Date 04/26/2018

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 2

Temp Blank Present No

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Molly Long

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 3

Total No. of Containers Received 8

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Thomas Wingate

Date: 03/22/2018

PM Review and Approval:

Amber Confer

Date: 03/22/2018

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 18032326

Project Manager: Eric Johnson

Project Name : Kop Flex

Project Location: Hanover, MD

Project ID : 31400389/1



March 26, 2018
Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
Phone: (410) 747-8770
Fax: (410) 788-8723

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PHASE SEPARATION SCIENCE, INC.



March 26, 2018

Eric Johnson

WSP USA - Herndon

13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Work Order(s) No: **18032326**

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID.: 31400389/1

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **18032326**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 27, 2018, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop Flex

Work Order Number(s): 18032326

Project ID: 31400389/1

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/23/2018 at 12:35 pm

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18032326-001	MW-36 (281-286)	GROUND WATER	03/23/18 11:35
18032326-002	Trip Blank	WATER	03/23/18 12:40

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032326

WSP USA - Herndon, Herndon, VA

March 26, 2018

Project Name: Kop Flex

Project Location: Hanover, MD

Project ID: 31400389/1

Sample ID: MW-36 (281-286)	Date/Time Sampled: 03/23/2018 11:35	PSS Sample ID: 18032326-001
Matrix: GROUND WATER	Date/Time Received: 03/23/2018 12:35	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/24/18	03/24/18 18:04	1011
Benzene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Bromochloromethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Bromoform	ND	ug/L	5.0		1	03/24/18	03/24/18 18:04	1011
Bromomethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/24/18	03/24/18 18:04	1011
Carbon Disulfide	ND	ug/L	10		1	03/24/18	03/24/18 18:04	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Chlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Chloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Chloroform	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Chloromethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Cyclohexane	ND	ug/L	10		1	03/24/18	03/24/18 18:04	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/24/18	03/24/18 18:04	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Ethylbenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032326

WSP USA - Herndon, Herndon, VA

March 26, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: MW-36 (281-286)	Date/Time Sampled: 03/23/2018 11:35	PSS Sample ID: 18032326-001
Matrix: GROUND WATER	Date/Time Received: 03/23/2018 12:35	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/24/18	03/24/18 18:04	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Methyl Acetate	ND	ug/L	10		1	03/24/18	03/24/18 18:04	1011
Methylcyclohexane	ND	ug/L	10		1	03/24/18	03/24/18 18:04	1011
Methylene chloride	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/24/18	03/24/18 18:04	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Naphthalene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Styrene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Toluene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Trichloroethene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/24/18	03/24/18 18:04	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
Vinyl chloride	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011
m&p-Xylene	ND	ug/L	2.0		1	03/24/18	03/24/18 18:04	1011
o-Xylene	ND	ug/L	1.0		1	03/24/18	03/24/18 18:04	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032326

WSP USA - Herndon, Herndon, VA

March 26, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: Trip Blank	Date/Time Sampled: 03/23/2018 12:40	PSS Sample ID: 18032326-002
Matrix: WATER	Date/Time Received: 03/23/2018 12:35	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/24/18	03/24/18 17:43	1011
Benzene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Bromochloromethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Bromoform	ND	ug/L	5.0		1	03/24/18	03/24/18 17:43	1011
Bromomethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/24/18	03/24/18 17:43	1011
Carbon Disulfide	ND	ug/L	10		1	03/24/18	03/24/18 17:43	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Chlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Chloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Chloroform	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Chloromethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Cyclohexane	ND	ug/L	10		1	03/24/18	03/24/18 17:43	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/24/18	03/24/18 17:43	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Ethylbenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032326

WSP USA - Herndon, Herndon, VA

March 26, 2018

Project Name: Kop Flex
Project Location: Hanover, MD
Project ID: 31400389/1

Sample ID: Trip Blank	Date/Time Sampled: 03/23/2018 12:40	PSS Sample ID: 18032326-002
Matrix: WATER	Date/Time Received: 03/23/2018 12:35	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/24/18	03/24/18 17:43	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Methyl Acetate	ND	ug/L	10		1	03/24/18	03/24/18 17:43	1011
Methylcyclohexane	ND	ug/L	10		1	03/24/18	03/24/18 17:43	1011
Methylene chloride	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/24/18	03/24/18 17:43	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Naphthalene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Styrene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Toluene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Trichloroethene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/24/18	03/24/18 17:43	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
Vinyl chloride	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011
m&p-Xylene	ND	ug/L	2.0		1	03/24/18	03/24/18 17:43	1011
o-Xylene	ND	ug/L	1.0		1	03/24/18	03/24/18 17:43	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop Flex

Work Order Number(s): 18032326

Project ID: 31400389/1

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

Containers received labeled with sampling date of 3/22/18.

