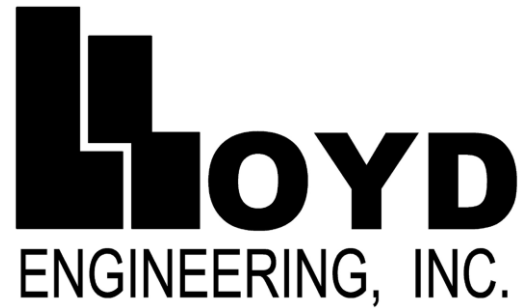


# APPENDIX C SEDIMENT CHEMISTRY ASSESSMENT



**SAMPLING AND CHEMICAL ANALYSIS  
REPORT BLUEWATER TEXAS TERMINAL LLC  
BLUEWATER SPM PROJECT  
NUECES AND ARANSAS COUNTIES, TEXAS**

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## Acronyms and Abbreviations

ASTM	American Society for Testing and Materials
BDL	below detection limit
BWTT	Bluewater Texas Terminal LLC
°C	degrees Celsius
CFR	Code of Federal Regulations
cm	centimeter
CMC	criteria maximum concentration
COC	contaminant(s) of concern
CQAR	Chemical Quality Assurance Report
DO	dissolved oxygen
EDD	Electronic Data Deliverable
EPA	U.S. Environmental Protection Agency
ERL	effects range low
ERM	effects range medium
ft	feet/foot
GPS	global positioning system
g	gram
ITM	<i>Evaluation of Dredged Material Proposed For Discharge in Waters of the U.S. - Testing Manual. Inland Testing Manual.</i>
kg	kilogram
L	liter
LDL	laboratory detection limit
LEI	Lloyd Engineering, Inc.
LRL	laboratory reporting limit
MDL	method detection limit
mg	milligram
MHT	mean high tide
µg	microgram
µm	micrometer
mm	millimeter
mS	millisiemens
NELAC	National Environmental Laboratory Accreditation Conference
NELAP	National Environmental Laboratory Accreditation Program
NOAA	National Oceanic and Atmospheric Administration
NWDLS	North Water District Laboratory Services, Inc.
PCB	polychlorinated biphenyl
PCL	protective concentration levels
pg	picogram
psu	practical salinity unit

QA	quality assurance
QC	quality control
RIA	Regional Implementation Agreement
SOP	standard operating procedure
SU	standard unit
TCEQ	Texas Commission on Environmental Quality
TDL	target detection limit
TRRP	Texas Risk Reduction Program
TSWQS	Texas Surface Water Quality Standards
USACE	U.S. Army Corps of Engineers
WQS	water quality standard

## 1.0 Overview

This report prepared by Lloyd Engineering, Inc. (LEI), on behalf of Bluewater Texas Terminal LLC (BWTT), details the field sampling, analysis, and results of sediment and water testing and analysis in support of the Bluewater SPM Project (Project). BWTT is proposing to construct, own, and operate a deepwater port (DWP), associated pipeline infrastructure, and a booster station to allow for the loading of Very Large Crude Carriers (VLCC) at the proposed DWP via two (2) single point mooring (SPM) buoy systems. For the purposes of this Sampling and Chemical Analysis Report, the proposed Project is described in two distinguishable segments by locality including “offshore” and “inshore”.

Offshore components associated with the proposed Project are defined as those components located seaward of the mean high tide (MHT) line located at the interface of San Jose Island and the Gulf of Mexico (GOM). The Offshore Project components include approximately 27.13 miles of two (2) new 30-inch-diameter crude oil pipelines extending to two (2) SPM buoy systems.

The proposed offshore pipelines would extend from the MHT line located at the interface of San Jose Island and the GOM to the proposed SPM buoy systems. The proposed SPM Buoy System 1 is positioned at Latitude 27.889361 and Longitude -96.651156 approximately 15.0 nautical miles (17.26 statute miles) off the coast of San Jose Island in San Patricio County, Texas. The proposed SPM Buoy System 2 is positioned at Latitude 27.902577 and Longitude -96.628119 approximately 1.7 miles northeast of SPM Buoy System 1. The proposed 27.13 miles of offshore pipeline infrastructure includes approximately 1.68 miles of two (2) 30-inch-diameter pipelines connecting SPM Buoy System 1 and 2.

Inshore components associated with the proposed Project are defined as those components located between the western Redfish Bay MHT line and the MHT line located at the interface of San Jose Island and the GOM. Inshore Project components includes approximately 7.15 miles of two (2) new 30-inch-diameter crude oil pipelines, and an approximate 19-acre booster station located on Harbor Island.

This report details the analysis of physical and chemical characteristics of sediments and water at various sample locations to determine baseline conditions within the project area. The purpose of this Sampling and Chemical Analysis Report is to determine potential direct, secondary, and cumulative impacts from the proposed construction and installation of the inshore and offshore pipeline infrastructure and SPM buoy system components. Refer to Appendix A, Figure 1 and Figure 2 for a depiction of the location of the proposed project and sampling locations.

## 2.0 Objectives

The objectives of this Sampling and Chemical Analysis Project application and testing are to:

- a. Collect sediment and water samples along the proposed offshore and inshore pipeline infrastructure alignment to adequately determine the current chemical and physical characteristics present.
- b. Analyze sediment and water samples for chemical contaminants of concern (COC) and physical characteristics, in order to determine material composition.
- c. Document the field sampling and results of physical and chemical analyses and quality control measures.
- d. Collect sufficient data to document baseline environmental conditions and determine the potential for any unacceptable adverse impacts that may occur as a result of the construction and installation of the proposed pipeline infrastructure and SPM buoy system components.

## 3.0 Approach

Eighteen sediment (18), five (5) site water, and five (5) elutriate water samples were collected from 18 sample locations identified within the proposed project area to adequately characterize the physical and chemical composition and determine baseline conditions within the project area, as well as, determine potential direct, secondary, and cumulative impacts from the proposed construction and operation of the proposed project.

The below resources documents were used for guidance when developing the sampling protocol and analyses for sampling activities conducted to adequately characterize the physical and chemical conditions present, as well as, determine potential impacts for the construction and operation of the of the proposed project.

- a. U.S. Environmental Protection Agency (EPA) and USACE (1998). Evaluation of Dredged Material Proposed for Discharge in Waters of the US - Testing Manual. Inland Testing Manual (ITM).
- b. EPA and USACE (1995). QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations (Chemical Evaluations). EPA-823-B-95-001.
- c. USACE (2003). Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or Upland Confined Disposal Facilities – Testing Manual.
- d. EPA and U.S. Army Corps of Engineers (2003). Regional Implementation Agreement (RIA) for the Ocean Dredged Material Disposal Program. EPA Region 6 and USACE Galveston District. July 2003.

## **4.0 Sample Collection**

### **4.1 Overview**

This report details the analysis of physical and chemical characteristics of sediments and water collected at various predetermined sample locations within the limits of the proposed project boundaries.

The sampling and analysis plan (SAP) for the proposed project was prepared by LEI according to guidelines and standard operating procedure (SOP) prior to initiating sampling. Field sampling protocol and laboratory analyses were conducted according to the same methodology used by the USACE Galveston District for sediment, water, and elutriate analyses.

All sampling stations noted in the Sampling and Analysis Plan (SAP) were collected by LEI, according to appropriate existing SOPs and requirements of the SAP. All chemical analyses were performed by North Water District Laboratory Services (NWDLS), Woodlands, except for grain size analysis which was conducted by Weatherford Laboratories, Inc. Soil Characterization Laboratory. NWDLS is certified by the National Environmental Laboratory Accreditation Program (NELAP) for all chemical analyses conducted on water, sediment, and elutriate samples. All chemical analyses were conducted in accordance with the methods and requirements detailed in the SAP. Refer to Appendix B for a copy of the Sampling and Analyses Plan.

## 4.2 Sampling Locations

A total of eighteen (18) samples were collected from February 19 through February 28, 2019 along the proposed inshore and offshore pipeline alignment and at the location of the proposed SPM buoy systems. Of these, fourteen (14) offshore sample locations were positioned within the GOM and four (4) inshore sampling locations were positioned between the western Redfish Bay MHT line and the MHT line located at the interface of San Jose Island. Offshore locations were sampled February 27 through February 28 and inshore locations were sampled on February 19. Table 1 includes a list of the Global Positioning System coordinates for each sample location, as well as, matrices collected, and analyses performed for each sample.

**Table 1**  
**Sampling Station GPS Locations and Analyses Performed**

Sample ID	Sample Matrix	Latitude	Longitude	Analyses <sup>1</sup>
BWSPM-18-01	Sediment, water	27.902577	-96.628119	W, S, E, GS
BWSPM-18-02	Sediment	27.889361	-96.651156	S, GS
BWSPM-18-03	Sediment	27.887297	-96.683696	S, GS
BWSPM-18-04	Sediment	27.885223	-96.716247	S, GS
BWSPM-18-05	Sediment	27.883666	-96.748782	S, E, GS
BWSPM-18-06	Sediment	27.885641	-96.781354	S, GS
BWSPM-18-07	Sediment	27.887607	-96.813931	S, GS
BWSPM-18-08	Sediment, water	27.889567	-96.846490	W, S, E, GS
BWSPM-18-09	Sediment	27.891524	-96.879098	S, GS
BWSPM-18-10	Sediment	27.893464	-96.911675	S, GS
BWSPM-18-11	Sediment	27.895095	-96.944210	S, GS
BWSPM-18-12	Sediment	27.881489	-96.971449	S, GS
BWSPM-18-13	Sediment	27.859111	-96.992137°	S, GS
BWSPM-18-14	Sediment, water	27.852562	-97.022913	W, S, E, GS
BWSPM-18-15	Sediment, water	27.852330	-97.059572	W, S, E, GS
BWSPM-18-16	Sediment	27.863864	-97.080982	S, GS
BWSPM-18-17	Sediment	27.889593	-97.109506	S, GS
BWSPM-18-18	Sediment, water	27.898071	-97.135225	W, S, E, GS

\*W = Analysis of water chemistry

\*S = Analysis of sediment chemistry

\*E = Analysis of elutriate chemistry

\*GS = Grain-size analysis chemist

### **4.3 Water Quality**

In-situ standard water quality parameters were measured using a YSI 6920 V2 multi-parameter data sonde instrument at each sampling station at the time of sample collection. Water quality parameters measured and recorded in the field included dissolved oxygen (DO), milligrams/liter (mg/L), pH in standard units (SU), salinity in parts salt per thousand parts (‰), specific conductivity in millisiemens per centimeter (mS/cm), water temperature in degrees celsius (°C), air temperature in degrees celcius (°C), and depth of sample collection in feet (ft) at sampling locations. Global position system (GPS) coordinates were also recorded at each sampling location. Refer to Appendix C for water quality datasheets detailing the parameters observed at the time of sampling efforts.

### **4.4 Water Samples**

Water for chemical analysis was collected with a non-contaminating pump (stainless-steel monsoon pump with dedicated tubing that was subject to copious rinsing between samples) and placed into pre-cleaned bottles provided by the chemistry laboratory. Water for chemical analysis will be collected a minimum 1 foot (ft.) below the water surface. The water samples were chilled within hours of collection and stored in the dark at 2–4 °C until delivered to the chemistry laboratory. For organic analyses, pre-cleaned brown glass bottles will be filled completely and checked to ensure that no air bubbles are present in the sample. Two liters of water is required to run water chemistry analysis on the contaminants of concern (COC).

### **4.5 Sediment Samples**

Sediment samples were collected with a stainless-steel box core. Prior to collection at each sample site, the box core will be rinsed with deionized water, then ambient water. Any residual sediment material was removed with a brush prior to rinsing with ionized water. A detergent wash was used as necessary to remove any oily or slick sampling residue. Samples were collected and deposited into a clean stainless-steel pan. Once the required volume of sediment was collected, a description of the sediment characteristics and appearance was recorded on field data sheets and photographically documented.

Using a clean stainless-steel spoon, the samples for chemical analyses were mixed thoroughly and placed in pre-labeled containers completely filled to avoid head space, immediately placed in coolers, and packed with ice until delivered to the chemistry laboratory. One liter of sediment from each sampling was collected to run sediment chemistry analysis on the COCs. Appropriate chain of custody protocols was followed according to the guidance found in the Test Methods for Evaluating Solid Waste (USEPA, 1986), QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations (USEPA and USACE, 1995), ITM (USEPA and USACE, 1998), and Plumb (1981). The sample locations, project name, unique sample number, sample collection time, was documented

#### **4.5.1 Elutriates**

Water and sediment collected for elutriate analysis followed the same procedures as outlined above. Approximately one liter of sediment and three liters of water was collected for each sample. Once filled, the glass containers will be placed in coolers and transported to the chemistry laboratory. Once at the laboratory, the elutriate for chemical analyses was prepared for each site sediment and site water,



combined at a 1:3 ratio, and allowed to settle for one hour. The portion of the dredged material that is considered to have potential to impact to the water column is the supernatant material remaining after undisturbed settling.

#### **4.5.2 Grain Size Analysis**

Grain size of sediment collected from each sampling location was analyzed using the American Society for Testing Materials (ASTM) method ASTM D422. A Mastersizer 3000 by Malvern was used to determine grain size of the sediments. Laser diffraction measures the size of particles by measuring the intensity of light scattered as a laser beam passes through a dispersed particulate sample. These data are then analyzed to calculate the size of the particles that created the scatter pattern.

All samples collected for sediment grain size analysis consisted of a minimum of 100 grams (g) of material placed into a pre-cleaned glass jar. The samples will be stored in coolers with sediment and water chemistry samples. Appropriate chain of custody protocols will follow the guidance found in the Test Methods for Evaluating Solid Waste (USEPA, 1986), QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations (USEPA and USACE, 1995), Inland Testing Manual (ITM) (USEPA and USACE, 1998), and Plumb (1981).

#### **4.6 Sample Collection, Preservation, and Storage**

All sample collections were conducted according to appropriate existing SOP including, Procedures for Handling and Chemical Analysis of Sediment and Water Samples (Plumb, 1981); and the RIA (USEPA and USACE, 1995). Prior to sample collection, all containers and sampling equipment was cleaned according to protocols described in Plumb (1981), or other appropriate guidance manuals. Care was taken to avoid contamination to sampling devices from the boat deck or other surfaces. Nitrile gloves were worn during sample collection and sample handling and were changed between sample locations. Collected samples will be stored at 2 to 4°C but never frozen after collection. Analyses are to be performed within the recommended holding times, as described in the referenced guidance documents.

#### **4.7 Chain of Custody**

Strict chain-of-custody protocols were followed, pursuant to the LEI SOP for field collections, as well as guidance found in the Test Methods for Evaluating Solid Waste (USEPA, 1986), QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations (USEPA and USACE, 1995), ITM (USEPA and USACE, 1998), and Plumb (1981). The sample locations, project name, unique sample number, sample collection time, was documented.

## **5.0 Analyses**

### **5.1 Physical and Chemical Analyses**

The following section summarizes the results of the chemical and grain size analyses and reports all significant values and parameters determined by the results of the tests performed. The raw data and complete results from the NWDLS and NELAP certified subcontracted laboratories are provided for reference in Appendices F and G, respectively, which include the laboratory analysis reports for the chemical analyses.

Water, elutriate, and sediment samples from each station were analyzed for the parameters listed in Table 2. Sediment samples are reported as dry weight. The methods of analysis and the minimum detection levels (i.e., target detection limits [TDL]), are included in Appendix D. NWDLS is certified by NELAP for all chemical analyses conducted on water, sediment, and elutriate samples.

**Table 2**  
**Parameters Determined by Chemical Analysis**

<b>Volatiles</b>		
Ethylbenzene	Trichloroethene	Xylenes, Total
Tetrachloroethene		
<b>Semivolatiles</b>		
1,2,4-Trichlorobenzene	4-Chloro-3-methylphenol	Diethyl phthalate
1,2-Dichlorobenzene	4-Nitrophenol	Dimethyl phthalate
1,2-Diphenylhydrazine as Azobenzene	Acenaphthene	Di-n-butyl phthalate
1,3-Dichlorobenzene	Acenaphthylene	Di-n-octyl Phthalate
1,4-Dichlorobenzene	Anthracene	Fluoranthene
2,4,6-Trichlorophenol	Benzenidine	Fluorene
2,4-Dichlorophenol	Benzo(a)anthracene	Hexachlorobenzene
2,4-Dimethylphenol	Benzo(a)pyrene	Hexachlorobutadiene
2,4-Dinitrophenol	Benzo(b)fluoranthene	Hexachlorocyclopentadiene
2,4-Dinitrotoluene	Benzo(g,h,i)perylene	Hexachloroethane
2,6-Dinitrotoluene	Benzo(k)fluoranthene	Indeno(1,2,3-cd)pyrene
2-Chloronaphthalene	Benzoic acid	Isophorone
2-Chlorophenol	Benzyl alcohol	Naphthalene
2-Methylnaphthalene	Bis(2-chloroethoxy) methane	Nitrobenzene
2-Methylphenol	Bis(2-chloroethyl) ether	n-Nitrosodimethylamine
2-Nitrophenol	Bis(2-chloroisopropyl) ether	n-nitrosodi-n-propylamine
3,3-Dichlorobenzidine	Bis(2-ethylhexyl )phthalate	n-Nitrosodiphenylamine
3&4 Methylphenol	Butyl benzyl phthalate	Pentachlorophenol
4,6-Dinitro-2-methylphenol	Chrysene	Phenanthrene
4-Chlorophenyl phenyl ether	Dibenzo(a,h)anthracene	Phenol
4-Bromophenyl phenyl ether	Dibenzofuran	Pyrene
<b>Organochlorine Pesticides</b>		
4,4'-DDD	Chlordane	Endrin Aldehyde
4,4'-DDE	Delta-BHC (d-BHC)	Endrin Ketone
4,4'-DDT	Dieldrin	Gamma-BHC (g-BHC or y-BHC)
Alpha-BHC (a-BHC)	Endosulfan I	Heptachlor
Alpha-Chlordane (a-Chlordane)	Endosulfan II	Heptachlor Epoxide
Aldrin	Endosulfan Sulfate	Toxaphene
Beta-BHC (b-BHC)	Endrin	Gamma-Chlordane (g-Chlordane or y-Chlordane)
<b>Metals</b>		
Antimony	Copper	Thallium
Arsenic	Lead	Zinc
Beryllium	Nickel	Chromium(3+)
Cadmium	Selenium	Chromium(6+)
Chromium	Silver	Mercury
<b>Polychlorinated Biphenyls</b>		
Total PCB		
<b>Miscellaneous Parameters</b>		
Ammonia (Water/Elutriate Only)	Grain Size (sand)	Total Petroleum Hydrocarbons
Cyanides	Grain Size (silt)	Total Solids/ Dry Weight
Total Volatile Solids	Grain Size (clay)	Percent (%) Moisture
Total Organic Carbon		

## 5.2 Laboratory Quality Control

Documentation of all laboratory quality control (QC) activities performed specifically in conjunction with this project is furnished along with sample results in Appendix D. The laboratory QC program included:

**NELAP-certified Laboratory** – NWDLS has current accreditation status consistent with standards adopted by the National Environmental Laboratory Accreditation Conference (NELAC).

**Method Blanks** – Method blanks were performed at a frequency of one per batch of samples, per matrix type, per sample extraction or preparation method.

**Laboratory Control Samples** – Laboratory control samples were analyzed at a minimum of 1 per batch of 20 or fewer samples per matrix type, per sample extraction or preparation method, except for analytes for which spiking solutions were not available.

**Matrix Spikes** – Matrix spikes were performed at a frequency of 1 in 20 samples per matrix type, per sample extraction or preparation method, except for analytes for which spiking solutions were not available. The spike concentration was no greater than 25 to 50 percent of the maximum concentration along the linear segment of the instrument calibration curve for any analyte.

**Surrogates** – Surrogate compounds were added to all samples, standards, and blanks for all organic chromatography methods, except when the matrix precluded their use or when a surrogate was not available.

**Field Equipment Blanks** – Analysis of field equipment blanks were performed at a frequency of one per batch of samples collected.

**Calibration of Instrumentation** – Instrumentation was calibrated and periodic instrument checks were performed according to manufacturer and EPA recommendations and appropriate SOP.

**Performance Evaluation** – Participation in performance evaluation and method studies available from EPA and ASTM are conducted by NWDLS at least on a semi-annual basis.

**Evaluation of Solutions and Reagents** – Each new shipment or lot of solvent, reagent, or adsorbent is evaluated for purity in accordance with appropriate SOP.

**Preparation and Verification of Standards** – Standards are prepared and verified by NWDLS in accordance with appropriate SOP.

**QC Limits and Control Charts** – Calculation of QC limits and preparation of control charts are performed by NWDLS in accordance with appropriate SOP.

**Out-of-Control Events** – Any out-of-control events or outlier data were noted and corrective action was taken in accordance with appropriate SOP.

## 5.3 Chemical Analyses

The laboratory analysis report provided by NWDLS for the chemical analyses of the water, elutriate, and sediment samples is included in Appendix D. The laboratory data is also provided in electronic data deliverable (EDD) format in Appendix E. Concentrations of COC that were detected in the water, elutriate, and sediment samples are described in the following sections.

Chemical analytical data are reported with a number of conventions and qualifications. Values quantified at concentrations greater than the laboratory reporting limit (LRL) are recorded as per laboratory SOP. Analytes that were detected above the laboratory detection limit (LDL) but below the LRL represent estimated concentrations with high uncertainty and are qualified as “J”. Analytes that were not detected above the LDL are reported as below detection limit (BDL) and are assigned a value of one half the LDL where pertinent. The method detection limit (MDL) is a statistically derived expression of theoretical detection capability and is based on standard deviation of replicate spiked samples taken through all steps of analytical procedure, based on standard procedure from 40 Code of Federal Regulations (CFR) Part 136. The LDL is the MDL modified to account for matrix interferences, dilution, or other factors which increase the detection limit, so that the laboratory has confidence that an analyte actually has or has not been detected at that limit.

Chemical analytical data are reported with a number of conventions and qualifications. Values quantified at concentrations greater than the LRL are recorded as per laboratory reports. Analytes that were detected below the MDL are reported as “<LRL” (Appendix D), are qualified “U”, and are assigned a value for statistical analyses developed by the USEPA. Analytes that were detected above MDL but below the LRL represent estimated concentrations with higher uncertainty and are qualified “J”. Results associated with such values are interpreted accordingly. The laboratory results data for water, sediment, and elutriate chemistry analyses are provided in Appendix D.

In addition to the raw data a Chemical Quality Assurance Report (CQAR) was completed to evaluate all of the representative data from the project field sampling and laboratory analyses. For each group of data, a data review checklist is completed that assesses daily field Quality Control (QC) reports and specific QC chemical data quality indicators, to enable the reviewer to identify potential data problem areas that may require additional validation. The CQAR identifies non-conformances, QC deficiencies, or other problems that would impact the data quality objectives as specified in the SAP. The QCAR summarizes the overall usability of the data for the intended purposes. The QCAR is provided in Appendix D.

### 5.3.1 Water Quality

Standard water quality parameters, as listed in Section 4.3, were measured during sampling efforts. In-situ standard water quality parameters were measured using a YSI 6920 V2 multi-parameter data sonde instrument at each sampling station at the time of sample collection. DO was measured at all sampling stations and ranged from 8.02 mg/L to 9.43 mg/L. PH was measured at all sampling stations and ranged from 8.17 SU to 8.32 SU. The salinity at sampling stations ranged from 29.29‰ to 40.49‰. Water temperature ranged from 13.6°C to 17.6°C. Refer to Appendix C for the water

quality datasheets parameters observed and the corresponding GPS coordinates recorded during sampling efforts.

### **5.3.2 Water and Elutriate Chemistry**

The results of chemical analysis for COC detected in water and elutriate samples are presented in Tables 3 and 4, respectively. Also included in Tables 3 and 4 are the TCEQ TSWQS and the EPA national recommended ambient water quality criteria (AWQC) for the protection of aquatic life. Since the sediment and water samples used to prepare elutriate are from grab samples from a marine environment, the acute marine TSWQS and acute WQC (criteria maximum concentration [CMC]) are appropriate for comparison. (NOTE: Since the project area is within Texas state waters, only the TSWQS must be met; thus, the EPA CMCs are provided only as a reference.) The ammonia CMC is specific to each individual pH, temperature, and salinity, and the values given in Tables 3 and 4 are based on the average pH, temperature, and salinity. An examination of Table 3 in Appendix F indicates that none of the COC concentrations detected in any of the water samples were found to exceed any acute TSWQS or federal CMC.

Elutriates were prepared by NDWLS personnel from site sediment and corresponding aquatic site water combined at a 1:3 ratio, respectively. For trace metals analysis, with the exception of mercury and selenium, the elutriate samples were filtered or centrifuged to remove suspended material. Therefore, the elutriate samples provide information on those constituents that move into the water column during dredging and open water placement. An examination of Table 4 in Appendix F indicates that none of the COC concentrations detected in any of the elutriate samples were found to exceed any acute TSWQS or federal CMC.

### **5.3.3 Sediment Chemistry**

TDLs are defined in the Regional Implementation Agreement (RIA) as “A performance goal set between the lowest, technically feasible detection limit for routine analytical methods and available regulatory criteria or guidelines for evaluating dredged material.” There are no enforceable sediment quality criteria or standards with which to compare concentrations of compounds in sediment. However, there are several different guidelines that are used to look for a cause for concern in sediment samples; one of which, is the Effects Range Low, or ERL (Buchman, 2008). When an exceedance of the ERL occurs, the effects range medium (ERM) benchmark value is then evaluated. Additionally, concentrations of contaminants present were compared to the Human Health Protective Concentration Levels (PCL), provided by the TCEQ as part of the Texas Risk Reduction Program (TRRP, 30 TAC §350). Sediment concentrations of detected compounds are presented in Appendix F Table 5-1 through 5-3.

Table 5 provided in Appendix F is derived from the laboratory results provided in Appendix D, which reveal an exceedance of the ERL for arsenic in the concentrations detected at sample location BWSPM-18-18. No additional exceedances of the ERL, ERM, or PCL benchmarks were revealed in the concentrations of the compounds detected in any of the sediment samples.

### **5.3.4 Sediment Grain Size**

Sediment samples for chemical and grain size analyses were collected at all sampling locations. None of the samples contained gravel or larger particles. Material collected amongst sampling locations ranged in composition between 18.5 and 98.5 percent sand, 1.5 and 69.3 percent silt, and 0.0 and 33.0 percent clay. Refer to Appendix F, Table 6 and 7 for a summary of the grain size analysis conducted. Refer to Appendix G for detailed laser grain size analysis laboratory results.

## 6.0 Discussion

All sampling stations as depicted in Figure 2 (Appendix A) and noted in the SAP (Appendix B), were collected by LEI personnel according to guidelines and SOP of the SAP. Samples were collected from a total of eighteen (18) sampling locations.

Water quality parameters taken at the time of collection are presented in Appendix C, as are the coordinates at which samples were collected. Table 2 lists the parameters for each analysis required and the concentrations of detected parameters in sediment, respectively. Also included in the tables are appropriate standards, criteria, or screening values to which the detected parameters can be compared.

Water and elutriate results show that no acute WQS were exceeded in the concentrations of the compounds detected in any of the water or elutriate samples.

Sediment results show one exceedance of ERL benchmark value for arsenic was detected in sediment samples collected from sample location BWSPM-18-18. However, no ERM or PCLs for concentrations for analytes detected were found to be in exceedance of any of the sample locations.

Sediment grain size of the samples collected are characterized as fine-grained sands and silts. None of the samples collected consisted of course gravel.



## 7.0 Conclusion

LEI, on behalf of BWTT conducted sampling and chemical analysis at eighteen sampling locations as described herein and noted within the SAP. The objective of the field sampling and analysis was to quantify basic physical and chemical baseline characteristics present along the proposed inshore and offshore pipeline infrastructure alignment and at the location of the proposed SPM buoy systems to determine the potential for any direct, secondary, and cumulative impacts associated with the construction and installation of the necessary Project components.

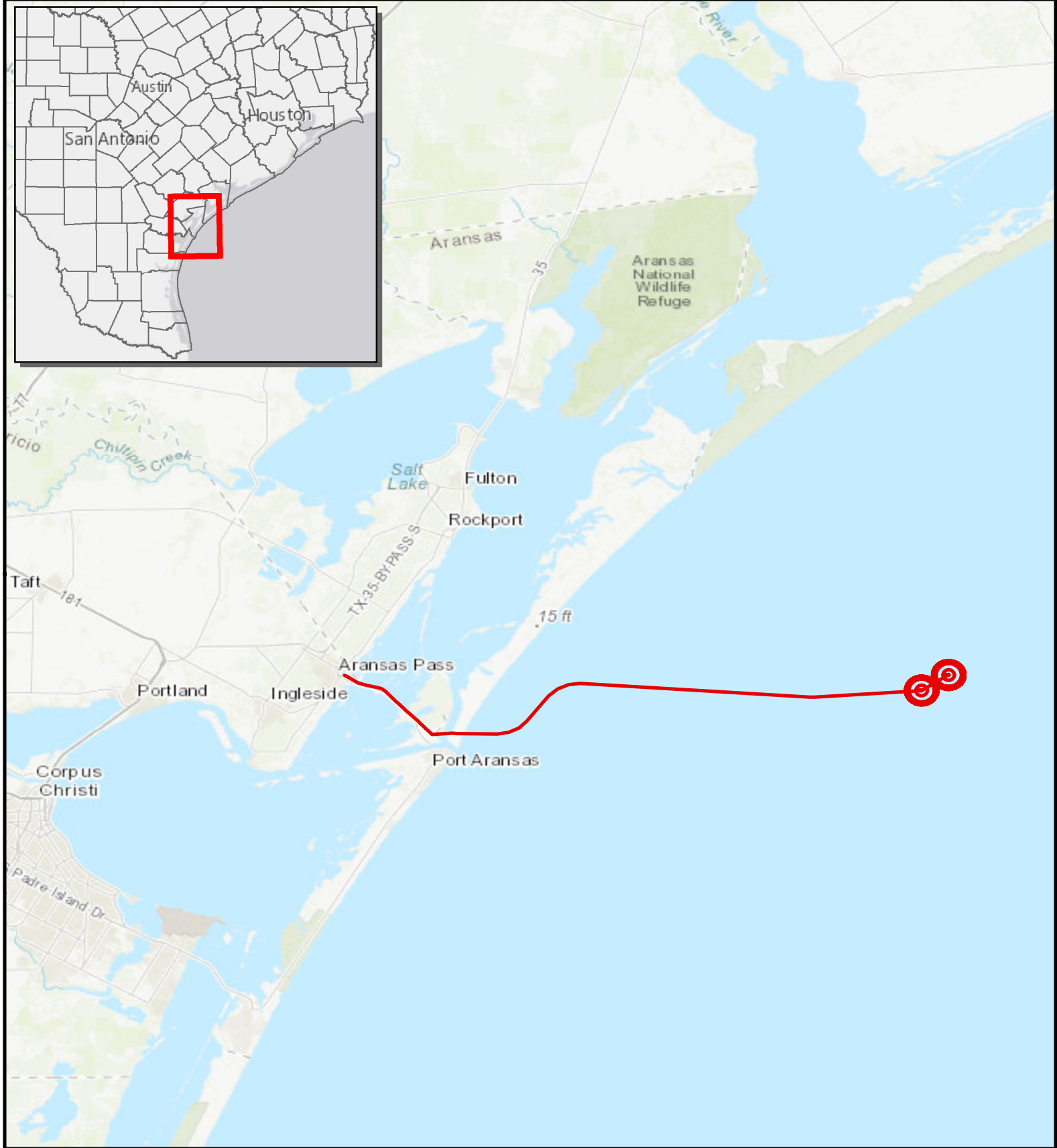
No exceedances of TWQS or CMC benchmarks for water or elutriate samples. One exceedance of the ERL for arsenic was found in the sediment samples collected at sample location BWSPM-18-18. However, no exceedances of the ERM or PCLs in the sediment samples which indicates minimal risk to human health. Based on the results of the sediment grain size analysis conducted, the sediments within the area are primarily characterized as fine-grained sand and silt.

The results of this assessment is intended to serve as a baseline measurement for physical and chemical characteristics of sediment present within the vicinity of the proposed project area and determine the potential for unacceptable impacts as a result of the construction and installation of the necessary pipeline infrastructure and SPM buoy system components associated with the Project.

## 8.0 References

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**Appendix A**  
**Project Location and Sampling Station Maps**

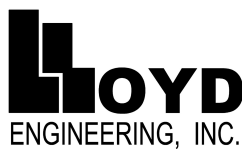
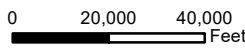


**Map Details**

— Proposed Project

Coordinate System: GCS WGS 1984  
 Datum: WGS 1984  
 Units: Degree

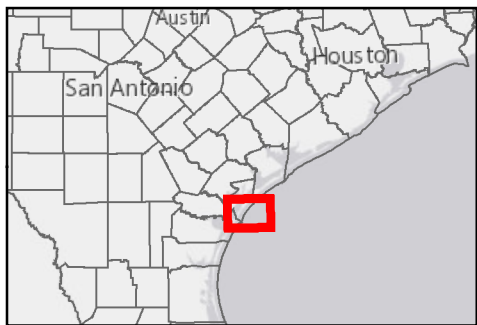
1 inch = 40,000 feet





**Figure 1  
 Vicinity Map**

Sampling and Chemical  
 Analysis Report  
 Bluewater SPM Project

Date: Apr 12, 2019

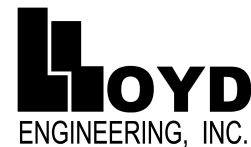
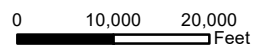


**Map Details**

-  Sample Locations
-  Proposed Project

Coordinate System: GCS WGS 1984  
 Datum: WGS 1984  
 Units: Degree

1 inch = 20,000 feet

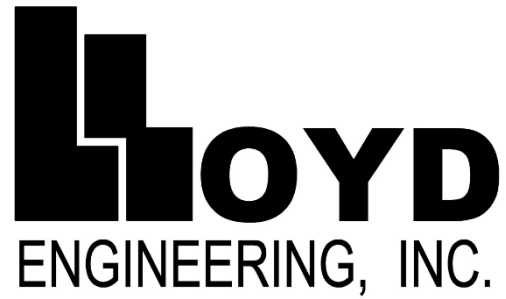


**Figure 2  
 Sampling Location Map**

Sampling and Chemical  
 Analysis Report  
 Bluewater SPM Project

Date: Apr 12, 2019

**Appendix B**  
**Sampling and Analysis Plan**



**SAMPLING ANALYSIS PLAN AND BENTHIC ASSESSMENT PROTOCOL  
BLUEWATER SPM PROJECT  
ARANSAS AND NUECES COUNTIES, TEXAS**

**Prepared for:**

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**Prepared by:**

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January 2019

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Table 1 – Sample Collection Sites and Analysis to be Performed

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## Appendices

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## **Acronyms and Abbreviations**

ASTM	American Society for Testing and Materials
°C	degrees Celsius
COC	contaminants of concern
cy	cubic yard
EDD	electronic data deliverables
EPA	Environmental Protection Agency
ft.	feet
GPS	global positioning system
LEI	Lloyd Engineering, Inc.
LPIL	Lowest practical identifiable level
mg/L	milligrams per liter
MLLW	mean lower low water
mS/cm	millisiemens per centimeter
NELAP	National Environmental Laboratory Accreditation Program
P66	Phillips 66
PSU	practical salinity units
QC	quality control
SAP	sampling analysis plan
SOP	standard operating procedures
SU	standard units
TDL	target detection limit
USACE	U.S. Army Corps of Engineers
µm	micrometer

## **1.0 Objectives**

Lloyd Engineering, Inc. (LEI) on behalf of Bluewater Texas Terminal LLC has prepared this Sampling and Analysis Plan (SAP) and benthic habitat assessment protocol for field sampling and evaluation to aid in the analysis of potential impact associated with the construction and operation of the Bluewater SPM Project. The proposed project is located in Aransas and Nueces Counties, Texas. Refer to Appendix A, Figure 1 for a vicinity map depicting the location of the proposed project.

The objective of the Benthic Habitat Survey and Site Characterization Project is to (1) describe the physical and chemical characteristics of the sediments and water at various stations; (2) describe the benthic community composition; (3) quantify basic benthic community characteristics, such as species and individual abundance, richness, diversity, and evenness; and (4) analyze the results to determine baseline conditions within the project area. The results of the contaminant and benthic habitat assessments will be used to determine potential direct, secondary and cumulative impacts from the proposed construction and operation of the Bluewater SPM Project.

## **2.0 Approach**

Eighteen sediment, nine benthic, five water, and five elutriate samples will be collected from 18 locations identified within the proposed project area to adequately characterize the physical and chemical composition. The evaluation will be comprised of chemical analyses of sediment, water, and elutriate samples, and grain size analyses of sediment samples. Refer to Figure 1 provide in Attachment A for a depiction of the proposed project and sample location map.

Field sampling in the proposed within the proposed project area would be conducted from a marine vessel. A global positioning system (GPS) on the vessel would be used to determine the location of each sampling effort, based on the previously sampled coordinates (Table 1).

## **3.0 Sample Collection**

Prior to sample collection, all containers and sampling equipment will be cleaned per protocols described in Plumb (1981), or other appropriate guidance manuals. Care will be taken to avoid contamination to sampling devices from the boat deck or other working surfaces. Powderless latex gloves will be worn during sample collection. Navigation to and documentation of all sample sites will be accomplished via a handheld GPS unit.

### **3.1 Sampling Sites**

Eighteen Sediment, nine benthic, five water, and five elutriate samples will be collected from eighteen locations identified within the proposed project area to adequately characterize the physical and chemical composition. The evaluation will be comprised of chemical analyses of sediment, water, and elutriate samples, and grain size analyses of sediment samples. Refer to Appendix A for figures depicting the proposed sampling locations. Table 1 details the unique sampling ID's, GPS coordinates, sample matrix, and analysis to be performed for each sampling location.

Field sampling in the proposed within the proposed project area would be conducted from a marine vessel. A global positioning system (GPS) on the vessel would be used to determine the location of each sampling effort, based on the previously identified coordinates (Table 1). Prior to sample collection, all containers and sampling equipment will be cleaned according to protocols described in Plumb (1981), or other appropriate guidance manuals. Care will be taken to avoid contamination to sampling devices from the boat deck or other surfaces. Powderless nitrile gloves will be worn during sample collection. Navigation to and documentation of all sample sites will be accomplished via a handheld GPS unit.