Analytical:

TCL Volatile Organic Compounds

Batch: 151621

Laboratory control sample and/or laboratory control sample duplicate (LCS/LCSD) exceedances identified; see LCS summary form.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18032326

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop Flex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	MW-36 (281-286)	Initial	18032326-001	1011	W	70559	151621	03/23/2018	03/24/2018 14:40	03/24/2018 18:04
	Trip Blank	Initial	18032326-002	1011	W	70559	151621	03/23/2018	03/24/2018 14:40	03/24/2018 17:43
	70559-1-BKS	BKS	70559-1-BKS	1011	W	70559	151621	-----	03/24/2018 14:40	03/24/2018 15:39
	70559-1-BLK	BLK	70559-1-BLK	1011	W	70559	151621	-----	03/24/2018 14:40	03/24/2018 16:41
	MW-36 (281-286) S	MS	18032326-001 S	1011	W	70559	151621	03/23/2018	03/24/2018 14:40	03/24/2018 18:25
	MW-36 (281-286) SD	MSD	18032326-001 SD	1011	W	70559	151621	03/23/2018	03/24/2018 14:40	03/24/2018 18:46

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032326

WSP USA - Herndon
Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151621

PSS Sample ID: 18032326-001

Matrix: Ground Water

Prep Method: SW5030B

Date Prep: 03/24/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	103		86-111	%	03/24/18 18:04
Dibromofluoromethane	100		91-119	%	03/24/18 18:04
Toluene-D8	101		90-117	%	03/24/18 18:04

Analytical Method: SW-846 8260 B

Seq Number: 151621

PSS Sample ID: 18032326-002

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/24/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	104		86-111	%	03/24/18 17:43
Dibromofluoromethane	100		91-119	%	03/24/18 17:43
Toluene-D8	101		90-117	%	03/24/18 17:43

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032326

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151621

MB Sample Id: 70559-1-BLK

Matrix: Water

LCS Sample Id: 70559-1-BKS

Prep Method: SW5030B

Date Prep: 03/24/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	36.04	72	29-149	ug/L	03/24/18 15:39	
Benzene	<1.000	50.00	46.16	92	85-123	ug/L	03/24/18 15:39	
Bromochloromethane	<1.000	50.00	41.16	82	82-136	ug/L	03/24/18 15:39	
Bromodichloromethane	<1.000	50.00	41.27	83	88-133	ug/L	03/24/18 15:39	L
Bromoform	<5.000	50.00	40.23	80	80-126	ug/L	03/24/18 15:39	
Bromomethane	<1.000	50.00	38.14	76	64-139	ug/L	03/24/18 15:39	
2-Butanone (MEK)	<10.00	50.00	35.64	71	39-135	ug/L	03/24/18 15:39	
Carbon Disulfide	<10.00	50.00	47.10	94	85-124	ug/L	03/24/18 15:39	
Carbon tetrachloride	<1.000	50.00	41.28	83	81-138	ug/L	03/24/18 15:39	
Chlorobenzene	<1.000	50.00	46.02	92	85-120	ug/L	03/24/18 15:39	
Chloroethane	<1.000	50.00	46.59	93	75-129	ug/L	03/24/18 15:39	
Chloroform	<1.000	50.00	41.05	82	85-128	ug/L	03/24/18 15:39	L
Chloromethane	<1.000	50.00	43.90	88	60-139	ug/L	03/24/18 15:39	
Cyclohexane	<10.00	50.00	42.48	85	55-131	ug/L	03/24/18 15:39	
1,2-Dibromo-3-chloropropane	<5.000	50.00	38.96	78	69-127	ug/L	03/24/18 15:39	
Dibromochloromethane	<1.000	50.00	41.33	83	82-127	ug/L	03/24/18 15:39	
1,2-Dibromoethane	<1.000	50.00	40.94	82	82-121	ug/L	03/24/18 15:39	
1,2-Dichlorobenzene	<1.000	50.00	41.93	84	82-123	ug/L	03/24/18 15:39	
1,3-Dichlorobenzene	<1.000	50.00	47.20	94	81-123	ug/L	03/24/18 15:39	
1,4-Dichlorobenzene	<1.000	50.00	46.19	92	81-121	ug/L	03/24/18 15:39	
Dichlorodifluoromethane	<1.000	50.00	43.37	87	69-147	ug/L	03/24/18 15:39	
1,1-Dichloroethane	<1.000	50.00	45.60	91	83-123	ug/L	03/24/18 15:39	
1,2-Dichloroethane	<1.000	50.00	45.54	91	86-138	ug/L	03/24/18 15:39	
1,1-Dichloroethene	<1.000	50.00	46.63	93	85-127	ug/L	03/24/18 15:39	
cis-1,2-Dichloroethene	<1.000	50.00	45.75	92	87-127	ug/L	03/24/18 15:39	
1,2-Dichloropropane	<1.000	50.00	42.00	84	79-125	ug/L	03/24/18 15:39	
cis-1,3-Dichloropropene	<1.000	50.00	41.44	83	79-131	ug/L	03/24/18 15:39	
trans-1,3-Dichloropropene	<1.000	50.00	41.43	83	82-133	ug/L	03/24/18 15:39	
trans-1,2-Dichloroethene	<1.000	50.00	45.59	91	85-125	ug/L	03/24/18 15:39	
Ethylbenzene	<1.000	50.00	41.43	83	83-123	ug/L	03/24/18 15:39	
2-Hexanone (MBK)	<5.000	50.00	35.43	71	37-137	ug/L	03/24/18 15:39	
Isopropylbenzene	<1.000	50.00	42.15	84	70-131	ug/L	03/24/18 15:39	
Methyl Acetate	<10.00	50.00	38.31	77	69-127	ug/L	03/24/18 15:39	
Methylcyclohexane	<10.00	50.00	43.20	86	75-129	ug/L	03/24/18 15:39	
Methylene chloride	<1.000	50.00	44.84	90	86-124	ug/L	03/24/18 15:39	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	35.72	71	39-143	ug/L	03/24/18 15:39	
Methyl-t-Butyl Ether	<1.000	50.00	41.33	83	75-134	ug/L	03/24/18 15:39	
Naphthalene	<1.000	50.00	40.21	80	61-118	ug/L	03/24/18 15:39	
Styrene	<1.000	50.00	41.89	84	80-120	ug/L	03/24/18 15:39	
1,1,2,2-Tetrachloroethane	<1.000	50.00	43.86	88	64-125	ug/L	03/24/18 15:39	
Tetrachloroethene	<1.000	50.00	45.71	91	83-138	ug/L	03/24/18 15:39	
Toluene	<1.000	50.00	41.69	83	88-126	ug/L	03/24/18 15:39	L
1,2,3-Trichlorobenzene	<1.000	50.00	42.29	85	75-124	ug/L	03/24/18 15:39	
1,2,4-Trichlorobenzene	<1.000	50.00	43.49	87	77-131	ug/L	03/24/18 15:39	
1,1,1-Trichloroethane	<1.000	50.00	46.15	92	68-146	ug/L	03/24/18 15:39	
1,1,2-Trichloroethane	<1.000	50.00	45.04	90	85-124	ug/L	03/24/18 15:39	
Trichloroethene	<1.000	50.00	45.97	92	87-127	ug/L	03/24/18 15:39	
Trichlorofluoromethane	<5.000	50.00	46.86	94	77-147	ug/L	03/24/18 15:39	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	42.75	86	68-135	ug/L	03/24/18 15:39	
Vinyl chloride	<1.000	50.00	44.20	88	74-138	ug/L	03/24/18 15:39	
m&p-Xylene	<2.000	100	83.03	83	84-124	ug/L	03/24/18 15:39	L

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032326

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151621

MB Sample Id: 70559-1-BLK

Matrix: Water

LCS Sample Id: 70559-1-BKS

Prep Method: SW5030B

Date Prep: 03/24/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	41.26	83	79-126	ug/L	03/24/18 15:39	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	103		99		86-111	%	03/24/18 15:39
Dibromofluoromethane	99		100		91-119	%	03/24/18 15:39
Toluene-D8	100		100		90-117	%	03/24/18 15:39

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032326

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151621

Parent Sample Id: 18032326-001

Matrix: Ground Water

MS Sample Id: 18032326-001 S

Prep Method: SW5030B

Date Prep: 03/24/18

MSD Sample Id: 18032326-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Acetone	<10.00	50.00	53.59	107	58.08	116	46-138	8	25	ug/L	03/24/18 18:25	
Benzene	<1.000	50.00	51.89	104	52.64	105	77-126	1	25	ug/L	03/24/18 18:25	
Bromochloromethane	<1.000	50.00	45.97	92	46.89	94	74-133	2	25	ug/L	03/24/18 18:25	
Bromodichloromethane	<1.000	50.00	46.18	92	47.21	94	79-130	2	25	ug/L	03/24/18 18:25	
Bromoform	<5.000	50.00	44.51	89	45.52	91	69-120	2	25	ug/L	03/24/18 18:25	
Bromomethane	<1.000	50.00	42.28	85	41.72	83	64-130	1	25	ug/L	03/24/18 18:25	
2-Butanone (MEK)	<10.00	50.00	41.84	84	44.47	89	34-126	6	25	ug/L	03/24/18 18:25	
Carbon Disulfide	<10.00	50.00	51.74	103	52.24	104	76-126	1	25	ug/L	03/24/18 18:25	
Carbon tetrachloride	<1.000	50.00	46.10	92	46.57	93	77-137	1	25	ug/L	03/24/18 18:25	
Chlorobenzene	<1.000	50.00	50.52	101	51.03	102	74-120	1	25	ug/L	03/24/18 18:25	
Chloroethane	<1.000	50.00	50.74	101	51.24	102	68-133	1	25	ug/L	03/24/18 18:25	
Chloroform	<1.000	50.00	47.02	94	47.15	94	77-127	0	25	ug/L	03/24/18 18:25	
Chloromethane	<1.000	50.00	44.53	89	46.14	92	50-143	4	25	ug/L	03/24/18 18:25	
Cyclohexane	<10.00	50.00	44.70	89	45.27	91	53-139	1	25	ug/L	03/24/18 18:25	
1,2-Dibromo-3-chloropropane	<5.000	50.00	44.26	89	46.65	93	56-123	5	25	ug/L	03/24/18 18:25	
Dibromochloromethane	<1.000	50.00	45.47	91	46.17	92	70-125	2	25	ug/L	03/24/18 18:25	
1,2-Dibromoethane	<1.000	50.00	45.14	90	46.60	93	69-121	3	25	ug/L	03/24/18 18:25	
1,2-Dichlorobenzene	<1.000	50.00	44.84	90	45.35	91	69-118	1	25	ug/L	03/24/18 18:25	
1,3-Dichlorobenzene	<1.000	50.00	50.23	100	50.36	101	68-119	0	25	ug/L	03/24/18 18:25	
1,4-Dichlorobenzene	<1.000	50.00	49.07	98	49.35	99	67-117	1	25	ug/L	03/24/18 18:25	
Dichlorodifluoromethane	<1.000	50.00	43.92	88	44.73	89	68-139	2	25	ug/L	03/24/18 18:25	
1,1-Dichloroethane	<1.000	50.00	50.98	102	52.30	105	78-126	3	25	ug/L	03/24/18 18:25	
1,2-Dichloroethane	<1.000	50.00	51.23	102	52.05	104	78-134	2	25	ug/L	03/24/18 18:25	
1,1-Dichloroethene	<1.000	50.00	51.01	102	51.62	103	78-125	1	25	ug/L	03/24/18 18:25	
cis-1,2-Dichloroethene	<1.000	50.00	50.84	102	51.90	104	78-128	2	25	ug/L	03/24/18 18:25	
1,2-Dichloropropane	<1.000	50.00	46.21	92	47.27	95	73-126	2	25	ug/L	03/24/18 18:25	
cis-1,3-Dichloropropene	<1.000	50.00	44.49	89	45.74	91	67-126	3	25	ug/L	03/24/18 18:25	
trans-1,3-Dichloropropene	<1.000	50.00	44.81	90	45.82	92	68-129	2	25	ug/L	03/24/18 18:25	
trans-1,2-Dichloroethene	<1.000	50.00	50.84	102	51.85	104	76-128	2	25	ug/L	03/24/18 18:25	
Ethylbenzene	<1.000	50.00	45.42	91	45.82	92	74-123	1	25	ug/L	03/24/18 18:25	
2-Hexanone (MBK)	<5.000	50.00	41.77	84	44.23	88	38-125	6	25	ug/L	03/24/18 18:25	
Isopropylbenzene	<1.000	50.00	44.87	90	45.07	90	58-129	0	25	ug/L	03/24/18 18:25	
Methyl Acetate	<10.00	50.00	42.30	85	44.60	89	63-115	5	25	ug/L	03/24/18 18:25	
Methylcyclohexane	<10.00	50.00	43.42	87	43.79	88	69-130	1	25	ug/L	03/24/18 18:25	
Methylene chloride	<1.000	50.00	50.11	100	50.95	102	76-124	2	25	ug/L	03/24/18 18:25	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	41.78	84	43.38	87	35-123	4	25	ug/L	03/24/18 18:25	
Methyl-t-Butyl Ether	<1.000	50.00	44.48	89	46.33	93	64-129	4	25	ug/L	03/24/18 18:25	
Naphthalene	<1.000	50.00	43.24	86	45.38	91	45-109	5	25	ug/L	03/24/18 18:25	
Styrene	<1.000	50.00	44.16	88	44.64	89	61-124	1	25	ug/L	03/24/18 18:25	
1,1,2,2-Tetrachloroethane	<1.000	50.00	48.70	97	50.63	101	47-130	4	25	ug/L	03/24/18 18:25	
Tetrachloroethene	<1.000	50.00	50.04	100	49.84	100	68-139	0	25	ug/L	03/24/18 18:25	
Toluene	<1.000	50.00	46.10	92	46.73	93	79-128	1	25	ug/L	03/24/18 18:25	
1,2,3-Trichlorobenzene	<1.000	50.00	43.02	86	43.91	88	48-122	2	25	ug/L	03/24/18 18:25	
1,2,4-Trichlorobenzene	<1.000	50.00	40.90	82	44.36	89	54-124	8	25	ug/L	03/24/18 18:25	
1,1,1-Trichloroethane	<1.000	50.00	51.48	103	52.10	104	73-140	1	25	ug/L	03/24/18 18:25	
1,1,2-Trichloroethane	<1.000	50.00	49.80	100	51.17	102	78-124	3	25	ug/L	03/24/18 18:25	
Trichloroethene	<1.000	50.00	51.01	102	51.26	103	77-131	0	25	ug/L	03/24/18 18:25	
Trichlorofluoromethane	<5.000	50.00	50.85	102	51.20	102	73-144	1	25	ug/L	03/24/18 18:25	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	44.87	90	45.29	91	65-140	1	25	ug/L	03/24/18 18:25	
Vinyl chloride	<1.000	50.00	48.93	98	49.09	98	60-146	0	25	ug/L	03/24/18 18:25	
m&p-Xylene	<2.000	100	90.35	90	91.13	91	75-125	1	25	ug/L	03/24/18 18:25	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032326

WSP USA - Herndon

Kop Flex

Analytical Method: SW-846 8260 B

Seq Number: 151621

Parent Sample Id: 18032326-001

Matrix: Ground Water

MS Sample Id: 18032326-001 S

Prep Method: SW5030B

Date Prep: 03/24/18

MSD Sample Id: 18032326-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	45.54	91	46.04	92	69-126	1	25	ug/L	03/24/18 18:25	

Surrogate

	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	98		98		86-111	%	03/24/18 18:25
Dibromofluoromethane	101		100		91-119	%	03/24/18 18:25
Toluene-D8	100		99		90-117	%	03/24/18 18:25