**Table 1**  
**Sample Collection Sites and Analysis to be Performed**

Sample ID	Sample Matrix	Latitude	Longitude	Analyses <sup>1</sup>
BWSPM-18-01	Sediment, water	27.90257735	-96.62811871	B, W, S, E, GS
BWSPM-18-02	Sediment	27.88936124	-96.65115626	B, S, GS
BWSPM-18-03	Sediment	27.88729657	-96.68369554	S, GS
BWSPM-18-04	Sediment	27.88522305	-96.71624666	S, GS
BWSPM-18-05	Sediment	27.88366607	-96.74878191	S, GS
BWSPM-18-06	Sediment	27.88564134	-96.78135392	B, S, GS
BWSPM-18-07	Sediment	27.887607	-96.81393127	S, GS
BWSPM-18-08	Sediment, water	27.88956651	-96.84649045	W, S, E, GS
BWSPM-18-09	Sediment	27.89152386	-96.87909798	S, GS
BWSPM-18-10	Sediment	27.89346371	-96.91167489	B, S, GS
BWSPM-18-11	Sediment	27.89509528	-96.9442101	S, GS
BWSPM-18-12	Sediment	27.88148914	-96.97144883	S, GS
BWSPM-18-13	Sediment	27.85878768	-96.99167111	S, GS
BWSPM-18-14	Sediment, water	27.84984133	-97.02136567	B, W, S, E, GS
BWSPM-18-15	Sediment, water	27.85122026	-97.06175144	B, W, S, E, GS
BWSPM-18-16	Sediment	27.86370018	-97.081248	B, S, GS
BWSPM-18-17	Sediment	27.88925066	-97.10968404	B, S, GS
BWSPM-18-18	Sediment, water	27.89797314	-97.13536864	B, W, S, E, GS

B = Benthos community sample  
W = Chemical analysis of a water sample  
S = Chemical Analysis of a sediment sample  
E = Chemical Analysis of an elutriate sample  
GS = Physical analysis of sediment grain-size

### 3.2 Benthos Habitat Survey

Substrate will be collected using a box-corer or petite ponar grabs to collect material from nine sampling locations along the proposed project pipeline alignment. Substrate will be collected at each sample location until a minimum of 1 liter of material is obtained. If multiple grabs are used to obtain full sample volume, material collected will be composited for each station. A visual characterization score of the dominant and subdominant substrata will be recorded as 1 - clay, mud; 2 - fine sand; 3 - medium to coarse sand; 4 - shell fragments. Afterward, each benthic sample will be field-washed through a number 30 mesh screen and preserved in the field. Each benthos sample will be preserved in 10 percent formalin and stored in a glass jar labeled with the sample location identification number.

Samples collected for benthic analyses will be preserved and shipped to LEI aquatic ecologists for macroinfauna taxonomic identification to the lowest practical identifiable level (LPIL), enumeration, biomass measurement, and interpretation. LPIL will be to species, if possible. After identification/ enumeration, wet-weight biomass of major taxonomic groups will be measured for each macroinfaunal sample. Blot-drying

on filter paper, or an equivalent technique, will be used to ensure removal of excess fluid. Appropriate chain of custody protocols will be followed; guidance can be found in EPA and USACE (1995) and Plumb (1981).

Data analysis will include habitat characterization and characterization of macroinfaunal assemblages. Habitats will be described primarily on the basis of the physical environmental parameters; e.g., water depth, sediment texture, etc. Macroinfaunal characterization will involve an evaluation of several biological community structure parameters (e.g., species composition, species diversity, biomass measurements) during initial data reduction, followed by pattern and classification analysis for delineation of species assemblages.

Specific numerical indices will include (1) infaunal abundance as the number of individuals per station and per square meter; (2) species richness (total number of taxa represented in a given station collection and Margalef's Index, D (Margalef, 1958); (3) species diversity, with the Shannon-Weiner Index, H' (Shannon and Wiener, 1963); and (4) species evenness with Pielou's Index, J (Pielou, 1966).

Numerical classification analysis will also be conducted as part of the data analysis. Classification will be by both station (normal analysis) and species (inverse analysis) using the Bray Curtis similarity index (Bray and Curtis, 1957). Hierarchical clustering of similarity values will use the group-averaging sorting strategy (Lance and Williams, 1967) or similar strategy, and displayed as dendrograms. Numerical classification analysis using the Bray-Curtis similarity index will also be applied to the stations based on grain-size and sorting information.

### **3.3 Water Samples**

Five water samples will be collected using a suitable non-metallic bilge pump with a food-grade hose or a peristaltic pump. The depth of each water sample will be between mid-depth to one-third of the way to the bottom of the water column. Prior to filling sample containers, the pump will be allowed to run, to purge the existing hose and ensure water collected is representative of the sample location. Water samples will then be collected in polyethylene or glass bottles, pre-cleaned, and prepared with preservatives by the chemistry laboratory. Water samples to be analyzed for metals will be collected using a variable-speed non-contaminating peristaltic pump and Teflon tubing. Water samples to be analyzed for metals other than mercury and selenium are to be filtered through a clean 0.45-micrometer ( $\mu\text{m}$ ) filter prior to dispensing into containers with acid preservatives, or they will be filtered in the lab. Pre-cleaned brown-glass bottles will be used for organic analyses. All bottles will be filled completely with no air bubbles or headspace.

During water collection, in situ standard water quality parameters will be recorded at each sample site using a multi-parameter sonde instrument. Water quality parameters include dissolved oxygen, recorded in milligrams per liter (mg/L); pH, recorded in standard units (SU); salinity, recorded in practical salinity units (psu); conductivity, recorded in millisiemens per centimeter (mS/cm); water temperature, recorded in degrees Celsius ( $^{\circ}\text{C}$ ); and water depth, recorded in feet (ft). Ambient water and weather conditions, as well as the tidal stage at the time of sample collection, will be recorded on field data sheets.

### **3.4 Sediment Samples**

A total of eighteen sediment samples will be collected from locations identified within the proposed project area (Table 1). Sediment will be collected using a box-corer or petite ponar grabs to collect material from

each sample location previously identified within the project area. Prior to collection at each site and between samples the sampling device will be cleaned with Alconox soap, rinsed with deionized water, and rinsed with ambient water; water depth to the sediment surface will also be recorded. Individual grab samples will be collected from each station and thoroughly composited prior to being placed into pre-cleaned glass sampling containers provided by the laboratory. The jar will be filled completely to avoid any head space and to ensure total sample volume is collected. The lid will be tightly secured, and the sample jar placed into an ice chest.

### **3.5 Sample Preservation and Storage**

Collected samples will be stored at 2 to 4°C but never frozen after collection. Analyses are to be performed within the recommended holding times, as described in the referenced guidance documents.

### **3.6 Chain of Custody**

A chain of custody form will be completed according to the appropriate guidance manuals and will accompany the samples at all times until laboratory analysis.

## **4.0 Chemical Analysis**

Each sample will be analyzed in a laboratory for the contaminants of concern (COC) as presented in Table 2 along with the required target detection limits (TDL). All chemical analyses will be performed by a laboratory accredited by an accrediting authority recognized by the National Environmental Laboratory Accreditation Program (NELAP) for the analytes/analyte groups and matrices to be analyzed. Sediment samples will be reported as dry weight.

Detected concentrations of COC's reported by the laboratory will be evaluated by comparing detected compound concentrations with standard benchmark values proved in the federal and state regulatory agencies' refence guidance documents. Should a detected compound exceed the recommended benchmark value in one or more samples, it shall be documented and discussed in the report.

**Table 2**  
**Target Detection Levels for Required Analysis of Sediment and Water/Elutriate**  
**for Maintenance and New Work Dredging by the USACE<sup>a</sup>**

Analyte	Sediment <sup>1</sup>	Water/Elutriate <sup>1</sup>
<b>Metals<sup>b</sup></b>	<b>mg/kg</b>	<b>µg/L</b>
Antimony	2.5	3
Arsenic	0.3 <sup>c</sup>	1
Beryllium <sup>f</sup>	1 <sup>c</sup>	0.2
Cadmium	0.1	1
Chromium (total)	1 <sup>c</sup>	1
Chromium (3+) <sup>f</sup>	1	1
Chromium (6+) <sup>f</sup>	1	1
Copper	1 <sup>c</sup>	1
Lead	0.3 <sup>c</sup>	1
Mercury	0.2	0.2
Nickel	0.5 <sup>c</sup>	1
Selenium	0.5 <sup>c</sup>	2
Silver	0.2	1 <sup>d</sup>
Thallium	0.2	1
Zinc	2 <sup>c</sup>	1
<b>Conventional/Ancillary Parameters</b>	<b>mg/kg</b>	<b>mg/L</b>
Ammonia	0.1	0.03
Cyanides	2	0.1 <sup>e</sup>
Total Organic Carbon	0.10%	0.10%
Total Petroleum Hydrocarbons	5	0.1
Grain Size	1%	-
Total Solids/Dry Weight	0.10%	-
Total Volatile Solids	0.10%	-
<b>LPAH Compounds</b>	<b>µg/kg</b>	<b>µg/L</b>
Naphthalene	20	0.8 <sup>c</sup>
Acenaphthylene	20	1.0 <sup>c</sup>
Acenaphthene	20	0.75 <sup>c</sup>
Fluorene	20	0.6 <sup>c</sup>
Phenanthrene	20	0.5 <sup>c</sup>
Anthracene	20	0.6 <sup>c</sup>
2-Methylnaphthalene	20	0.9 <sup>b</sup>
<b>HPAH Compounds</b>	<b>µg/kg</b>	<b>µg/L</b>
Fluoranthene	20	0.9 <sup>c</sup>
Pyrene	20	1.5 <sup>c</sup>
Benzo(a)anthracene	20	0.4 <sup>c</sup>

Analyte	Sediment <sup>1</sup>	Water/Elutriate <sup>1</sup>
Chrysene	20	0.3 <sup>c</sup>
Benzo(b&k)fluoranthene	20	0.6 <sup>c</sup>
Benzo(a)pyrene	20	0.3 <sup>c</sup>
Indeno[1,2,3-c,d]pyrene	20	1.2 <sup>c</sup>
Dibenzo[a,h]anthracene	20	1.3 <sup>c</sup>
Benzo[g,h,i]perylene	20	1.2 <sup>c</sup>
<b>Organonitrogen Compounds</b>	<b>µg/kg</b>	<b>µg/L</b>
Benzidine <sup>f</sup>	5	1
3,3-Dichlorobenzidine <sup>f</sup>	300 <sup>c</sup>	3 <sup>c</sup>
2,4-Dinitrotoluene <sup>f</sup>	200 <sup>c</sup>	2 <sup>c</sup>
2,6-Dinitrotoluene <sup>f</sup>	200 <sup>c</sup>	2 <sup>c</sup>
1,2-Diphenylhydrazine <sup>f</sup>	10	1
Nitrobenzene <sup>f</sup>	160 <sup>c</sup>	0.9 <sup>c</sup>
N-Nitrosodimethyl amine <sup>f</sup>	-	3.1 <sup>c</sup>
N-Nitrosodi-n-propylamine <sup>f</sup>	150 <sup>c</sup>	0.9 <sup>c</sup>
N-Nitrosodiphenylamine <sup>f</sup>	20	2.1 <sup>c</sup>
<b>Phthalate Esters</b>	<b>µg/kg</b>	<b>µg/L</b>
Dimethyl Phthalate	50	1 <sup>c</sup>
Diethyl Phthalate	50	1 <sup>c</sup>
Di-n-butyl Phthalate	50	1 <sup>c</sup>
Butyl Benzyl Phthalate	50	4 <sup>c</sup>
Bis[2-ethylhexyl] Phthalate	50	2 <sup>c</sup>
Di-n-octyl Phthalate	50	3 <sup>c</sup>
<b>Phenols/Substituted Phenols</b>	<b>µg/kg</b>	<b>µg/L</b>
Phenol	100	10
2,4-Dimethylphenol	20	10
Pentachlorophenol	100	50
2,4,6-Trichlorophenol <sup>f</sup>	140 <sup>c</sup>	0.9 <sup>c</sup>
4-Chloro-3-methylphenol <sup>f</sup>	140 <sup>c</sup>	0.7 <sup>c</sup>
2-Nitrophenol <sup>f</sup>	200 <sup>c</sup>	2 <sup>c</sup>
4-Nitrophenol <sup>f</sup>	500 <sup>c</sup>	5 <sup>c</sup>
2,4-Dinitrophenol <sup>f</sup>	500 <sup>c</sup>	5 <sup>c</sup>
2-Chlorophenol <sup>f</sup>	110 <sup>c</sup>	0.9 <sup>c</sup>
2,4-Dichlorophenol <sup>f</sup>	120 <sup>c</sup>	0.8 <sup>c</sup>
4,6-Dinitro-o-cresol <sup>f</sup>	600	10
2-Methylphenol	50	10
4-Methylphenol	100	10
<b>Polychlorinated Biphenyls</b>	<b>µg/kg</b>	<b>µg/L</b>



Analyte	Sediment <sup>1</sup>	Water/Elutriate <sup>1</sup>
Total PCB	1	0.01
<b>Pesticides</b>	<b>µg/kg</b>	<b>µg/L</b>
Aldrin	3 <sup>c</sup>	0.03 <sup>c</sup>
Chlordane and Derivatives	3 <sup>c</sup>	0.03 <sup>c</sup>
Dieldrin	5 <sup>c</sup>	0.02
4,4'-DDD	5 <sup>c</sup>	0.1
4,4'-DDE	5 <sup>c</sup>	0.1
4,4'-DDT	5 <sup>c</sup>	0.1
Endosulfan and Derivatives <sup>f</sup>	5 <sup>c</sup>	0.1
Endrin and Derivatives <sup>f</sup>	5 <sup>c</sup>	0.1
Heptachlor and Derivatives	3 <sup>c</sup>	0.1
Alpha-BHC <sup>f</sup>	3 <sup>c</sup>	0.03
Beta-BHC <sup>f</sup>	3 <sup>c</sup>	0.03
Delta-BHC <sup>f</sup>	3 <sup>c</sup>	0.03
Gamma-BHC (Lindane)	3 <sup>c</sup>	0.1
Toxaphene <sup>f</sup>	50	0.5
<b>Chlorinated Hydrocarbons</b>	<b>µg/kg</b>	<b>µg/L</b>
1,3-Dichlorobenzene <sup>f</sup>	20	0.9 <sup>c</sup>
1,4-Dichlorobenzene <sup>f</sup>	20	1 <sup>c</sup>
1,2-Dichlorobenzene <sup>f</sup>	20	0.8 <sup>c</sup>
1,2,4-Trichlorobenzene <sup>f</sup>	10	0.9 <sup>c</sup>
Hexachlorobenzene <sup>f</sup>	10	0.4 <sup>c</sup>
2-Chloronaphthalene <sup>f</sup>	160 <sup>c</sup>	0.8 <sup>c</sup>
Hexachlorocyclopentadiene <sup>f</sup>	300 <sup>c</sup>	3.0 <sup>c</sup>
Hexachloroethane	100	0.9 <sup>c</sup>
Hexachlorobutadiene	20	0.9 <sup>c</sup>
<b>Halogenated Ethers</b>	<b>µg/kg</b>	<b>µg/L</b>
Bis(2-chloroethyl)ether	130 <sup>c</sup>	0.9 <sup>c</sup>
4-chlorophenyl phenyl ether	170 <sup>c</sup>	0.6 <sup>c</sup>
4-Bromophenyl phenyl ether	160 <sup>c</sup>	0.4 <sup>c</sup>
Bis(2-chloroisopropyl)ether	140 <sup>c</sup>	0.7 <sup>c</sup>
Bis(2-Chloroethoxy)methane	130 <sup>c</sup>	1 <sup>c</sup>

1 kg = kilogram; L = liter; mg = milligram; µg = microgram; NA = Not applicable—testing done on sediments only.

a The primary source of these TDLs was EPA 823-B-95-001, *QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations*.

b Metals shall be expressed as Dissolved values in water samples, except for mercury and selenium, which shall be reported as Total Recoverable Concentrations.

c These values are based on recommendations from the EPA Region 6 Laboratory in Houston; these values were based on data or other technical basis.

d The values in parentheses are based on EPA "clean techniques" (EPA 1600 series methods), which are applicable in instances where other TDLs are inadequate to assess EPA water quality criteria.

e This value recommended by Houston Lab using colorimetric method.

f Analytes originated from the USACE list for analysis.

## 4.1 Laboratory Quality Control

The Laboratory Quality Control (QC) program will include, but will not be limited to:

- a. **NELAC Accreditation** – The laboratory will have current accreditation status consistent with standards adopted by the NELAP.
- b. **Method Blanks** – Will be performed at a frequency of one per batch of samples, per matrix type, per sample extraction or preparation method.
- c. **Laboratory Control Samples** – Will be analyzed at a minimum of 1 per batch of 20 or fewer samples per matrix type, per sample extraction or preparation method, except for analytes for which spiking solutions are not available.
- d. **Matrix Spikes** – Will be performed at a frequency of 1 in 20 samples per matrix type, per sample extraction or preparation method, except for analytes for which spiking solutions are not available. The spike concentration will be no greater than 25 to 50 percent of the maximum concentration along the linear segment of the instrument calibration curve for any analyte.
- e. **Matrix Spike Duplicates** – Will be analyzed at a minimum of 1 in 20 samples per matrix type, per sample extraction or preparation method.
- f. **Surrogates** – Surrogate compounds must be added to all samples, standards, and blanks for all organic chromatography methods except when the matrix precludes its use or when a surrogate is not available.
- g. **Field Equipment Blanks** – Analysis will be performed at a frequency of one per batch of samples collected.
- h. Calibration of instrumentation and performance of periodic instrument checks according to manufacturer and the Environmental Protection Agency (EPA) recommendations, and appropriate Standard Operating Procedures (SOP).
- i. Participation in performance evaluation and method studies available from EPA, American Society for Testing and Materials (ASTM), or another agency. Performance evaluation under such a program is to be conducted at least on a semi-annual basis.
- j. Each new shipment or lot of solvent, reagent, or adsorbent will be evaluated for purity in accordance with appropriate SOPs.
- k. Standards will be prepared and verified in accordance with appropriate SOPs.
- l. Calculation of QC limits and preparation of control charts will be performed in accordance with appropriate SOPs.
- m. Out-of-control events or outlier data will be noted and corrective action will be taken in accordance with appropriate SOPs.

Documentation of all QC activities performed specifically in conjunction with this project will be furnished along with sample results. Copies of all raw data, lab notes, chromatograms, standard curves, etc. will be available upon request.

## **5.0 Report Deliverables**

Following the completion of sample collection, chemical analysis, and benthic habitat assessment, two individual reports will be prepared detailing the results of the contaminants assessment and sediment characterization, and benthic habitat assessment.

A contaminants assessment and sediment characterization report will be prepared which will describe the sampling activities, chemical analysis, and the conclusions reached for the contaminant assessment and sediment characterization. This report will include completed water quality data sheets and raw chemical/physical analysis data. The report to be prepared should conform to the format described in the guidance document (USACE, 2015). Deliverables will include both a hard copy and electronic copy of the report, associated figures and tables, chemical and physical analysis, laboratory electronic data deliverables (EDD's) in Microsoft Excel format.

A benthic habitat assessment report shall will be prepared which will describe the habitat characterization and characterization of macroinfaunal assemblages, identification of organisms collected to the LPIL, enumeration, biomass measurement, and interpretation. This report shall provide a case narrative summarizing all work completed, including deviations, exceptions, and any other noteworthy findings.

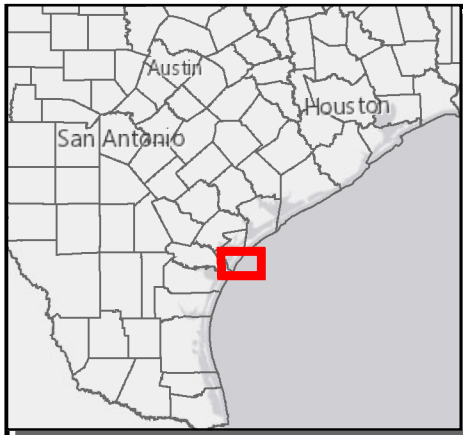
## **6.0 References**

- U.S. Army Corps of Engineers. 2015. Sampling and Analysis Plan-Private Dredging Application, USACE Galveston District, Galveston, Texas
- Plumb, R.H., Jr. 1981. Procedure for Handling and Chemical Analysis of Sediment and Water Samples. EPA/CE-81-1. Prepared by State University College at Buffalo, Great Lakes Laboratory, Buffalo, N.Y. U.S. Environmental Protection Agency and U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.
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- U.S. Environmental Protection Agency (EPA) and U.S. Army Corps of Engineers (USACE). 1995. QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations - Chemical Evaluations. EPA 823-B-95-001. U.S. Environmental Protection Agency and U.S. Army Corps of Engineers, Washington, D.C.

# **Appendix A**

## **Figures**

# BLUEWATER SPM PROJECT



**Map Details**

Sample Location

- No Benthic Sample
- Includes Benthic Sample
- Proposed Project
- Navigation Fairway

1 inch = 16,558.29 feet

0 8,000 16,000 Feet

Coordinate System: NAD 1983 2011  
 StatePlane Texas South FIPS 4205  
 Ft US  
 Projection: Lambert Conformal Conic  
 Datum: NAD 1983 2011  
 Units: Foot US

**Sediment Sampling Location Map**

Bluewater SPM Project  
 Aransas County, TX

SHEET 1 of 1      Date: Jan 25, 2019

**Appendix C**  
**Water Quality Datasheets**



**LLOYD**  
ENGINEERING, INC.  
WATER QUALITY DATA

Project: Bluewater Texas Terminal LLC - Bluewater SPM Project

Location: Harbor Island, San Jose Island, Offshore Gulf of Mexico, Aransas County, Te

Date(s) Collected: February 19 - February 28, 2019

Date	2/27/2019	2/27/2019	2/27/2019	2/27/2019	2/27/2019	2/27/2019	2/27/2019	2/27/2019	2/27/2019
Station	BWSPM-18-01	BWSPM-18-02	BWSPM-18-03	BWSPM-18-04	BWSPM-18-05	BWSPM-18-06	BWSPM-18-07	BWSPM-18-08	BWSPM-18-09
Latitude	27.902577	27.889361	27.887297	27.885223	27.883666	27.885641	27.887607	27.889567	27.891524
Longitude	-96.628119	-96.651156	-96.683696	-96.716247	-96.748782	-96.781354	-96.813931	-96.846490	-96.879098
Water Depth MLT (ft.)	89	87	82	80	75	73	66	62	57
DO (mg/L)	8.15	8.02	8.13	8.33	8.54	8.73	8.82	8.45	9.43
pH (s.u.)	8.20	8.19	8.20	8.22	8.24	8.24	8.26	8.24	8.31
Salinity (‰)	40.22	40.49	39.99	39.98	39.25	37.86	35.65	34.98	32.37
Specific Cond. (mS/cm2)	51.47	51.21	51.21	50.64	48.72	46.98	44.63	43.98	41.40
Water Temp (°C)	17.6	17.1	17.6	17.1	16.1	15.9	16.0	16.1	16.5
Air Temp (°C)	21.11	20.55	21.66	21.66	21.66	20.00	20.55	19.44	18.33
Time	16:45	16:46	17:31	18:09	18:44	19:20	19:44	20:36	21:41

Remarks:





**LLOYD**  
ENGINEERING, INC.  
WATER QUALITY DATA

Project: Bluewater Texas Terminal LLC - Bluewater SPM Project

Location: Harbor Island, San Jose Island, Offshore Gulf of Mexico, Aransas County, Te

Date(s) Collected: February 19 - February 28, 2019

Date	2/27/2019	2/27/2019	2/27/2019	2/28/2019	2/28/2019	2/19/2019	2/19/2019	2/19/2019	2/19/2019
Station	BWSPM-18-10	BWSPM-18-11	BWSPM-18-12	BWSPM-18-13	BWSPM-18-14	BWSPM-18-15	BWSPM-18-16	BWSPM-18-17	BWSPM-18-18
Latitude	27.893464	27.895095	27.881489	27.859111	27.852562	27.852330	27.863864	27.889593	27.898071
Longitude	-96.911675	-96.944210	-96.971449	-96.992137°	-97.022913	-97.059572	-97.080982	-97.109506	-97.135225
Water Depth MLT (ft.)	49	41	40	39	30	26.2	8.5	9.7	13.2
DO (mg/L)	9.05	8.75	8.72	8.53	9.00	8.63	7.85	8.08	8.90
pH (s.u.)	8.25	8.22	8.21	8.21	8.23	8.26	8.21	8.17	8.32
Salinity (‰)	31.38	31.23	31.22	31.37	30.91	30.86	29.81	32.05	23.69
Specific Cond. (mS/cm2)	39.99	39.29	39.28	39.36	39.37	37.45	35.96	38.38	29.29
Water Temp (°C)	16.2	15.6	15.6	15.5	16.1	14.0	13.6	13.6	13.7
Air Temp (°C)	18.33	17.77	17.77	17.77	17.77	13.88	13.88	13.88	13.88
Time	22:15	22:38	23:22	23:54	00:15	14:32	13:57	13:26	12:52

Remarks:

**Appendix D**  
**Laboratory Analyses QA/QC Reports and Chain of**  
**Custody Forms**



8725 Fawn Trail - The Woodlands, TX 77385 - www.NWDLS.com - (936) 321-6060

April 08, 2019

## LAB REPORT

Dillon Johnston  
Lloyd Engineering, Inc.  
6565 West Loop, Suite 708  
Bellaire, TX 77401

RE: Phillips 66 - Bluewater SPM 2019

The following test results meet all NELAP requirements for analytes for which certification is available. Any deviations from our quality system will be noted in the case narrative. All analyses performed by North Water District Laboratory Services, Inc. unless noted.

For questions regarding this report, contact Monica Martin at 936-321-6060.

Sincerely,

Monica O. Martin  
Director of Laboratory Services



8725 Fawn Trail - The Woodlands, TX 77385 - www.NWDLS.com - (936) 321-6060

Lloyd Engineering, Inc.  
6565 West Loop, Suite 708  
Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

### Work Order Case Narrative

A total of 29 samples were collected on 02/19/19-02/28/19. Samples were received and accepted at NWDLS on 02/21/19 and 03/01/19. Any receiving discrepancies are recorded and stored in NWDLS' database. The samples received a Work Order of 19B1833. The lab sample IDs, client sample IDs, and dates of collection can be found at the top of each result page. All method specified calibrations and quality control performance criteria were met for this job. For additional information, please refer to the included quality control data pages.

NWDLS provided their lowest detection limit for all requested analyses. Note that detection and reporting limits are adjusted to account for sample specific parameters.

Any QC that did not meet the laboratory specified control limits was flagged and reported with qualifiers. No data was affected by QC outside the laboratory specified control limits.



Lloyd Engineering, Inc.  
 6565 West Loop, Suite 708  
 Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
 Project Number:  
 Project Manager: Dillon Johnston

**Reported:**  
 04/08/2019 11:59

### Sample Results

Client Sample ID: BWSPM-18-EQ BL  
 Lab Sample ID: 19B1833-01  
 Sample Alias:

Sample Matrix: 18 MOhm DI Water  
 Date Collected: 02/20/2019 15:15  
 Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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#### Metals, Total

EPA 245.1	Mercury	<0.150	U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	<0.330	U	ug/L	1	0.330	5.00	BCC0532	03/08/2019	SH

#### Metals, Dissolved

EPA 200.8	Antimony	<0.200	U	ug/L	1	0.200	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	<0.100	U	ug/L	1	0.100	0.500	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	<0.0100	U	ug/L	1	0.0100	0.200	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.0500	U	ug/L	1	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	<0.0800	U	ug/L	1	0.0800	3.00	BCC0535	03/08/2019	SH
EPA 200.8	Copper	0.247	J	ug/L	1	0.200	1.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	<3.00	H	ug/L	1	3.00	3.00	BCC0724	02/22/2019	BDM
EPA 200.8	Lead	<0.100	U	ug/L	1	0.100	0.500	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	0.0774	J	ug/L	1	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.0300	U	ug/L	1	0.0300	0.500	BCC0535	03/08/2019	SH
EPA 200.8	Thallium	<0.0300	U	ug/L	1	0.0300	0.500	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	0.902	B, J	ug/L	1	0.200	2.00	BCC0535	03/08/2019	SH



Lloyd Engineering, Inc.  
6565 West Loop, Suite 708  
Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-01-W  
Lab Sample ID: 19B1833-02  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/28/2019 13:37  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	1,2-Diphenylhydrazine	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	2,4,6-Trichlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	2,4-Dichlorophenol	<0.559	U	ug/L	1	0.559	0.562	BCC0727	03/26/2019	SO
SW-8270	2,4-Dimethylphenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	2,4-Dinitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC0727	03/26/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	2-Chloronaphthalene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	2-Chlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	2-Nitrophenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<0.281	U	ug/L	1	0.281	0.562	BCC0727	04/03/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	4-Chloro-3-methylphenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	4-Chlorophenyl phenylether	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	4-Nitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC0727	03/26/2019	SO
SW-8270	Acenaphthene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Acenaphthylene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Anthracene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Benzidine	<0.281	U	ug/L	1	0.281	0.562	BCC0727	04/03/2019	SO
SW-8270	Benzo(a)anthracene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Benzo(a)pyrene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Benzo(b)fluoranthene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Benzo(g,h,i)perylene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Benzo(k)fluoranthene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Butyl benzyl phthalate	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Chrysene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Diethyl phthalate	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Dimethyl phthalate	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO



Lloyd Engineering, Inc.  
6565 West Loop, Suite 708  
Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-01-W (Continued)  
Lab Sample ID: 19B1833-02  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/28/2019 13:37  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Di-n-butyl phthalate	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Di-n-octyl phthalate	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Fluoranthene	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Fluorene	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Hexachlorobenzene	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Hexachlorobutadiene	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Hexachlorocyclopentadiene	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Hexachloroethane	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Isophorone	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Naphthalene	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Nitrobenzene	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	n-Nitrosodimethylamine	<0.281 U	ug/L	1	0.281	2.25	BCC0727	03/26/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	n-Nitrosodiphenylamine	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Pentachlorophenol	<0.559 U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	Phenanthrene	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Phenol, Total	<0.559 U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	Pyrene	<0.281 U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
<hr/>									
SW-8270	Surrogate: 2-Fluorobiphenyl-surr	97.3%	60-140					03/26/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	99.3%	60-140					03/26/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	167% S, U	60-140					03/26/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	93.4%	60-140					03/26/2019	
SW-8270	Surrogate: Phenol-d5-surr	67.0%	60-140					03/26/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	87.8%	60-140					03/26/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	4,4'-DDE	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	4,4'-DDT	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Aldrin	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Chlordane (tech.)	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	delta-BHC	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Dieldrin	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Endosulfan I	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Endosulfan II	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Endosulfan sulfate	<0.00597 U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-01-W (Continued)  
Lab Sample ID: 19B1833-02  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/28/2019 13:37  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Endrin	<0.00597	U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Endrin aldehyde	<0.00597	U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Endrin ketone	<0.00597	U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.00597	U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	gamma-Chlordane	<0.00597	U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Heptachlor	<0.00597	U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Heptachlor epoxide	<0.00597	U	ug/L	1	0.00597	0.00597	BCC0141	03/14/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<0.299	U	ug/L	1	0.299	0.299	BCC0141	03/14/2019	em
<i>SW-8081</i>	<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr</i>	<i>72.9%</i>		<i>60-140</i>					<i>03/14/2019</i>	
<i>SW-8081</i>	<i>Surrogate: Decachlorobiphenyl-surr</i>	<i>99.5%</i>		<i>60-140</i>					<i>03/14/2019</i>	
SW-8082	PCBs, Total	<0.00598	U	ug/L	1	0.00598	0.0120	BCC2891	03/09/2019	krb
<i>SW-8082</i>	<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr</i>	<i>74.7%</i>		<i>60-140</i>					<i>03/09/2019</i>	
<i>SW-8082</i>	<i>Surrogate: Decachlorobiphenyl-surr</i>	<i>56.7% S</i>		<i>60-140</i>					<i>03/09/2019</i>	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<4.59	U	mg/L	1	4.59	9.18	BCC0221	03/16/2019	krb
<i>TX 1005</i>	<i>Surrogate: 1-Chlorooctadecane-surr</i>	<i>79.0%</i>		<i>70-130</i>					<i>03/16/2019</i>	
<i>TX 1005</i>	<i>Surrogate: 1-Chlorooctane-surr</i>	<i>75.1%</i>		<i>70-130</i>					<i>03/16/2019</i>	

**Metals, Total**

EPA 245.1	Mercury	<0.150	U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	4.46	J	ug/L	5	1.65	25.0	BCC0532	03/08/2019	SH

**Metals, Dissolved**

EPA 200.8	Antimony	<1.00	U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	1.99	J	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	<0.0500	U	ug/L	5	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.250	U	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	<0.400	U	ug/L	5	0.400	15.0	BCC0535	03/08/2019	SH
EPA 200.8	Copper	<1.00	U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	<3.00	H, U	ug/L	1	3.00	3.00	BCC0807	03/01/2019	BDM
EPA 200.8	Lead	<0.500	U	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	0.587	J	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.150	U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Thallium	<0.150	U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	<1.00	U	ug/L	5	1.00	10.0	BCC0535	03/08/2019	SH

**General Chemistry**

SM 4500-CN <sup>-</sup> C	Total Cyanide	<0.00500	U	mg/L	1	0.00500	0.0100	BCC0082	03/01/2019	BDM
EPA 350.1	Ammonia as N	0.680		mg/L	1	0.0200	0.100	BCC0256	03/05/2019	JNS
EPA 415.1	Total Organic Carbon (TOC)	0.000177		%	1	5.00E-5	0.000100	BCC1033	03/09/2019	CRO





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-08-W  
Lab Sample ID: 19B1833-03  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/28/2019 15:05  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,2-Diphenylhydrazine	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	2,4,6-Trichlorophenol	<0.558	U	ug/L	1	0.558	1.12	BCC0727	03/26/2019	SO
SW-8270	2,4-Dichlorophenol	<0.558	U	ug/L	1	0.558	0.561	BCC0727	03/26/2019	SO
SW-8270	2,4-Dimethylphenol	<0.558	U	ug/L	1	0.558	1.12	BCC0727	03/26/2019	SO
SW-8270	2,4-Dinitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC0727	03/26/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	2-Chloronaphthalene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	2-Chlorophenol	<0.558	U	ug/L	1	0.558	1.12	BCC0727	03/26/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<0.558	U	ug/L	1	0.558	1.12	BCC0727	03/26/2019	SO
SW-8270	2-Nitrophenol	<0.558	U	ug/L	1	0.558	1.12	BCC0727	03/26/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<0.280	U	ug/L	1	0.280	0.561	BCC0727	04/03/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	4-Chloro-3-methylphenol	<0.558	U	ug/L	1	0.558	1.12	BCC0727	03/26/2019	SO
SW-8270	4-Chlorophenyl phenylether	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	4-Nitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC0727	03/26/2019	SO
SW-8270	Acenaphthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Acenaphthylene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzidine	<0.280	U	ug/L	1	0.280	0.561	BCC0727	04/03/2019	SO
SW-8270	Benzo(a)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(a)pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(b)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(g,h,i)perylene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(k)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Butyl benzyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Chrysene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Diethyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Dimethyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-08-W (Continued)  
Lab Sample ID: 19B1833-03  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/28/2019 15:05  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Di-n-butyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Di-n-octyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Fluorene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Hexachlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Hexachlorobutadiene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Hexachlorocyclopentadiene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Hexachloroethane	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Isophorone	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Naphthalene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Nitrobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	n-Nitrosodimethylamine	<0.280	U	ug/L	1	0.280	2.24	BCC0727	03/26/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	n-Nitrosodiphenylamine	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Pentachlorophenol	<0.558	U	ug/L	1	0.558	1.12	BCC0727	03/26/2019	SO
SW-8270	Phenanthrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Phenol, Total	<0.558	U	ug/L	1	0.558	1.12	BCC0727	03/26/2019	SO
SW-8270	Pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
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SW-8270	Surrogate: 2-Fluorobiphenyl-surr	109%		60-140					03/26/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	92.3%		60-140					03/26/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	135% U		60-140					03/26/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	88.8%		60-140					03/26/2019	
SW-8270	Surrogate: Phenol-d5-surr	32.9% S		60-140					03/26/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	78.9%		60-140					03/26/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	4,4'-DDE	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	4,4'-DDT	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Aldrin	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Chlordane (tech.)	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	delta-BHC	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Dieldrin	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Endosulfan I	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Endosulfan II	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Endosulfan sulfate	<0.00600	U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-08-W (Continued)  
Lab Sample ID: 19B1833-03  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/28/2019 15:05  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Endrin	<0.00600 U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Endrin aldehyde	<0.00600 U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Endrin ketone	<0.00600 U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.00600 U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	gamma-Chlordane	<0.00600 U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Heptachlor	<0.00600 U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Heptachlor epoxide	<0.00600 U	ug/L	1	0.00600	0.00600	BCC0141	03/14/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<0.300 U	ug/L	1	0.300	0.300	BCC0141	03/14/2019	em
<i>SW-8081</i>	<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr</i>	<i>74.4%</i>	<i>60-140</i>					<i>03/14/2019</i>	
<i>SW-8081</i>	<i>Surrogate: Decachlorobiphenyl-surr</i>	<i>101%</i>	<i>60-140</i>					<i>03/14/2019</i>	
SW-8082	PCBs, Total	<0.00598 C, U	ug/L	1	0.00598	0.0120	BCC2891	03/09/2019	krb
<i>SW-8082</i>	<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr</i>	<i>71.4% C</i>	<i>60-140</i>					<i>03/09/2019</i>	
<i>SW-8082</i>	<i>Surrogate: Decachlorobiphenyl-surr</i>	<i>55.4% C, S</i>	<i>60-140</i>					<i>03/09/2019</i>	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<4.65 U	mg/L	1	4.65	9.30	BCC0221	03/16/2019	krb
<i>TX 1005</i>	<i>Surrogate: 1-Chlorooctadecane-surr</i>	<i>105%</i>	<i>70-130</i>					<i>03/16/2019</i>	
<i>TX 1005</i>	<i>Surrogate: 1-Chlorooctane-surr</i>	<i>103%</i>	<i>70-130</i>					<i>03/16/2019</i>	