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits



SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

www.phaseonline.com
email: info@phaseonline.com

1 *CLIENT: WSP *OFFICE LOC. Herndon, VA		PSS Work Order #: 18032326		PAGE 1 OF 1						
*PROJECT MGR: Eric Johnson *PHONE NO.: (703) 799 6500		Matrix Codes: SW=Surface Wtr DW=Drinking Wtr GW=Ground Wtr WW=Waste Wtr O=Oil S=Soil L=Liquid SOL=Solid A=Air WI=Wipe								
EMAIL: eric.johnson@psps.com FAX NO.: ()		No. C O N T A I N E R S								
*PROJECT NAME: Koptflex PROJECT NO.: 31400389/1		SAMPLE TYPE								
SITE LOCATION: Hanover, MD P.O. NO.:		C = COMP								
SAMPLER(S): MML DW CERT NO.:		G = GRAB								
2		3								
LAB NO.	*SAMPLE IDENTIFICATION	*DATE (SAMPLED)	*TIME (SAMPLED)	MATRIX (See Codes)	REMARKS					
	MW-36 (281-286)	3/23/18	11:35	GW	3 G					
	Tap Blank (labeled)				2 Z					
5		4								
Relinquished By: (1)	Date	Time	Received By:	*Requested TAT (One TAT per COC)						
	3/23/18	1240	Alan Hofer	☐ 5-Day ☐ 3-Day ☐ 2-Day ☒ Emergency ☐ Other						
Relinquished By: (2)	Date	Time	Received By:	Data Deliverables Required: COA QC SUMM CLP LIKE OTHER						
				☐ ☐ ☐ ☐ ☐						
Relinquished By: (3)	Date	Time	Received By:	Special Instructions:						
Relinquished By: (4)	Date	Time	Received By:	DW COMPLIANCE? YES ☐						
				EDD FORMAT TYPE						
				STATE RESULTS REPORTED TO: MD DE PA VA WV OTHER						
				☒ ☐ ☐ ☐ ☐ ☐						

6630 Baltimore National Pike • Route 40 West • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047 • Fax (410) 788-8723

The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary. * = REQUIRED



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18032326

Client Name WSP USA - Herndon

Project Name Kop Flex

Project Number 31400389/1

Disposal Date 04/27/2018

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 7

Temp Blank Present Yes

Documentation

COC agrees with sample labels?

No

Chain of Custody

Yes

Sampler Name ML

MD DW Cert. No. N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 2

Total No. of Containers Received 5

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Containers received labeled with sampling date of 3/22/18.

Samples Inspected/Checklist Completed By:

Barb Weber

Barb Weber

Date: 03/23/2018

PM Review and Approval:

Amber Confer

Amber Confer

Date: 03/23/2018

Analytical Report for
WSP USA - Herndon
Certificate of Analysis No.: 18032701

Project Manager: Eric Johnson

Project Name : Kop-Fex

Project Location: Hanover, MD

Project ID : 31400389/01



March 27, 2018
Phase Separation Science, Inc.
6630 Baltimore National Pike
Baltimore, MD 21228
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Fax: (410) 788-8723

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PHASE SEPARATION SCIENCE, INC.



March 27, 2018

Eric Johnson

WSP USA - Herndon

13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Work Order(s) No: **18032701**

Project Name: Kop-Fex

Project Location: Hanover, MD

Project ID.: 31400389/01

Dear Eric Johnson :

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Work Order(s) numbered **18032701**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on May 1, 2018, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal

Laboratory Manager



Sample Summary

Client Name: WSP USA - Herndon
Project Name: Kop-Fex

Work Order Number(s): 18032701

Project ID: 31400389/01

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/27/2018 at 07:50 am

Lab Sample Id	Sample Id	Matrix	Date/Time Collected
18032701-001	MW-36 (346-356)	WATER	03/26/18 15:20
18032701-002	MW-36 (356-366)	WATER	03/26/18 17:50
18032701-003	Trip Blank	WATER	03/27/18 07:50

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminants, and part 141.3, for the secondary drinking water contaminants.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

- B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- C Results Pending Final Confirmation.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- Fail The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
- J The target analyte was positively identified below the reporting limit but greater than the MDL.
- MDL This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
- ND Not Detected at or above the reporting limit.
- RL PSS Reporting Limit.
- U Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

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ROUTE 40 WEST
BALTIMORE, MD 21228
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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032701

WSP USA - Herndon, Herndon, VA

March 27, 2018

Project Name: Kop-Fex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: MW-36 (346-356)	Date/Time Sampled: 03/26/2018 15:20	PSS Sample ID: 18032701-001
Matrix: WATER	Date/Time Received: 03/27/2018 07:50	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/27/18	03/27/18 11:34	1011
Benzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Bromochloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Bromodichloromethane	1.1	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Bromoform	ND	ug/L	5.0		1	03/27/18	03/27/18 11:34	1011
Bromomethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/27/18	03/27/18 11:34	1011
Carbon Disulfide	ND	ug/L	10		1	03/27/18	03/27/18 11:34	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Chlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Chloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Chloroform	3.0	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Chloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Cyclohexane	ND	ug/L	10		1	03/27/18	03/27/18 11:34	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/27/18	03/27/18 11:34	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Ethylbenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032701

WSP USA - Herndon, Herndon, VA

March 27, 2018

Project Name: Kop-Fex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: MW-36 (346-356)	Date/Time Sampled: 03/26/2018 15:20	PSS Sample ID: 18032701-001
Matrix: WATER	Date/Time Received: 03/27/2018 07:50	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/27/18	03/27/18 11:34	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Methyl Acetate	ND	ug/L	10		1	03/27/18	03/27/18 11:34	1011
Methylcyclohexane	ND	ug/L	10		1	03/27/18	03/27/18 11:34	1011
Methylene chloride	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/27/18	03/27/18 11:34	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Naphthalene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Styrene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Toluene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Trichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/27/18	03/27/18 11:34	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
Vinyl chloride	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011
m&p-Xylene	ND	ug/L	2.0		1	03/27/18	03/27/18 11:34	1011
o-Xylene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:34	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032701