**Metals, Total**

EPA 245.1	Mercury	<0.150 U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	4.64 J	ug/L	5	1.65	25.0	BCC0532	03/08/2019	SH

**Metals, Dissolved**

EPA 200.8	Antimony	1.19 J	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	1.89 J	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	0.0625 B	ug/L	5	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.250 U	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	0.409 J	ug/L	5	0.400	15.0	BCC0535	03/08/2019	SH
EPA 200.8	Copper	<1.00 U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	<3.00 U	ug/L	1	3.00	3.00	BCC0807	03/01/2019	BDM
EPA 200.8	Lead	<0.500 U	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	0.555 J	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Thallium	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	<1.00 U	ug/L	5	1.00	10.0	BCC0535	03/08/2019	SH

**General Chemistry**

SM 4500-CN <sup>-</sup> C	Total Cyanide	<0.00500 U	mg/L	1	0.00500	0.0100	BCC0082	03/01/2019	BDM
EPA 350.1	Ammonia as N	0.629	mg/L	1	0.0200	0.100	BCC0256	03/05/2019	JNS
EPA 415.1	Total Organic Carbon (TOC)	0.000201	%	1	5.00E-5	0.000100	BCC1033	03/09/2019	CRO



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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-14-W  
Lab Sample ID: 19B1833-04  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/28/2019 15:59  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,2-Diphenylhydrazine	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	2,4,6-Trichlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	Joseph
SW-8270	2,4-Dichlorophenol	<0.559	U	ug/L	1	0.559	0.561	BCC0727	03/26/2019	SO
SW-8270	2,4-Dimethylphenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	2,4-Dinitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC0727	03/26/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	2-Chloronaphthalene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	2-Chlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	Joseph
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	Joseph
SW-8270	2-Nitrophenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	Joseph
SW-8270	3,3'-Dichlorobenzidine	<0.280	U	ug/L	1	0.280	0.561	BCC0727	04/03/2019	Joseph
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	4-Chloro-3-methylphenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	Joseph
SW-8270	4-Chlorophenyl phenylether	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	4-Nitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC0727	03/26/2019	Joseph
SW-8270	Acenaphthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Acenaphthylene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzidine	<0.280	U	ug/L	1	0.280	0.561	BCC0727	04/03/2019	Joseph
SW-8270	Benzo(a)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(a)pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(b)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(g,h,i)perylene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(k)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	bis(2-Chloroethyl) ether	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	Bis(2-ethylhexyl )phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	Butyl benzyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	Chrysene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Diethyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Dimethyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-14-W (Continued)  
Lab Sample ID: 19B1833-04  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/28/2019 15:59  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Di-n-butyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	Di-n-octyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	Fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Fluorene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Hexachlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Hexachlorobutadiene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	Hexachlorocyclopentadiene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	Hexachloroethane	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	Indeno(1,2,3-cd) pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Isophorone	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	Naphthalene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Nitrobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	n-Nitrosodimethylamine	<0.280	U	ug/L	1	0.280	2.24	BCC0727	03/26/2019	Joseph
SW-8270	n-Nitrosodi-n-propylamine	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	n-Nitrosodiphenylamine	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	Joseph
SW-8270	Pentachlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	Phenanthrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Phenol, Total	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	Pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
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SW-8270	Surrogate: 2-Fluorobiphenyl-surr	88.1%		60-140					03/26/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	56.7%	S	60-140					03/26/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	152%	S, U	60-140					03/26/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	68.7%		60-140					03/26/2019	
SW-8270	Surrogate: Phenol-d5-surr	68.5%		60-140					03/26/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	69.7%		60-140					03/26/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	4,4'-DDE	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	4,4'-DDT	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Aldrin	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Chlordane (tech.)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	delta-BHC	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Dieldrin	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Endosulfan I	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Endosulfan II	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Endosulfan sulfate	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-14-W (Continued)  
Lab Sample ID: 19B1833-04  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/28/2019 15:59  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Endrin	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Endrin aldehyde	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Endrin ketone	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	gamma-Chlordane	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Heptachlor	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Heptachlor epoxide	<0.00599	U	ug/L	1	0.00599	0.00599	BCC0141	03/14/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<0.300	U	ug/L	1	0.300	0.300	BCC0141	03/14/2019	em
<i>SW-8081</i>	<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr</i>	<i>69.0%</i>		<i>60-140</i>					<i>03/14/2019</i>	
<i>SW-8081</i>	<i>Surrogate: Decachlorobiphenyl-surr</i>	<i>99.8%</i>		<i>60-140</i>					<i>03/14/2019</i>	
SW-8082	PCBs, Total	<0.00595	C, U	ug/L	1	0.00595	0.0119	BCC2891	03/09/2019	krb
<i>SW-8082</i>	<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr</i>	<i>70.8% C</i>		<i>60-140</i>					<i>03/09/2019</i>	
<i>SW-8082</i>	<i>Surrogate: Decachlorobiphenyl-surr</i>	<i>56.8% C, S</i>		<i>60-140</i>					<i>03/09/2019</i>	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<4.73	U	mg/L	1	4.73	9.46	BCC0221	03/16/2019	krb
<i>TX 1005</i>	<i>Surrogate: 1-Chlorooctadecane-surr</i>	<i>90.8%</i>		<i>70-130</i>					<i>03/16/2019</i>	
<i>TX 1005</i>	<i>Surrogate: 1-Chlorooctane-surr</i>	<i>87.6%</i>		<i>70-130</i>					<i>03/16/2019</i>	

**Metals, Total**

EPA 245.1	Mercury	<0.150	U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	4.05	J	ug/L	5	1.65	25.0	BCC0532	03/08/2019	SH

**Metals, Dissolved**

EPA 200.8	Antimony	<1.00	U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	1.82	J	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	<0.0500	U	ug/L	5	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.250	U	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	<0.400	U	ug/L	5	0.400	15.0	BCC0535	03/08/2019	SH
EPA 200.8	Copper	<1.00	U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	<3.00	U	ug/L	1	3.00	3.00	BCC0807	03/01/2019	BDM
EPA 200.8	Lead	<0.500	U	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	0.631	J	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.150	U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Thallium	<0.150	U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	<1.00	U	ug/L	5	1.00	10.0	BCC0535	03/08/2019	SH

**General Chemistry**

SM 4500-CN <sup>-</sup> C	Total Cyanide	<0.00500	U	mg/L	1	0.00500	0.0100	BCC0082	03/01/2019	BDM
EPA 350.1	Ammonia as N	0.688		mg/L	1	0.0200	0.100	BCC0256	03/05/2019	JNS
EPA 415.1	Total Organic Carbon (TOC)	0.000262		%	1	5.00E-5	0.000100	BCC1033	03/09/2019	CRO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-15-W  
Lab Sample ID: 19B1833-05  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/20/2019 14:55  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<0.727	U	ug/L	1	0.727	2.00	BCB1524	02/21/2019	MI
SW-8260	m+p-xylene	<1.89	U	ug/L	1	1.89	6.00	BCB1524	02/21/2019	MI
SW-8260	o-Xylene	<0.806	U	ug/L	1	0.806	2.00	BCB1524	02/21/2019	MI
SW-8260	Tetrachloroethylene (Perchloroethylene)	<0.703	U	ug/L	1	0.703	2.00	BCB1524	02/21/2019	MI
SW-8260	Trichloroethene (Trichloroethylene)	<0.744	U	ug/L	1	0.744	2.00	BCB1524	02/21/2019	MI
SW-8260	Xylene (total)	0.00	U	ug/L	1			BCB1524	02/21/2019	MI
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	84.0%		70-130					02/21/2019	
SW-8260	Surrogate: Toluene-d8-surr	108%		70-130					02/21/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	111%		70-130					02/21/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	113%		70-130					02/21/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	1,2-Diphenylhydrazine	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	2,4,6-Trichlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	2,4-Dichlorophenol	<0.559	U	ug/L	1	0.559	0.561	BCC2654	03/23/2019	SO
SW-8270	2,4-Dimethylphenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	2,4-Dinitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC2654	03/23/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	2-Chloronaphthalene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	2-Chlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	2-Nitrophenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<0.280	U	ug/L	1	0.280	0.561	BCC2654	04/03/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	4-Chloro-3-methylphenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	4-Chlorophenyl phenylether	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	4-Nitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC2654	03/23/2019	SO
SW-8270	Acenaphthene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Acenaphthylene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Benzidine	<0.280	U	ug/L	1	0.280	0.561	BCC2654	04/03/2019	JLL





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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-15-W (Continued)  
Lab Sample ID: 19B1833-05  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/20/2019 14:55  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Benzo(a)pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Benzo(b)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Benzo(g,h,i)perylene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Benzo(k)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Bis(2-ethylhexyl) phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Butyl benzyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Chrysene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Diethyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Dimethyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Di-n-butyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Di-n-octyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Fluorene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Hexachlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Hexachlorobutadiene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Hexachlorocyclopentadiene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Hexachloroethane	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Isophorone	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Naphthalene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Nitrobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	n-Nitrosodimethylamine	<0.280	U	ug/L	1	0.280	2.24	BCC2654	03/23/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	n-Nitrosodiphenylamine	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Pentachlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	Phenanthrene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Phenol, Total	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	Pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	87.4%		60-140					03/23/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	52.0% S		60-140					03/23/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	91.6%		60-140					03/23/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	155% S		60-140					03/23/2019	
SW-8270	Surrogate: Phenol-d5-surr	34.2% S		60-140					03/23/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	99.5%		60-140					03/23/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	4,4'-DDE	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-15-W (Continued)  
Lab Sample ID: 19B1833-05  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/20/2019 14:55  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	4,4'-DDT	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Aldrin	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Chlordane (tech.)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	delta-BHC	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Dieldrin	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endosulfan I	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endosulfan II	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endosulfan sulfate	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endrin	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endrin aldehyde	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endrin ketone	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	gamma-Chlordane	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Heptachlor	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Heptachlor epoxide	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Toxaphene (Chlorinated Camphene)	<0.299	U	ug/L	1	0.299	0.299	BCC2694	03/07/2019	krb
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SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	78.2%		60-140					03/07/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	74.4%		60-140					03/07/2019	
SW-8082	PCBs, Total	<0.00599	U	ug/L	1	0.00599	0.0120	BCC1169	03/02/2019	em
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SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	93.9%		60-140					03/02/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	77.7%		60-140					03/02/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<4.40	U	mg/L	1	4.40	8.80	BCC2501	03/15/2019	krb
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TX 1005	Surrogate: 1-Chlorooctadecane-surr	96.7%		70-130					03/15/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	91.2%		70-130					03/15/2019	

**Metals, Total**

EPA 245.1	Mercury	<0.150	U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	3.12	J	ug/L	5	1.65	25.0	BCC0532	03/08/2019	SH

**Metals, Dissolved**

EPA 200.8	Antimony	<1.00	U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	1.96	J	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	<0.0500	U	ug/L	5	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.250	U	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	<0.400	U	ug/L	5	0.400	15.0	BCC0535	03/08/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-15-W (Continued)  
Lab Sample ID: 19B1833-05  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/20/2019 14:55  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Dissolved (Continued)**

EPA 200.8	Copper	1.12 J	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	<3.00 H	ug/L	1	3.00	3.00	BCC0724	02/22/2019	BDM
EPA 200.8	Lead	<0.500 U	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	0.807 J	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Thallium	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	<1.00 U	ug/L	5	1.00	10.0	BCC0535	03/08/2019	SH

**General Chemistry**

SM 4500-CN <sup>-</sup> C	Total Cyanide	0.00588	mg/L	1	0.00500	0.0100	BCC0082	03/01/2019	BDM
EPA 350.1	Ammonia as N	0.392	mg/L	1	0.0200	0.100	BCB1365	02/22/2019	JAA
EPA 415.1	Total Organic Carbon (TOC)	0.000324	%	1	5.00E-5	0.000100	BCC1033	03/09/2019	CRO



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Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-18-W  
Lab Sample ID: 19B1833-06  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/20/2019 14:30  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<0.727	U	ug/L	1	0.727	2.00	BCB1524	02/21/2019	MI
SW-8260	m+p-xylene	<1.89	U	ug/L	1	1.89	6.00	BCB1524	02/21/2019	MI
SW-8260	o-Xylene	<0.806	U	ug/L	1	0.806	2.00	BCB1524	02/21/2019	MI
SW-8260	Tetrachloroethylene (Perchloroethylene)	<0.703	U	ug/L	1	0.703	2.00	BCB1524	02/21/2019	MI
SW-8260	Trichloroethene (Trichloroethylene)	<0.744	U	ug/L	1	0.744	2.00	BCB1524	02/21/2019	MI
SW-8260	Xylene (total)	0.00	U	ug/L	1			BCB1524	02/21/2019	MI
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	86.6%		70-130					02/21/2019	
SW-8260	Surrogate: Toluene-d8-surr	108%		70-130					02/21/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	110%		70-130					02/21/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	113%		70-130					02/21/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	1,2-Diphenylhydrazine	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	2,4,6-Trichlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	2,4-Dichlorophenol	<0.559	U	ug/L	1	0.559	0.561	BCC2654	03/23/2019	SO
SW-8270	2,4-Dimethylphenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	2,4-Dinitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC2654	03/23/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	2-Chloronaphthalene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	2-Chlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	2-Nitrophenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<0.280	U	ug/L	1	0.280	0.561	BCC2654	04/03/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	4-Chloro-3-methylphenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	4-Chlorophenyl phenylether	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	4-Nitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC2654	03/23/2019	SO
SW-8270	Acenaphthene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Acenaphthylene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Benzidine	<0.280	U	ug/L	1	0.280	0.561	BCC2654	04/03/2019	JLL



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-18-W (Continued)  
Lab Sample ID: 19B1833-06  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/20/2019 14:30  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Benzo(a)pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Benzo(b)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Benzo(g,h,i)perylene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Benzo(k)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Bis(2-ethylhexyl) phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Butyl benzyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Chrysene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Diethyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Dimethyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Di-n-butyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Di-n-octyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Fluorene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Hexachlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Hexachlorobutadiene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Hexachlorocyclopentadiene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Hexachloroethane	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Isophorone	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Naphthalene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Nitrobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	n-Nitrosodimethylamine	<0.280	U	ug/L	1	0.280	2.24	BCC2654	03/23/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	n-Nitrosodiphenylamine	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Pentachlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	Phenanthrene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO
SW-8270	Phenol, Total	<0.559	U	ug/L	1	0.559	1.12	BCC2654	03/23/2019	SO
SW-8270	Pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC2654	03/23/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	84.5%		60-140					03/23/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	51.8% S		60-140					03/23/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	101%		60-140					03/23/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	158% S		60-140					03/23/2019	
SW-8270	Surrogate: Phenol-d5-surr	38.4% S		60-140					03/23/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	84.7%		60-140					03/23/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	4,4'-DDE	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb



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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-18-W (Continued)  
Lab Sample ID: 19B1833-06  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/20/2019 14:30  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	4,4'-DDT	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Aldrin	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Chlordane (tech.)	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	delta-BHC	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Dieldrin	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Endosulfan I	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Endosulfan II	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Endosulfan sulfate	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Endrin	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Endrin aldehyde	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Endrin ketone	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	gamma-Chlordane	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Heptachlor	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Heptachlor epoxide	<0.00598	U	ug/L	1	0.00598	0.00598	BCC2694	03/07/2019	krb
SW-8081	Toxaphene (Chlorinated Camphene)	<0.299	U	ug/L	1	0.299	0.299	BCC2694	03/07/2019	krb
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SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	80.8%		60-140					03/07/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	75.5%		60-140					03/07/2019	
SW-8082	PCBs, Total	<0.00598	U	ug/L	1	0.00598	0.0120	BCC1169	03/02/2019	em
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SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	106%		60-140					03/02/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	82.0%		60-140					03/02/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<4.41	U	mg/L	1	4.41	8.82	BCC2501	03/15/2019	krb
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TX 1005	Surrogate: 1-Chlorooctadecane-surr	94.7%		70-130					03/15/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	96.5%		70-130					03/15/2019	

**Metals, Total**

EPA 245.1	Mercury	<0.150	U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	3.97	J	ug/L	5	1.65	25.0	BCC0532	03/08/2019	SH

**Metals, Dissolved**

EPA 200.8	Antimony	<1.00	U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	2.11	J	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	<0.0500	U	ug/L	5	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.250	U	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	<0.400	U	ug/L	5	0.400	15.0	BCC0535	03/08/2019	SH



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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-18-W (Continued)  
Lab Sample ID: 19B1833-06  
Sample Alias:

Sample Matrix: Marine Water  
Date Collected: 02/20/2019 14:30  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Dissolved (Continued)**

EPA 200.8	Copper	1.49 J	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	<3.00 H	ug/L	1	3.00	3.00	BCC0724	02/22/2019	BDM
EPA 200.8	Lead	<0.500 U	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	0.790 J	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Thallium	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	<1.00 U	ug/L	5	1.00	10.0	BCC0535	03/08/2019	SH

**General Chemistry**

SM 4500-CN <sup>-</sup> C	Total Cyanide	<0.00500 U	mg/L	1	0.00500	0.0100	BCC0082	03/01/2019	BDM
EPA 350.1	Ammonia as N	0.373	mg/L	1	0.0200	0.100	BCB1365	02/22/2019	JAA
EPA 415.1	Total Organic Carbon (TOC)	0.000368	%	1	5.00E-5	0.000100	BCC1033	03/09/2019	CRO



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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-01-E  
Lab Sample ID: 19B1833-07  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/27/2019 16:35  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	2,4-Dichlorophenol	<0.560	U	ug/L	1	0.560	0.562	BCC0727	03/26/2019	SO
SW-8270	2,4-Dimethylphenol	<0.560	U	ug/L	1	0.560	1.12	BCC0727	03/26/2019	SO
SW-8270	2,4-Dinitrophenol	<4.50	U	ug/L	1	4.50	4.50	BCC0727	03/26/2019	SO
SW-8270	Acenaphthene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Acenaphthylene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Anthracene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Benzo(a)anthracene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Benzo(a)pyrene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Benzo(b)fluoranthene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Benzo(g,h,i)perylene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Benzo(k)fluoranthene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Chrysene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Diethyl phthalate	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Fluoranthene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Fluorene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Hexachlorobenzene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Naphthalene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Pentachlorophenol	<0.560	U	ug/L	1	0.560	1.12	BCC0727	03/26/2019	SO
SW-8270	Phenanthrene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Phenol, Total	<0.560	U	ug/L	1	0.560	1.12	BCC0727	03/26/2019	SO
SW-8270	Pyrene	<0.281	U	ug/L	1	0.281	0.562	BCC0727	03/26/2019	SO
SW-8270	Surrogate: 2-Fluorobiphenyl-surr	82.5%		60-149					03/26/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	154% S		60-149					03/26/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	163% S, U		60-149					03/26/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	106%		60-149					03/26/2019	
SW-8270	Surrogate: Phenol-d5-surr	69.2%		60-149					03/26/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	77.0%		60-149					03/26/2019	

**Elutriate Organics by GC**

SW-8081	4,4'-DDD	<0.000898	U	ug/L	1	0.000898	0.00299	BCC0141	03/14/2019	em
SW-8081	4,4'-DDE	<0.00339	U	ug/L	1	0.00339	0.00998	BCC0141	03/14/2019	em
SW-8081	4,4'-DDT	<0.00379	U	ug/L	1	0.00379	0.0110	BCC0141	03/14/2019	em
SW-8081	Aldrin	<0.00110	U	ug/L	1	0.00110	0.00299	BCC0141	03/14/2019	em



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Project Manager: Dillon Johnston

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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-01-E (Continued)  
Lab Sample ID: 19B1833-07  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/27/2019 16:35  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Organics by GC (Continued)**

SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00150 U	ug/L	1	0.00150	0.00499	BCC0141	03/14/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.00988 U	ug/L	1	0.00988	0.0299	BCC0141	03/14/2019	em
SW-8081	Chlordane (tech.)	<0.00299 U	ug/L	1	0.00299	0.00599	BCC0141	03/14/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.00240 U	ug/L	1	0.00240	0.00699	BCC0141	03/14/2019	em
SW-8081	delta-BHC	<0.00409 U	ug/L	1	0.00409	0.0120	BCC0141	03/14/2019	em
SW-8081	Dieldrin	<0.00110 U	ug/L	1	0.00110	0.00299	BCC0141	03/14/2019	em
SW-8081	Endosulfan I	<0.00200 U	ug/L	1	0.00200	0.00599	BCC0141	03/14/2019	em
SW-8081	Endosulfan II	<0.00399 U	ug/L	1	0.00399	0.0120	BCC0141	03/14/2019	em
SW-8081	Endosulfan sulfate	<0.00858 U	ug/L	1	0.00858	0.0260	BCC0141	03/14/2019	em
SW-8081	Endrin	<0.00260 U	ug/L	1	0.00260	0.00799	BCC0141	03/14/2019	em
SW-8081	Endrin aldehyde	<0.00769 U	ug/L	1	0.00769	0.0230	BCC0141	03/14/2019	em
SW-8081	Endrin ketone	<0.00489 U	ug/L	1	0.00489	0.0150	BCC0141	03/14/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.00359 U	ug/L	1	0.00359	0.0110	BCC0141	03/14/2019	em
SW-8081	gamma-Chlordane	<0.00140 U	ug/L	1	0.00140	0.00399	BCC0141	03/14/2019	em
SW-8081	Heptachlor	<0.0128 U	ug/L	1	0.0128	0.0379	BCC0141	03/14/2019	em
SW-8081	Heptachlor epoxide	<0.00210 U	ug/L	1	0.00210	0.00599	BCC0141	03/14/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<0.00299 U	ug/L	1	0.00299	0.00599	BCC0141	03/14/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	75.4%	60-140					03/14/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	99.3%	60-140					03/14/2019	
SW-8082	PCBs, Total	<0.00596 C, U	ug/L	1	0.00596	0.0119	BCC2891	03/09/2019	krb
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	67.7% C	60-140					03/09/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	52.0% C, S	60-140					03/09/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<4.58 U	mg/L	1	4.58	9.16	BCC0221	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	90.8%	70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	102%	70-130					03/16/2019	

**Elutriate Metals, Dissolved**

EPA 200.8	Antimony	1.43 J	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	12.6	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	<0.0500 U	ug/L	5	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.250 U	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	<0.400 U	ug/L	5	0.400	15.0	BCC0535	03/08/2019	SH
EPA 200.8	Copper	<1.00 U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	2.69 J	ug/L	1	1.50	3.00	BCC0723	03/06/2019	CR-6* D
EPA 200.8	Lead	<0.500 U	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	0.685 J	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH





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Project: Phillips 66 - Bluewater SPM 2019  
 Project Number:  
 Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-01-E (Continued)  
 Lab Sample ID: 19B1833-07  
 Sample Alias:

Sample Matrix: Elutriate  
 Date Collected: 02/27/2019 16:35  
 Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Metals, Dissolved (Continued)**

EPA 200.8	Thallium	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	<1.00 U	ug/L	5	1.00	10.0	BCC0535	03/08/2019	SH

**Elutriate Metals, Total**

EPA 245.1	Mercury	<0.150 U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	4.86 J	ug/L	5	1.65	25.0	BCC0532	03/08/2019	SH

**Elutriate General Chemistry**

SM 4500-CN <sup>-</sup> C	Total Cyanide	<0.00500	mg/L	1	0.00500	0.0100	BCC1125	03/12/2019	BDM
EPA 350.1	Ammonia as N	1.18	mg/L	1	0.0200	0.100	BCC0256	03/05/2019	JNS
EPA 415.1	Total Organic Carbon (TOC)	0.000288	%	1	5.00E-5	0.000100	BCC1033	03/09/2019	CRO



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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-08-E  
Lab Sample ID: 19B1833-08  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/27/2019 20:41  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	2,4-Dichlorophenol	<0.559	U	ug/L	1	0.559	0.561	BCC0727	03/26/2019	SO
SW-8270	2,4-Dimethylphenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	2,4-Dinitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC0727	03/26/2019	SO
SW-8270	Acenaphthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Acenaphthylene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(a)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(a)pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(b)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(g,h,i)perylene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(k)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Chrysene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Diethyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Fluorene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Hexachlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Naphthalene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Pentachlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	Phenanthrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Phenol, Total	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	Pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	84.1%		60-149					03/26/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	92.0%		60-149					03/26/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	124% U		60-149					03/26/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	84.5%		60-149					03/26/2019	
SW-8270	Surrogate: Phenol-d5-surr	55.4% S		60-149					03/26/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	76.9%		60-149					03/26/2019	

**Elutriate Organics by GC**

SW-8081	4,4'-DDD	<0.000898	U	ug/L	1	0.000898	0.00299	BCC0141	03/14/2019	em
SW-8081	4,4'-DDE	<0.00339	U	ug/L	1	0.00339	0.00997	BCC0141	03/14/2019	em
SW-8081	4,4'-DDT	<0.00379	U	ug/L	1	0.00379	0.0110	BCC0141	03/14/2019	em
SW-8081	Aldrin	<0.00110	U	ug/L	1	0.00110	0.00299	BCC0141	03/14/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-08-E (Continued)  
Lab Sample ID: 19B1833-08  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/27/2019 20:41  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Organics by GC (Continued)**

SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00150	U	ug/L	1	0.00150	0.00499	BCC0141	03/14/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.00987	U	ug/L	1	0.00987	0.0299	BCC0141	03/14/2019	em
SW-8081	Chlordane (tech.)	<0.00299	U	ug/L	1	0.00299	0.00598	BCC0141	03/14/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.00239	U	ug/L	1	0.00239	0.00698	BCC0141	03/14/2019	em
SW-8081	delta-BHC	<0.00409	U	ug/L	1	0.00409	0.0120	BCC0141	03/14/2019	em
SW-8081	Dieldrin	<0.00110	U	ug/L	1	0.00110	0.00299	BCC0141	03/14/2019	em
SW-8081	Endosulfan I	<0.00199	U	ug/L	1	0.00199	0.00598	BCC0141	03/14/2019	em
SW-8081	Endosulfan II	<0.00399	U	ug/L	1	0.00399	0.0120	BCC0141	03/14/2019	em
SW-8081	Endosulfan sulfate	<0.00858	U	ug/L	1	0.00858	0.0259	BCC0141	03/14/2019	em
SW-8081	Endrin	<0.00259	U	ug/L	1	0.00259	0.00798	BCC0141	03/14/2019	em
SW-8081	Endrin aldehyde	<0.00768	U	ug/L	1	0.00768	0.0229	BCC0141	03/14/2019	em
SW-8081	Endrin ketone	<0.00489	U	ug/L	1	0.00489	0.0150	BCC0141	03/14/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.00359	U	ug/L	1	0.00359	0.0110	BCC0141	03/14/2019	em
SW-8081	gamma-Chlordane	<0.00140	U	ug/L	1	0.00140	0.00399	BCC0141	03/14/2019	em
SW-8081	Heptachlor	<0.0128	U	ug/L	1	0.0128	0.0379	BCC0141	03/14/2019	em
SW-8081	Heptachlor epoxide	<0.00209	U	ug/L	1	0.00209	0.00598	BCC0141	03/14/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<0.00299	U	ug/L	1	0.00299	0.00598	BCC0141	03/14/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	73.7%		60-140					03/14/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	102%		60-140					03/14/2019	
SW-8082	PCBs, Total	<0.00597	C, U	ug/L	1	0.00597	0.0119	BCC2891	03/09/2019	krb
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	71.1%	C	60-140					03/09/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	63.5%	C	60-140					03/09/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<4.52	U	mg/L	1	4.52	9.04	BCC0221	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	82.7%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	86.7%		70-130					03/16/2019	

**Elutriate Metals, Dissolved**

EPA 200.8	Antimony	<1.00	U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	5.63		ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	<0.0500	U	ug/L	5	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.250	U	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	<0.400	U	ug/L	5	0.400	15.0	BCC0535	03/08/2019	SH
EPA 200.8	Copper	<1.00	U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	<1.50	U	ug/L	1	1.50	3.00	BCC0723	03/06/2019	CR-6* D
EPA 200.8	Lead	<0.500	U	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	0.688	J	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.150	U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-08-E (Continued)  
Lab Sample ID: 19B1833-08  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/27/2019 20:41  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Metals, Dissolved (Continued)**

EPA 200.8	Thallium	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	<1.00 U	ug/L	5	1.00	10.0	BCC0535	03/08/2019	SH

**Elutriate Metals, Total**

EPA 245.1	Mercury	<0.150 U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	4.98 J	ug/L	5	1.65	25.0	BCC0532	03/08/2019	SH

**Elutriate General Chemistry**

SM 4500-CN <sup>-</sup> C	Total Cyanide	<0.00500	mg/L	1	0.00500	0.0100	BCC1125	03/12/2019	BDM
EPA 350.1	Ammonia as N	1.21	mg/L	1	0.0200	0.100	BCC0256	03/05/2019	JNS
EPA 415.1	Total Organic Carbon (TOC)	0.000333	%	1	5.00E-5	0.000100	BCC1033	03/09/2019	CRO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-14-E  
Lab Sample ID: 19B1833-09  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/28/2019 0:16  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	2,4-Dichlorophenol	<0.559	U	ug/L	1	0.559	0.561	BCC0727	03/26/2019	SO
SW-8270	2,4-Dimethylphenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	2,4-Dinitrophenol	<4.49	U	ug/L	1	4.49	4.49	BCC0727	03/26/2019	SO
SW-8270	Acenaphthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Acenaphthylene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(a)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(a)pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(b)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(g,h,i)perylene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Benzo(k)fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Chrysene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Diethyl phthalate	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Fluoranthene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Fluorene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Hexachlorobenzene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Naphthalene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Pentachlorophenol	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	Phenanthrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO
SW-8270	Phenol, Total	<0.559	U	ug/L	1	0.559	1.12	BCC0727	03/26/2019	SO
SW-8270	Pyrene	<0.280	U	ug/L	1	0.280	0.561	BCC0727	03/26/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	86.7%		60-149					03/26/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	81.0%		60-149					03/26/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	174% S, U		60-149					03/26/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	89.9%		60-149					03/26/2019	
SW-8270	Surrogate: Phenol-d5-surr	55.6% S		60-149					03/26/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	89.8%		60-149					03/26/2019	

**Elutriate Organics by GC**

SW-8081	4,4'-DDD	<0.000898	U	ug/L	1	0.000898	0.00299	BCC0141	03/14/2019	em
SW-8081	4,4'-DDE	<0.00339	U	ug/L	1	0.00339	0.00998	BCC0141	03/14/2019	em
SW-8081	4,4'-DDT	<0.00379	U	ug/L	1	0.00379	0.0110	BCC0141	03/14/2019	em
SW-8081	Aldrin	<0.00110	U	ug/L	1	0.00110	0.00299	BCC0141	03/14/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-14-E (Continued)  
Lab Sample ID: 19B1833-09  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/28/2019 0:16  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Organics by GC (Continued)**

SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00150	U	ug/L	1	0.00150	0.00499	BCC0141	03/14/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.00988	U	ug/L	1	0.00988	0.0299	BCC0141	03/14/2019	em
SW-8081	Chlordane (tech.)	<0.00299	U	ug/L	1	0.00299	0.00599	BCC0141	03/14/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.00240	U	ug/L	1	0.00240	0.00699	BCC0141	03/14/2019	em
SW-8081	delta-BHC	<0.00409	U	ug/L	1	0.00409	0.0120	BCC0141	03/14/2019	em
SW-8081	Dieldrin	<0.00110	U	ug/L	1	0.00110	0.00299	BCC0141	03/14/2019	em
SW-8081	Endosulfan I	<0.00200	U	ug/L	1	0.00200	0.00599	BCC0141	03/14/2019	em
SW-8081	Endosulfan II	<0.00399	U	ug/L	1	0.00399	0.0120	BCC0141	03/14/2019	em
SW-8081	Endosulfan sulfate	<0.00858	U	ug/L	1	0.00858	0.0259	BCC0141	03/14/2019	em
SW-8081	Endrin	<0.00259	U	ug/L	1	0.00259	0.00798	BCC0141	03/14/2019	em
SW-8081	Endrin aldehyde	<0.00768	U	ug/L	1	0.00768	0.0230	BCC0141	03/14/2019	em
SW-8081	Endrin ketone	<0.00489	U	ug/L	1	0.00489	0.0150	BCC0141	03/14/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.00629	J	ug/L	1	0.00359	0.0110	BCC0141	03/14/2019	em
SW-8081	gamma-Chlordane	<0.00140	U	ug/L	1	0.00140	0.00399	BCC0141	03/14/2019	em
SW-8081	Heptachlor	<0.0128	U	ug/L	1	0.0128	0.0379	BCC0141	03/14/2019	em
SW-8081	Heptachlor epoxide	<0.00210	U	ug/L	1	0.00210	0.00599	BCC0141	03/14/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<0.00299	U	ug/L	1	0.00299	0.00599	BCC0141	03/14/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	72.0%		60-140					03/14/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	102%		60-140					03/14/2019	
SW-8082	PCBs, Total	<0.00599	C, U	ug/L	1	0.00599	0.0120	BCC2891	03/09/2019	krb
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	60.6%	C	60-140					03/09/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	50.3%	C, S	60-140					03/09/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<4.62	U	mg/L	1	4.62	9.24	BCC0221	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	89.4%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	96.9%		70-130					03/16/2019	

**Elutriate Metals, Dissolved**

EPA 200.8	Antimony	<1.00	U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	4.51		ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	<0.0500	U	ug/L	5	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.250	U	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	<0.400	U	ug/L	5	0.400	15.0	BCC0535	03/08/2019	SH
EPA 200.8	Copper	1.32	J	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	1.67	J	ug/L	1	1.50	3.00	BCC0723	03/06/2019	CR-6* D
EPA 200.8	Lead	<0.500	U	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	1.20	J	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.150	U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-14-E (Continued)  
Lab Sample ID: 19B1833-09  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/28/2019 0:16  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Metals, Dissolved (Continued)**

EPA 200.8	Thallium	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	1.09 B, J	ug/L	5	1.00	10.0	BCC0535	03/08/2019	SH

**Elutriate Metals, Total**

EPA 245.1	Mercury	<0.150 U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	4.57 J	ug/L	5	1.65	25.0	BCC0532	03/08/2019	SH

**Elutriate General Chemistry**

SM 4500-CN <sup>-</sup> C	Total Cyanide	<0.00500	mg/L	1	0.00500	0.0100	BCC1125	03/12/2019	BDM
EPA 350.1	Ammonia as N	1.64	mg/L	10	0.200	1.00	BCC0256	03/05/2019	JNS
EPA 415.1	Total Organic Carbon (TOC)	0.000434	%	1	5.00E-5	0.000100	BCC1033	03/09/2019	CRO



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Project Manager: Dillon Johnston

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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-15-E  
Lab Sample ID: 19B1833-10  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/20/2019 14:40  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<2.00	U	ug/L	1	2.00	5.00	BCB1643	02/25/2019	MI
SW-8260	m+p-xylene	<2.00	U	ug/L	1	2.00	5.00	BCB1643	02/25/2019	MI
SW-8260	o-Xylene	<2.00	U	ug/L	1	2.00	5.00	BCB1643	02/25/2019	MI
SW-8260	Tetrachloroethylene (Perchloroethylene)	<2.00	U	ug/L	1	2.00	5.00	BCB1643	02/25/2019	MI
SW-8260	Trichloroethylene (Trichloroethylene)	<2.00	U	ug/L	1	2.00	5.00	BCB1643	02/25/2019	MI
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	83.1%		70-130					02/25/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	101%		70-130					02/25/2019	
SW-8260	Surrogate: Toluene-d8-surr	104%		70-130					02/25/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	104%		70-130					02/25/2019	

**Elutriate Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	2,4-Dichlorophenol	<0.557	U	ug/L	1	0.557	1.12	BCC2654	03/23/2019	SO
SW-8270	2,4-Dimethylphenol	<0.557	U	ug/L	1	0.557	1.12	BCC2654	03/23/2019	SO
SW-8270	2,4-Dinitrophenol	<4.48	U	ug/L	1	4.48	4.48	BCC2654	03/23/2019	SO
SW-8270	Acenaphthene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Acenaphthylene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Anthracene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Benzo(a)anthracene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Benzo(a)pyrene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Benzo(b)fluoranthene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Benzo(g,h,i)perylene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Benzo(k)fluoranthene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Chrysene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Diethyl phthalate	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Fluoranthene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Fluorene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Hexachlorobenzene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Naphthalene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Pentachlorophenol	<0.557	U	ug/L	1	0.557	1.12	BCC2654	03/23/2019	SO
SW-8270	Phenanthrene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Phenol, Total	<0.557	U	ug/L	1	0.557	1.12	BCC2654	03/23/2019	SO
SW-8270	Pyrene	<0.280	U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO





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Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-15-E (Continued)  
Lab Sample ID: 19B1833-10  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/20/2019 14:40  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	135%		60-149					03/23/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	39.4% S		60-149					03/23/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	96.6%		60-149					03/23/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	291% S		60-149					03/23/2019	
SW-8270	Surrogate: Phenol-d5-surr	27.7% S		60-149					03/23/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	99.8%		60-149					03/23/2019	

**Elutriate Organics by GC**

SW-8081	4,4'-DDD	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	4,4'-DDE	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	4,4'-DDT	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Aldrin	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Chlordane (tech.)	<0.00299 U		ug/L	1	0.00299	0.00599	BCC2694	03/07/2019	krb
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	delta-BHC	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Dieldrin	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endosulfan I	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endosulfan II	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endosulfan sulfate	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endrin	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endrin aldehyde	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endrin ketone	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	gamma-Chlordane	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Heptachlor	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Heptachlor epoxide	<0.00599 U		ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Toxaphene (Chlorinated Camphene)	<0.00299 U		ug/L	1	0.00299	0.00599	BCC2694	03/07/2019	krb
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	83.2%		60-140					03/07/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	87.8%		60-140					03/07/2019	
SW-8082	PCBs, Total	<0.00599 U		ug/L	1	0.00599	0.0120	BCC1169	03/02/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	107%		60-140					03/02/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	88.7%		60-140					03/02/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<4.43 U		mg/L	1	4.43	8.85	BCC2501	03/15/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	98.3%		70-130					03/15/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	94.0%		70-130					03/15/2019	

**Elutriate Metals, Dissolved**



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Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-15-E (Continued)  
Lab Sample ID: 19B1833-10  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/20/2019 14:40  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Metals, Dissolved (Continued)**