WSP USA - Herndon, Herndon, VA

March 27, 2018

Project Name: Kop-Fex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: MW-36 (356-366)	Date/Time Sampled: 03/26/2018 17:50	PSS Sample ID: 18032701-002
Matrix: WATER	Date/Time Received: 03/27/2018 07:50	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/27/18	03/27/18 11:55	1011
Benzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Bromochloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Bromoform	ND	ug/L	5.0		1	03/27/18	03/27/18 11:55	1011
Bromomethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/27/18	03/27/18 11:55	1011
Carbon Disulfide	ND	ug/L	10		1	03/27/18	03/27/18 11:55	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Chlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Chloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Chloroform	3.1	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Chloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Cyclohexane	ND	ug/L	10		1	03/27/18	03/27/18 11:55	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/27/18	03/27/18 11:55	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Ethylbenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032701

WSP USA - Herndon, Herndon, VA

March 27, 2018

Project Name: Kop-Fex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: MW-36 (356-366)	Date/Time Sampled: 03/26/2018 17:50	PSS Sample ID: 18032701-002
Matrix: WATER	Date/Time Received: 03/27/2018 07:50	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/27/18	03/27/18 11:55	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Methyl Acetate	ND	ug/L	10		1	03/27/18	03/27/18 11:55	1011
Methylcyclohexane	ND	ug/L	10		1	03/27/18	03/27/18 11:55	1011
Methylene chloride	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/27/18	03/27/18 11:55	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Naphthalene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Styrene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Toluene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Trichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/27/18	03/27/18 11:55	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
Vinyl chloride	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011
m&p-Xylene	ND	ug/L	2.0		1	03/27/18	03/27/18 11:55	1011
o-Xylene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:55	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032701

WSP USA - Herndon, Herndon, VA

March 27, 2018

Project Name: Kop-Fex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: Trip Blank	Date/Time Sampled: 03/27/2018 07:50	PSS Sample ID: 18032701-003
Matrix: WATER	Date/Time Received: 03/27/2018 07:50	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	10		1	03/27/18	03/27/18 11:13	1011
Benzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Bromochloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Bromoform	ND	ug/L	5.0		1	03/27/18	03/27/18 11:13	1011
Bromomethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
2-Butanone (MEK)	ND	ug/L	10		1	03/27/18	03/27/18 11:13	1011
Carbon Disulfide	ND	ug/L	10		1	03/27/18	03/27/18 11:13	1011
Carbon tetrachloride	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Chlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Chloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Chloroform	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Chloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Cyclohexane	ND	ug/L	10		1	03/27/18	03/27/18 11:13	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	5.0		1	03/27/18	03/27/18 11:13	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
cis-1,2-Dichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Ethylbenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011

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PHASE SEPARATION SCIENCE, INC.



CERTIFICATE OF ANALYSIS

No: 18032701

WSP USA - Herndon, Herndon, VA

March 27, 2018

Project Name: Kop-Fex
Project Location: Hanover, MD
Project ID: 31400389/01

Sample ID: Trip Blank	Date/Time Sampled: 03/27/2018 07:50	PSS Sample ID: 18032701-003
Matrix: WATER	Date/Time Received: 03/27/2018 07:50	

TCL Volatile Organic Compounds

Analytical Method: SW-846 8260 B

Preparation Method: 5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Hexanone (MBK)	ND	ug/L	5.0		1	03/27/18	03/27/18 11:13	1011
Isopropylbenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Methyl Acetate	ND	ug/L	10		1	03/27/18	03/27/18 11:13	1011
Methylcyclohexane	ND	ug/L	10		1	03/27/18	03/27/18 11:13	1011
Methylene chloride	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	03/27/18	03/27/18 11:13	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Naphthalene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Styrene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Tetrachloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Toluene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Trichloroethene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Trichlorofluoromethane	ND	ug/L	5.0		1	03/27/18	03/27/18 11:13	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
Vinyl chloride	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011
m&p-Xylene	ND	ug/L	2.0		1	03/27/18	03/27/18 11:13	1011
o-Xylene	ND	ug/L	1.0		1	03/27/18	03/27/18 11:13	1011



Case Narrative Summary

Client Name: WSP USA - Herndon

Project Name: Kop-Fex

Work Order Number(s): 18032701

Project ID: 31400389/01

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

The analyses of chlorine, pH, dissolved oxygen, temperature and sulfite for drinking water and non-potable samples tested for compliance have a maximum holding time of 15 minutes. As such, all laboratory analyses for these analytes exceed holding times.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.



Analytical Data Package Information Summary

Work Order(s): 18032701

Report Prepared For: WSP USA - Herndon, Herndon, VA

Project Name: Kop-Fex

Project Manager: Eric Johnson

Method	Client Sample Id	Analysis Type	Lab Sample Id	Analyst	Mtx	Prep Batch	Analytical Batch	Sampled	Prepared	Analyzed
SW-846 8260 B	MW-36 (346-356)	Initial	18032701-001	1011	W	70598	151704	03/26/2018	03/27/2018 08:07	03/27/2018 11:34
	MW-36 (356-366)	Initial	18032701-002	1011	W	70598	151704	03/26/2018	03/27/2018 08:07	03/27/2018 11:55
	Trip Blank	Initial	18032701-003	1011	W	70598	151704	03/27/2018	03/27/2018 08:07	03/27/2018 11:13
	70598-1-BKS	BKS	70598-1-BKS	1011	W	70598	151704	-----	03/27/2018 08:07	03/27/2018 09:47
	70598-1-BLK	BLK	70598-1-BLK	1011	W	70598	151704	-----	03/27/2018 08:07	03/27/2018 10:52

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032701

WSP USA - Herndon
Kop-Fex

Analytical Method: SW-846 8260 B

Seq Number: 151704

PSS Sample ID: 18032701-001

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/27/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	93		86-111	%	03/27/18 11:34
Dibromofluoromethane	101		91-119	%	03/27/18 11:34
Toluene-D8	101		90-117	%	03/27/18 11:34

Analytical Method: SW-846 8260 B

Seq Number: 151704

PSS Sample ID: 18032701-002

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/27/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	104		86-111	%	03/27/18 11:55
Dibromofluoromethane	101		91-119	%	03/27/18 11:55
Toluene-D8	101		90-117	%	03/27/18 11:55

Analytical Method: SW-846 8260 B

Seq Number: 151704

PSS Sample ID: 18032701-003

Matrix: Water

Prep Method: SW5030B

Date Prep: 03/27/2018

Surrogate	%Rec	Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	114	*	86-111	%	03/27/18 11:13
Dibromofluoromethane	101		91-119	%	03/27/18 11:13
Toluene-D8	100		90-117	%	03/27/18 11:13

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H = Recovery of BS, BSD or both exceeded the laboratory control limits

L = Recovery of BS, BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032701

WSP USA - Herndon

Kop-Fex

Analytical Method: SW-846 8260 B

Seq Number: 151704

MB Sample Id: 70598-1-BLK

Matrix: Water

LCS Sample Id: 70598-1-BKS

Prep Method: SW5030B

Date Prep: 03/27/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
Acetone	<10.00	50.00	36.83	74	29-149	ug/L	03/27/18 09:47	
Benzene	<1.000	50.00	58.60	117	85-123	ug/L	03/27/18 09:47	
Bromochloromethane	<1.000	50.00	53.03	106	82-136	ug/L	03/27/18 09:47	
Bromodichloromethane	<1.000	50.00	53.23	106	88-133	ug/L	03/27/18 09:47	
Bromoform	<5.000	50.00	54.31	109	80-126	ug/L	03/27/18 09:47	
Bromomethane	<1.000	50.00	34.26	69	64-139	ug/L	03/27/18 09:47	
2-Butanone (MEK)	<10.00	50.00	35.38	71	39-135	ug/L	03/27/18 09:47	
Carbon Disulfide	<10.00	50.00	59.04	118	85-124	ug/L	03/27/18 09:47	
Carbon tetrachloride	<1.000	50.00	52.69	105	81-138	ug/L	03/27/18 09:47	
Chlorobenzene	<1.000	50.00	58.16	116	85-120	ug/L	03/27/18 09:47	