EPA 200.8	Antimony	<1.00 U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	2.24 J	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	<0.0500 U	ug/L	5	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.250 U	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	<0.400 U	ug/L	5	0.400	15.0	BCC0535	03/08/2019	SH
EPA 200.8	Copper	1.55 J	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	<3.00 U	ug/L	1	3.00	3.00	BCC0795	02/26/2019	BDM
EPA 200.8	Lead	<0.500 U	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	0.986 J	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Thallium	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	1.23 B, J	ug/L	5	1.00	10.0	BCC0535	03/08/2019	SH

**Elutriate Metals, Total**

EPA 245.1	Mercury	<0.150 U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	4.00 J	ug/L	5	1.65	25.0	BCC0532	03/08/2019	SH

**Elutriate General Chemistry**

SM 4500-CN <sup>-</sup> C	Total Cyanide	<0.00500 U	mg/L	1	0.00500	0.0100	BCC0082	03/01/2019	BDM
EPA 350.1	Ammonia as N	7.01	mg/L	10	0.200	1.00	BCB1482	02/27/2019	JAA
EPA 415.1	Total Organic Carbon (TOC)	0.000294	%	1	5.00E-5	0.000100	BCC1033	03/09/2019	CRO



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Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-18-E  
Lab Sample ID: 19B1833-11  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/20/2019 13:02  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<2.00 U	ug/L	1	2.00	5.00	BCB1643	02/25/2019	MI
SW-8260	m+p-xylene	<2.00 U	ug/L	1	2.00	5.00	BCB1643	02/25/2019	MI
SW-8260	o-Xylene	<2.00 U	ug/L	1	2.00	5.00	BCB1643	02/25/2019	MI
SW-8260	Tetrachloroethylene (Perchloroethylene)	<2.00 U	ug/L	1	2.00	5.00	BCB1643	02/25/2019	MI
SW-8260	Trichloroethene (Trichloroethylene)	<2.00 U	ug/L	1	2.00	5.00	BCB1643	02/25/2019	MI
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	83.7%	70-130					02/25/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	103%	70-130					02/25/2019	
SW-8260	Surrogate: Toluene-d8-surr	108%	70-130					02/25/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	108%	70-130					02/25/2019	

**Elutriate Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	2,4-Dichlorophenol	<0.557 U	ug/L	1	0.557	1.12	BCC2654	03/23/2019	SO
SW-8270	2,4-Dimethylphenol	<0.557 U	ug/L	1	0.557	1.12	BCC2654	03/23/2019	SO
SW-8270	2,4-Dinitrophenol	<4.48 U	ug/L	1	4.48	4.48	BCC2654	03/23/2019	SO
SW-8270	Acenaphthene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Acenaphthylene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Anthracene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Benzo(a)anthracene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Benzo(a)pyrene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Benzo(b)fluoranthene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Benzo(g,h,i)perylene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Benzo(k)fluoranthene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Chrysene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Diethyl phthalate	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Fluoranthene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Fluorene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Hexachlorobenzene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Naphthalene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Pentachlorophenol	<0.557 U	ug/L	1	0.557	1.12	BCC2654	03/23/2019	SO
SW-8270	Phenanthrene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO
SW-8270	Phenol, Total	<0.557 U	ug/L	1	0.557	1.12	BCC2654	03/23/2019	SO
SW-8270	Pyrene	<0.280 U	ug/L	1	0.280	0.560	BCC2654	03/23/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-18-E (Continued)  
Lab Sample ID: 19B1833-11  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/20/2019 13:02  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	156%	S	60-149					03/23/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	37.4%	S	60-149					03/23/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	68.3%		60-149					03/23/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	275%	S	60-149					03/23/2019	
SW-8270	Surrogate: Phenol-d5-surr	28.0%	S	60-149					03/23/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	75.6%		60-149					03/23/2019	

**Elutriate Organics by GC**

SW-8081	4,4'-DDD	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	4,4'-DDE	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	4,4'-DDT	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Aldrin	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Chlordane (tech.)	<0.00299	U	ug/L	1	0.00299	0.00599	BCC2694	03/07/2019	krb
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	delta-BHC	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Dieldrin	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endosulfan I	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endosulfan II	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endosulfan sulfate	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endrin	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endrin aldehyde	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Endrin ketone	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	gamma-Chlordane	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Heptachlor	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Heptachlor epoxide	<0.00599	U	ug/L	1	0.00599	0.00599	BCC2694	03/07/2019	krb
SW-8081	Toxaphene (Chlorinated Camphene)	<0.00299	U	ug/L	1	0.00299	0.00599	BCC2694	03/07/2019	krb
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	75.0%		60-140					03/07/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	57.9%	S	60-140					03/07/2019	
SW-8082	PCBs, Total	<0.00598	U	ug/L	1	0.00598	0.0120	BCC1169	03/02/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	96.7%		60-140					03/02/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	54.4%	S	60-140					03/02/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<4.55	U	mg/L	1	4.55	9.10	BCC2501	03/15/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	112%		70-130					03/15/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	111%		70-130					03/15/2019	

**Elutriate Metals, Dissolved**



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6565 West Loop, Suite 708  
Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-18-E (Continued)  
Lab Sample ID: 19B1833-11  
Sample Alias:

Sample Matrix: Elutriate  
Date Collected: 02/20/2019 13:02  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Elutriate Metals, Dissolved (Continued)**

EPA 200.8	Antimony	<1.00 U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Arsenic	62.1	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Beryllium	<0.0500 U	ug/L	5	0.0500	1.00	BCC0535	03/08/2019	SH
EPA 200.8	Cadmium	<0.250 U	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Chromium	<0.400 U	ug/L	5	0.400	15.0	BCC0535	03/08/2019	SH
EPA 200.8	Copper	<1.00 U	ug/L	5	1.00	5.00	BCC0535	03/08/2019	SH
SM 3500-Cr B	Chromium (VI)	<3.00 U	ug/L	1	3.00	3.00	BCC0795	02/26/2019	BDM
EPA 200.8	Lead	<0.500 U	ug/L	5	0.500	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Nickel	1.35 J	ug/L	5	0.250	5.00	BCC0535	03/08/2019	SH
EPA 200.8	Silver	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Thallium	<0.150 U	ug/L	5	0.150	2.50	BCC0535	03/08/2019	SH
EPA 200.8	Zinc	1.10 B, J	ug/L	5	1.00	10.0	BCC0535	03/08/2019	SH

**Elutriate Metals, Total**

EPA 245.1	Mercury	<0.150 U	ug/L	1	0.150	0.200	BCC0930	03/11/2019	RB
EPA 200.8	Selenium	3.97 J	ug/L	5	1.65	25.0	BCC0532	03/08/2019	SH

**Elutriate General Chemistry**

SM 4500-CN <sup>-</sup> C	Total Cyanide	<0.00500 U	mg/L	1	0.00500	0.0100	BCC0082	03/01/2019	BDM
EPA 350.1	Ammonia as N	6.90	mg/L	10	0.200	1.00	BCB1482	02/27/2019	JAA
EPA 415.1	Total Organic Carbon (TOC)	0.000304	%	1	5.00E-5	0.000100	BCC1033	03/09/2019	CRO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-01-S  
Lab Sample ID: 19B1833-12  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 16:35  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<168	U	ug/kg dry	100	168	463	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<438	U	ug/kg dry	100	438	1390	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<187	U	ug/kg dry	100	187	463	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<163	U	ug/kg dry	100	163	463	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<172	U	ug/kg dry	100	172	463	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	86.7%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	109%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	109%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	112%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<4.85	U	ug/kg dry	1	4.85	9.70	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<4.85	U	ug/kg dry	1	4.85	9.70	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<4.85	U	ug/kg dry	1	4.85	9.70	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<4.85	U	ug/kg dry	1	4.85	9.70	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<4.85	U	ug/kg dry	1	4.85	9.70	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<19.4	U	ug/kg dry	1	19.4	38.8	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<4.85	U	ug/kg dry	1	4.85	9.70	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<4.85	U	ug/kg dry	1	4.85	9.70	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-01-S (Continued)  
Lab Sample ID: 19B1833-12  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 16:35  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<4.85	U	ug/kg dry	1	4.85	9.70	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	6.18	B, J	ug/kg dry	1	4.85	9.70	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<2.42	U	ug/kg dry	1	2.42	4.85	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	55.7%	S	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	73.9%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	69.9%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	57.3%	S	60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	72.4%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	42.5%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-01-S (Continued)  
Lab Sample ID: 19B1833-12  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 16:35  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.558	U	ug/kg dry	10	0.558	1.86	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<27.9	U	ug/kg dry	10	27.9	27.9	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	82.6%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	90.9%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.91	U	ug/kg dry	1	1.91	3.82	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	45.5%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	54.1%	S	60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<93.1	U	mg/kg dry	1	93.1	93.1	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	84.8%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	86.0%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.132	U	mg/kg dry	2	0.132	0.265	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	6.96		mg/kg dry	2	0.0132	0.132	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.768		mg/kg dry	2	0.00265	0.0528	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0442	J	mg/kg dry	2	0.0132	0.265	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	16.4		mg/kg dry	2	0.0397	0.793	BCC0775	03/11/2019	SH
EPA 200.8	Copper	9.03		mg/kg dry	2	0.0528	0.265	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.126		mg/kg	1	0.0630	0.126	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	<0.118	U	mg/kg dry	1	0.118	0.237	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0365	J	mg/kg dry	1	0.0185	0.0369	BCC1371	03/14/2019	RB
EPA 200.8	Lead	13.7		mg/kg dry	2	0.0132	0.132	BCC0775	03/11/2019	SH





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Project: Phillips 66 - Bluewater SPM 2019  
 Project Number:  
 Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-01-S (Continued)  
 Lab Sample ID: 19B1833-12  
 Sample Alias:

Sample Matrix: Sediment  
 Date Collected: 02/27/2019 16:35  
 Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	15.8	mg/kg dry	2	0.265	0.265	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	1.05 J	mg/kg dry	2	0.265	1.32	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0271 J	mg/kg dry	2	0.00662	0.132	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.144	mg/kg dry	2	0.00662	0.132	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	54.1	mg/kg dry	2	0.265	0.528	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.103 U	mg/kg dry	1	0.103	0.206	BCC0081	03/01/2019	BDM
EPA 350.2	Ammonia as N	130	mg/kg dry	1	18.6	93.0	BCC0764	03/08/2019	LSK
EPA 415.1	Total Organic Carbon (TOC)	0.651 V	% dry	1	0.00939	0.0188	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	53.3	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	3.20	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-02-S  
Lab Sample ID: 19B1833-13  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 17:02  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<159	U	ug/kg dry	100	159	437	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<413	U	ug/kg dry	100	413	1310	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<176	U	ug/kg dry	100	176	437	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<154	U	ug/kg dry	100	154	437	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<163	U	ug/kg dry	100	163	437	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	89.9%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	107%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	110%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	112%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<4.49	U	ug/kg dry	1	4.49	8.97	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<4.49	U	ug/kg dry	1	4.49	8.97	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<4.49	U	ug/kg dry	1	4.49	8.97	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<4.49	U	ug/kg dry	1	4.49	8.97	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<4.49	U	ug/kg dry	1	4.49	8.97	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<17.9	U	ug/kg dry	1	17.9	35.9	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<4.49	U	ug/kg dry	1	4.49	8.97	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<4.49	U	ug/kg dry	1	4.49	8.97	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-02-S (Continued)  
Lab Sample ID: 19B1833-13  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 17:02  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<4.49	U	ug/kg dry	1	4.49	8.97	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	5.29	B, J	ug/kg dry	1	4.49	8.97	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<2.24	U	ug/kg dry	1	2.24	4.49	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	48.9%	S	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	72.0%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	63.3%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	56.7%	S	60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	68.4%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	37.8%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-02-S (Continued)  
Lab Sample ID: 19B1833-13  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 17:02  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.546	U	ug/kg dry	10	0.546	1.82	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<27.3	U	ug/kg dry	10	27.3	27.3	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	77.1%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	89.3%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.75	U	ug/kg dry	1	1.75	3.49	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	46.5%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	62.5%		60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<90.1	U	mg/kg dry	1	90.1	90.1	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	81.9%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	88.4%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.103	U	mg/kg dry	2	0.103	0.206	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	7.42		mg/kg dry	2	0.0103	0.103	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.701		mg/kg dry	2	0.00206	0.0411	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0446	J	mg/kg dry	2	0.0103	0.206	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	15.8		mg/kg dry	2	0.0309	0.617	BCC0775	03/11/2019	SH
EPA 200.8	Copper	7.98		mg/kg dry	2	0.0411	0.206	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.103		mg/kg	1	0.0515	0.103	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	0.180	J	mg/kg dry	1	0.0923	0.185	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0332	J	mg/kg dry	1	0.0168	0.0336	BCC1371	03/14/2019	RB
EPA 200.8	Lead	12.3		mg/kg dry	2	0.0103	0.103	BCC0775	03/11/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-02-S (Continued)  
Lab Sample ID: 19B1833-13  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 17:02  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	14.9	mg/kg dry	2	0.206	0.206	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	1.09	mg/kg dry	2	0.206	1.03	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0251 J	mg/kg dry	2	0.00515	0.103	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.142	mg/kg dry	2	0.00515	0.103	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	52.1	mg/kg dry	2	0.206	0.411	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.102 U	mg/kg dry	1	0.102	0.203	BCC0081	03/01/2019	BDM
EPA 350.2	Ammonia as N	100	mg/kg dry	1	17.9	89.5	BCC0764	03/08/2019	LSK
EPA 415.1	Total Organic Carbon (TOC)	0.504 V	% dry	1	0.00895	0.0179	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	55.8	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	2.83	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-03-S  
Lab Sample ID: 19B1833-14  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 17:45  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<150	U	ug/kg dry	100	150	414	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<391	U	ug/kg dry	100	391	1240	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<167	U	ug/kg dry	100	167	414	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<145	U	ug/kg dry	100	145	414	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<154	U	ug/kg dry	100	154	414	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	88.9%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	110%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	111%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	113%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<4.37	U	ug/kg dry	1	4.37	8.75	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<4.37	U	ug/kg dry	1	4.37	8.75	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<4.37	U	ug/kg dry	1	4.37	8.75	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<4.37	U	ug/kg dry	1	4.37	8.75	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<4.37	U	ug/kg dry	1	4.37	8.75	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<17.5	U	ug/kg dry	1	17.5	35.0	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<4.37	U	ug/kg dry	1	4.37	8.75	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<4.37	U	ug/kg dry	1	4.37	8.75	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-03-S (Continued)  
Lab Sample ID: 19B1833-14  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 17:45  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<4.37	U	ug/kg dry	1	4.37	8.75	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	5.34	B, J	ug/kg dry	1	4.37	8.75	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<2.19	U	ug/kg dry	1	2.19	4.37	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	49.5%	S	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	82.7%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	65.7%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	63.7%		60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	82.4%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	43.0%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em





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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-03-S (Continued)  
Lab Sample ID: 19B1833-14  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 17:45  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.509	U	ug/kg dry	10	0.509	1.70	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<25.4	U	ug/kg dry	10	25.4	25.4	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	81.0%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	86.8%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.70	U	ug/kg dry	1	1.70	3.41	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	44.4%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	59.9%	S	60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<88.5	U	mg/kg dry	1	88.5	88.5	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	87.4%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	85.4%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.102	U	mg/kg dry	2	0.102	0.204	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	5.93		mg/kg dry	2	0.0102	0.102	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.547		mg/kg dry	2	0.00204	0.0407	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0303	J	mg/kg dry	2	0.0102	0.204	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	12.7		mg/kg dry	2	0.0306	0.612	BCC0775	03/11/2019	SH
EPA 200.8	Copper	6.01		mg/kg dry	2	0.0407	0.204	BCC0775	03/11/2019	SH
SW-7471B	Mercury	0.0271	J	mg/kg dry	1	0.0153	0.0307	BCC1371	03/14/2019	RB
EPA 200.8	Lead	10.4		mg/kg dry	2	0.0102	0.102	BCC0775	03/11/2019	SH
EPA 200.8	Nickel	12.1		mg/kg dry	2	0.204	0.204	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	0.854	J	mg/kg dry	2	0.204	1.02	BCC0775	03/11/2019	SH





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 Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
 Project Number:  
 Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-03-S (Continued)  
 Lab Sample ID: 19B1833-14  
 Sample Alias:

Sample Matrix: Sediment  
 Date Collected: 02/27/2019 17:45  
 Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Silver	0.0217	J	mg/kg dry	2	0.00510	0.102	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.114		mg/kg dry	2	0.00510	0.102	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	44.9		mg/kg dry	2	0.204	0.407	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0962	U	mg/kg dry	1	0.0962	0.192	BCC0081	03/01/2019	BDM
EPA 350.2	Ammonia as N	75.7	J	mg/kg dry	1	18.0	90.1	BCC0764	03/08/2019	LSK
EPA 415.1	Total Organic Carbon (TOC)	0.359	V	% dry	1	0.00856	0.0171	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	58.4		%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	2.79		%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-04-S  
Lab Sample ID: 19B1833-15  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 18:20  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<154	U	ug/kg dry	100	154	423	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<400	U	ug/kg dry	100	400	1270	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<171	U	ug/kg dry	100	171	423	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<149	U	ug/kg dry	100	149	423	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<158	U	ug/kg dry	100	158	423	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	87.6%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	109%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	113%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	115%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<4.34	U	ug/kg dry	1	4.34	8.68	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<4.34	U	ug/kg dry	1	4.34	8.68	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<4.34	U	ug/kg dry	1	4.34	8.68	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<4.34	U	ug/kg dry	1	4.34	8.68	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<4.34	U	ug/kg dry	1	4.34	8.68	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<17.4	U	ug/kg dry	1	17.4	34.7	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<4.34	U	ug/kg dry	1	4.34	8.68	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<4.34	U	ug/kg dry	1	4.34	8.68	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-04-S (Continued)  
Lab Sample ID: 19B1833-15  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 18:20  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<4.34	U	ug/kg dry	1	4.34	8.68	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	5.38	B, J	ug/kg dry	1	4.34	8.68	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<2.17	U	ug/kg dry	1	2.17	4.34	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	45.8%	S	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	76.6%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	63.7%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	58.9%	S	60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	76.2%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	27.6%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-04-S (Continued)  
Lab Sample ID: 19B1833-15  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 18:20  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<25.7	U	ug/kg dry	10	25.7	25.7	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	87.4%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	80.1%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.76	U	ug/kg dry	1	1.76	3.51	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	48.4%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	62.7%		60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<85.7	U	mg/kg dry	1	85.7	85.7	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	82.0%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	78.2%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.105	U	mg/kg dry	2	0.105	0.211	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	6.49		mg/kg dry	2	0.0105	0.105	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.611		mg/kg dry	2	0.00211	0.0420	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0341	J	mg/kg dry	2	0.0105	0.211	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	13.5		mg/kg dry	2	0.0315	0.631	BCC0775	03/11/2019	SH
EPA 200.8	Copper	6.98		mg/kg dry	2	0.0420	0.211	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.117		mg/kg	1	0.0584	0.117	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	<0.102	U	mg/kg dry	1	0.102	0.204	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0306		mg/kg dry	1	0.0147	0.0295	BCC1371	03/14/2019	RB
EPA 200.8	Lead	11.6		mg/kg dry	2	0.0105	0.105	BCC0775	03/11/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-04-S (Continued)  
Lab Sample ID: 19B1833-15  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 18:20  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	13.3	mg/kg dry	2	0.211	0.211	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	1.05	mg/kg dry	2	0.211	1.05	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0220 J	mg/kg dry	2	0.00526	0.105	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.128	mg/kg dry	2	0.00526	0.105	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	47.2	mg/kg dry	2	0.211	0.420	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0959 U	mg/kg dry	1	0.0959	0.192	BCC0081	03/01/2019	BDM
EPA 350.2	Ammonia as N	91.8	mg/kg dry	1	13.1	65.6	BCC0764	03/08/2019	LSK
EPA 415.1	Total Organic Carbon (TOC)	0.438 V	% dry	1	0.00872	0.0174	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	57.3	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	3.39	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-05-S  
Lab Sample ID: 19B1833-16  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 18:58  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<152	U	ug/kg dry	100	152	418	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<395	U	ug/kg dry	100	395	1250	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<168	U	ug/kg dry	100	168	418	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<147	U	ug/kg dry	100	147	418	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<156	U	ug/kg dry	100	156	418	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	87.0%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	111%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	110%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	114%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<4.30	U	ug/kg dry	1	4.30	8.60	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<4.30	U	ug/kg dry	1	4.30	8.60	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<4.30	U	ug/kg dry	1	4.30	8.60	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<4.30	U	ug/kg dry	1	4.30	8.60	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<4.30	U	ug/kg dry	1	4.30	8.60	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<17.2	U	ug/kg dry	1	17.2	34.4	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<4.30	U	ug/kg dry	1	4.30	8.60	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<4.30	U	ug/kg dry	1	4.30	8.60	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-05-S (Continued)  
Lab Sample ID: 19B1833-16  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 18:58  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<4.30	U	ug/kg dry	1	4.30	8.60	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	4.69	B, J	ug/kg dry	1	4.30	8.60	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<2.15	U	ug/kg dry	1	2.15	4.30	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	51.7%	S	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	69.2%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	64.3%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	58.9%	S	60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	69.4%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	47.3%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em





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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-05-S (Continued)  
Lab Sample ID: 19B1833-16  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 18:58  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.496	U	ug/kg dry	10	0.496	1.65	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<24.8	U	ug/kg dry	10	24.8	24.8	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	81.3%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	85.2%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.68	U	ug/kg dry	1	1.68	3.37	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	46.5%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	58.5%	S	60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<87.1	U	mg/kg dry	1	87.1	87.1	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	89.6%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	95.3%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.122	U	mg/kg dry	2	0.122	0.244	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	7.46		mg/kg dry	2	0.0122	0.122	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.768		mg/kg dry	2	0.00244	0.0486	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0387	J	mg/kg dry	2	0.0122	0.244	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	15.9		mg/kg dry	2	0.0365	0.730	BCC0775	03/11/2019	SH
EPA 200.8	Copper	8.96		mg/kg dry	2	0.0486	0.244	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.127		mg/kg	1	0.0636	0.127	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	0.154	J	mg/kg dry	1	0.110	0.220	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0301		mg/kg dry	1	0.0150	0.0300	BCC1371	03/14/2019	RB
EPA 200.8	Lead	12.4		mg/kg dry	2	0.0122	0.122	BCC0775	03/11/2019	SH





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Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-05-S (Continued)  
Lab Sample ID: 19B1833-16  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 18:58  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	15.5	mg/kg dry	2	0.244	0.244	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	1.11 J	mg/kg dry	2	0.244	1.22	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0239 J	mg/kg dry	2	0.00608	0.122	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.143	mg/kg dry	2	0.00608	0.122	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	52.5	mg/kg dry	2	0.244	0.486	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0872 U	mg/kg dry	1	0.0872	0.174	BCC0081	03/01/2019	BDM
EPA 350.2	Ammonia as N	139	mg/kg dry	1	16.6	83.0	BCC0764	03/08/2019	LSK
EPA 415.1	Total Organic Carbon (TOC)	0.448 V	% dry	1	0.00863	0.0173	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	57.9	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	2.95	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-06-S  
Lab Sample ID: 19B1833-17  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 19:26  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<153	U	ug/kg dry	100	153	421	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<398	U	ug/kg dry	100	398	1260	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<170	U	ug/kg dry	100	170	421	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<148	U	ug/kg dry	100	148	421	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<157	U	ug/kg dry	100	157	421	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	87.5%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	108%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	111%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	114%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<4.31	U	ug/kg dry	1	4.31	8.63	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<4.31	U	ug/kg dry	1	4.31	8.63	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<4.31	U	ug/kg dry	1	4.31	8.63	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<4.31	U	ug/kg dry	1	4.31	8.63	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<4.31	U	ug/kg dry	1	4.31	8.63	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<17.3	U	ug/kg dry	1	17.3	34.5	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<4.31	U	ug/kg dry	1	4.31	8.63	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<4.31	U	ug/kg dry	1	4.31	8.63	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-06-S (Continued)  
Lab Sample ID: 19B1833-17  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 19:26  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<4.31	U	ug/kg dry	1	4.31	8.63	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	4.92	B, J	ug/kg dry	1	4.31	8.63	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<2.16	U	ug/kg dry	1	2.16	4.31	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	61.0%		60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	81.1%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	75.0%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	67.7%		60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	79.4%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	50.4%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
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Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-06-S (Continued)  
Lab Sample ID: 19B1833-17  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 19:26  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.514	U	ug/kg dry	10	0.514	1.71	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<25.7	U	ug/kg dry	10	25.7	25.7	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	84.0%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	90.4%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.78	U	ug/kg dry	1	1.78	3.55	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	54.3%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	68.7%		60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<90.3	U	mg/kg dry	1	90.3	90.3	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	87.5%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	87.3%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.107	U	mg/kg dry	2	0.107	0.215	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	6.93		mg/kg dry	2	0.0107	0.107	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.726		mg/kg dry	2	0.00215	0.0429	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0455	J	mg/kg dry	2	0.0107	0.215	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	15.8		mg/kg dry	2	0.0322	0.644	BCC0775	03/11/2019	SH
EPA 200.8	Copper	8.23		mg/kg dry	2	0.0429	0.215	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.126		mg/kg	1	0.0628	0.126	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	<0.109	U	mg/kg dry	1	0.109	0.218	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0318	J	mg/kg dry	1	0.0168	0.0336	BCC1371	03/14/2019	RB
EPA 200.8	Lead	12.6		mg/kg dry	2	0.0107	0.107	BCC0775	03/11/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-06-S (Continued)  
Lab Sample ID: 19B1833-17  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 19:26  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	14.7	mg/kg dry	2	0.215	0.215	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	1.06 J	mg/kg dry	2	0.215	1.07	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0263 J	mg/kg dry	2	0.00537	0.107	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.136	mg/kg dry	2	0.00537	0.107	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	51.1	mg/kg dry	2	0.215	0.429	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.102 U	mg/kg dry	1	0.102	0.204	BCC0081	03/01/2019	BDM
EPA 350.2	Ammonia as N	91.0	mg/kg dry	1	16.2	81.2	BCC0764	03/08/2019	LSK
EPA 415.1	Total Organic Carbon (TOC)	0.433 V	% dry	1	0.00869	0.0174	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	57.5	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	3.53	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-07-S  
Lab Sample ID: 19B1833-18  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 20:07  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<167	U	ug/kg dry	100	167	458	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<433	U	ug/kg dry	100	433	1370	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<185	U	ug/kg dry	100	185	458	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<161	U	ug/kg dry	100	161	458	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<170	U	ug/kg dry	100	170	458	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	87.3%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	114%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	114%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	117%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<4.73	U	ug/kg dry	1	4.73	9.45	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<4.73	U	ug/kg dry	1	4.73	9.45	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<4.73	U	ug/kg dry	1	4.73	9.45	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<4.73	U	ug/kg dry	1	4.73	9.45	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<4.73	U	ug/kg dry	1	4.73	9.45	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<18.9	U	ug/kg dry	1	18.9	37.8	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<4.73	U	ug/kg dry	1	4.73	9.45	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<4.73	U	ug/kg dry	1	4.73	9.45	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-07-S (Continued)  
Lab Sample ID: 19B1833-18  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 20:07  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<4.73	U	ug/kg dry	1	4.73	9.45	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	5.35	J, B	ug/kg dry	1	4.73	9.45	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<2.36	U	ug/kg dry	1	2.36	4.73	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	49.0%	S	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	72.3%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	61.9%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	56.3%	S	60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	70.9%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	41.4%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em





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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-07-S (Continued)  
Lab Sample ID: 19B1833-18  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 20:07  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<28.0	U	ug/kg dry	10	28.0	28.0	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	85.5%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	92.6%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.85	U	ug/kg dry	1	1.85	3.69	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	48.2%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	63.2%		60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<93.6	U	mg/kg dry	1	93.6	93.6	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	87.3%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	91.4%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.101	U	mg/kg dry	2	0.101	0.203	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	6.96		mg/kg dry	2	0.0101	0.101	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.824		mg/kg dry	2	0.00203	0.0404	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0530	J	mg/kg dry	2	0.0101	0.203	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	17.7		mg/kg dry	2	0.0303	0.607	BCC0775	03/11/2019	SH
EPA 200.8	Copper	9.35		mg/kg dry	2	0.0404	0.203	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.130		mg/kg	1	0.0649	0.130	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	<0.121	U	mg/kg dry	1	0.121	0.242	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0347		mg/kg dry	1	0.0162	0.0324	BCC1371	03/14/2019	RB
EPA 200.8	Lead	14.3		mg/kg dry	2	0.0101	0.101	BCC0775	03/11/2019	SH





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-07-S (Continued)  
Lab Sample ID: 19B1833-18  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 20:07  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	16.1	mg/kg dry	2	0.203	0.203	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	1.17	mg/kg dry	2	0.203	1.01	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0315 J	mg/kg dry	2	0.00506	0.101	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.146	mg/kg dry	2	0.00506	0.101	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	54.6	mg/kg dry	2	0.203	0.404	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.106 U	mg/kg dry	1	0.106	0.211	BCC0081	03/01/2019	BDM
EPA 350.2	Ammonia as N	106	mg/kg dry	1	19.0	94.9	BCC0764	03/08/2019	LSK
EPA 415.1	Total Organic Carbon (TOC)	0.546 V	% dry	1	0.00930	0.0186	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	53.8	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	3.70	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-08-S  
Lab Sample ID: 19B1833-19  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 20:41  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
<b>Volatile Organic Compounds by GCMS</b>									
SW-8260	Ethylbenzene	<169 U	ug/kg dry	100	169	465	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<439 U	ug/kg dry	100	439	1390	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<187 U	ug/kg dry	100	187	465	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<163 U	ug/kg dry	100	163	465	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<173 U	ug/kg dry	100	173	465	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00 U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	83.9%	70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	112%	70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	109%	70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	115%	70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<4.82 U	ug/kg dry	1	4.82	9.65	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<4.82 U	ug/kg dry	1	4.82	9.65	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<4.82 U	ug/kg dry	1	4.82	9.65	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<4.82 U	ug/kg dry	1	4.82	9.65	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<4.82 U	ug/kg dry	1	4.82	9.65	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<19.3 U	ug/kg dry	1	19.3	38.6	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<4.82 U	ug/kg dry	1	4.82	9.65	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<4.82 U	ug/kg dry	1	4.82	9.65	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<2.41 U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-08-S (Continued)  
Lab Sample ID: 19B1833-19  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 20:41  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<4.82	U	ug/kg dry	1	4.82	9.65	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	9.07	B, J	ug/kg dry	1	4.82	9.65	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<2.41	U	ug/kg dry	1	2.41	4.82	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	53.3%	S	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	87.5%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	73.4%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	67.9%		60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	88.3%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	39.2%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-08-S (Continued)  
Lab Sample ID: 19B1833-19  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 20:41  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	1.64	J	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.560	U	ug/kg dry	10	0.560	1.87	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<28.0	U	ug/kg dry	10	28.0	28.0	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	84.7%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	94.5%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.81	U	ug/kg dry	1	1.81	3.62	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	47.3%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	61.4%		60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<92.6	U	mg/kg dry	1	92.6	92.6	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	104%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	109%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.113	U	mg/kg dry	2	0.113	0.227	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	6.97		mg/kg dry	2	0.0113	0.113	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.740		mg/kg dry	2	0.00227	0.0453	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0448	J	mg/kg dry	2	0.0113	0.227	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	15.9		mg/kg dry	2	0.0340	0.680	BCC0775	03/11/2019	SH
EPA 200.8	Copper	8.42		mg/kg dry	2	0.0453	0.227	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.117		mg/kg	1	0.0586	0.117	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	<0.110	U	mg/kg dry	1	0.110	0.221	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0456		mg/kg dry	1	0.0185	0.0370	BCC1371	03/14/2019	RB
EPA 200.8	Lead	13.6		mg/kg dry	2	0.0113	0.113	BCC0775	03/11/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-08-S (Continued)  
Lab Sample ID: 19B1833-19  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 20:41  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	14.8	mg/kg dry	2	0.227	0.227	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	1.17	mg/kg dry	2	0.227	1.13	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0306 J	mg/kg dry	2	0.00567	0.113	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.139	mg/kg dry	2	0.00567	0.113	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	53.4	mg/kg dry	2	0.227	0.453	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0840 U	mg/kg dry	1	0.0840	0.168	BCC0081	03/01/2019	BDM
EPA 350.2	Ammonia as N	110	mg/kg dry	1	15.7	78.4	BCC0764	03/08/2019	LSK
EPA 415.1	Total Organic Carbon (TOC)	0.538 V	% dry	1	0.00941	0.0188	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	53.1	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	3.10	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-09-S  
Lab Sample ID: 19B1833-20  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 21:51  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<144	U	ug/kg dry	100	144	395	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<373	U	ug/kg dry	100	373	1180	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<159	U	ug/kg dry	100	159	395	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<139	U	ug/kg dry	100	139	395	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<147	U	ug/kg dry	100	147	395	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	84.6%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	114%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	114%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	117%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<4.06	U	ug/kg dry	1	4.06	8.13	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<4.06	U	ug/kg dry	1	4.06	8.13	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<4.06	U	ug/kg dry	1	4.06	8.13	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<4.06	U	ug/kg dry	1	4.06	8.13	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<4.06	U	ug/kg dry	1	4.06	8.13	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<16.3	U	ug/kg dry	1	16.3	32.5	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<4.06	U	ug/kg dry	1	4.06	8.13	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<4.06	U	ug/kg dry	1	4.06	8.13	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-09-S (Continued)  
Lab Sample ID: 19B1833-20  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 21:51  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<4.06	U	ug/kg dry	1	4.06	8.13	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	4.97	B, J	ug/kg dry	1	4.06	8.13	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<2.03	U	ug/kg dry	1	2.03	4.06	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	53.1%	S	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	90.0%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	79.1%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	68.4%		60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	90.7%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	39.7%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em





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Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-09-S (Continued)  
Lab Sample ID: 19B1833-20  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 21:51  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.488	U	ug/kg dry	10	0.488	1.63	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<24.4	U	ug/kg dry	10	24.4	24.4	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	79.5%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	85.9%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.70	U	ug/kg dry	1	1.70	3.39	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	53.2%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	71.6%		60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<84.2	U	mg/kg dry	1	84.2	84.2	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	76.0%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	83.9%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.101	U	mg/kg dry	2	0.101	0.202	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	5.27		mg/kg dry	2	0.0101	0.101	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.575		mg/kg dry	2	0.00202	0.0402	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0406	J	mg/kg dry	2	0.0101	0.202	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	11.9		mg/kg dry	2	0.0302	0.604	BCC0775	03/11/2019	SH
EPA 200.8	Copper	6.18		mg/kg dry	2	0.0402	0.202	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.118		mg/kg	1	0.0588	0.118	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	0.121	J	mg/kg dry	1	0.0971	0.194	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0261	J	mg/kg dry	1	0.0150	0.0300	BCC1371	03/14/2019	RB
EPA 200.8	Lead	10.5		mg/kg dry	2	0.0101	0.101	BCC0775	03/11/2019	SH





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-09-S (Continued)  
Lab Sample ID: 19B1833-20  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 21:51  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	11.2	mg/kg dry	2	0.202	0.202	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	0.912 J	mg/kg dry	2	0.202	1.01	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0225 J	mg/kg dry	2	0.00503	0.101	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.105	mg/kg dry	2	0.00503	0.101	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	42.3	mg/kg dry	2	0.202	0.402	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0786 U	mg/kg dry	1	0.0786	0.157	BCC0081	03/01/2019	BDM
EPA 350.2	Ammonia as N	146	mg/kg dry	1	14.9	74.3	BCC0764	03/08/2019	LSK
EPA 415.1	Total Organic Carbon (TOC)	0.295 V	% dry	1	0.00825	0.0165	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	60.6	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	2.81	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-10-S  
Lab Sample ID: 19B1833-21  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 22:18  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<126	U	ug/kg dry	100	126	347	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<328	U	ug/kg dry	100	328	1040	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<140	U	ug/kg dry	100	140	347	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<122	U	ug/kg dry	100	122	347	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<129	U	ug/kg dry	100	129	347	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	87.1%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	113%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	112%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	115%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<3.70	U	ug/kg dry	1	3.70	7.41	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<3.70	U	ug/kg dry	1	3.70	7.41	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<3.70	U	ug/kg dry	1	3.70	7.41	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<3.70	U	ug/kg dry	1	3.70	7.41	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<3.70	U	ug/kg dry	1	3.70	7.41	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<14.8	U	ug/kg dry	1	14.8	29.6	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<3.70	U	ug/kg dry	1	3.70	7.41	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<3.70	U	ug/kg dry	1	3.70	7.41	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-10-S (Continued)  
Lab Sample ID: 19B1833-21  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 22:18  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<3.70	U	ug/kg dry	1	3.70	7.41	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	40.0	B	ug/kg dry	1	3.70	7.41	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<1.85	U	ug/kg dry	1	1.85	3.70	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	85.3%		60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	105%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	91.4%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	86.1%		60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	106%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	45.3%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em



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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-10-S (Continued)  
Lab Sample ID: 19B1833-21  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 22:18  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.451	U	ug/kg dry	10	0.451	1.50	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<22.5	U	ug/kg dry	10	22.5	22.5	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	77.5%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	82.9%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.46	U	ug/kg dry	1	1.46	2.91	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	44.1%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	57.4%	S	60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<75.8	U	mg/kg dry	1	75.8	75.8	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	74.7%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	77.1%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.0887	U	mg/kg dry	2	0.0887	0.178	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	4.07		mg/kg dry	2	0.00887	0.0887	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.403		mg/kg dry	2	0.00178	0.0355	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0272	J	mg/kg dry	2	0.00887	0.178	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	9.05		mg/kg dry	2	0.0266	0.533	BCC0775	03/11/2019	SH
EPA 200.8	Copper	4.26		mg/kg dry	2	0.0355	0.178	BCC0775	03/11/2019	SH
SW-7471B	Mercury	0.0206	J	mg/kg dry	1	0.0147	0.0293	BCC1371	03/14/2019	RB
EPA 200.8	Lead	8.50		mg/kg dry	2	0.00887	0.0887	BCC0775	03/11/2019	SH
EPA 200.8	Nickel	9.31		mg/kg dry	2	0.178	0.178	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	0.716	J	mg/kg dry	2	0.178	0.887	BCC0775	03/11/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
 Project Number:  
 Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-10-S (Continued)  
 Lab Sample ID: 19B1833-21  
 Sample Alias:

Sample Matrix: Sediment  
 Date Collected: 02/27/2019 22:18  
 Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Silver	0.0160	J	mg/kg dry	2	0.00444	0.0887	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.0879	J	mg/kg dry	2	0.00444	0.0887	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	34.1		mg/kg dry	2	0.178	0.355	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0857	U	mg/kg dry	1	0.0857	0.171	BCC0081	03/01/2019	BDM
EPA 415.1	Total Organic Carbon (TOC)	0.209	V	% dry	1	0.00746	0.0149	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	67.0		%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	2.85		%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-11-S  
Lab Sample ID: 19B1833-22  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 22:59  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<109	U	ug/kg dry	100	109	301	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<284	U	ug/kg dry	100	284	902	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<121	U	ug/kg dry	100	121	301	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<106	U	ug/kg dry	100	106	301	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<112	U	ug/kg dry	100	112	301	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	82.8%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	112%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	111%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	113%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<3.41	U	ug/kg dry	1	3.41	6.82	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<3.41	U	ug/kg dry	1	3.41	6.82	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<3.41	U	ug/kg dry	1	3.41	6.82	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<3.41	U	ug/kg dry	1	3.41	6.82	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<3.41	U	ug/kg dry	1	3.41	6.82	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<13.6	U	ug/kg dry	1	13.6	27.3	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<3.41	U	ug/kg dry	1	3.41	6.82	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<3.41	U	ug/kg dry	1	3.41	6.82	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<1.71	U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-11-S (Continued)  
Lab Sample ID: 19B1833-22  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 22:59  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl) phthalate	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<3.41 U	ug/kg dry	1	3.41	6.82	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	4.65 B, J	ug/kg dry	1	3.41	6.82	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<1.71 U	ug/kg dry	1	1.71	3.41	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	85.8%	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	96.4%	60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	81.2%	60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	77.2%	60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	101%	60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	75.4%	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.385 U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.385 U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.385 U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-11-S (Continued)  
Lab Sample ID: 19B1833-22  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 22:59  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.385	U	ug/kg dry	10	0.385	1.28	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<19.2	U	ug/kg dry	10	19.2	19.2	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	77.1%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	85.5%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.34	U	ug/kg dry	1	1.34	2.69	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	47.7%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	61.5%		60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<64.0	U	mg/kg dry	1	64.0	64.0	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	104%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	102%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.0695	U	mg/kg dry	2	0.0695	0.139	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	2.03		mg/kg dry	2	0.00695	0.0695	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.121		mg/kg dry	2	0.00139	0.0278	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.00977	J	mg/kg dry	2	0.00695	0.139	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	3.07		mg/kg dry	2	0.0209	0.417	BCC0775	03/11/2019	SH
EPA 200.8	Copper	0.816		mg/kg dry	2	0.0278	0.139	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.114		mg/kg	1	0.0570	0.114	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	<0.0762	U	mg/kg dry	1	0.0762	0.152	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	<0.0131	U	mg/kg dry	1	0.0131	0.0263	BCC1371	03/14/2019	RB
EPA 200.8	Lead	3.75		mg/kg dry	2	0.00695	0.0695	BCC0775	03/11/2019	SH





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-11-S (Continued)  
Lab Sample ID: 19B1833-22  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 22:59  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	3.24	mg/kg dry	2	0.139	0.139	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	0.383 J	mg/kg dry	2	0.139	0.695	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.00535 J	mg/kg dry	2	0.00348	0.0695	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.0288 J	mg/kg dry	2	0.00348	0.0695	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	15.5	mg/kg dry	2	0.139	0.278	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0624 U	mg/kg dry	1	0.0624	0.125	BCC0081	03/01/2019	BDM
EPA 415.1	Total Organic Carbon (TOC)	0.0450 V	% dry	1	0.00668	0.0134	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	74.9	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	0.996	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-12-S  
Lab Sample ID: 19B1833-23  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 23:29  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<107	U	ug/kg dry	100	107	294	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<278	U	ug/kg dry	100	278	882	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<118	U	ug/kg dry	100	118	294	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<103	U	ug/kg dry	100	103	294	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<109	U	ug/kg dry	100	109	294	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	88.0%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	109%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	110%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	115%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<3.13	U	ug/kg dry	1	3.13	6.25	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<3.13	U	ug/kg dry	1	3.13	6.25	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<3.13	U	ug/kg dry	1	3.13	6.25	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<3.13	U	ug/kg dry	1	3.13	6.25	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<3.13	U	ug/kg dry	1	3.13	6.25	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<12.5	U	ug/kg dry	1	12.5	25.0	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<3.13	U	ug/kg dry	1	3.13	6.25	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<3.13	U	ug/kg dry	1	3.13	6.25	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<1.56	U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO



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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-12-S (Continued)  
Lab Sample ID: 19B1833-23  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 23:29  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<3.13 U	ug/kg dry	1	3.13	6.25	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	3.84 B, J	ug/kg dry	1	3.13	6.25	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<1.56 U	ug/kg dry	1	1.56	3.13	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	85.7%	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	98.4%	60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	81.5%	60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	78.3%	60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	102%	60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	76.3%	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.405 U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.405 U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.405 U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-12-S (Continued)  
Lab Sample ID: 19B1833-23  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 23:29  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.405	U	ug/kg dry	10	0.405	1.35	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<20.2	U	ug/kg dry	10	20.2	20.2	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	79.7%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	88.8%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.26	U	ug/kg dry	1	1.26	2.52	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	46.4%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	59.3%	S	60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<68.7	U	mg/kg dry	1	68.7	68.7	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	108%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	104%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.0581	U	mg/kg dry	2	0.0581	0.116	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	1.77		mg/kg dry	2	0.00581	0.0581	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.100		mg/kg dry	2	0.00116	0.0232	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.00779	J	mg/kg dry	2	0.00581	0.116	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	2.69		mg/kg dry	2	0.0174	0.349	BCC0775	03/11/2019	SH
EPA 200.8	Copper	0.676		mg/kg dry	2	0.0232	0.116	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.123		mg/kg	1	0.0615	0.123	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	0.0813	J	mg/kg dry	1	0.0807	0.161	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	<0.0127	U	mg/kg dry	1	0.0127	0.0254	BCC1371	03/14/2019	RB
EPA 200.8	Lead	3.65		mg/kg dry	2	0.00581	0.0581	BCC0775	03/11/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-12-S (Continued)  
Lab Sample ID: 19B1833-23  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 23:29  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	2.76	mg/kg dry	2	0.116	0.116	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	0.356 J	mg/kg dry	2	0.116	0.581	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.00405 J	mg/kg dry	2	0.00291	0.0581	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.0274 J	mg/kg dry	2	0.00291	0.0581	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	13.5	mg/kg dry	2	0.116	0.232	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0581 U	mg/kg dry	1	0.0581	0.116	BCC0081	03/01/2019	BDM
EPA 415.1	Total Organic Carbon (TOC)	0.0247 V	% dry	1	0.00657	0.0131	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	76.2	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	0.490	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-13-S  
Lab Sample ID: 19B1833-24  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 23:55  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<107	U	ug/kg dry	100	107	295	BCC2600	03/13/2019	EM
SW-8260	m+p-xylene	<278	U	ug/kg dry	100	278	884	BCC2600	03/13/2019	EM
SW-8260	o-Xylene	<119	U	ug/kg dry	100	119	295	BCC2600	03/13/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<104	U	ug/kg dry	100	104	295	BCC2600	03/13/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<110	U	ug/kg dry	100	110	295	BCC2600	03/13/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/13/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	87.7%		70-130					03/13/2019	
SW-8260	Surrogate: Toluene-d8-surr	110%		70-130					03/13/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	110%		70-130					03/13/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	114%		70-130					03/13/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<3.34	U	ug/kg dry	1	3.34	6.69	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<3.34	U	ug/kg dry	1	3.34	6.69	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<3.34	U	ug/kg dry	1	3.34	6.69	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<3.34	U	ug/kg dry	1	3.34	6.69	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<3.34	U	ug/kg dry	1	3.34	6.69	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<13.4	U	ug/kg dry	1	13.4	26.8	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<3.34	U	ug/kg dry	1	3.34	6.69	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<3.34	U	ug/kg dry	1	3.34	6.69	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<1.67	U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO



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Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-13-S (Continued)  
Lab Sample ID: 19B1833-24  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 23:55  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<3.34 U	ug/kg dry	1	3.34	6.69	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	4.02 B, J	ug/kg dry	1	3.34	6.69	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<1.67 U	ug/kg dry	1	1.67	3.34	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	83.4%	60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	94.6%	60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	83.8%	60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	78.1%	60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	96.7%	60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	77.7%	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.384 U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.384 U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.384 U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-13-S (Continued)  
Lab Sample ID: 19B1833-24  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 23:55  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.384	U	ug/kg dry	10	0.384	1.28	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<19.2	U	ug/kg dry	10	19.2	19.2	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	88.0%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	110%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.29	U	ug/kg dry	1	1.29	2.59	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	40.4%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	55.6%	S	60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<64.1	U	mg/kg dry	1	64.1	64.1	BCC0904	03/16/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	97.5%		70-130					03/16/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	99.1%		70-130					03/16/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.0730	U	mg/kg dry	2	0.0730	0.146	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	1.83		mg/kg dry	2	0.00730	0.0730	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.100		mg/kg dry	2	0.00146	0.0292	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	<0.00730	U	mg/kg dry	2	0.00730	0.146	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	2.80		mg/kg dry	2	0.0219	0.438	BCC0775	03/11/2019	SH
EPA 200.8	Copper	0.646		mg/kg dry	2	0.0292	0.146	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.120		mg/kg	1	0.0598	0.120	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	0.0980	J	mg/kg dry	1	0.0786	0.157	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0116	J	mg/kg dry	1	0.0116	0.0232	BCC1371	03/14/2019	RB
EPA 200.8	Lead	3.92		mg/kg dry	2	0.00730	0.0730	BCC0775	03/11/2019	SH





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-13-S (Continued)  
Lab Sample ID: 19B1833-24  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 23:55  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	2.62	mg/kg dry	2	0.146	0.146	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	0.404 J	mg/kg dry	2	0.146	0.730	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.00389 J	mg/kg dry	2	0.00366	0.0730	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.0280 J	mg/kg dry	2	0.00366	0.0730	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	14.0	mg/kg dry	2	0.146	0.292	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0638 U	mg/kg dry	1	0.0638	0.128	BCC0081	03/01/2019	BDM
EPA 415.1	Total Organic Carbon (TOC)	0.0251 V	% dry	1	0.00658	0.0132	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	76.0	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	0.779	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-14-S  
Lab Sample ID: 19B1833-25  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 0:16  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<184	U	ug/kg dry	100	184	507	BCC2600	03/14/2019	EM
SW-8260	m+p-xylene	<479	U	ug/kg dry	100	479	1520	BCC2600	03/14/2019	EM
SW-8260	o-Xylene	<204	U	ug/kg dry	100	204	507	BCC2600	03/14/2019	EM
SW-8260	Tetrachloroethylene (Perchloroethylene)	<178	U	ug/kg dry	100	178	507	BCC2600	03/14/2019	EM
SW-8260	Trichloroethene (Trichloroethylene)	<189	U	ug/kg dry	100	189	507	BCC2600	03/14/2019	EM
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCC2600	03/14/2019	EM
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	85.9%		70-130					03/14/2019	
SW-8260	Surrogate: Toluene-d8-surr	110%		70-130					03/14/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	110%		70-130					03/14/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	112%		70-130					03/14/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	1,2-Diphenylhydrazine	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	2,4,6-Trichlorophenol	<4.85	U	ug/kg dry	1	4.85	9.71	BCD0156	03/28/2019	SO
SW-8270	2,4-Dichlorophenol	<4.85	U	ug/kg dry	1	4.85	9.71	BCD0156	03/28/2019	SO
SW-8270	2,4-Dimethylphenol	<4.85	U	ug/kg dry	1	4.85	9.71	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrophenol	<4.85	U	ug/kg dry	1	4.85	9.71	BCD0156	03/28/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	2-Chloronaphthalene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	2-Chlorophenol	<4.85	U	ug/kg dry	1	4.85	9.71	BCD0156	03/28/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<19.4	U	ug/kg dry	1	19.4	38.8	BCD0156	03/28/2019	SO
SW-8270	2-Nitrophenol	<4.85	U	ug/kg dry	1	4.85	9.71	BCD0156	03/28/2019	SO
SW-8270	3,3'-Dichlorobenzidine	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	4-Chloro-3-methylphenol	<4.85	U	ug/kg dry	1	4.85	9.71	BCD0156	03/28/2019	SO
SW-8270	4-Chlorophenyl phenylether	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	4-Nitrophenol	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Acenaphthene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Acenaphthylene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Anthracene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Benzo(a)anthracene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-14-S (Continued)  
Lab Sample ID: 19B1833-25  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 0:16  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(a)pyrene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Benzo(b)fluoranthene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Benzo(g,h,i)perylene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Benzo(k)fluoranthene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Butyl benzyl phthalate	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Chrysene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Diethyl phthalate	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Dimethyl phthalate	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Di-n-butyl phthalate	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Di-n-octyl phthalate	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Fluoranthene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Fluorene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobenzene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Hexachlorobutadiene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Hexachlorocyclopentadiene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Hexachloroethane	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Isophorone	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Naphthalene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Nitrobenzene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodimethylamine	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	n-Nitrosodiphenylamine	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Pentachlorophenol	<4.85	U	ug/kg dry	1	4.85	9.71	BCD0156	03/28/2019	SO
SW-8270	Phenanthrene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO
SW-8270	Phenol, Total	7.49	B, J	ug/kg dry	1	4.85	9.71	BCD0156	03/28/2019	SO
SW-8270	Pyrene	<2.43	U	ug/kg dry	1	2.43	4.85	BCD0156	03/28/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	78.7%		60-140					03/28/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	105%		60-140					03/28/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	94.7%		60-140					03/28/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	78.6%		60-140					03/28/2019	
SW-8270	Surrogate: Phenol-d5-surr	116%		60-140					03/28/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	55.3%	S	60-140					03/28/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	4,4'-DDE	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	4,4'-DDT	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-14-S (Continued)  
Lab Sample ID: 19B1833-25  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/27/2019 0:16  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	Aldrin	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	0.673	J	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Chlordane (tech.)	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	delta-BHC	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Dieldrin	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Endosulfan I	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Endosulfan II	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Endosulfan sulfate	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Endrin	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Endrin aldehyde	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Endrin ketone	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	gamma-Chlordane	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Heptachlor	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Heptachlor epoxide	<0.593	U	ug/kg dry	10	0.593	1.98	BCD0440	04/03/2019	em
SW-8081	Toxaphene (Chlorinated Camphene)	<29.7	U	ug/kg dry	10	29.7	29.7	BCD0440	04/03/2019	em
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	76.4%		60-140					04/03/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	87.0%		60-140					04/03/2019	
SW-8082	PCBs, Total	<1.99	U	ug/kg dry	1	1.99	3.98	BCD0445	03/28/2019	em
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	39.7%	S	60-140					03/28/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	56.3%	S	60-140					03/28/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<101	U	mg/kg dry	1	101	101	BCC0904	03/18/2019	krb
TX 1005	Surrogate: 1-Chlorooctadecane-surr	95.5%		70-130					03/18/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	84.5%		70-130					03/18/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.110	U	mg/kg dry	2	0.110	0.220	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	4.56		mg/kg dry	2	0.0110	0.110	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.521		mg/kg dry	2	0.00220	0.0439	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0360	J	mg/kg dry	2	0.0110	0.220	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	10.4		mg/kg dry	2	0.0330	0.660	BCC0775	03/11/2019	SH
EPA 200.8	Copper	5.56		mg/kg dry	2	0.0439	0.220	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.119		mg/kg	1	0.0593	0.119	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	0.184	J	mg/kg dry	1	0.120	0.240	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0449		mg/kg dry	1	0.0187	0.0374	BCC1371	03/14/2019	RB
EPA 200.8	Lead	10.1		mg/kg dry	2	0.0110	0.110	BCC0775	03/11/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
 Project Number:  
 Project Manager: Dillon Johnston

**Reported:**  
 04/08/2019 11:59

**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-14-S (Continued)  
 Lab Sample ID: 19B1833-25  
 Sample Alias:

Sample Matrix: Sediment  
 Date Collected: 02/27/2019 0:16  
 Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Nickel	9.94	mg/kg dry	2	0.220	0.220	BCC0775	03/11/2019	SH
EPA 200.8	Selenium	0.927 J	mg/kg dry	2	0.220	1.10	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0196 J	mg/kg dry	2	0.00550	0.110	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.102 J	mg/kg dry	2	0.00550	0.110	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	34.4	mg/kg dry	2	0.220	0.439	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.105 U	mg/kg dry	1	0.105	0.211	BCC0081	03/01/2019	BDM
EPA 415.1	Total Organic Carbon (TOC)	0.468 V	% dry	1	0.0101	0.0202	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	49.4	%	1	0.100	0.100	BCC0306	03/07/2019	AKA
EPA 160.4	% Volatile Solid	3.65	%	1	0.0200	0.0200	BCC0306	03/11/2019	AKA



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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-15-S  
Lab Sample ID: 19B1833-26  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 14:45  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<72.2	U	ug/kg dry	100	72.2	199	BCB1650	02/22/2019	MI
SW-8260	m+p-xylene	<188	U	ug/kg dry	100	188	596	BCB1650	02/22/2019	MI
SW-8260	o-Xylene	<80.0	U	ug/kg dry	100	80.0	199	BCB1650	02/22/2019	MI
SW-8260	Tetrachloroethylene (Perchloroethylene)	<69.8	U	ug/kg dry	100	69.8	199	BCB1650	02/22/2019	MI
SW-8260	Trichloroethene (Trichloroethylene)	<73.9	U	ug/kg dry	100	73.9	199	BCB1650	02/22/2019	MI
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCB1650	02/22/2019	MI
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	85.6%		70-130					02/22/2019	
SW-8260	Surrogate: Toluene-d8-surr	105%		70-130					02/22/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	105%		70-130					02/22/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	106%		70-130					02/22/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	1,2-Diphenylhydrazine	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	2,4,6-Trichlorophenol	<2.49	U	ug/kg dry	1	2.49	4.99	BCC2499	03/23/2019	SO
SW-8270	2,4-Dichlorophenol	<2.49	U	ug/kg dry	1	2.49	4.99	BCC2499	03/23/2019	SO
SW-8270	2,4-Dimethylphenol	<2.49	U	ug/kg dry	1	2.49	4.99	BCC2499	03/23/2019	SO
SW-8270	2,4-Dinitrophenol	<2.49	U	ug/kg dry	1	2.49	4.99	BCC2499	03/23/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	2-Chloronaphthalene	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	2-Chlorophenol	<2.49	U	ug/kg dry	1	2.49	4.99	BCC2499	03/23/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<9.97	U	ug/kg dry	1	9.97	19.9	BCC2499	03/23/2019	SO
SW-8270	2-Nitrophenol	<2.49	U	ug/kg dry	1	2.49	4.99	BCC2499	03/23/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	4-Chloro-3-methylphenol	<2.49	U	ug/kg dry	1	2.49	4.99	BCC2499	03/23/2019	SO
SW-8270	4-Chlorophenyl phenylether	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	4-Nitrophenol	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Acenaphthene	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Acenaphthylene	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Anthracene	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Benzo(a)anthracene	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Benzo(a)pyrene	<1.25	U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO



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Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-15-S (Continued)  
Lab Sample ID: 19B1833-26  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 14:45  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(b)fluoranthene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Benzo(g,h,i)perylene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Benzo(k)fluoranthene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Butyl benzyl phthalate	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Chrysene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Diethyl phthalate	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Dimethyl phthalate	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Di-n-butyl phthalate	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Di-n-octyl phthalate	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Fluoranthene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Fluorene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Hexachlorobenzene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Hexachlorobutadiene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Hexachlorocyclopentadiene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Hexachloroethane	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Isophorone	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Naphthalene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Nitrobenzene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodimethylamine	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodiphenylamine	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Pentachlorophenol	<2.49 U	ug/kg dry	1	2.49	4.99	BCC2499	03/23/2019	SO
SW-8270	Phenanthrene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Phenol, Total	<2.49 U	ug/kg dry	1	2.49	4.99	BCC2499	03/23/2019	SO
SW-8270	Pyrene	<1.25 U	ug/kg dry	1	1.25	2.49	BCC2499	03/23/2019	SO
SW-8270	Surrogate: 2-Fluorobiphenyl-surr	85.1%	60-140					03/23/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	107%	60-140					03/23/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	93.3%	60-140					03/23/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	86.1%	60-140					03/23/2019	
SW-8270	Surrogate: Phenol-d5-surr	107%	60-140					03/23/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	117%	60-140					03/23/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	4,4'-DDE	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	4,4'-DDT	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Aldrin	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb





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Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-15-S (Continued)  
Lab Sample ID: 19B1833-26  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 14:45  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Chlordane (tech.)	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	delta-BHC	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Dieldrin	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Endosulfan I	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Endosulfan II	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Endosulfan sulfate	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Endrin	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Endrin aldehyde	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Endrin ketone	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	gamma-Chlordane	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Heptachlor	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Heptachlor epoxide	<0.304 U	ug/kg dry	10	0.304	1.01	BCC1712	03/08/2019	krb
SW-8081	Toxaphene (Chlorinated Camphene)	<15.2 U	ug/kg dry	10	15.2	15.2	BCC1712	03/08/2019	krb
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	77.5%	60-140					03/08/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	99.2%	60-140					03/08/2019	
SW-8082	PCBs, Total	<0.962 C, U	ug/kg dry	1	0.962	1.92	BCC0032	03/10/2019	krb
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	77.6% C	60-140					03/10/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	84.0% C	60-140					03/10/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<49.6 U	mg/kg dry	1	49.6	49.6	BCC0702	02/28/2019	em
TX 1005	Surrogate: 1-Chlorooctadecane-surr	91.6%	70-130					02/28/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	88.3%	70-130					02/28/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.0490 U	mg/kg dry	2	0.0490	0.0982	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	0.687	mg/kg dry	2	0.00490	0.0490	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.0314	mg/kg dry	2	0.000982	0.0196	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	<0.00490 U	mg/kg dry	2	0.00490	0.0982	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	0.750	mg/kg dry	2	0.0147	0.294	BCC0775	03/11/2019	SH
EPA 200.8	Copper	0.294	mg/kg dry	2	0.0196	0.0982	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.105	mg/kg	1	0.0523	0.105	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	0.132	mg/kg dry	1	0.0523	0.105	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0152 J	mg/kg dry	1	0.0100	0.0200	BCC1371	03/14/2019	RB
EPA 200.8	Lead	1.20	mg/kg dry	2	0.00490	0.0490	BCC0775	03/11/2019	SH
EPA 200.8	Nickel	0.569	mg/kg dry	2	0.0982	0.0982	BCC0775	03/11/2019	SH





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-15-S (Continued)  
Lab Sample ID: 19B1833-26  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 14:45  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Selenium	0.177 J	mg/kg dry	2	0.0982	0.490	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.00303 J	mg/kg dry	2	0.00245	0.0490	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.0183 J	mg/kg dry	2	0.00245	0.0490	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	2.66	mg/kg dry	2	0.0982	0.196	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0526 U	mg/kg dry	1	0.0526	0.105	BCC0081	03/01/2019	BDM
EPA 415.1	Total Organic Carbon (TOC)	0.0316 V	% dry	1	0.00500	0.0100	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	101	%	1	0.100	0.100	BCB1445	02/25/2019	AKA
EPA 160.4	% Volatile Solid	0.389	%	1	0.0200	0.0200	BCB1445	02/26/2019	AKA



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-16-S  
Lab Sample ID: 19B1833-27  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 14:05  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<115	U	ug/kg dry	100	115	317	BCB1650	02/22/2019	MI
SW-8260	m+p-xylene	<299	U	ug/kg dry	100	299	950	BCB1650	02/22/2019	MI
SW-8260	o-Xylene	<128	U	ug/kg dry	100	128	317	BCB1650	02/22/2019	MI
SW-8260	Tetrachloroethylene (Perchloroethylene)	<111	U	ug/kg dry	100	111	317	BCB1650	02/22/2019	MI
SW-8260	Trichloroethene (Trichloroethylene)	<118	U	ug/kg dry	100	118	317	BCB1650	02/22/2019	MI
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCB1650	02/22/2019	MI
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	90.5%		70-130					02/22/2019	
SW-8260	Surrogate: Toluene-d8-surr	107%		70-130					02/22/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	107%		70-130					02/22/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	105%		70-130					02/22/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	1,2-Diphenylhydrazine	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	2,4,6-Trichlorophenol	<3.44	U	ug/kg dry	1	3.44	6.87	BCC2499	03/23/2019	SO
SW-8270	2,4-Dichlorophenol	<3.44	U	ug/kg dry	1	3.44	6.87	BCC2499	03/23/2019	SO
SW-8270	2,4-Dimethylphenol	<3.44	U	ug/kg dry	1	3.44	6.87	BCC2499	03/23/2019	SO
SW-8270	2,4-Dinitrophenol	<3.44	U	ug/kg dry	1	3.44	6.87	BCC2499	03/23/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	2-Chloronaphthalene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	2-Chlorophenol	<3.44	U	ug/kg dry	1	3.44	6.87	BCC2499	03/23/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<13.7	U	ug/kg dry	1	13.7	27.5	BCC2499	03/23/2019	SO
SW-8270	2-Nitrophenol	<3.44	U	ug/kg dry	1	3.44	6.87	BCC2499	03/23/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	4-Chloro-3-methylphenol	<3.44	U	ug/kg dry	1	3.44	6.87	BCC2499	03/23/2019	SO
SW-8270	4-Chlorophenyl phenylether	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	4-Nitrophenol	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Acenaphthene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Acenaphthylene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Anthracene	8.97		ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Benzo(a)anthracene	4.50		ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Benzo(a)pyrene	2.63	J	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-16-S (Continued)  
Lab Sample ID: 19B1833-27  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 14:05  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(b)fluoranthene	3.79		ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Benzo(g,h,i)perylene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Benzo(k)fluoranthene	2.53	J	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Butyl benzyl phthalate	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Chrysene	4.29		ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Diethyl phthalate	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Dimethyl phthalate	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Di-n-butyl phthalate	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Di-n-octyl phthalate	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Fluoranthene	13.6		ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Fluorene	2.03	J	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Hexachlorobenzene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Hexachlorobutadiene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Hexachlorocyclopentadiene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Hexachloroethane	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Isophorone	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Naphthalene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Nitrobenzene	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodimethylamine	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodiphenylamine	<1.72	U	ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Pentachlorophenol	<3.44	U	ug/kg dry	1	3.44	6.87	BCC2499	03/23/2019	SO
SW-8270	Phenanthrene	9.12		ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Phenol, Total	<3.44	U	ug/kg dry	1	3.44	6.87	BCC2499	03/23/2019	SO
SW-8270	Pyrene	9.32		ug/kg dry	1	1.72	3.44	BCC2499	03/23/2019	SO
SW-8270	Surrogate: 2-Fluorobiphenyl-surr	88.2%		60-140					03/23/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	103%		60-140					03/23/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	83.9%		60-140					03/23/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	93.9%		60-140					03/23/2019	
SW-8270	Surrogate: Phenol-d5-surr	115%		60-140					03/23/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	82.2%		60-140					03/23/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<0.423	U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	4,4'-DDE	<0.423	U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	4,4'-DDT	<0.423	U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Aldrin	<0.423	U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-16-S (Continued)  
Lab Sample ID: 19B1833-27  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 14:05  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Chlordane (tech.)	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	cis-Chlordane (alpha-Chlordane)	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	delta-BHC	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Dieldrin	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Endosulfan I	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Endosulfan II	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Endosulfan sulfate	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Endrin	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Endrin aldehyde	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Endrin ketone	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	gamma-Chlordane	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Heptachlor	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Heptachlor epoxide	<0.423 U	ug/kg dry	10	0.423	1.41	BCC1712	03/08/2019	krb
SW-8081	Toxaphene (Chlorinated Camphene)	<21.1 U	ug/kg dry	10	21.1	21.1	BCC1712	03/08/2019	krb
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	77.6%	60-140					03/08/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	93.9%	60-140					03/08/2019	
SW-8082	PCBs, Total	<1.34 C, U	ug/kg dry	1	1.34	2.68	BCC0032	03/10/2019	krb
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	86.1% C	60-140					03/10/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	180% C, S	60-140					03/10/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<70.6 U	mg/kg dry	1	70.6	70.6	BCC0702	02/28/2019	em
TX 1005	Surrogate: 1-Chlorooctadecane-surr	86.6%	70-130					02/28/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	84.7%	70-130					02/28/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.0643 U	mg/kg dry	2	0.0643	0.129	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	1.20	mg/kg dry	2	0.00643	0.0643	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	0.0894	mg/kg dry	2	0.00129	0.0257	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.0152 J	mg/kg dry	2	0.00643	0.129	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	1.97	mg/kg dry	2	0.0193	0.386	BCC0775	03/11/2019	SH
EPA 200.8	Copper	1.16	mg/kg dry	2	0.0257	0.129	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.124	mg/kg	1	0.0622	0.124	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	0.191	mg/kg dry	1	0.0864	0.173	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.0191 J	mg/kg dry	1	0.0126	0.0252	BCC1371	03/14/2019	RB
EPA 200.8	Lead	2.09	mg/kg dry	2	0.00643	0.0643	BCC0775	03/11/2019	SH
EPA 200.8	Nickel	1.59	mg/kg dry	2	0.129	0.129	BCC0775	03/11/2019	SH



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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-16-S (Continued)  
 Lab Sample ID: 19B1833-27  
 Sample Alias:

Sample Matrix: Sediment  
 Date Collected: 02/20/2019 14:05  
 Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Selenium	0.300	J	mg/kg dry	2	0.129	0.643	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.00825	J	mg/kg dry	2	0.00322	0.0643	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.0404	J	mg/kg dry	2	0.00322	0.0643	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	6.85		mg/kg dry	2	0.129	0.257	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.0837	U	mg/kg dry	1	0.0837	0.167	BCC0081	03/01/2019	BDM
EPA 415.1	Total Organic Carbon (TOC)	0.0810	V	% dry	1	0.00694	0.0139	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	72.0		%	1	0.100	0.100	BCB1445	02/25/2019	AKA
EPA 160.4	% Volatile Solid	1.10		%	1	0.0200	0.0200	BCB1445	02/26/2019	AKA



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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-17-S  
Lab Sample ID: 19B1833-28  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 13:30  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<422	U	ug/kg dry	100	422	1160	BCB1650	02/22/2019	MI
SW-8260	m+p-xylene	<1100	U	ug/kg dry	100	1100	3480	BCB1650	02/22/2019	MI
SW-8260	o-Xylene	<467	U	ug/kg dry	100	467	1160	BCB1650	02/22/2019	MI
SW-8260	Tetrachloroethylene (Perchloroethylene)	<408	U	ug/kg dry	100	408	1160	BCB1650	02/22/2019	MI
SW-8260	Trichloroethene (Trichloroethylene)	<431	U	ug/kg dry	100	431	1160	BCB1650	02/22/2019	MI
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCB1650	02/22/2019	MI
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	84.3%		70-130					02/22/2019	
SW-8260	Surrogate: Toluene-d8-surr	105%		70-130					02/22/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	105%		70-130					02/22/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	103%		70-130					02/22/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	1,2-Diphenylhydrazine	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	2,4,6-Trichlorophenol	<10.6	U	ug/kg dry	1	10.6	21.1	BCC2499	03/23/2019	SO
SW-8270	2,4-Dichlorophenol	<10.6	U	ug/kg dry	1	10.6	21.1	BCC2499	03/23/2019	SO
SW-8270	2,4-Dimethylphenol	<10.6	U	ug/kg dry	1	10.6	21.1	BCC2499	03/23/2019	SO
SW-8270	2,4-Dinitrophenol	<10.6	U	ug/kg dry	1	10.6	21.1	BCC2499	03/23/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	2-Chloronaphthalene	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	2-Chlorophenol	<10.6	U	ug/kg dry	1	10.6	21.1	BCC2499	03/23/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<42.2	U	ug/kg dry	1	42.2	84.4	BCC2499	03/23/2019	SO
SW-8270	2-Nitrophenol	<10.6	U	ug/kg dry	1	10.6	21.1	BCC2499	03/23/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	4-Chloro-3-methylphenol	<10.6	U	ug/kg dry	1	10.6	21.1	BCC2499	03/23/2019	SO
SW-8270	4-Chlorophenyl phenylether	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	4-Nitrophenol	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Acenaphthene	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Acenaphthylene	9.43	J	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Anthracene	14.6		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Benzo(a)anthracene	19.4		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Benzo(a)pyrene	27.9		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO



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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-17-S (Continued)  
Lab Sample ID: 19B1833-28  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 13:30  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(b)fluoranthene	29.2		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Benzo(g,h,i)perylene	13.4		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Benzo(k)fluoranthene	28.5		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	51.2		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Butyl benzyl phthalate	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Chrysene	25.4		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Diethyl phthalate	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Dimethyl phthalate	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Di-n-butyl phthalate	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Di-n-octyl phthalate	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Fluoranthene	14.9		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Fluorene	6.40	J	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Hexachlorobenzene	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Hexachlorobutadiene	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Hexachlorocyclopentadiene	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Hexachloroethane	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	13.9		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Isophorone	21.0		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Naphthalene	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Nitrobenzene	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodimethylamine	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodiphenylamine	<5.28	U	ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Pentachlorophenol	<10.6	U	ug/kg dry	1	10.6	21.1	BCC2499	03/23/2019	SO
SW-8270	Phenanthrene	17.3		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO
SW-8270	Phenol, Total	<10.6	U	ug/kg dry	1	10.6	21.1	BCC2499	03/23/2019	SO
SW-8270	Pyrene	21.2		ug/kg dry	1	5.28	10.6	BCC2499	03/23/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	81.2%		60-140					03/23/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	121%		60-140					03/23/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	112%		60-140					03/23/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	104%		60-140					03/23/2019	
SW-8270	Surrogate: Phenol-d5-surr	163%	S	60-140					03/23/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	58.0%	S	60-140					03/23/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<1.31	U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	4,4'-DDE	<1.31	U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	4,4'-DDT	<1.31	U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Aldrin	<1.31	U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-17-S (Continued)  
Lab Sample ID: 19B1833-28  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 13:30  
Collected by: Dillon Johnston

Method	Analyte	Result Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Chlordane (tech.)	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	cis-Chlordane (alpha-Chlordane)	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	delta-BHC	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Dieldrin	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Endosulfan I	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Endosulfan II	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Endosulfan sulfate	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Endrin	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Endrin aldehyde	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Endrin ketone	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	gamma-Chlordane	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Heptachlor	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Heptachlor epoxide	<1.31 U	ug/kg dry	10	1.31	4.37	BCC1712	03/08/2019	krb
SW-8081	Toxaphene (Chlorinated Camphene)	<65.6 U	ug/kg dry	10	65.6	65.6	BCC1712	03/08/2019	krb
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	77.5%	60-140					03/08/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	93.9%	60-140					03/08/2019	
SW-8082	PCBs, Total	<4.32 C, U	ug/kg dry	1	4.32	8.63	BCC0032	03/10/2019	krb
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	75.9% C	60-140					03/10/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	96.7% C	60-140					03/10/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<213 U	mg/kg dry	1	213	213	BCC0702	03/02/2019	em
TX 1005	Surrogate: 1-Chlorooctadecane-surr	99.9%	70-130					03/02/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	84.2%	70-130					03/02/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.300 U	mg/kg dry	2	0.300	0.601	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	7.74	mg/kg dry	2	0.0300	0.300	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	1.00	mg/kg dry	2	0.00601	0.120	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.394 J	mg/kg dry	2	0.0300	0.601	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	18.5	mg/kg dry	2	0.0900	1.80	BCC0775	03/11/2019	SH
EPA 200.8	Copper	19.0	mg/kg dry	2	0.120	0.601	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.127	mg/kg	1	0.0636	0.127	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	0.439 J	mg/kg dry	1	0.267	0.534	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.107	mg/kg dry	1	0.0406	0.0813	BCC1371	03/14/2019	RB
EPA 200.8	Lead	17.6	mg/kg dry	2	0.0300	0.300	BCC0775	03/11/2019	SH
EPA 200.8	Nickel	15.6	mg/kg dry	2	0.601	0.601	BCC0775	03/11/2019	SH





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Project: Phillips 66 - Bluewater SPM 2019  
 Project Number:  
 Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-17-S (Continued)  
 Lab Sample ID: 19B1833-28  
 Sample Alias:

Sample Matrix: Sediment  
 Date Collected: 02/20/2019 13:30  
 Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Selenium	1.75	J	mg/kg dry	2	0.601	3.00	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0758	J	mg/kg dry	2	0.0150	0.300	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.260	J	mg/kg dry	2	0.0150	0.300	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	71.5		mg/kg dry	2	0.601	1.20	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.236	U	mg/kg dry	1	0.236	0.472	BCC0080	03/01/2019	BDM
EPA 415.1	Total Organic Carbon (TOC)	1.15	V	% dry	1	0.0210	0.0420	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	23.8		%	1	0.100	0.100	BCB1445	02/25/2019	AKA
EPA 160.4	% Volatile Solid	8.47		%	1	0.0200	0.0200	BCB1445	02/26/2019	AKA



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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-18-S  
Lab Sample ID: 19B1833-29  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 13:10  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Volatile Organic Compounds by GCMS**

SW-8260	Ethylbenzene	<497	U	ug/kg dry	100	497	1370	BCB1650	02/22/2019	MI
SW-8260	m+p-xylene	<1290	U	ug/kg dry	100	1290	4100	BCB1650	02/22/2019	MI
SW-8260	o-Xylene	<551	U	ug/kg dry	100	551	1370	BCB1650	02/22/2019	MI
SW-8260	Tetrachloroethylene (Perchloroethylene)	<480	U	ug/kg dry	100	480	1370	BCB1650	02/22/2019	MI
SW-8260	Trichloroethene (Trichloroethylene)	<508	U	ug/kg dry	100	508	1370	BCB1650	02/22/2019	MI
SW-8260	Xylene (total)	0.00	U	ug/kg dry	100			BCB1650	02/22/2019	MI
SW-8260	Surrogate: 4-Bromofluorobenzene-surr	86.2%		70-130					02/22/2019	
SW-8260	Surrogate: Toluene-d8-surr	107%		70-130					02/22/2019	
SW-8260	Surrogate: Dibromofluoromethane-surr	104%		70-130					02/22/2019	
SW-8260	Surrogate: 1,2-Dichloroethane-d4-surr	104%		70-130					02/22/2019	