Chloroethane	<1.000	50.00	55.42	111	75-129	ug/L	03/27/18 09:47	
Chloroform	<1.000	50.00	51.91	104	85-128	ug/L	03/27/18 09:47	
Chloromethane	<1.000	50.00	40.15	80	60-139	ug/L	03/27/18 09:47	
Cyclohexane	<10.00	50.00	53.89	108	55-131	ug/L	03/27/18 09:47	
1,2-Dibromo-3-chloropropane	<5.000	50.00	52.08	104	69-127	ug/L	03/27/18 09:47	
Dibromochloromethane	<1.000	50.00	53.90	108	82-127	ug/L	03/27/18 09:47	
1,2-Dibromoethane	<1.000	50.00	53.22	106	82-121	ug/L	03/27/18 09:47	
1,2-Dichlorobenzene	<1.000	50.00	53.24	106	82-123	ug/L	03/27/18 09:47	
1,3-Dichlorobenzene	<1.000	50.00	59.57	119	81-123	ug/L	03/27/18 09:47	
1,4-Dichlorobenzene	<1.000	50.00	58.34	117	81-121	ug/L	03/27/18 09:47	
Dichlorodifluoromethane	<1.000	50.00	43.82	88	69-147	ug/L	03/27/18 09:47	
1,1-Dichloroethane	<1.000	50.00	57.54	115	83-123	ug/L	03/27/18 09:47	
1,2-Dichloroethane	<1.000	50.00	58.10	116	86-138	ug/L	03/27/18 09:47	
1,1-Dichloroethene	<1.000	50.00	57.58	115	85-127	ug/L	03/27/18 09:47	
cis-1,2-Dichloroethene	<1.000	50.00	57.65	115	87-127	ug/L	03/27/18 09:47	
1,2-Dichloropropane	<1.000	50.00	52.85	106	79-125	ug/L	03/27/18 09:47	
cis-1,3-Dichloropropene	<1.000	50.00	53.10	106	79-131	ug/L	03/27/18 09:47	
trans-1,3-Dichloropropene	<1.000	50.00	53.83	108	82-133	ug/L	03/27/18 09:47	
trans-1,2-Dichloroethene	<1.000	50.00	58.13	116	85-125	ug/L	03/27/18 09:47	
Ethylbenzene	<1.000	50.00	52.40	105	83-123	ug/L	03/27/18 09:47	
2-Hexanone (MBK)	<5.000	50.00	35.96	72	37-137	ug/L	03/27/18 09:47	
Isopropylbenzene	<1.000	50.00	52.04	104	70-131	ug/L	03/27/18 09:47	
Methyl Acetate	<10.00	50.00	53.36	107	69-127	ug/L	03/27/18 09:47	
Methylcyclohexane	<10.00	50.00	55.55	111	75-129	ug/L	03/27/18 09:47	
Methylene chloride	<1.000	50.00	56.37	113	86-124	ug/L	03/27/18 09:47	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	35.89	72	39-143	ug/L	03/27/18 09:47	
Methyl-t-Butyl Ether	<1.000	50.00	52.36	105	75-134	ug/L	03/27/18 09:47	
Naphthalene	<1.000	50.00	53.63	107	61-118	ug/L	03/27/18 09:47	
Styrene	<1.000	50.00	53.07	106	80-120	ug/L	03/27/18 09:47	
1,1,2,2-Tetrachloroethane	<1.000	50.00	57.85	116	64-125	ug/L	03/27/18 09:47	
Tetrachloroethene	<1.000	50.00	58.75	118	83-138	ug/L	03/27/18 09:47	
Toluene	<1.000	50.00	52.93	106	88-126	ug/L	03/27/18 09:47	
1,2,3-Trichlorobenzene	<1.000	50.00	53.87	108	75-124	ug/L	03/27/18 09:47	
1,2,4-Trichlorobenzene	<1.000	50.00	55.37	111	77-131	ug/L	03/27/18 09:47	
1,1,1-Trichloroethane	<1.000	50.00	58.33	117	68-146	ug/L	03/27/18 09:47	
1,1,2-Trichloroethane	<1.000	50.00	58.35	117	85-124	ug/L	03/27/18 09:47	
Trichloroethene	<1.000	50.00	58.11	116	87-127	ug/L	03/27/18 09:47	
Trichlorofluoromethane	<5.000	50.00	57.91	116	77-147	ug/L	03/27/18 09:47	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	54.03	108	68-135	ug/L	03/27/18 09:47	
Vinyl chloride	<1.000	50.00	51.61	103	74-138	ug/L	03/27/18 09:47	
m&p-Xylene	<2.000	100	105.3	105	84-124	ug/L	03/27/18 09:47	