**Semivolatile Organic Compounds by GCMS**

SW-8270	1,2,4-Trichlorobenzene	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	1,2-Diphenylhydrazine	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	2,4,6-Trichlorophenol	<11.7	U	ug/kg dry	1	11.7	23.3	BCC2499	03/23/2019	SO
SW-8270	2,4-Dichlorophenol	<11.7	U	ug/kg dry	1	11.7	23.3	BCC2499	03/23/2019	SO
SW-8270	2,4-Dimethylphenol	<11.7	U	ug/kg dry	1	11.7	23.3	BCC2499	03/23/2019	SO
SW-8270	2,4-Dinitrophenol	<11.7	U	ug/kg dry	1	11.7	23.3	BCC2499	03/23/2019	SO
SW-8270	2,4-Dinitrotoluene (2,4-DNT)	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	2,6-Dinitrotoluene (2,6-DNT)	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	2-Chloronaphthalene	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	2-Chlorophenol	<11.7	U	ug/kg dry	1	11.7	23.3	BCC2499	03/23/2019	SO
SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<46.6	U	ug/kg dry	1	46.6	93.3	BCC2499	03/23/2019	SO
SW-8270	2-Nitrophenol	<11.7	U	ug/kg dry	1	11.7	23.3	BCC2499	03/23/2019	SO
SW-8270	4-Bromophenyl phenyl ether (BDE-3)	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	4-Chloro-3-methylphenol	<11.7	U	ug/kg dry	1	11.7	23.3	BCC2499	03/23/2019	SO
SW-8270	4-Chlorophenyl phenylether	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	4-Nitrophenol	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Acenaphthene	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Acenaphthylene	11.1	J	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Anthracene	41.0		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Benzo(a)anthracene	40.3		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Benzo(a)pyrene	36.5		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO



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Project: Phillips 66 - Bluewater SPM 2019  
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Project Manager: Dillon Johnston

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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-18-S (Continued)  
Lab Sample ID: 19B1833-29  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 13:10  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Semivolatile Organic Compounds by GCMS (Continued)**

SW-8270	Benzo(b)fluoranthene	43.1		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Benzo(g,h,i)perylene	19.4		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Benzo(k)fluoranthene	28.7		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	bis(2-Chloroethoxy)methane	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	bis(2-Chloroethyl) ether	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Bis(2-ethylhexyl )phthalate	14.0		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Butyl benzyl phthalate	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Chrysene	58.1		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Dibenzo(a,h)anthracene	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Diethyl phthalate	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Dimethyl phthalate	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Di-n-butyl phthalate	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Di-n-octyl phthalate	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Fluoranthene	32.3		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Fluorene	8.35	J	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Hexachlorobenzene	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Hexachlorobutadiene	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Hexachlorocyclopentadiene	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Hexachloroethane	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Indeno(1,2,3-cd) pyrene	18.7		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Isophorone	10.4	J	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Naphthalene	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Nitrobenzene	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodimethylamine	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodi-n-propylamine	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	n-Nitrosodiphenylamine	<5.83	U	ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Pentachlorophenol	<11.7	U	ug/kg dry	1	11.7	23.3	BCC2499	03/23/2019	SO
SW-8270	Phenanthrene	23.5		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO
SW-8270	Phenol, Total	<11.7	U	ug/kg dry	1	11.7	23.3	BCC2499	03/23/2019	SO
SW-8270	Pyrene	69.6		ug/kg dry	1	5.83	11.7	BCC2499	03/23/2019	SO

SW-8270	Surrogate: 2-Fluorobiphenyl-surr	82.2%		60-140					03/23/2019	
SW-8270	Surrogate: 2-Fluorophenol-surr	130%		60-140					03/23/2019	
SW-8270	Surrogate: 2,4,6-Tribromophenol-surr	117%		60-140					03/23/2019	
SW-8270	Surrogate: Nitrobenzene-d5-surr	83.5%		60-140					03/23/2019	
SW-8270	Surrogate: Phenol-d5-surr	171%	S	60-140					03/23/2019	
SW-8270	Surrogate: p-Terphenyl-d14-surr	50.7%	S	60-140					03/23/2019	

**Organics by GC**

SW-8081	4,4'-DDD	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	4,4'-DDE	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	4,4'-DDT	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Aldrin	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb



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Project: Phillips 66 - Bluewater SPM 2019  
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Project Manager: Dillon Johnston

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**Sample Results**  
(Continued)

Client Sample ID: BWSPM-18-18-S (Continued)  
Lab Sample ID: 19B1833-29  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 13:10  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Organics by GC (Continued)**

SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	1.54	J, P	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Chlordane (tech.)	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	cis-Chlordane (alpha-Chlordane)	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	delta-BHC	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Dieldrin	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Endosulfan I	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Endosulfan II	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Endosulfan sulfate	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Endrin	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Endrin aldehyde	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Endrin ketone	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	gamma-Chlordane	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Heptachlor	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Heptachlor epoxide	<1.48	U	ug/kg dry	10	1.48	4.94	BCC1712	03/08/2019	krb
SW-8081	Toxaphene (Chlorinated Camphene)	<74.1	U	ug/kg dry	10	74.1	74.1	BCC1712	03/08/2019	krb
SW-8081	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	75.4%		60-140					03/08/2019	
SW-8081	Surrogate: Decachlorobiphenyl-surr	95.3%		60-140					03/08/2019	
SW-8082	PCBs, Total	<4.98	C, U	ug/kg dry	1	4.98	9.95	BCC0032	03/10/2019	krb
SW-8082	Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr	63.0%	C	60-140					03/10/2019	
SW-8082	Surrogate: Decachlorobiphenyl-surr	105%	C	60-140					03/10/2019	
TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	<245	U	mg/kg dry	1	245	245	BCC0702	02/28/2019	em
TX 1005	Surrogate: 1-Chlorooctadecane-surr	89.6%		70-130					02/28/2019	
TX 1005	Surrogate: 1-Chlorooctane-surr	86.7%		70-130					02/28/2019	

**Metals, Total**

EPA 200.8	Antimony	<0.294	U	mg/kg dry	2	0.294	0.590	BCC0775	03/11/2019	SH
EPA 200.8	Arsenic	9.49		mg/kg dry	2	0.0294	0.294	BCC0775	03/11/2019	SH
EPA 200.8	Beryllium	1.04		mg/kg dry	2	0.00590	0.118	BCC0775	03/11/2019	SH
EPA 200.8	Cadmium	0.482	J	mg/kg dry	2	0.0294	0.590	BCC0775	03/11/2019	SH
EPA 200.8	Chromium	20.0		mg/kg dry	2	0.0883	1.77	BCC0775	03/11/2019	SH
EPA 200.8	Copper	30.4		mg/kg dry	2	0.118	0.590	BCC0775	03/11/2019	SH
[CALC]	Chromium (III)	<0.120		mg/kg	1	0.0598	0.120	[CALC]	03/06/2019	BDM
SW-7196	Chromium (VI)	0.409	J	mg/kg dry	1	0.292	0.584	BCC0090	03/06/2019	BDM
SW-7471B	Mercury	0.111		mg/kg dry	1	0.0438	0.0875	BCC1371	03/14/2019	RB
EPA 200.8	Lead	18.4		mg/kg dry	2	0.0294	0.294	BCC0775	03/11/2019	SH
EPA 200.8	Nickel	16.3		mg/kg dry	2	0.590	0.590	BCC0775	03/11/2019	SH



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Sample Results**  
**(Continued)**

Client Sample ID: BWSPM-18-18-S (Continued)  
Lab Sample ID: 19B1833-29  
Sample Alias:

Sample Matrix: Sediment  
Date Collected: 02/20/2019 13:10  
Collected by: Dillon Johnston

Method	Analyte	Result	Q	Units	DF	SDL	LRL	Batch	Date Analyzed	Analyst
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**Metals, Total (Continued)**

EPA 200.8	Selenium	1.83	J	mg/kg dry	2	0.590	2.94	BCC0775	03/11/2019	SH
EPA 200.8	Silver	0.0870	J	mg/kg dry	2	0.0147	0.294	BCC0775	03/11/2019	SH
EPA 200.8	Thallium	0.278	J	mg/kg dry	2	0.0147	0.294	BCC0775	03/11/2019	SH
EPA 200.8	Zinc	92.0		mg/kg dry	2	0.590	1.18	BCC0775	03/11/2019	SH

**General Chemistry**

SW-9014	Total Cyanide	<0.242	U	mg/kg dry	1	0.242	0.484	BCC0080	03/01/2019	BDM
EPA 415.1	Total Organic Carbon (TOC)	1.46	V	% dry	1	0.0244	0.0489	BCD0712	04/05/2019	CRO
SM 2540 G	% Solids	20.5		%	1	0.100	0.100	BCB1445	02/25/2019	AKA
EPA 160.4	% Volatile Solid	11.2		%	1	0.0200	0.0200	BCB1445	02/26/2019	AKA



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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### Quality Control

#### Volatile Organic Compounds by GCMS

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCB1524 - SW-5030**

**Blank (BCB1524-BLK1)**

Prepared & Analyzed: 02/21/2019

Ethylbenzene	<2.00		2.00	ug/L						
m+p-xylene	<6.00		6.00	ug/L						
o-Xylene	<2.00		2.00	ug/L						
Tetrachloroethylene (Perchloroethylene)	<2.00		2.00	ug/L						
Trichloroethene (Trichloroethylene)	<2.00		2.00	ug/L						
Xylene (total)	0.00			ug/L						
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Surrogate: 4-Bromofluorobenzene-surr			41.8	ug/L	50.0		83.6	70-130		
Surrogate: Toluene-d8-surr			54.0	ug/L	50.0		108	70-130		
Surrogate: Dibromofluoromethane-surr			53.6	ug/L	50.0		107	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			53.4	ug/L	50.0		107	70-130		

**LCS (BCB1524-BS1)**

Prepared & Analyzed: 02/21/2019

Ethylbenzene	50.3		2.00	ug/L	50.0		101	70-130		
m+p-xylene	103		6.00	ug/L	100		103	70-130		
o-Xylene	55.0		2.00	ug/L	50.0		110	70-130		
Tetrachloroethylene (Perchloroethylene)	49.7		2.00	ug/L	50.0		99.3	70-130		
Trichloroethene (Trichloroethylene)	50.8		2.00	ug/L	50.0		102	70-130		
Xylene (total)	158			ug/L	150		106	70-130		
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Surrogate: 4-Bromofluorobenzene-surr			54.2	ug/L	50.0		108	70-130		
Surrogate: Toluene-d8-surr			50.1	ug/L	50.0		100	70-130		
Surrogate: Dibromofluoromethane-surr			47.8	ug/L	50.0		95.5	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			45.8	ug/L	50.0		91.5	70-130		

**LCS Dup (BCB1524-BSD1)**

Prepared & Analyzed: 02/21/2019

Ethylbenzene	51.6		2.00	ug/L	50.0		103	70-130	2.41	30
m+p-xylene	106		6.00	ug/L	100		106	70-130	2.51	30
o-Xylene	54.8		2.00	ug/L	50.0		110	70-130	0.419	30
Tetrachloroethylene (Perchloroethylene)	51.1		2.00	ug/L	50.0		102	70-130	2.90	30
Trichloroethene (Trichloroethylene)	50.0		2.00	ug/L	50.0		100	70-130	1.55	30
Xylene (total)	161			ug/L	150		107	70-130	1.50	30
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Surrogate: 4-Bromofluorobenzene-surr			52.9	ug/L	50.0		106	70-130		
Surrogate: Toluene-d8-surr			50.5	ug/L	50.0		101	70-130		
Surrogate: Dibromofluoromethane-surr			48.0	ug/L	50.0		96.1	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			46.5	ug/L	50.0		92.9	70-130		



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**Quality Control**  
(Continued)

**Volatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCB1524 - SW-5030 (Continued)**

**Matrix Spike (BCB1524-MS1)**

**Source: 19B1832-03**

Prepared & Analyzed: 02/21/2019

Ethylbenzene	38.4		2.00	ug/L	50.0	<2.00	76.8	70-130		
m+p-xylene	78.9		6.00	ug/L	100	<6.00	78.9	70-130		
o-Xylene	41.5		2.00	ug/L	50.0	<2.00	83.0	70-130		
Tetrachloroethylene (Perchloroethylene)	44.9		2.00	ug/L	50.0	<2.00	89.9	70-130		
Trichloroethene (Trichloroethylene)	44.8		2.00	ug/L	50.0	<2.00	89.7	70-130		
Xylene (total)	120			ug/L	150	0.00	80.3	70-130		
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Surrogate: 4-Bromofluorobenzene-surr			55.0	ug/L	50.0		110	70-130		
Surrogate: Toluene-d8-surr			57.3	ug/L	50.0		115	70-130		
Surrogate: Dibromofluoromethane-surr			53.7	ug/L	50.0		107	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			50.9	ug/L	50.0		102	70-130		

**Matrix Spike Dup (BCB1524-MSD1)**

**Source: 19B1832-03**

Prepared & Analyzed: 02/21/2019

Ethylbenzene	44.6		2.00	ug/L	50.0	<2.00	89.2	70-130	14.9	30
m+p-xylene	91.4		6.00	ug/L	100	<6.00	91.4	70-130	14.7	30
o-Xylene	49.0		2.00	ug/L	50.0	<2.00	97.9	70-130	16.5	30
Tetrachloroethylene (Perchloroethylene)	52.0		2.00	ug/L	50.0	<2.00	104	70-130	14.6	30
Trichloroethene (Trichloroethylene)	54.3		2.00	ug/L	50.0	<2.00	109	70-130	19.1	30
Xylene (total)	140			ug/L	150	0.00	93.6	70-130	15.3	30
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Surrogate: 4-Bromofluorobenzene-surr			54.3	ug/L	50.0		109	70-130		
Surrogate: Toluene-d8-surr			56.3	ug/L	50.0		113	70-130		
Surrogate: Dibromofluoromethane-surr			53.4	ug/L	50.0		107	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			51.5	ug/L	50.0		103	70-130		

**Batch: BCB1650 - SW-5035-MedS**

**Blank (BCB1650-BLK1)**

Prepared & Analyzed: 02/22/2019

Ethylbenzene	<200		200	ug/kg wet						
m+p-xylene	<600		600	ug/kg wet						
o-Xylene	<200		200	ug/kg wet						
Tetrachloroethylene (Perchloroethylene)	<200		200	ug/kg wet						
Trichloroethene (Trichloroethylene)	<200		200	ug/kg wet						
Xylene (total)	0.00			ug/kg wet						
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Surrogate: 4-Bromofluorobenzene-surr			4350	ug/L	5000		87.0	70-130		
Surrogate: Toluene-d8-surr			5440	ug/L	5000		109	70-130		
Surrogate: Dibromofluoromethane-surr			5460	ug/L	5000		109	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			5490	ug/L	5000		110	70-130		



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**Quality Control**  
(Continued)

**Volatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCB1650 - SW-5035-MedS (Continued)**

**LCS (BCB1650-BS1)**

Prepared & Analyzed: 02/22/2019

Ethylbenzene	10400		200	ug/kg wet	10000		104	70-130		
m+p-xylene	21000		600	ug/kg wet	20000		105	70-130		
o-Xylene	11000		200	ug/kg wet	10000		110	70-130		
Tetrachloroethylene (Perchloroethylene)	10000		200	ug/kg wet	10000		100	70-130		
Trichloroethene (Trichloroethylene)	10100		200	ug/kg wet	10000		101	70-130		
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Surrogate: 4-Bromofluorobenzene-surr			5420	ug/L	5000		108	70-130		
Surrogate: Toluene-d8-surr			5120	ug/L	5000		102	70-130		
Surrogate: Dibromofluoromethane-surr			4860	ug/L	5000		97.2	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			4630	ug/L	5000		92.7	70-130		

**LCS Dup (BCB1650-BSD1)**

Prepared & Analyzed: 02/22/2019

Ethylbenzene	10000		200	ug/kg wet	10000		100	70-130	3.29	30
m+p-xylene	20600		600	ug/kg wet	20000		103	70-130	1.67	30
o-Xylene	11000		200	ug/kg wet	10000		110	70-130	0.709	30
Tetrachloroethylene (Perchloroethylene)	10000		200	ug/kg wet	10000		100	70-130	0.219	30
Trichloroethene (Trichloroethylene)	10100		200	ug/kg wet	10000		101	70-130	0.197	30
<hr/>										
Surrogate: 4-Bromofluorobenzene-surr			5480	ug/L	5000		110	70-130		
Surrogate: Toluene-d8-surr			5120	ug/L	5000		102	70-130		
Surrogate: Dibromofluoromethane-surr			4980	ug/L	5000		99.7	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			4890	ug/L	5000		97.8	70-130		

**Matrix Spike (BCB1650-MS1)**

**Source: 19B1832-08**

Prepared & Analyzed: 02/22/2019

Ethylbenzene	14500		341	ug/kg dry	14700	<341	98.7	70-130		
m+p-xylene	31000		1020	ug/kg dry	29400	<1020	105	70-130		
o-Xylene	15600		341	ug/kg dry	14700	<341	106	70-130		
Tetrachloroethylene (Perchloroethylene)	16900		341	ug/kg dry	14700	<341	115	70-130		
Trichloroethene (Trichloroethylene)	16800		341	ug/kg dry	14700	<341	114	70-130		
<hr/>										
Surrogate: 4-Bromofluorobenzene-surr	S		10600	ug/L	5000		213	70-130		
Surrogate: Toluene-d8-surr	S		10400	ug/L	5000		208	70-130		
Surrogate: Dibromofluoromethane-surr	S		9780	ug/L	5000		196	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr	S		9050	ug/L	5000		181	70-130		





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**Quality Control**  
(Continued)

**Volatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCB1650 - SW-5035-MedS (Continued)</b>										
<b>Matrix Spike Dup (BCB1650-MSD1)</b>			<b>Source: 19B1832-08</b>			Prepared & Analyzed: 02/22/2019				
Ethylbenzene	14000		341	ug/kg dry	14700	<341	95.1	70-130	3.74	30
m+p-xylene	29200		1020	ug/kg dry	29400	<1020	99.2	70-130	5.98	30
o-Xylene	15000		341	ug/kg dry	14700	<341	102	70-130	4.16	30
Tetrachloroethylene (Perchloroethylene)	16300		341	ug/kg dry	14700	<341	111	70-130	3.40	30
Trichloroethene (Trichloroethylene)	16100		341	ug/kg dry	14700	<341	109	70-130	4.44	30
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Surrogate: 4-Bromofluorobenzene-surr		S	10900	ug/L	5000		218	70-130		
Surrogate: Toluene-d8-surr		S	10300	ug/L	5000		206	70-130		
Surrogate: Dibromofluoromethane-surr		S	9940	ug/L	5000		199	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr		S	9370	ug/L	5000		187	70-130		

**Batch: BCC2600 - SW-5035-MedS**

<b>Blank (BCC2600-BLK1)</b>			Prepared & Analyzed: 03/13/2019							
Ethylbenzene	<200		200	ug/kg wet						
m+p-xylene	<600		600	ug/kg wet						
o-Xylene	<200		200	ug/kg wet						
Tetrachloroethylene (Perchloroethylene)	<200		200	ug/kg wet						
Trichloroethene (Trichloroethylene)	<200		200	ug/kg wet						
Xylene (total)	0.00			ug/kg wet						
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Surrogate: 4-Bromofluorobenzene-surr			4350	ug/L	5000		87.1	70-130		
Surrogate: Toluene-d8-surr			5260	ug/L	5000		105	70-130		
Surrogate: Dibromofluoromethane-surr			5450	ug/L	5000		109	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			5320	ug/L	5000		106	70-130		

<b>LCS (BCC2600-BS1)</b>			Prepared & Analyzed: 03/13/2019							
Ethylbenzene	8630		200	ug/kg wet	10000		86.3	70-130		
m+p-xylene	17700		600	ug/kg wet	20000		88.7	70-130		
o-Xylene	9180		200	ug/kg wet	10000		91.8	70-130		
Tetrachloroethylene (Perchloroethylene)	10000		200	ug/kg wet	10000		100	70-130		
Trichloroethene (Trichloroethylene)	10700		200	ug/kg wet	10000		107	70-130		
Xylene (total)	26900			ug/kg wet	30000		89.7	70-130		
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Surrogate: 4-Bromofluorobenzene-surr			5540	ug/L	5000		111	70-130		
Surrogate: Toluene-d8-surr			5770	ug/L	5000		115	70-130		
Surrogate: Dibromofluoromethane-surr			5420	ug/L	5000		108	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			5040	ug/L	5000		101	70-130		



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**Quality Control**  
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**Volatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2600 - SW-5035-MedS (Continued)**

**LCS Dup (BCC2600-BSD1)**

Prepared & Analyzed: 03/13/2019

Ethylbenzene	10300		200	ug/kg wet	10000		103	70-130	17.8	30
m+p-xylene	21000		600	ug/kg wet	20000		105	70-130	17.0	30
o-Xylene	11100		200	ug/kg wet	10000		111	70-130	18.7	30
Tetrachloroethylene (Perchloroethylene)	12100		200	ug/kg wet	10000		121	70-130	18.8	30
Trichloroethene (Trichloroethylene)	12900		200	ug/kg wet	10000		129	70-130	18.8	30
Xylene (total)	32100			ug/kg wet	30000		107	70-130	17.6	30
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Surrogate: 4-Bromofluorobenzene-surr			5540	ug/L	5000		111	70-130		
Surrogate: Toluene-d8-surr			5800	ug/L	5000		116	70-130		
Surrogate: Dibromofluoromethane-surr			5420	ug/L	5000		108	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			5040	ug/L	5000		101	70-130		

**Matrix Spike (BCC2600-MS1)**

Source: 19B2037-01

Prepared & Analyzed: 03/13/2019

Ethylbenzene	13300		279	ug/kg dry	12600	<279	106	70-130		
m+p-xylene	27800		838	ug/kg dry	25300	<838	110	70-130		
o-Xylene	14400		279	ug/kg dry	12600	<279	114	70-130		
Tetrachloroethylene (Perchloroethylene)	14800		279	ug/kg dry	12600	<279	117	70-130		
Trichloroethene (Trichloroethylene)	15400		279	ug/kg dry	12600	<279	122	70-130		
Xylene (total)	42200			ug/kg dry	37900	0.00	111	70-130		
<hr/>										
Surrogate: 4-Bromofluorobenzene-surr			5280	ug/L	5000		106	70-130		
Surrogate: Toluene-d8-surr			5600	ug/L	5000		112	70-130		
Surrogate: Dibromofluoromethane-surr			5260	ug/L	5000		105	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			5000	ug/L	5000		99.9	70-130		

**Matrix Spike Dup (BCC2600-MSD1)**

Source: 19B2037-01

Prepared & Analyzed: 03/13/2019

Ethylbenzene	14300		279	ug/kg dry	12600	<279	114	70-130	7.30	30
m+p-xylene	29400		838	ug/kg dry	25300	<838	116	70-130	5.84	30
o-Xylene	15400		279	ug/kg dry	12600	<279	122	70-130	6.67	30
Tetrachloroethylene (Perchloroethylene)	15800		279	ug/kg dry	12600	<279	125	70-130	6.55	30
Trichloroethene (Trichloroethylene)	16500		279	ug/kg dry	12600	<279	131	70-130	6.98	30
Xylene (total)	44900			ug/kg dry	37900	0.00	118	70-130	6.12	30
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Surrogate: 4-Bromofluorobenzene-surr			5820	ug/L	5000		116	70-130		
Surrogate: Toluene-d8-surr			5460	ug/L	5000		109	70-130		
Surrogate: Dibromofluoromethane-surr			5230	ug/L	5000		105	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			5950	ug/L	5000		119	70-130		



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511**

**Blank (BCC0727-BLK1)**

Prepared: 03/08/2019 Analyzed: 03/26/2019

1,2,4-Trichlorobenzene	<0.562		0.562	ug/L						
1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.562		0.562	ug/L						
1,2-Diphenylhydrazine	<0.562		0.562	ug/L						
1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.562		0.562	ug/L						
1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.562		0.562	ug/L						
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl	<0.562		0.562	ug/L						
2,4,6-Trichlorophenol	<1.12		1.12	ug/L						
2,4-Dichlorophenol	<0.562		0.562	ug/L						
2,4-Dimethylphenol	<1.12		1.12	ug/L						
2,4-Dinitrophenol	<4.50		4.50	ug/L						
2,4-Dinitrotoluene (2,4-DNT)	<0.562		0.562	ug/L						
2,6-Dinitrotoluene (2,6-DNT)	<0.562		0.562	ug/L						
2-Chloronaphthalene	<0.562		0.562	ug/L						
2-Chlorophenol	<1.12		1.12	ug/L						
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<1.12		1.12	ug/L						
2-Nitrophenol	<1.12		1.12	ug/L						
3,3'-Dichlorobenzidine	<0.562		0.562	ug/L						
4-Bromophenyl phenyl ether (BDE-3)	<0.562		0.562	ug/L						
4-Chloro-3-methylphenol	<1.12		1.12	ug/L						
4-Chlorophenyl phenylether	<0.562		0.562	ug/L						
4-Nitrophenol	<4.50		4.50	ug/L						
Acenaphthene	<0.562		0.562	ug/L						
Acenaphthylene	<0.562		0.562	ug/L						
Anthracene	<0.562		0.562	ug/L						
Benzidine	<0.562		0.562	ug/L						
Benzo(a)anthracene	<0.562		0.562	ug/L						
Benzo(a)pyrene	<0.562		0.562	ug/L						
Benzo(b)fluoranthene	<0.562		0.562	ug/L						
Benzo(g,h,i)perylene	<0.562		0.562	ug/L						
Benzo(k)fluoranthene	<0.562		0.562	ug/L						
bis(2-Chloroethoxy)methane	<0.562		0.562	ug/L						
bis(2-Chloroethyl) ether	<0.562		0.562	ug/L						
Bis(2-ethylhexyl )phthalate	<0.562		0.562	ug/L						
Butyl benzyl phthalate	<0.562		0.562	ug/L						
Chrysene	<0.562		0.562	ug/L						
Dibenzo(a,h)anthracene	<0.562		0.562	ug/L						
Diethyl phthalate	<0.562		0.562	ug/L						
Dimethyl phthalate	<0.562		0.562	ug/L						
Di-n-butyl phthalate	0.760	B	0.562	ug/L						
Di-n-octyl phthalate	<0.562		0.562	ug/L						
Fluoranthene	<0.562		0.562	ug/L						
Fluorene	<0.562		0.562	ug/L						
Hexachlorobenzene	<0.562		0.562	ug/L						
Hexachlorobutadiene	<0.562		0.562	ug/L						



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Project: Phillips 66 - Bluewater SPM 2019  
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Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511 (Continued)**

**Blank (BCC0727-BLK1)**

Prepared: 03/08/2019 Analyzed: 03/26/2019

Hexachlorocyclopentadiene	<0.562		0.562	ug/L						
Hexachloroethane	<0.562		0.562	ug/L						
Indeno(1,2,3-cd) pyrene	<0.562		0.562	ug/L						
Isophorone	<0.562		0.562	ug/L						
Naphthalene	<0.562		0.562	ug/L						
Nitrobenzene	<0.562		0.562	ug/L						
n-Nitrosodimethylamine	<2.25		2.25	ug/L						
n-Nitrosodi-n-propylamine	<0.562		0.562	ug/L						
n-Nitrosodiphenylamine	<0.562		0.562	ug/L						
Pentachlorophenol	<1.12		1.12	ug/L						
Phenanthrene	<0.562		0.562	ug/L						
Phenol, Total	<1.12		1.12	ug/L						
Pyrene	<0.562		0.562	ug/L						
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Surrogate: 2-Fluorobiphenyl-surr			3.88	ug/L	5.00		77.6	60-140		
Surrogate: 2-Fluorophenol-surr			7.39	ug/L	9.99		74.0	60-140		
Surrogate: 2,4,6-Tribromophenol-surr		S	15.7	ug/L	9.99		157	60-140		
Surrogate: Nitrobenzene-d5-surr			3.77	ug/L	5.00		75.5	60-140		
Surrogate: Phenol-d5-surr			6.87	ug/L	9.99		68.7	60-140		
Surrogate: p-Terphenyl-d14-surr			4.20	ug/L	5.00		84.1	60-140		

**LCS (BCC0727-BS1)**

Prepared: 03/06/2019 Analyzed: 03/26/2019

1,2,4-Trichlorobenzene	4.80		0.560	ug/L	4.98		96.4	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	4.57		0.560	ug/L	4.98		91.8	60-140		
1,2-Diphenylhydrazine	5.52		0.560	ug/L	4.98		111	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	4.37		0.560	ug/L	4.98		87.7	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	4.01		0.560	ug/L	4.98		80.4	60-140		
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	6.59		0.560	ug/L				60-140		
2,4,6-Trichlorophenol	7.53		1.12	ug/L	9.96		75.6	60-140		
2,4-Dichlorophenol	9.85		0.560	ug/L	9.96		98.9	60-140		
2,4-Dimethylphenol	11.0		1.12	ug/L	9.96		110	60-140		
2,4-Dinitrophenol	33.0		4.48	ug/L	39.8		82.8	60-140		
2,4-Dinitrotoluene (2,4-DNT)	5.18		0.560	ug/L	4.98		104	60-140		
2,6-Dinitrotoluene (2,6-DNT)	4.89		0.560	ug/L	4.98		98.3	60-140		
2-Chloronaphthalene	4.70		0.560	ug/L	4.98		94.4	60-140		
2-Chlorophenol	9.65		1.12	ug/L	9.96		96.9	60-140		
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	10.3		1.12	ug/L	9.96		104	60-140		
2-Nitrophenol	10.2		1.12	ug/L	9.96		102	60-140		
4-Bromophenyl phenyl ether (BDE-3)	6.57		0.560	ug/L	4.98		132	60-140		
4-Chloro-3-methylphenol	10.1		1.12	ug/L	9.96		101	60-140		
4-Chlorophenyl phenylether	5.77		0.560	ug/L	4.98		116	60-140		
4-Nitrophenol	29.6		4.48	ug/L	39.8		74.3	60-140		
Acenaphthene	5.32		0.560	ug/L	4.98		107	60-140		
Acenaphthylene	4.27		0.560	ug/L	4.98		85.8	60-140		
Anthracene	5.14		0.560	ug/L	4.98		103	60-140		



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**Quality Control**  
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**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511 (Continued)**

**LCS (BCC0727-BS1)**

Prepared: 03/06/2019 Analyzed: 03/26/2019

Benzo(a)anthracene	5.04		0.560	ug/L	4.98		101	60-140		
Benzo(a)pyrene	5.04		0.560	ug/L	4.98		101	60-140		
Benzo(b)fluoranthene	4.84		0.560	ug/L	4.98		97.1	60-140		
Benzo(g,h,i)perylene	5.42		0.560	ug/L	4.98		109	60-140		
Benzo(k)fluoranthene	4.82		0.560	ug/L	4.98		96.8	60-140		
bis(2-Chloroethoxy)methane	4.93		0.560	ug/L	4.98		99.0	60-140		
bis(2-Chloroethyl) ether	5.39		0.560	ug/L	4.98		108	60-140		
Bis(2-ethylhexyl) phthalate	5.19		0.560	ug/L	4.98		104	60-140		
Butyl benzyl phthalate	5.35		0.560	ug/L	4.98		107	60-140		
Chrysene	5.41		0.560	ug/L	4.98		109	60-140		
Dibenzo(a,h)anthracene	4.89		0.560	ug/L	4.98		98.2	60-140		
Diethyl phthalate	6.20		0.560	ug/L	4.98		125	60-140		
Dimethyl phthalate	5.41		0.560	ug/L	4.98		109	60-140		
Di-n-butyl phthalate	5.61		0.560	ug/L	4.98		113	60-140		
Di-n-octyl phthalate	4.68		0.560	ug/L	4.98		94.1	60-140		
Fluoranthene	6.01		0.560	ug/L	4.98		121	60-140		
Fluorene	5.40		0.560	ug/L	4.98		108	60-140		
Hexachlorobenzene	5.59		0.560	ug/L	4.98		112	60-140		
Hexachlorobutadiene	3.49		0.560	ug/L	4.98		70.0	60-140		
Hexachlorocyclopentadiene	4.51		0.560	ug/L	4.98		90.6	60-140		
Hexachloroethane	5.78		0.560	ug/L	4.98		116	60-140		
Indeno(1,2,3-cd) pyrene	5.01		0.560	ug/L	4.98		101	60-140		
Isophorone	3.56		0.560	ug/L	4.98		71.5	60-140		
Naphthalene	5.22		0.560	ug/L	4.98		105	60-140		
Nitrobenzene	4.92		0.560	ug/L	4.98		98.9	60-140		
n-Nitrosodimethylamine	1.45	J1	2.24	ug/L	44.8		3.22	60-140		
n-Nitrosodi-n-propylamine	5.16		0.560	ug/L	4.98		104	60-140		
Pentachlorophenol	10.7		1.12	ug/L	9.96		107	60-140		
Phenanthrene	5.28		0.560	ug/L	4.98		106	60-140		
Phenol, Total	8.09		1.12	ug/L	9.96		81.2	60-140		
Pyrene	6.44		0.560	ug/L	4.98		129	60-140		
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Surrogate: 2-Fluorobiphenyl-surr			4.43	ug/L	4.98		88.9	60-140		
Surrogate: 2-Fluorophenol-surr			10.3	ug/L	9.96		103	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			13.6	ug/L	9.96		136	60-140		
Surrogate: Nitrobenzene-d5-surr			4.42	ug/L	4.98		88.8	60-140		
Surrogate: Phenol-d5-surr			9.97	ug/L	9.96		100	60-140		
Surrogate: p-Terphenyl-d14-surr			4.68	ug/L	4.98		93.9	60-140		



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511 (Continued)**

**LCS (BCC0727-BS2)**

Prepared: 03/06/2019 Analyzed: 04/03/2019

3,3'-Dichlorobenzidine	7.04	J1	0.560	ug/L	4.98		141	60-140		
Benzidine	<0.560	J1	0.560	ug/L	4.98			60-140		

**LCS Dup (BCC0727-BSD1)**

Prepared: 03/06/2019 Analyzed: 03/26/2019

1,2,4-Trichlorobenzene	4.49		0.562	ug/L	4.99		89.9	60-140	6.79	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	4.17		0.562	ug/L	4.99		83.6	60-140	9.18	40
1,2-Diphenylhydrazine	5.35		0.562	ug/L	4.99		107	60-140	3.13	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	3.95		0.562	ug/L	4.99		79.1	60-140	10.2	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	4.14		0.562	ug/L	4.99		82.9	60-140	3.28	40
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	6.38		0.562	ug/L				60-140	3.31	40
2,4,6-Trichlorophenol	8.19		1.12	ug/L	9.98		82.1	60-140	8.39	40
2,4-Dichlorophenol	8.73		0.562	ug/L	9.98		87.4	60-140	12.1	40
2,4-Dimethylphenol	7.34		1.12	ug/L	9.98		73.5	60-140	39.8	40
2,4-Dinitrophenol	32.4		4.49	ug/L	39.9		81.2	60-140	1.68	40
2,4-Dinitrotoluene (2,4-DNT)	5.15		0.562	ug/L	4.99		103	60-140	0.670	40
2,6-Dinitrotoluene (2,6-DNT)	0.873	J1	0.562	ug/L	4.99		17.5	60-140	139	40
2-Chloronaphthalene	4.51		0.562	ug/L	4.99		90.3	60-140	4.27	40
2-Chlorophenol	9.28		1.12	ug/L	9.98		93.0	60-140	3.89	40
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	10.4		1.12	ug/L	9.98		104	60-140	0.777	40
2-Nitrophenol	8.94		1.12	ug/L	9.98		89.5	60-140	13.3	40
4-Bromophenyl phenyl ether (BDE-3)	6.18		0.562	ug/L	4.99		124	60-140	6.16	40
4-Chloro-3-methylphenol	10.2		1.12	ug/L	9.98		102	60-140	1.20	40
4-Chlorophenyl phenylether	5.54		0.562	ug/L	4.99		111	60-140	4.11	40
4-Nitrophenol	31.9		4.49	ug/L	39.9		79.8	60-140	7.30	40
Acenaphthene	5.07		0.562	ug/L	4.99		102	60-140	4.66	40
Acenaphthylene	4.09		0.562	ug/L	4.99		82.0	60-140	4.24	40
Anthracene	4.82		0.562	ug/L	4.99		96.7	60-140	6.41	40
Benzo(a)anthracene	4.80		0.562	ug/L	4.99		96.1	60-140	5.01	40
Benzo(a)pyrene	4.78		0.562	ug/L	4.99		95.7	60-140	5.48	40
Benzo(b)fluoranthene	4.76		0.562	ug/L	4.99		95.4	60-140	1.51	40
Benzo(g,h,i)perylene	5.21		0.562	ug/L	4.99		104	60-140	3.86	40
Benzo(k)fluoranthene	4.64		0.562	ug/L	4.99		92.9	60-140	3.93	40
bis(2-Chloroethoxy)methane	4.84		0.562	ug/L	4.99		96.9	60-140	1.98	40
bis(2-Chloroethyl) ether	4.95		0.562	ug/L	4.99		99.2	60-140	8.52	40
Bis(2-ethylhexyl) phthalate	4.48		0.562	ug/L	4.99		89.8	60-140	14.5	40
Butyl benzyl phthalate	4.91		0.562	ug/L	4.99		98.3	60-140	8.61	40
Chrysene	5.13		0.562	ug/L	4.99		103	60-140	5.31	40
Dibenzo(a,h)anthracene	4.89		0.562	ug/L	4.99		97.9	60-140	0.0997	40
Diethyl phthalate	5.99		0.562	ug/L	4.99		120	60-140	3.56	40
Dimethyl phthalate	4.79		0.562	ug/L	4.99		96.0	60-140	12.1	40
Di-n-butyl phthalate	5.17		0.562	ug/L	4.99		104	60-140	8.22	40
Di-n-octyl phthalate	4.23		0.562	ug/L	4.99		84.7	60-140	10.3	40
Fluoranthene	5.71		0.562	ug/L	4.99		114	60-140	5.11	40
Fluorene	5.21		0.562	ug/L	4.99		104	60-140	3.55	40

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**Quality Control**  
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**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511 (Continued)**

**LCS Dup (BCC0727-BS1)**

Prepared: 03/06/2019 Analyzed: 03/26/2019

Hexachlorobenzene	5.25		0.562	ug/L	4.99	105	60-140	6.38	40	
Hexachlorobutadiene	3.10		0.562	ug/L	4.99	62.2	60-140	11.7	40	
Hexachlorocyclopentadiene	3.58		0.562	ug/L	4.99	71.8	60-140	23.0	40	
Hexachloroethane	3.54	J1	0.562	ug/L	4.99	70.9	60-140	48.0	40	
Indeno(1,2,3-cd) pyrene	4.97		0.562	ug/L	4.99	99.6	60-140	0.887	40	
Isophorone	2.82	J1	0.562	ug/L	4.99	56.5	60-140	23.3	40	
Naphthalene	4.92		0.562	ug/L	4.99	98.5	60-140	5.98	40	
Nitrobenzene	4.84		0.562	ug/L	4.99	96.9	60-140	1.79	40	
n-Nitrosodimethylamine	14.1	J1	2.25	ug/L	44.9	31.5	60-140	163	40	
n-Nitrosodi-n-propylamine	3.70		0.562	ug/L	4.99	74.2	60-140	32.8	40	
Pentachlorophenol	9.97		1.12	ug/L	9.98	99.9	60-140	6.94	40	
Phenanthrene	5.00		0.562	ug/L	4.99	100	60-140	5.40	40	
Phenol, Total	7.52		1.12	ug/L	9.98	75.4	60-140	7.26	40	
Pyrene	6.05		0.562	ug/L	4.99	121	60-140	6.24	40	
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Surrogate: 2-Fluorobiphenyl-surr			4.10	ug/L	4.99	82.1	60-140			
Surrogate: 2-Fluorophenol-surr			9.32	ug/L	9.98	93.4	60-140			
Surrogate: 2,4,6-Tribromophenol-surr			12.6	ug/L	9.98	126	60-140			
Surrogate: Nitrobenzene-d5-surr			4.06	ug/L	4.99	81.3	60-140			
Surrogate: Phenol-d5-surr			8.07	ug/L	9.98	80.8	60-140			
Surrogate: p-Terphenyl-d14-surr			4.23	ug/L	4.99	84.7	60-140			

**LCS Dup (BCC0727-BS2)**

Prepared: 03/06/2019 Analyzed: 04/03/2019

3,3'-Dichlorobenzidine	10.2	J1	0.562	ug/L	4.99	205	60-140	36.9	40
Benzidine	0.361	J1	0.562	ug/L	4.99	7.23	60-140	136	40

**Matrix Spike (BCC0727-MS2)**

**Source: 19B1833-04**

Prepared: 03/06/2019 Analyzed: 03/26/2019

1,2,4-Trichlorobenzene	4.43		0.562	ug/L	5.00	<0.562	88.7	60-140	
1,2-Dichlorobenzene (o-Dichlorobenzene)	4.30		0.562	ug/L	5.00	<0.562	86.0	60-140	
1,2-Diphenylhydrazine	5.49		0.562	ug/L	5.00	<0.562	110	60-140	
1,3-Dichlorobenzene (m-Dichlorobenzene)	4.03		0.562	ug/L	5.00	<0.562	80.7	60-140	
1,4-Dichlorobenzene (p-Dichlorobenzene)	4.33		0.562	ug/L	5.00	<0.562	86.8	60-140	
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl	6.34		0.562	ug/L		<0.562		60-140	
2,4,6-Trichlorophenol	5.76	J1	1.12	ug/L	9.99	<1.12	57.6	60-140	
2,4-Dichlorophenol	8.36		0.562	ug/L	9.99	<0.562	83.7	60-140	
2,4-Dimethylphenol	12.3		1.12	ug/L	9.99	<1.12	124	60-140	
2,4-Dinitrophenol	36.5		4.50	ug/L	40.0	<4.50	91.4	60-140	
2,4-Dinitrotoluene (2,4-DNT)	5.64		0.562	ug/L	5.00	<0.562	113	60-140	
2,6-Dinitrotoluene (2,6-DNT)	5.17		0.562	ug/L	5.00	<0.562	104	60-140	
2-Chloronaphthalene	4.82		0.562	ug/L	5.00	<0.562	96.5	60-140	
2-Chlorophenol	7.79		1.12	ug/L	9.99	<1.12	78.0	60-140	
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	12.3		1.12	ug/L	9.99	<1.12	123	60-140	
2-Nitrophenol	8.93		1.12	ug/L	9.99	<1.12	89.4	60-140	
4-Bromophenyl phenyl ether (BDE-3)	6.87		0.562	ug/L	5.00	<0.562	138	60-140	
4-Chloro-3-methylphenol	9.40		1.12	ug/L	9.99	<1.12	94.1	60-140	



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**Quality Control**  
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**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511 (Continued)**

**Matrix Spike (BCC0727-MS2)**

**Source: 19B1833-04**

Prepared: 03/06/2019 Analyzed: 03/26/2019

4-Chlorophenyl phenylether	5.56		0.562	ug/L	5.00	<0.562	111	60-140		
4-Nitrophenol	39.2		4.50	ug/L	40.0	<4.50	98.2	60-140		
Acenaphthene	5.36		0.562	ug/L	5.00	<0.562	107	60-140		
Acenaphthylene	4.29		0.562	ug/L	5.00	<0.562	85.8	60-140		
Anthracene	5.68		0.562	ug/L	5.00	<0.562	114	60-140		
Benzo(a)anthracene	4.95		0.562	ug/L	5.00	<0.562	99.2	60-140		
Benzo(a)pyrene	5.05		0.562	ug/L	5.00	<0.562	101	60-140		
Benzo(b)fluoranthene	4.55		0.562	ug/L	5.00	<0.562	91.2	60-140		
Benzo(g,h,i)perylene	5.43		0.562	ug/L	5.00	<0.562	109	60-140		
Benzo(k)fluoranthene	4.67		0.562	ug/L	5.00	<0.562	93.6	60-140		
bis(2-Chloroethoxy)methane	5.01		0.562	ug/L	5.00	<0.562	100	60-140		
bis(2-Chloroethyl) ether	5.36		0.562	ug/L	5.00	<0.562	107	60-140		
Bis(2-ethylhexyl) phthalate	4.63		0.562	ug/L	5.00	<0.562	92.6	60-140		
Butyl benzyl phthalate	4.82		0.562	ug/L	5.00	<0.562	96.4	60-140		
Chrysene	5.31		0.562	ug/L	5.00	<0.562	106	60-140		
Dibenzo(a,h)anthracene	5.07		0.562	ug/L	5.00	<0.562	102	60-140		
Diethyl phthalate	6.22		0.562	ug/L	5.00	<0.562	125	60-140		
Dimethyl phthalate	5.00		0.562	ug/L	5.00	<0.562	100	60-140		
Di-n-butyl phthalate	5.81		0.562	ug/L	5.00	<0.562	116	60-140		
Di-n-octyl phthalate	4.31		0.562	ug/L	5.00	<0.562	86.2	60-140		
Fluoranthene	6.86		0.562	ug/L	5.00	<0.562	137	60-140		
Fluorene	5.15		0.562	ug/L	5.00	<0.562	103	60-140		
Hexachlorobenzene	6.05		0.562	ug/L	5.00	<0.562	121	60-140		
Hexachlorobutadiene	3.02		0.562	ug/L	5.00	<0.562	60.5	60-140		
Hexachlorocyclopentadiene	3.63		0.562	ug/L	5.00	<0.562	72.7	60-140		
Hexachloroethane	3.36		0.562	ug/L	5.00	<0.562	67.2	60-140		
Indeno(1,2,3-cd) pyrene	5.09		0.562	ug/L	5.00	<0.562	102	60-140		
Isophorone	2.45	J1	0.562	ug/L	5.00	<0.562	49.1	60-140		
Naphthalene	5.08		0.562	ug/L	5.00	<0.562	102	60-140		
Nitrobenzene	5.24		0.562	ug/L	5.00	<0.562	105	60-140		
n-Nitrosodimethylamine	2.48	J1	2.25	ug/L	45.0	<2.25	5.53	60-140		
n-Nitrosodi-n-propylamine	4.08		0.562	ug/L	5.00	<0.562	81.6	60-140		
Pentachlorophenol	11.0		1.12	ug/L	9.99	<1.12	110	60-140		
Phenanthrene	5.52		0.562	ug/L	5.00	<0.562	110	60-140		
Phenol, Total	6.81		1.12	ug/L	9.99	<1.12	68.2	60-140		
Pyrene	6.26		0.562	ug/L	5.00	<0.562	125	60-140		
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Surrogate: 2-Fluorobiphenyl-surr			4.26	ug/L	5.00		85.3	60-140		
Surrogate: 2-Fluorophenol-surr			8.19	ug/L	9.99		81.9	60-140		
Surrogate: 2,4,6-Tribromophenol-surr		S	14.4	ug/L	9.99		144	60-140		
Surrogate: Nitrobenzene-d5-surr			4.45	ug/L	5.00		89.1	60-140		
Surrogate: Phenol-d5-surr			8.60	ug/L	9.99		86.1	60-140		
Surrogate: p-Terphenyl-d14-surr			4.25	ug/L	5.00		85.0	60-140		



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Project Manager: Dillon Johnston

**Reported:**  
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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511 (Continued)**

**Matrix Spike Dup (BCC0727-MSD2)**

**Source: 19B1833-04**

Prepared: 03/06/2019 Analyzed: 03/26/2019

1,2,4-Trichlorobenzene	4.02		0.562	ug/L	5.00	<0.562	80.4	60-140	9.74	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	4.02		0.562	ug/L	5.00	<0.562	80.4	60-140	6.65	40
1,2-Diphenylhydrazine	4.72		0.562	ug/L	5.00	<0.562	94.5	60-140	15.1	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	3.84		0.562	ug/L	5.00	<0.562	76.9	60-140	4.71	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	3.99		0.562	ug/L	5.00	<0.562	79.8	60-140	8.35	40
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	6.43		0.562	ug/L		<0.562		60-140	1.54	40
2,4,6-Trichlorophenol	4.59	J1	1.12	ug/L	10.0	<1.12	45.9	60-140	22.6	40
2,4-Dichlorophenol	7.58		0.562	ug/L	10.0	<0.562	75.8	60-140	9.84	40
2,4-Dimethylphenol	8.89		1.12	ug/L	10.0	<1.12	88.9	60-140	32.5	40
2,4-Dinitrophenol	33.6		4.50	ug/L	40.0	<4.50	84.1	60-140	8.20	40
2,4-Dinitrotoluene (2,4-DNT)	5.02		0.562	ug/L	5.00	<0.562	100	60-140	11.7	40
2,6-Dinitrotoluene (2,6-DNT)	4.14		0.562	ug/L	5.00	<0.562	82.8	60-140	22.1	40
2-Chloronaphthalene	4.56		0.562	ug/L	5.00	<0.562	91.3	60-140	5.47	40
2-Chlorophenol	6.19		1.12	ug/L	10.0	<1.12	61.9	60-140	22.9	40
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	11.0		1.12	ug/L	10.0	<1.12	110	60-140	11.2	40
2-Nitrophenol	9.15		1.12	ug/L	10.0	<1.12	91.5	60-140	2.47	40
4-Bromophenyl phenyl ether (BDE-3)	5.31		0.562	ug/L	5.00	<0.562	106	60-140	25.6	40
4-Chloro-3-methylphenol	1.55	J1	1.12	ug/L	10.0	<1.12	15.5	60-140	143	40
4-Chlorophenyl phenylether	4.92		0.562	ug/L	5.00	<0.562	98.4	60-140	12.2	40
4-Nitrophenol	37.5		4.50	ug/L	40.0	<4.50	93.9	60-140	4.44	40
Acenaphthene	5.00		0.562	ug/L	5.00	<0.562	100	60-140	6.85	40
Acenaphthylene	3.97		0.562	ug/L	5.00	<0.562	79.4	60-140	7.65	40
Anthracene	5.26		0.562	ug/L	5.00	<0.562	105	60-140	7.69	40
Benzo(a)anthracene	4.65		0.562	ug/L	5.00	<0.562	93.1	60-140	6.21	40
Benzo(a)pyrene	4.72		0.562	ug/L	5.00	<0.562	94.5	60-140	6.72	40
Benzo(b)fluoranthene	4.53		0.562	ug/L	5.00	<0.562	90.6	60-140	0.526	40
Benzo(g,h,i)perylene	4.98		0.562	ug/L	5.00	<0.562	99.7	60-140	8.66	40
Benzo(k)fluoranthene	4.43		0.562	ug/L	5.00	<0.562	88.6	60-140	5.40	40
bis(2-Chloroethoxy)methane	4.37		0.562	ug/L	5.00	<0.562	87.4	60-140	13.6	40
bis(2-Chloroethyl) ether	4.55		0.562	ug/L	5.00	<0.562	91.0	60-140	16.4	40
Bis(2-ethylhexyl )phtalate	4.65		0.562	ug/L	5.00	<0.562	93.1	60-140	0.518	40
Butyl benzyl phthalate	4.88		0.562	ug/L	5.00	<0.562	97.6	60-140	1.32	40
Chrysene	4.97		0.562	ug/L	5.00	<0.562	99.4	60-140	6.59	40
Dibenzo(a,h)anthracene	4.71		0.562	ug/L	5.00	<0.562	94.2	60-140	7.39	40
Diethyl phthalate	5.44		0.562	ug/L	5.00	<0.562	109	60-140	13.4	40
Dimethyl phthalate	3.81		0.562	ug/L	5.00	<0.562	76.2	60-140	27.0	40
Di-n-butyl phthalate	5.28		0.562	ug/L	5.00	<0.562	106	60-140	9.58	40
Di-n-octyl phthalate	4.44		0.562	ug/L	5.00	<0.562	88.9	60-140	3.12	40
Fluoranthene	5.87		0.562	ug/L	5.00	<0.562	117	60-140	15.5	40
Fluorene	4.31		0.562	ug/L	5.00	<0.562	86.3	60-140	17.7	40
Hexachlorobenzene	5.22		0.562	ug/L	5.00	<0.562	104	60-140	14.8	40
Hexachlorobutadiene	3.03		0.562	ug/L	5.00	<0.562	60.7	60-140	0.306	40
Hexachlorocyclopentadiene	2.64	J1	0.562	ug/L	5.00	<0.562	52.9	60-140	31.6	40
Hexachloroethane	5.54	J1	0.562	ug/L	5.00	<0.562	111	60-140	49.0	40



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511 (Continued)**

**Matrix Spike Dup (BCC0727-MSD2)**

**Source: 19B1833-04**

Prepared: 03/06/2019 Analyzed: 03/26/2019

Indeno(1,2,3-cd) pyrene	4.74		0.562	ug/L	5.00	<0.562	94.9	60-140	6.98	40
Isophorone	2.88	J1	0.562	ug/L	5.00	<0.562	57.6	60-140	16.1	40
Naphthalene	4.72		0.562	ug/L	5.00	<0.562	94.4	60-140	7.42	40
Nitrobenzene	4.96		0.562	ug/L	5.00	<0.562	99.3	60-140	5.37	40
n-Nitrosodi-n-propylamine	3.52		0.562	ug/L	5.00	<0.562	70.5	60-140	14.6	40
Pentachlorophenol	10.5		1.12	ug/L	10.0	<1.12	106	60-140	4.47	40
Phenanthrene	5.04		0.562	ug/L	5.00	<0.562	101	60-140	9.04	40
Phenol, Total	4.57	J1	1.12	ug/L	10.0	<1.12	45.7	60-140	39.5	40
Pyrene	6.32		0.562	ug/L	5.00	<0.562	126	60-140	1.04	40

Surrogate: 2-Fluorobiphenyl-surr

3.77 ug/L

5.00

75.4

60-140

Surrogate: 2-Fluorophenol-surr

7.55 ug/L

10.0

75.5

60-140

Surrogate: 2,4,6-Tribromophenol-surr

12.8 ug/L

10.0

128

60-140

Surrogate: Nitrobenzene-d5-surr

4.14 ug/L

5.00

82.7

60-140

Surrogate: Phenol-d5-surr

6.15 ug/L

10.0

61.5

60-140

Surrogate: p-Terphenyl-d14-surr

3.86 ug/L

5.00

77.1

60-140

**Batch: BCC2499 - SW-3570**

**Blank (BCC2499-BLK1)**

Prepared: 02/25/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	<2.49		2.49	ug/kg wet						
1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.49		2.49	ug/kg wet						
1,2-Diphenylhydrazine	<2.49		2.49	ug/kg wet						
1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.49		2.49	ug/kg wet						
1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.49		2.49	ug/kg wet						
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl	<2.49		2.49	ug/kg wet						
2,4,6-Trichlorophenol	<4.99		4.99	ug/kg wet						
2,4-Dichlorophenol	<4.99		4.99	ug/kg wet						
2,4-Dimethylphenol	<4.99		4.99	ug/kg wet						
2,4-Dinitrophenol	<4.99		4.99	ug/kg wet						
2,4-Dinitrotoluene (2,4-DNT)	<2.49		2.49	ug/kg wet						
2,6-Dinitrotoluene (2,6-DNT)	<2.49		2.49	ug/kg wet						
2-Chloronaphthalene	<2.49		2.49	ug/kg wet						
2-Chlorophenol	<4.99		4.99	ug/kg wet						
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<19.9		19.9	ug/kg wet						
2-Nitrophenol	<4.99		4.99	ug/kg wet						
3,3'-Dichlorobenzidine	<2.49		2.49	ug/kg wet						
4-Bromophenyl phenyl ether (BDE-3)	<2.49		2.49	ug/kg wet						
4-Chloro-3-methylphenol	<4.99		4.99	ug/kg wet						
4-Chlorophenyl phenylether	<2.49		2.49	ug/kg wet						
4-Nitrophenol	<2.49		2.49	ug/kg wet						
Acenaphthene	<2.49		2.49	ug/kg wet						
Acenaphthylene	<2.49		2.49	ug/kg wet						
Anthracene	<2.49		2.49	ug/kg wet						
Benzidine	<2.49		2.49	ug/kg wet						



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**Quality Control**  
**(Continued)**

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2499 - SW-3570 (Continued)**

**Blank (BCC2499-BLK1)**

Prepared: 02/25/2019 Analyzed: 03/23/2019

Benzo(a)anthracene	<2.49		2.49	ug/kg wet						
Benzo(a)pyrene	<2.49		2.49	ug/kg wet						
Benzo(b)fluoranthene	<2.49		2.49	ug/kg wet						
Benzo(g,h,i)perylene	<2.49		2.49	ug/kg wet						
Benzo(k)fluoranthene	<2.49		2.49	ug/kg wet						
bis(2-Chloroethoxy)methane	<2.49		2.49	ug/kg wet						
bis(2-Chloroethyl) ether	<2.49		2.49	ug/kg wet						
Bis(2-ethylhexyl )phthalate	<2.49		2.49	ug/kg wet						
Butyl benzyl phthalate	<2.49		2.49	ug/kg wet						
Chrysene	<2.49		2.49	ug/kg wet						
Dibenzo(a,h)anthracene	<2.49		2.49	ug/kg wet						
Diethyl phthalate	<2.49		2.49	ug/kg wet						
Dimethyl phthalate	<2.49		2.49	ug/kg wet						
Di-n-butyl phthalate	1.72		2.49	ug/kg wet						
Di-n-octyl phthalate	<2.49		2.49	ug/kg wet						
Fluoranthene	<2.49		2.49	ug/kg wet						
Fluorene	<2.49		2.49	ug/kg wet						
Hexachlorobenzene	<2.49		2.49	ug/kg wet						
Hexachlorobutadiene	<2.49		2.49	ug/kg wet						
Hexachlorocyclopentadiene	<2.49		2.49	ug/kg wet						
Hexachloroethane	<2.49		2.49	ug/kg wet						
Indeno(1,2,3-cd) pyrene	<2.49		2.49	ug/kg wet						
Isophorone	<2.49		2.49	ug/kg wet						
Naphthalene	<2.49		2.49	ug/kg wet						
Nitrobenzene	<2.49		2.49	ug/kg wet						
n-Nitrosodimethylamine	<2.49		2.49	ug/kg wet						
n-Nitrosodi-n-propylamine	<2.49		2.49	ug/kg wet						
n-Nitrosodiphenylamine	<2.49		2.49	ug/kg wet						
Pentachlorophenol	<4.99		4.99	ug/kg wet						
Phenanthrene	<2.49		2.49	ug/kg wet						
Phenol, Total	<4.99		4.99	ug/kg wet						
Pyrene	<2.49		2.49	ug/kg wet						

Surrogate: 2-Fluorobiphenyl-surr	S		11.7	ug/kg wet	19.9		58.5	60-140		
Surrogate: 2-Fluorophenol-surr			32.2	ug/kg wet	39.9		80.7	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			31.9	ug/kg wet	39.9		80.0	60-140		
Surrogate: Nitrobenzene-d5-surr			13.0	ug/kg wet	19.9		65.4	60-140		
Surrogate: Phenol-d5-surr			32.0	ug/kg wet	39.9		80.3	60-140		
Surrogate: p-Terphenyl-d14-surr			14.4	ug/kg wet	19.9		72.2	60-140		

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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2499 - SW-3570 (Continued)**

**LCS (BCC2499-BS1)**

Prepared: 02/25/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	13.7		2.53	ug/kg wet	20.3		67.8	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	12.7		2.53	ug/kg wet	20.3		62.9	60-140		
1,2-Diphenylhydrazine	16.6		2.53	ug/kg wet	20.3		82.1	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	12.7		2.53	ug/kg wet	20.3		62.9	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	12.2		2.53	ug/kg wet	20.3		60.3	60-140		
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	30.0	J1	2.53	ug/kg wet	20.3		148	60-140		
2,4,6-Trichlorophenol	30.3		5.07	ug/kg wet	40.5		74.9	60-140		
2,4-Dichlorophenol	35.3		5.07	ug/kg wet	40.5		87.1	60-140		
2,4-Dimethylphenol	34.2		5.07	ug/kg wet	40.5		84.3	60-140		
2,4-Dinitrophenol	45.4	J1	5.07	ug/kg wet	101		44.8	60-140		
2,4-Dinitrotoluene (2,4-DNT)	18.9		2.53	ug/kg wet	20.3		93.5	60-140		
2,6-Dinitrotoluene (2,6-DNT)	19.8		2.53	ug/kg wet	20.3		97.6	60-140		
2-Chloronaphthalene	16.9		2.53	ug/kg wet	20.3		83.3	60-140		
2-Chlorophenol	43.9		5.07	ug/kg wet	40.5		108	60-140		
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	24.1	J1	20.3	ug/kg wet	40.5		59.4	60-140		
2-Nitrophenol	42.4		5.07	ug/kg wet	40.5		105	60-140		
4-Bromophenyl phenyl ether (BDE-3)	20.4		2.53	ug/kg wet	20.3		101	60-140		
4-Chloro-3-methylphenol	41.9		5.07	ug/kg wet	40.5		103	60-140		
4-Chlorophenyl phenylether	18.1		2.53	ug/kg wet	20.3		89.5	60-140		
4-Nitrophenol	81.5		2.53	ug/kg wet	101		80.5	60-140		
Acenaphthene	17.6		2.53	ug/kg wet	20.3		86.7	60-140		
Acenaphthylene	15.7		2.53	ug/kg wet	20.3		77.7	60-140		
Anthracene	19.5		2.53	ug/kg wet	20.3		96.3	60-140		
Benzo(a)anthracene	22.3		2.53	ug/kg wet	20.3		110	60-140		
Benzo(a)pyrene	20.0		2.53	ug/kg wet	20.3		98.7	60-140		
Benzo(b)fluoranthene	18.9		2.53	ug/kg wet	20.3		93.1	60-140		
Benzo(g,h,i)perylene	20.8		2.53	ug/kg wet	20.3		102	60-140		
Benzo(k)fluoranthene	18.5		2.53	ug/kg wet	20.3		91.2	60-140		
bis(2-Chloroethoxy)methane	19.3		2.53	ug/kg wet	20.3		95.4	60-140		
bis(2-Chloroethyl) ether	20.8		2.53	ug/kg wet	20.3		103	60-140		
Bis(2-ethylhexyl )phtalate	20.6		2.53	ug/kg wet	20.3		102	60-140		
Butyl benzyl phthalate	19.0		2.53	ug/kg wet	20.3		93.9	60-140		
Chrysene	16.3		2.53	ug/kg wet	20.3		80.2	60-140		
Dibenzo(a,h)anthracene	20.2		2.53	ug/kg wet	20.3		99.6	60-140		
Diethyl phthalate	18.4		2.53	ug/kg wet	20.3		90.7	60-140		
Dimethyl phthalate	19.2		2.53	ug/kg wet	20.3		94.6	60-140		
Di-n-butyl phthalate	17.9		2.53	ug/kg wet	20.3		88.1	60-140		
Di-n-octyl phthalate	17.8		2.53	ug/kg wet	20.3		87.9	60-140		
Fluoranthene	21.2		2.53	ug/kg wet	20.3		105	60-140		
Fluorene	18.3		2.53	ug/kg wet	20.3		90.5	60-140		
Hexachlorobenzene	19.9		2.53	ug/kg wet	20.3		98.1	60-140		
Hexachlorobutadiene	11.5	J1	2.53	ug/kg wet	20.3		56.8	60-140		
Hexachlorocyclopentadiene	9.58	J1	2.53	ug/kg wet	20.3		47.3	60-140		
Hexachloroethane	19.1		2.53	ug/kg wet	20.3		94.4	60-140		



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2499 - SW-3570 (Continued)**

				Prepared: 02/25/2019 Analyzed: 03/23/2019							
<b>LCS (BCC2499-BS1)</b>											
Indeno(1,2,3-cd) pyrene	20.0		2.53	ug/kg wet	20.3		98.8	60-140			
Isophorone	15.8		2.53	ug/kg wet	20.3		78.1	60-140			
Naphthalene	16.7		2.53	ug/kg wet	20.3		82.5	60-140			
Nitrobenzene	21.8		2.53	ug/kg wet	20.3		108	60-140			
n-Nitrosodimethylamine	76.5		2.53	ug/kg wet	101		75.5	60-140			
n-Nitrosodi-n-propylamine	22.5		2.53	ug/kg wet	20.3		111	60-140			
Pentachlorophenol	38.3		5.07	ug/kg wet	40.5		94.4	60-140			
Phenanthrene	18.7		2.53	ug/kg wet	20.3		92.3	60-140			
Phenol, Total	43.9		5.07	ug/kg wet	40.5		108	60-140			
Pyrene	21.4		2.53	ug/kg wet	20.3		106	60-140			
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Surrogate: 2-Fluorobiphenyl-surr		S	11.5	ug/kg wet	20.3		56.5	60-140			
Surrogate: 2-Fluorophenol-surr			40.1	ug/kg wet	40.5		98.9	60-140			
Surrogate: 2,4,6-Tribromophenol-surr			31.6	ug/kg wet	40.5		77.9	60-140			
Surrogate: Nitrobenzene-d5-surr			19.9	ug/kg wet	20.3		98.4	60-140			
Surrogate: Phenol-d5-surr			42.4	ug/kg wet	40.5		105	60-140			
Surrogate: p-Terphenyl-d14-surr			18.6	ug/kg wet	20.3		91.7	60-140			

				Prepared: 02/25/2019 Analyzed: 04/04/2019							
<b>LCS (BCC2499-BS2)</b>											
3,3'-Dichlorobenzidine	21.0		2.50	ug/kg wet	20.0		105	60-140			
Benzidine	22.6		2.50	ug/kg wet	20.0		113	60-140			

				Prepared: 02/25/2019 Analyzed: 03/23/2019							
<b>LCS Dup (BCC2499-BSD1)</b>											
1,2,4-Trichlorobenzene	12.3		2.55	ug/kg wet	20.4		60.4	60-140	11.0	40	
1,2-Dichlorobenzene (o-Dichlorobenzene)	11.4	J1	2.55	ug/kg wet	20.4		56.0	60-140	11.0	40	
1,2-Diphenylhydrazine	14.8		2.55	ug/kg wet	20.4		72.7	60-140	11.6	40	
1,3-Dichlorobenzene (m-Dichlorobenzene)	12.2		2.55	ug/kg wet	20.4		60.1	60-140	4.00	40	
1,4-Dichlorobenzene (p-Dichlorobenzene)	11.6	J1	2.55	ug/kg wet	20.4		57.2	60-140	4.91	40	
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	18.7	J1	2.55	ug/kg wet	20.4		91.9	60-140	46.4	40	
2,4,6-Trichlorophenol	37.1		5.09	ug/kg wet	40.7		91.1	60-140	20.0	40	
2,4-Dichlorophenol	33.9		5.09	ug/kg wet	40.7		83.3	60-140	3.93	40	
2,4-Dimethylphenol	31.0		5.09	ug/kg wet	40.7		76.1	60-140	9.74	40	
2,4-Dinitrophenol	45.5	J1	5.09	ug/kg wet	102		44.7	60-140	0.277	40	
2,4-Dinitrotoluene (2,4-DNT)	15.8		2.55	ug/kg wet	20.4		77.5	60-140	18.2	40	
2,6-Dinitrotoluene (2,6-DNT)	19.2		2.55	ug/kg wet	20.4		94.3	60-140	2.96	40	
2-Chloronaphthalene	16.7		2.55	ug/kg wet	20.4		81.9	60-140	1.17	40	
2-Chlorophenol	38.5		5.09	ug/kg wet	40.7		94.6	60-140	13.0	40	
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	21.1	J1	20.4	ug/kg wet	40.7		51.9	60-140	12.9	40	
2-Nitrophenol	35.7		5.09	ug/kg wet	40.7		87.8	60-140	17.0	40	
4-Bromophenyl phenyl ether (BDE-3)	16.2		2.55	ug/kg wet	20.4		79.7	60-140	22.9	40	
4-Chloro-3-methylphenol	33.4		5.09	ug/kg wet	40.7		81.9	60-140	22.6	40	
4-Chlorophenyl phenylether	15.3		2.55	ug/kg wet	20.4		75.2	60-140	16.9	40	
4-Nitrophenol	74.0		2.55	ug/kg wet	102		72.7	60-140	9.65	40	
Acenaphthene	15.7		2.55	ug/kg wet	20.4		76.9	60-140	11.5	40	
Acenaphthylene	14.4		2.55	ug/kg wet	20.4		70.5	60-140	9.15	40	



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2499 - SW-3570 (Continued)**

**LCS Dup (BCC2499-BS1)**

Prepared: 02/25/2019 Analyzed: 03/23/2019

Anthracene	16.4		2.55	ug/kg wet	20.4		80.7	60-140	17.1	40
Benzo(a)anthracene	18.9		2.55	ug/kg wet	20.4		93.0	60-140	16.2	40
Benzo(a)pyrene	17.5		2.55	ug/kg wet	20.4		85.8	60-140	13.5	40
Benzo(b)fluoranthene	16.9		2.55	ug/kg wet	20.4		82.7	60-140	11.3	40
Benzo(g,h,i)perylene	17.7		2.55	ug/kg wet	20.4		87.1	60-140	15.7	40
Benzo(k)fluoranthene	17.0		2.55	ug/kg wet	20.4		83.5	60-140	8.27	40
bis(2-Chloroethoxy)methane	15.5		2.55	ug/kg wet	20.4		76.1	60-140	22.0	40
bis(2-Chloroethyl) ether	17.7		2.55	ug/kg wet	20.4		86.9	60-140	16.3	40
Bis(2-ethylhexyl )phthalate	17.7		2.55	ug/kg wet	20.4		86.9	60-140	15.1	40
Butyl benzyl phthalate	16.4		2.55	ug/kg wet	20.4		80.7	60-140	14.6	40
Chrysene	16.6		2.55	ug/kg wet	20.4		81.6	60-140	2.19	40
Dibenzo(a,h)anthracene	17.3		2.55	ug/kg wet	20.4		84.8	60-140	15.6	40
Diethyl phthalate	15.6		2.55	ug/kg wet	20.4		76.6	60-140	16.3	40
Dimethyl phthalate	18.2		2.55	ug/kg wet	20.4		89.5	60-140	5.01	40
Di-n-butyl phthalate	15.5		2.55	ug/kg wet	20.4		75.9	60-140	14.4	40
Di-n-octyl phthalate	16.8		2.55	ug/kg wet	20.4		82.7	60-140	5.63	40
Fluoranthene	18.1		2.55	ug/kg wet	20.4		88.7	60-140	15.9	40
Fluorene	15.1		2.55	ug/kg wet	20.4		74.0	60-140	19.5	40
Hexachlorobenzene	15.8		2.55	ug/kg wet	20.4		77.5	60-140	22.9	40
Hexachlorobutadiene	9.93	J1	2.55	ug/kg wet	20.4		48.7	60-140	14.7	40
Hexachlorocyclopentadiene	6.95	J1	2.55	ug/kg wet	20.4		34.1	60-140	31.8	40
Hexachloroethane	9.23	J1	2.55	ug/kg wet	20.4		45.3	60-140	69.8	40
Indeno(1,2,3-cd) pyrene	17.2		2.55	ug/kg wet	20.4		84.5	60-140	15.1	40
Isophorone	12.9		2.55	ug/kg wet	20.4		63.2	60-140	20.6	40
Naphthalene	14.3		2.55	ug/kg wet	20.4		70.5	60-140	15.3	40
Nitrobenzene	17.3		2.55	ug/kg wet	20.4		85.0	60-140	23.0	40
n-Nitrosodimethylamine	78.1		2.55	ug/kg wet	102		76.7	60-140	2.07	40
n-Nitrosodi-n-propylamine	17.0		2.55	ug/kg wet	20.4		83.4	60-140	28.0	40
Pentachlorophenol	35.1		5.09	ug/kg wet	40.7		86.2	60-140	8.57	40
Phenanthrene	16.9		2.55	ug/kg wet	20.4		83.1	60-140	10.0	40
Phenol, Total	36.5		5.09	ug/kg wet	40.7		89.6	60-140	18.4	40
Pyrene	18.0		2.55	ug/kg wet	20.4		88.3	60-140	17.4	40
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Surrogate: 2-Fluorobiphenyl-surr			13.3	ug/kg wet	20.4		65.2	60-140		
Surrogate: 2-Fluorophenol-surr			40.3	ug/kg wet	40.7		99.1	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			30.0	ug/kg wet	40.7		73.7	60-140		
Surrogate: Nitrobenzene-d5-surr			17.3	ug/kg wet	20.4		84.8	60-140		
Surrogate: Phenol-d5-surr			37.8	ug/kg wet	40.7		92.9	60-140		
Surrogate: p-Terphenyl-d14-surr			15.6	ug/kg wet	20.4		76.4	60-140		



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Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2499 - SW-3570 (Continued)**

**LCS Dup (BCC2499-BS2)**

Prepared: 02/25/2019 Analyzed: 04/04/2019

3,3'-Dichlorobenzidine	29.4		2.50	ug/kg wet	20.0		147	60-140	33.4	40
Benzidine	19.6		2.50	ug/kg wet	20.0		97.8	60-140	14.5	40

**Matrix Spike (BCC2499-MS1)**

**Source: 19B1833-26**

Prepared: 02/25/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	13.3		2.43	ug/kg dry	19.2	<2.43	69.4	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	12.8		2.43	ug/kg dry	19.2	<2.43	66.8	60-140		
1,2-Diphenylhydrazine	13.1		2.43	ug/kg dry	19.2	<2.43	68.4	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	14.0		2.43	ug/kg dry	19.2	<2.43	72.9	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	13.1		2.43	ug/kg dry	19.2	<2.43	68.2	60-140		
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl-2,4,6-Trichlorophenol)	20.4		2.43	ug/kg dry	19.2	<2.43	106	60-140		
2,4-Dichlorophenol	35.0		4.86	ug/kg dry	38.3	<4.86	91.2	60-140		
2,4-Dimethylphenol	33.6		4.86	ug/kg dry	38.3	<4.86	87.8	60-140		
2,4-Dinitrophenol	32.0		4.86	ug/kg dry	38.3	<4.86	83.5	60-140		
2,4-Dinitrotoluene (2,4-DNT)	45.1	J1	4.86	ug/kg dry	95.8	<4.86	47.1	60-140		
2,6-Dinitrotoluene (2,6-DNT)	17.7		2.43	ug/kg dry	19.2	<2.43	92.2	60-140		
2-Chloronaphthalene	17.9		2.43	ug/kg dry	19.2	<2.43	93.6	60-140		
2-Chlorophenol	16.7		2.43	ug/kg dry	19.2	<2.43	87.1	60-140		
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	36.5		4.86	ug/kg dry	38.3	<4.86	95.3	60-140		
2-Nitrophenol	24.5		19.4	ug/kg dry	38.3	<19.4	63.8	60-140		
4-Bromophenyl phenyl ether (BDE-3)	34.6		4.86	ug/kg dry	38.3	<4.86	90.2	60-140		
4-Chloro-3-methylphenol	18.9		2.43	ug/kg dry	19.2	<2.43	98.4	60-140		
4-Chlorophenyl phenylether	35.4		4.86	ug/kg dry	38.3	<4.86	92.2	60-140		
4-Nitrophenol	14.2		2.43	ug/kg dry	19.2	<2.43	74.0	60-140		
Acenaphthene	95.0		2.43	ug/kg dry	95.8	<2.43	99.2	60-140		
Acenaphthylene	16.2		2.43	ug/kg dry	19.2	<2.43	84.7	60-140		
Anthracene	14.0		2.43	ug/kg dry	19.2	<2.43	73.1	60-140		
Benzo(a)anthracene	19.4		2.43	ug/kg dry	19.2	<2.43	101	60-140		
Benzo(a)pyrene	19.3		2.43	ug/kg dry	19.2	<2.43	101	60-140		
Benzo(b)fluoranthene	17.2		2.43	ug/kg dry	19.2	<2.43	89.9	60-140		
Benzo(g,h,i)perylene	16.1		2.43	ug/kg dry	19.2	<2.43	84.0	60-140		
Benzo(k)fluoranthene	17.2		2.43	ug/kg dry	19.2	<2.43	89.8	60-140		
bis(2-Chloroethoxy)methane	16.4		2.43	ug/kg dry	19.2	<2.43	85.7	60-140		
bis(2-Chloroethyl) ether	15.1		2.43	ug/kg dry	19.2	<2.43	78.9	60-140		
Bis(2-ethylhexyl) phthalate	18.1		2.43	ug/kg dry	19.2	<2.43	94.3	60-140		
Butyl benzyl phthalate	17.2		2.43	ug/kg dry	19.2	<2.43	90.0	60-140		
Chrysene	15.9		2.43	ug/kg dry	19.2	<2.43	82.9	60-140		
Dibenz(a,h)anthracene	16.4		2.43	ug/kg dry	19.2	<2.43	85.8	60-140		
Diethyl phthalate	17.1		2.43	ug/kg dry	19.2	<2.43	89.3	60-140		
Dimethyl phthalate	14.1		2.43	ug/kg dry	19.2	<2.43	73.5	60-140		
Di-n-butyl phthalate	16.2		2.43	ug/kg dry	19.2	<2.43	84.8	60-140		
Di-n-octyl phthalate	15.0		2.43	ug/kg dry	19.2	<2.43	78.3	60-140		
Fluoranthene	16.3		2.43	ug/kg dry	19.2	<2.43	85.1	60-140		
Fluorene	20.1		2.43	ug/kg dry	19.2	<2.43	105	60-140		
	14.3		2.43	ug/kg dry	19.2	<2.43	74.6	60-140		