PHASE SEPARATION SCIENCE, INC.

QC Summary 18032701

WSP USA - Herndon

Kop-Fex

Analytical Method: SW-846 8260 B

Seq Number: 151704

MB Sample Id: 70598-1-BLK

Matrix: Water

LCS Sample Id: 70598-1-BKS

Prep Method: SW5030B

Date Prep: 03/27/18

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Analysis Date	Flag
o-Xylene	<1.000	50.00	52.50	105	79-126	ug/L	03/27/18 09:47	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units	Analysis Date
4-Bromofluorobenzene	102		97		86-111	%	03/27/18 09:47
Dibromofluoromethane	101		100		91-119	%	03/27/18 09:47
Toluene-D8	100		99		90-117	%	03/27/18 09:47

F = RPD exceeded the laboratory control limits

X = Recovery of MS, MSD or both outside of QC Criteria

H= Recovery of BS,BSD or both exceeded the laboratory control limits

L = Recovery of BS,BSD or both below the laboratory control limits

18032701

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



Phase Separation Science, Inc

Sample Receipt Checklist

Work Order # 18032701

Client Name WSP USA - Herndon

Project Name Kop-Fex

Project Number 31400389/01

Disposal Date 05/01/2018

Shipping Container(s)

No. of Coolers 1

Custody Seal(s) Intact?

N/A

Seal(s) Signed / Dated?

N/A

Ice Present

Temp (deg C) 6

Temp Blank Present No

Documentation

COC agrees with sample labels?

Yes

Chain of Custody

Yes

Sampler Name Not Provided

N/A

Sample Container

Appropriate for Specified Analysis?

Yes

Intact?

Yes

Labeled and Labels Legible?

Yes

Custody Seal(s) Intact? Not Applicable

Seal(s) Signed / Dated Not Applicable

Total No. of Samples Received 3

Total No. of Containers Received 8

Preservation

Total Metals

(pH<2) N/A

Dissolved Metals, filtered within 15 minutes of collection

(pH<2) N/A

Orthophosphorus, filtered within 15 minutes of collection

N/A

Cyanides

(pH>12) N/A

Sulfide

(pH>9) N/A

TOC, DOC (field filtered), COD, Phenols

(pH<2) N/A

TOX, TKN, NH3, Total Phos

(pH<2) N/A

VOC, BTEX (VOA Vials Rcvd Preserved)

(pH<2) Yes

Do VOA vials have zero headspace?

Yes

624 VOC (Rcvd at least one unpreserved VOA vial)

N/A

524 VOC (Rcvd with trip blanks)

(pH<2) N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By:

Amber Confer

Amber Confer

Date: 03/27/2018

PM Review and Approval:

Lynn Jackson

Lynn Jackson

Date: 03/27/2018