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Project: Phillips 66 - Bluewater SPM 2019  
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**Reported:**  
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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2499 - SW-3570 (Continued)**

**Matrix Spike (BCC2499-MS1)**

**Source: 19B1833-26**

Prepared: 02/25/2019 Analyzed: 03/23/2019

Hexachlorobenzene	17.2		2.43	ug/kg dry	19.2	<2.43	89.5	60-140		
Hexachlorobutadiene	12.1		2.43	ug/kg dry	19.2	<2.43	62.9	60-140		
Hexachlorocyclopentadiene	7.92	J1	2.43	ug/kg dry	19.2	<2.43	41.3	60-140		
Hexachloroethane	8.64	J1	2.43	ug/kg dry	19.2	<2.43	45.1	60-140		
Indeno(1,2,3-cd) pyrene	16.9		2.43	ug/kg dry	19.2	<2.43	88.3	60-140		
Isophorone	11.8		2.43	ug/kg dry	19.2	<2.43	61.5	60-140		
Naphthalene	16.3		2.43	ug/kg dry	19.2	<2.43	85.1	60-140		
Nitrobenzene	16.5		2.43	ug/kg dry	19.2	<2.43	86.0	60-140		
n-Nitrosodimethylamine	80.3		2.43	ug/kg dry	95.8	<2.43	83.8	60-140		
n-Nitrosodi-n-propylamine	18.5		2.43	ug/kg dry	19.2	<2.43	96.3	60-140		
Pentachlorophenol	39.4		4.86	ug/kg dry	38.3	<4.86	103	60-140		
Phenanthrene	18.1		2.43	ug/kg dry	19.2	<2.43	94.4	60-140		
Phenol, Total	88.3	J1	4.86	ug/kg dry	38.3	<4.86	230	60-140		
Pyrene	20.3		2.43	ug/kg dry	19.2	<2.43	106	60-140		
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Surrogate: 2-Fluorobiphenyl-surr		S	0.108	ug/kg dry	19.2		0.566	60-140		
Surrogate: 2-Fluorophenol-surr		S	0.516	ug/kg dry	38.3		1.35	60-140		
Surrogate: 2,4,6-Tribromophenol-surr		S	0.00147	ug/kg dry	38.3		0.00382	60-140		
Surrogate: Nitrobenzene-d5-surr		S	0.672	ug/kg dry	19.2		3.51	60-140		
Surrogate: Phenol-d5-surr		S	3.98	ug/kg dry	38.3		10.4	60-140		
Surrogate: p-Terphenyl-d14-surr		S	0.0208	ug/kg dry	19.2		0.108	60-140		

**Matrix Spike Dup (BCC2499-MSD1)**

**Source: 19B1833-26**

Prepared: 02/25/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	14.2		2.54	ug/kg dry	20.0	<2.54	71.1	60-140	6.72	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	13.8		2.54	ug/kg dry	20.0	<2.54	69.0	60-140	7.52	40
1,2-Diphenylhydrazine	17.5		2.54	ug/kg dry	20.0	<2.54	87.3	60-140	28.5	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	15.1		2.54	ug/kg dry	20.0	<2.54	75.4	60-140	7.65	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	15.2		2.54	ug/kg dry	20.0	<2.54	76.0	60-140	15.1	40
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	20.6		2.54	ug/kg dry	20.0	<2.54	103	60-140	0.976	40
2,4,6-Trichlorophenol	39.0		5.07	ug/kg dry	40.0	<5.07	97.6	60-140	11.0	40
2,4-Dichlorophenol	38.4		5.07	ug/kg dry	40.0	<5.07	96.1	60-140	13.3	40
2,4-Dimethylphenol	33.7		5.07	ug/kg dry	40.0	<5.07	84.2	60-140	5.08	40
2,4-Dinitrophenol	47.9	J1	5.07	ug/kg dry	100	<5.07	47.9	60-140	6.00	40
2,4-Dinitrotoluene (2,4-DNT)	20.3		2.54	ug/kg dry	20.0	<2.54	101	60-140	13.8	40
2,6-Dinitrotoluene (2,6-DNT)	20.5		2.54	ug/kg dry	20.0	<2.54	102	60-140	13.1	40
2-Chloronaphthalene	18.7		2.54	ug/kg dry	20.0	<2.54	93.5	60-140	11.4	40
2-Chlorophenol	43.3		5.07	ug/kg dry	40.0	<5.07	108	60-140	16.9	40
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	26.9		20.3	ug/kg dry	40.0	<20.3	67.3	60-140	9.57	40
2-Nitrophenol	39.5		5.07	ug/kg dry	40.0	<5.07	98.8	60-140	13.3	40
4-Bromophenyl phenyl ether (BDE-3)	21.2		2.54	ug/kg dry	20.0	<2.54	106	60-140	11.7	40
4-Chloro-3-methylphenol	39.9		5.07	ug/kg dry	40.0	<5.07	99.8	60-140	12.1	40
4-Chlorophenyl phenylether	18.7		2.54	ug/kg dry	20.0	<2.54	93.5	60-140	27.5	40
4-Nitrophenol	92.7		2.54	ug/kg dry	100	<2.54	92.6	60-140	2.53	40
Acenaphthene	17.5		2.54	ug/kg dry	20.0	<2.54	87.3	60-140	7.27	40
Acenaphthylene	15.8		2.54	ug/kg dry	20.0	<2.54	79.1	60-140	12.1	40





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2499 - SW-3570 (Continued)**

**Matrix Spike Dup (BCC2499-MSD1)**

**Source: 19B1833-26**

Prepared: 02/25/2019 Analyzed: 03/23/2019

Anthracene	21.3		2.54	ug/kg dry	20.0	<2.54	106	60-140	8.96	40
Benzo(a)anthracene	20.8		2.54	ug/kg dry	20.0	<2.54	104	60-140	7.25	40
Benzo(a)pyrene	18.7		2.54	ug/kg dry	20.0	<2.54	93.6	60-140	8.23	40
Benzo(b)fluoranthene	18.0		2.54	ug/kg dry	20.0	<2.54	89.8	60-140	11.0	40
Benzo(g,h,i)perylene	18.5		2.54	ug/kg dry	20.0	<2.54	92.4	60-140	7.11	40
Benzo(k)fluoranthene	18.2		2.54	ug/kg dry	20.0	<2.54	91.1	60-140	10.4	40
bis(2-Chloroethoxy)methane	16.5		2.54	ug/kg dry	20.0	<2.54	82.6	60-140	8.84	40
bis(2-Chloroethyl) ether	21.0		2.54	ug/kg dry	20.0	<2.54	105	60-140	15.2	40
Bis(2-ethylhexyl) phthalate	113	J1	2.54	ug/kg dry	20.0	<2.54	566	60-140	147	40
Butyl benzyl phthalate	17.3		2.54	ug/kg dry	20.0	<2.54	86.6	60-140	8.57	40
Chrysene	18.0		2.54	ug/kg dry	20.0	<2.54	90.1	60-140	9.20	40
Dibenzo(a,h)anthracene	18.3		2.54	ug/kg dry	20.0	<2.54	91.6	60-140	6.81	40
Diethyl phthalate	18.0		2.54	ug/kg dry	20.0	<2.54	90.1	60-140	24.5	40
Dimethyl phthalate	19.0		2.54	ug/kg dry	20.0	<2.54	95.1	60-140	15.8	40
Di-n-butyl phthalate	15.1		2.54	ug/kg dry	20.0	<2.54	75.6	60-140	0.740	40
Di-n-octyl phthalate	18.2		2.54	ug/kg dry	20.0	<2.54	91.2	60-140	11.2	40
Fluoranthene	17.0		2.54	ug/kg dry	20.0	<2.54	85.2	60-140	16.7	40
Fluorene	18.5		2.54	ug/kg dry	20.0	<2.54	92.5	60-140	25.6	40
Hexachlorobenzene	19.6		2.54	ug/kg dry	20.0	<2.54	98.1	60-140	13.4	40
Hexachlorobutadiene	12.5		2.54	ug/kg dry	20.0	<2.54	62.4	60-140	3.47	40
Hexachlorocyclopentadiene	4.76	J1	2.54	ug/kg dry	20.0	<2.54	23.8	60-140	49.9	40
Hexachloroethane	10.3	J1	2.54	ug/kg dry	20.0	<2.54	51.6	60-140	17.7	40
Indeno(1,2,3-cd) pyrene	18.4		2.54	ug/kg dry	20.0	<2.54	91.8	60-140	8.20	40
Isophorone	12.6		2.54	ug/kg dry	20.0	<2.54	63.1	60-140	6.86	40
Naphthalene	16.9		2.54	ug/kg dry	20.0	<2.54	84.7	60-140	3.86	40
Nitrobenzene	17.9		2.54	ug/kg dry	20.0	<2.54	89.6	60-140	8.35	40
n-Nitrosodimethylamine	109		2.54	ug/kg dry	100	<2.54	109	60-140	30.0	40
n-Nitrosodi-n-propylamine	21.3		2.54	ug/kg dry	20.0	<2.54	106	60-140	14.2	40
Pentachlorophenol	44.7		5.07	ug/kg dry	40.0	<5.07	112	60-140	12.4	40
Phenanthrene	20.9		2.54	ug/kg dry	20.0	<2.54	105	60-140	14.6	40
Phenol, Total	140	J1	5.07	ug/kg dry	40.0	<5.07	351	60-140	45.5	40
Pyrene	17.3		2.54	ug/kg dry	20.0	<2.54	86.4	60-140	15.9	40
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Surrogate: 2-Fluorobiphenyl-surr			25.3	ug/kg dry	20.0		127	60-140		
Surrogate: 2-Fluorophenol-surr		S	78.1	ug/kg dry	40.0		195	60-140		
Surrogate: 2,4,6-Tribromophenol-surr		S	66.9	ug/kg dry	40.0		167	60-140		
Surrogate: Nitrobenzene-d5-surr		S	31.9	ug/kg dry	20.0		159	60-140		
Surrogate: Phenol-d5-surr		S	80.9	ug/kg dry	40.0		202	60-140		
Surrogate: p-Terphenyl-d14-surr		S	31.1	ug/kg dry	20.0		155	60-140		



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511**

**Blank (BCC2654-BLK1)**

Prepared: 02/26/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	<0.561		0.561	ug/L						
1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.561		0.561	ug/L						
1,2-Diphenylhydrazine	<0.561		0.561	ug/L						
1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.561		0.561	ug/L						
1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.561		0.561	ug/L						
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl	<0.561		0.561	ug/L						
2,4,6-Trichlorophenol	0.633		1.12	ug/L						
2,4-Dichlorophenol	0.585	B	0.561	ug/L						
2,4-Dimethylphenol	<1.12		1.12	ug/L						
2,4-Dinitrophenol	<4.49		4.49	ug/L						
2,4-Dinitrotoluene (2,4-DNT)	<0.561		0.561	ug/L						
2,6-Dinitrotoluene (2,6-DNT)	<0.561		0.561	ug/L						
2-Chloronaphthalene	<0.561		0.561	ug/L						
2-Chlorophenol	<1.12		1.12	ug/L						
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<1.12		1.12	ug/L						
2-Nitrophenol	<1.12		1.12	ug/L						
3,3'-Dichlorobenzidine	<0.561		0.561	ug/L						
4-Bromophenyl phenyl ether (BDE-3)	<0.561		0.561	ug/L						
4-Chloro-3-methylphenol	<1.12		1.12	ug/L						
4-Chlorophenyl phenylether	<0.561		0.561	ug/L						
4-Nitrophenol	<4.49		4.49	ug/L						
Acenaphthene	<0.561		0.561	ug/L						
Acenaphthylene	<0.561		0.561	ug/L						
Anthracene	<0.561		0.561	ug/L						
Benzidine	<0.561		0.561	ug/L						
Benzo(a)anthracene	<0.561		0.561	ug/L						
Benzo(a)pyrene	<0.561		0.561	ug/L						
Benzo(b)fluoranthene	<0.561		0.561	ug/L						
Benzo(g,h,i)perylene	<0.561		0.561	ug/L						
Benzo(k)fluoranthene	<0.561		0.561	ug/L						
bis(2-Chloroethoxy)methane	<0.561		0.561	ug/L						
bis(2-Chloroethyl) ether	<0.561		0.561	ug/L						
Bis(2-ethylhexyl )phthalate	<0.561		0.561	ug/L						
Butyl benzyl phthalate	<0.561		0.561	ug/L						
Chrysene	<0.561		0.561	ug/L						
Dibenzo(a,h)anthracene	<0.561		0.561	ug/L						
Diethyl phthalate	<0.561		0.561	ug/L						
Dimethyl phthalate	<0.561		0.561	ug/L						
Di-n-butyl phthalate	0.636		0.561	ug/L						
Di-n-octyl phthalate	<0.561		0.561	ug/L						
Fluoranthene	<0.561		0.561	ug/L						
Fluorene	<0.561		0.561	ug/L						
Hexachlorobenzene	<0.561		0.561	ug/L						
Hexachlorobutadiene	<0.561		0.561	ug/L						



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511 (Continued)**

**Blank (BCC2654-BLK1)**

Prepared: 02/26/2019 Analyzed: 03/23/2019

Hexachlorocyclopentadiene	<0.561		0.561	ug/L						
Hexachloroethane	<0.561		0.561	ug/L						
Indeno(1,2,3-cd) pyrene	<0.561		0.561	ug/L						
Isophorone	<0.561		0.561	ug/L						
Naphthalene	<0.561		0.561	ug/L						
Nitrobenzene	<0.561		0.561	ug/L						
n-Nitrosodimethylamine	<2.24		2.24	ug/L						
n-Nitrosodi-n-propylamine	<0.561		0.561	ug/L						
n-Nitrosodiphenylamine	<0.561		0.561	ug/L						
Pentachlorophenol	<1.12		1.12	ug/L						
Phenanthrene	<0.561		0.561	ug/L						
Phenol, Total	1.06		1.12	ug/L						
Pyrene	<0.561		0.561	ug/L						
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Surrogate: 2-Fluorobiphenyl-surr			8.89	ug/L	9.98		89.1	60-140		
Surrogate: 2-Fluorophenol-surr			21.2	ug/L	20.0		106	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			21.2	ug/L	20.0		106	60-140		
Surrogate: Nitrobenzene-d5-surr			9.71	ug/L	9.98		97.4	60-140		
Surrogate: Phenol-d5-surr			18.7	ug/L	20.0		93.7	60-140		
Surrogate: p-Terphenyl-d14-surr			10.1	ug/L	9.98		101	60-140		

**LCS (BCC2654-BS1)**

Prepared: 02/26/2019 Analyzed: 04/03/2019

3,3'-Dichlorobenzidine	10.9		0.562	ug/L	10.0		109	60-140		
Benzidine	3.32	J1	0.562	ug/L	10.0		33.2	60-140		

**LCS (BCC2654-BS2)**

Prepared: 02/26/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	9.90		0.561	ug/L	9.97		99.3	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	9.25		0.561	ug/L	9.97		92.8	60-140		
1,2-Diphenylhydrazine	10.7		0.561	ug/L	9.97		107	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	9.22		0.561	ug/L	9.97		92.5	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	9.95		0.561	ug/L	9.97		99.8	60-140		
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	8.53		0.561	ug/L	9.97		85.6	60-140		
2,4,6-Trichlorophenol	20.2		1.12	ug/L	19.9		102	60-140		
2,4-Dichlorophenol	23.3		0.561	ug/L	19.9		117	60-140		
2,4-Dimethylphenol	20.3		1.12	ug/L	19.9		102	60-140		
2,4-Dinitrophenol	71.8	J1	4.49	ug/L	49.8		144	60-140		
2,4-Dinitrotoluene (2,4-DNT)	11.9		0.561	ug/L	9.97		119	60-140		
2,6-Dinitrotoluene (2,6-DNT)	11.4		0.561	ug/L	9.97		115	60-140		
2-Chloronaphthalene	10.4		0.561	ug/L	9.97		105	60-140		
2-Chlorophenol	21.5		1.12	ug/L	19.9		108	60-140		
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	20.8		1.12	ug/L	19.9		104	60-140		
2-Nitrophenol	20.9		1.12	ug/L	19.9		105	60-140		
4-Bromophenyl phenyl ether (BDE-3)	10.7		0.561	ug/L	9.97		107	60-140		
4-Chloro-3-methylphenol	34.5		1.12	ug/L	19.9		173	60-140		
4-Chlorophenyl phenylether	10.9		0.561	ug/L	9.97		109	60-140		



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511 (Continued)**

**LCS (BCC2654-BS2)**

Prepared: 02/26/2019 Analyzed: 03/23/2019

4-Nitrophenol	110		4.49	ug/L	49.8		221	60-140		
Acenaphthene	10.4		0.561	ug/L	9.97		104	60-140		
Acenaphthylene	9.33		0.561	ug/L	9.97		93.6	60-140		
Anthracene	11.0		0.561	ug/L	9.97		110	60-140		
Benzo(a)anthracene	10.3		0.561	ug/L	9.97		104	60-140		
Benzo(a)pyrene	9.99		0.561	ug/L	9.97		100	60-140		
Benzo(b)fluoranthene	10.9		0.561	ug/L	9.97		110	60-140		
Benzo(g,h,i)perylene	11.0		0.561	ug/L	9.97		110	60-140		
Benzo(k)fluoranthene	10.9		0.561	ug/L	9.97		109	60-140		
bis(2-Chloroethoxy)methane	10.8		0.561	ug/L	9.97		108	60-140		
bis(2-Chloroethyl) ether	10.7		0.561	ug/L	9.97		107	60-140		
Bis(2-ethylhexyl )phthalate	10.8		0.561	ug/L	9.97		109	60-140		
Butyl benzyl phthalate	10.6		0.561	ug/L	9.97		107	60-140		
Chrysene	11.0		0.561	ug/L	9.97		110	60-140		
Dibenzo(a,h)anthracene	10.6		0.561	ug/L	9.97		106	60-140		
Diethyl phthalate	11.4		0.561	ug/L	9.97		115	60-140		
Dimethyl phthalate	11.0		0.561	ug/L	9.97		110	60-140		
Di-n-butyl phthalate	11.4		0.561	ug/L	9.97		114	60-140		
Di-n-octyl phthalate	10.8		0.561	ug/L	9.97		108	60-140		
Fluoranthene	10.9		0.561	ug/L	9.97		110	60-140		
Fluorene	11.0		0.561	ug/L	9.97		110	60-140		
Hexachlorobenzene	10.5		0.561	ug/L	9.97		105	60-140		
Hexachlorobutadiene	7.21		0.561	ug/L	9.97		72.3	60-140		
Hexachlorocyclopentadiene	4.66		0.561	ug/L	9.97		46.7	60-140		
Hexachloroethane	7.96		0.561	ug/L	9.97		79.9	60-140		
Indeno(1,2,3-cd) pyrene	10.4		0.561	ug/L	9.97		104	60-140		
Isophorone	8.52		0.561	ug/L	9.97		85.5	60-140		
Naphthalene	10.4		0.561	ug/L	9.97		105	60-140		
Nitrobenzene	8.66		0.561	ug/L	9.97		86.9	60-140		
n-Nitrosodimethylamine	21.5		2.24	ug/L	49.8		43.2	60-140		
n-Nitrosodi-n-propylamine	10.5		0.561	ug/L	9.97		106	60-140		
Pentachlorophenol	21.1		1.12	ug/L	19.9		106	60-140		
Phenanthrene	10.9		0.561	ug/L	9.97		109	60-140		
Phenol, Total	21.9		1.12	ug/L	19.9		110	60-140		
Pyrene	11.2		0.561	ug/L	9.97		113	60-140		
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Surrogate: 2-Fluorobiphenyl-surr			10.7	ug/L	9.97		108	60-140		
Surrogate: 2-Fluorophenol-surr			20.3	ug/L	19.9		102	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			22.0	ug/L	19.9		110	60-140		
Surrogate: Nitrobenzene-d5-surr			10.0	ug/L	9.97		101	60-140		
Surrogate: Phenol-d5-surr			20.9	ug/L	19.9		105	60-140		
Surrogate: p-Terphenyl-d14-surr			10.1	ug/L	9.97		101	60-140		



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511 (Continued)**

**LCS Dup (BCC2654-BS1)**

Prepared: 02/26/2019 Analyzed: 04/03/2019

3,3'-Dichlorobenzidine	8.66		0.561	ug/L	9.97		86.9	60-140	22.9	40
Benzidine	3.70	J1	0.561	ug/L	9.97		37.1	60-140	10.7	40

**LCS Dup (BCC2654-BS2)**

Prepared: 02/26/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	9.31		0.562	ug/L	9.99		93.2	60-140	6.11	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	8.83		0.562	ug/L	9.99		88.4	60-140	4.70	40
1,2-Diphenylhydrazine	10.2		0.562	ug/L	9.99		103	60-140	3.90	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	9.20		0.562	ug/L	9.99		92.1	60-140	0.283	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	9.83		0.562	ug/L	9.99		98.4	60-140	1.24	40
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	7.95		0.562	ug/L	9.99		79.6	60-140	7.09	40
2,4,6-Trichlorophenol	20.6		1.12	ug/L	20.0		103	60-140	1.83	40
2,4-Dichlorophenol	21.8		0.562	ug/L	20.0		109	60-140	6.87	40
2,4-Dimethylphenol	17.2		1.12	ug/L	20.0		86.0	60-140	16.7	40
2,4-Dinitrophenol	70.5	J1	4.49	ug/L	49.9		141	60-140	1.83	40
2,4-Dinitrotoluene (2,4-DNT)	11.3		0.562	ug/L	9.99		113	60-140	4.64	40
2,6-Dinitrotoluene (2,6-DNT)	11.1		0.562	ug/L	9.99		111	60-140	3.08	40
2-Chloronaphthalene	10.1		0.562	ug/L	9.99		102	60-140	2.94	40
2-Chlorophenol	19.9		1.12	ug/L	20.0		99.4	60-140	7.89	40
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	20.1		1.12	ug/L	20.0		101	60-140	3.18	40
2-Nitrophenol	20.4		1.12	ug/L	20.0		102	60-140	2.58	40
4-Bromophenyl phenyl ether (BDE-3)	10.5		0.562	ug/L	9.99		106	60-140	1.04	40
4-Chloro-3-methylphenol	30.6		1.12	ug/L	20.0		153	60-140	11.9	40
4-Chlorophenyl phenylether	10.5		0.562	ug/L	9.99		105	60-140	2.98	40
4-Nitrophenol	114		4.49	ug/L	49.9		228	60-140	3.29	40
Acenaphthene	9.77		0.562	ug/L	9.99		97.9	60-140	5.81	40
Acenaphthylene	8.94		0.562	ug/L	9.99		89.6	60-140	4.26	40
Anthracene	10.8		0.562	ug/L	9.99		108	60-140	1.83	40
Benzo(a)anthracene	9.68		0.562	ug/L	9.99		97.0	60-140	6.65	40
Benzo(a)pyrene	9.64		0.562	ug/L	9.99		96.5	60-140	3.56	40
Benzo(b)fluoranthene	10.6		0.562	ug/L	9.99		106	60-140	3.04	40
Benzo(g,h,i)perylene	10.8		0.562	ug/L	9.99		108	60-140	1.68	40
Benzo(k)fluoranthene	10.5		0.562	ug/L	9.99		105	60-140	3.23	40
bis(2-Chloroethoxy)methane	10.3		0.562	ug/L	9.99		103	60-140	4.33	40
bis(2-Chloroethyl) ether	10.3		0.562	ug/L	9.99		103	60-140	3.45	40
Bis(2-ethylhexyl )phthalate	10.5		0.562	ug/L	9.99		105	60-140	3.47	40
Butyl benzyl phthalate	10.2		0.562	ug/L	9.99		102	60-140	3.87	40
Chrysene	10.5		0.562	ug/L	9.99		105	60-140	4.53	40
Dibenzo(a,h)anthracene	10.5		0.562	ug/L	9.99		105	60-140	0.401	40
Diethyl phthalate	10.4		0.562	ug/L	9.99		104	60-140	9.79	40
Dimethyl phthalate	10.5		0.562	ug/L	9.99		105	60-140	4.15	40
Di-n-butyl phthalate	10.9		0.562	ug/L	9.99		109	60-140	4.67	40
Di-n-octyl phthalate	10.4		0.562	ug/L	9.99		104	60-140	3.61	40
Fluoranthene	10.4		0.562	ug/L	9.99		104	60-140	4.96	40
Fluorene	10.5		0.562	ug/L	9.99		105	60-140	4.69	40



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511 (Continued)**

LCS Dup (BCC2654-BSD2)		Prepared: 02/26/2019 Analyzed: 03/23/2019								
Hexachlorobenzene	10.3		0.562	ug/L	9.99	103	60-140	1.49	40	
Hexachlorobutadiene	7.04		0.562	ug/L	9.99	70.5	60-140	2.38	40	
Hexachlorocyclopentadiene	4.38		0.562	ug/L	9.99	43.9	60-140	6.08	40	
Hexachloroethane	8.28		0.562	ug/L	9.99	82.9	60-140	3.88	40	
Indeno(1,2,3-cd) pyrene	10.1		0.562	ug/L	9.99	102	60-140	2.54	40	
Isophorone	8.24		0.562	ug/L	9.99	82.5	60-140	3.38	40	
Naphthalene	9.76		0.562	ug/L	9.99	97.8	60-140	6.66	40	
Nitrobenzene	15.9		0.562	ug/L	9.99	159	60-140	58.8	40	
n-Nitrosodimethylamine	24.2		2.25	ug/L	49.9	48.4	60-140	11.7	40	
n-Nitrosodi-n-propylamine	9.88		0.562	ug/L	9.99	99.0	60-140	6.23	40	
Pentachlorophenol	19.1		1.12	ug/L	20.0	95.8	60-140	9.74	40	
Phenanthrene	10.3		0.562	ug/L	9.99	104	60-140	4.75	40	
Phenol, Total	16.9		1.12	ug/L	20.0	84.8	60-140	25.7	40	
Pyrene	11.0		0.562	ug/L	9.99	110	60-140	2.60	40	
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Surrogate: 2-Fluorobiphenyl-surr			9.45	ug/L	9.99	94.6	60-140			
Surrogate: 2-Fluorophenol-surr			20.2	ug/L	20.0	101	60-140			
Surrogate: 2,4,6-Tribromophenol-surr			21.2	ug/L	20.0	106	60-140			
Surrogate: Nitrobenzene-d5-surr			9.80	ug/L	9.99	98.1	60-140			
Surrogate: Phenol-d5-surr			18.9	ug/L	20.0	94.4	60-140			
Surrogate: p-Terphenyl-d14-surr			9.54	ug/L	9.99	95.6	60-140			

**Matrix Spike (BCC2654-MS1)**

Matrix Spike (BCC2654-MS1)		Source: 19B2026-02		Prepared: 02/26/2019 Analyzed: 03/23/2019						
1,2,4-Trichlorobenzene	9.74		0.561	ug/L	9.97	<0.561	97.7	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	8.97		0.561	ug/L	9.97	<0.561	90.0	60-140		
1,2-Diphenylhydrazine	11.0		0.561	ug/L	9.97	<0.561	110	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	9.09		0.561	ug/L	9.97	<0.561	91.2	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	9.69		0.561	ug/L	9.97	<0.561	97.3	60-140		
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	6.82		0.561	ug/L	9.97	0.352	64.9	60-140		
2,4,6-Trichlorophenol	20.9		1.12	ug/L	19.9	0.690	101	60-140		
2,4-Dichlorophenol	21.3		0.561	ug/L	19.9	<0.561	107	60-140		
2,4-Dimethylphenol	12.6		1.12	ug/L	19.9	<1.12	63.0	60-140		
2,4-Dinitrophenol	74.8	J1	4.48	ug/L	49.8	<4.48	150	60-140		
2,4-Dinitrotoluene (2,4-DNT)	11.9		0.561	ug/L	9.97	0.344	116	60-140		
2,6-Dinitrotoluene (2,6-DNT)	11.7		0.561	ug/L	9.97	<0.561	117	60-140		
2-Chloronaphthalene	11.6		0.561	ug/L	9.97	<0.561	116	60-140		
2-Chlorophenol	16.5		1.12	ug/L	19.9	<1.12	82.6	60-140		
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	20.7		1.12	ug/L	19.9	1.01	98.7	60-140		
2-Nitrophenol	21.1		1.12	ug/L	19.9	<1.12	106	60-140		
4-Bromophenyl phenyl ether (BDE-3)	10.6		0.561	ug/L	9.97	0.280	104	60-140		
4-Chloro-3-methylphenol	30.5		1.12	ug/L	19.9	<1.12	153	60-140		
4-Chlorophenyl phenylether	10.7		0.561	ug/L	9.97	<0.561	107	60-140		
4-Nitrophenol	118		4.48	ug/L	49.8	<4.48	237	60-140		
Acenaphthene	10.3		0.561	ug/L	9.97	<0.561	103	60-140		
Acenaphthylene	9.26		0.561	ug/L	9.97	<0.561	92.9	60-140		



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511 (Continued)**

**Matrix Spike (BCC2654-MS1)**

**Source: 19B2026-02**

Prepared: 02/26/2019 Analyzed: 03/23/2019

Anthracene	11.2		0.561	ug/L	9.97	<0.561	112	60-140		
Benzo(a)anthracene	9.78		0.561	ug/L	9.97	<0.561	98.1	60-140		
Benzo(a)pyrene	9.22		0.561	ug/L	9.97	<0.561	92.6	60-140		
Benzo(b)fluoranthene	10.0		0.561	ug/L	9.97	<0.561	100	60-140		
Benzo(g,h,i)perylene	10.4		0.561	ug/L	9.97	0.385	100	60-140		
Benzo(k)fluoranthene	9.92		0.561	ug/L	9.97	<0.561	99.6	60-140		
bis(2-Chloroethoxy)methane	10.8		0.561	ug/L	9.97	<0.561	108	60-140		
bis(2-Chloroethyl) ether	10.1		0.561	ug/L	9.97	<0.561	101	60-140		
Bis(2-ethylhexyl) phthalate	9.15		0.561	ug/L	9.97	<0.561	91.8	60-140		
Butyl benzyl phthalate	10.4		0.561	ug/L	9.97	<0.561	105	60-140		
Chrysene	10.5		0.561	ug/L	9.97	<0.561	106	60-140		
Dibenzo(a,h)anthracene	9.93		0.561	ug/L	9.97	<0.561	99.7	60-140		
Diethyl phthalate	11.1		0.561	ug/L	9.97	<0.561	112	60-140		
Dimethyl phthalate	11.3		0.561	ug/L	9.97	<0.561	114	60-140		
Di-n-butyl phthalate	10.8		0.561	ug/L	9.97	<0.561	108	60-140		
Di-n-octyl phthalate	9.18		0.561	ug/L	9.97	<0.561	92.2	60-140		
Fluoranthene	10.9		0.561	ug/L	9.97	<0.561	110	60-140		
Fluorene	10.7		0.561	ug/L	9.97	<0.561	108	60-140		
Hexachlorobenzene	10.5		0.561	ug/L	9.97	<0.561	105	60-140		
Hexachlorobutadiene	7.80		0.561	ug/L	9.97	0.297	75.3	60-140		
Hexachlorocyclopentadiene	5.20		0.561	ug/L	9.97	0.354	48.6	60-140		
Hexachloroethane	8.36		0.561	ug/L	9.97	<0.561	83.9	60-140		
Indeno(1,2,3-cd) pyrene	9.82		0.561	ug/L	9.97	<0.561	98.5	60-140		
Isophorone	5.35	J1	0.561	ug/L	9.97	13.7	NR	60-140		
Naphthalene	10.3		0.561	ug/L	9.97	<0.561	104	60-140		
Nitrobenzene	9.65		0.561	ug/L	9.97	<0.561	96.8	60-140		
n-Nitrosodimethylamine	22.7		2.24	ug/L	49.8	0.613	44.4	60-140		
n-Nitrosodi-n-propylamine	7.36		0.561	ug/L	9.97	0.285	71.0	60-140		
Pentachlorophenol	18.9		1.12	ug/L	19.9	<1.12	94.9	60-140		
Phenanthrene	10.7		0.561	ug/L	9.97	<0.561	107	60-140		
Phenol, Total	9.82	J1	1.12	ug/L	19.9	<1.12	49.3	60-140		
Pyrene	11.3		0.561	ug/L	9.97	<0.561	113	60-140		
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Surrogate: 2-Fluorobiphenyl-surr			10.3	ug/L	9.97		104	60-140		
Surrogate: 2-Fluorophenol-surr			18.0	ug/L	19.9		90.4	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			20.7	ug/L	19.9		104	60-140		
Surrogate: Nitrobenzene-d5-surr			10.8	ug/L	9.97		108	60-140		
Surrogate: Phenol-d5-surr		S	8.75	ug/L	19.9		43.9	60-140		
Surrogate: p-Terphenyl-d14-surr			9.08	ug/L	9.97		91.2	60-140		



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511 (Continued)**

**Matrix Spike Dup (BCC2654-MSD1)**

**Source: 19B2026-02**

Prepared: 02/26/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	9.20		0.560	ug/L	9.96	<0.560	92.4	60-140	5.71	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	8.94		0.560	ug/L	9.96	<0.560	89.8	60-140	0.378	40
1,2-Diphenylhydrazine	10.5		0.560	ug/L	9.96	<0.560	106	60-140	4.47	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	8.44		0.560	ug/L	9.96	<0.560	84.8	60-140	7.38	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	9.41		0.560	ug/L	9.96	<0.560	94.5	60-140	2.98	40
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	7.07		0.560	ug/L	9.96	0.352	67.4	60-140	3.65	40
2,4,6-Trichlorophenol	17.8		1.12	ug/L	19.9	0.690	85.7	60-140	16.3	40
2,4-Dichlorophenol	21.1		0.560	ug/L	19.9	<0.560	106	60-140	1.14	40
2,4-Dimethylphenol	15.8		1.12	ug/L	19.9	<1.12	79.1	60-140	22.6	40
2,4-Dinitrophenol	70.4	J1	4.48	ug/L	49.8	<4.48	141	60-140	6.14	40
2,4-Dinitrotoluene (2,4-DNT)	11.5		0.560	ug/L	9.96	0.344	112	60-140	3.25	40
2,6-Dinitrotoluene (2,6-DNT)	11.1		0.560	ug/L	9.96	<0.560	112	60-140	4.82	40
2-Chloronaphthalene	10.1		0.560	ug/L	9.96	<0.560	101	60-140	13.7	40
2-Chlorophenol	18.7		1.12	ug/L	19.9	<1.12	93.7	60-140	12.5	40
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	19.7		1.12	ug/L	19.9	1.01	93.9	60-140	4.88	40
2-Nitrophenol	19.7		1.12	ug/L	19.9	<1.12	98.8	60-140	6.79	40
4-Bromophenyl phenyl ether (BDE-3)	10.2		0.560	ug/L	9.96	0.280	99.1	60-140	4.31	40
4-Chloro-3-methylphenol	30.4		1.12	ug/L	19.9	<1.12	153	60-140	0.172	40
4-Chlorophenyl phenylether	10.3		0.560	ug/L	9.96	<0.560	103	60-140	3.93	40
4-Nitrophenol	116		4.48	ug/L	49.8	<4.48	232	60-140	2.26	40
Acenaphthene	9.78		0.560	ug/L	9.96	<0.560	98.2	60-140	4.68	40
Acenaphthylene	8.75		0.560	ug/L	9.96	<0.560	87.8	60-140	5.72	40
Anthracene	10.9		0.560	ug/L	9.96	<0.560	110	60-140	1.89	40
Benzo(a)anthracene	9.32		0.560	ug/L	9.96	<0.560	93.6	60-140	4.83	40
Benzo(a)pyrene	8.93		0.560	ug/L	9.96	<0.560	89.7	60-140	3.21	40
Benzo(b)fluoranthene	9.78		0.560	ug/L	9.96	<0.560	98.3	60-140	2.32	40
Benzo(g,h,i)perylene	9.84		0.560	ug/L	9.96	0.385	95.0	60-140	5.31	40
Benzo(k)fluoranthene	9.47		0.560	ug/L	9.96	<0.560	95.1	60-140	4.68	40
bis(2-Chloroethoxy)methane	10.2		0.560	ug/L	9.96	<0.560	103	60-140	5.30	40
bis(2-Chloroethyl) ether	9.64		0.560	ug/L	9.96	<0.560	96.9	60-140	4.12	40
Bis(2-ethylhexyl )phtalate	8.70		0.560	ug/L	9.96	<0.560	87.4	60-140	5.03	40
Butyl benzyl phthalate	9.99		0.560	ug/L	9.96	<0.560	100	60-140	4.44	40
Chrysene	10.3		0.560	ug/L	9.96	<0.560	103	60-140	2.46	40
Dibenzo(a,h)anthracene	9.83		0.560	ug/L	9.96	<0.560	98.7	60-140	1.06	40
Diethyl phthalate	10.6		0.560	ug/L	9.96	<0.560	106	60-140	5.01	40
Dimethyl phthalate	10.2		0.560	ug/L	9.96	<0.560	103	60-140	9.91	40
Di-n-butyl phthalate	10.8		0.560	ug/L	9.96	<0.560	108	60-140	0.233	40
Di-n-octyl phthalate	8.73		0.560	ug/L	9.96	<0.560	87.7	60-140	5.02	40
Fluoranthene	10.8		0.560	ug/L	9.96	<0.560	108	60-140	1.67	40
Fluorene	10.5		0.560	ug/L	9.96	<0.560	105	60-140	2.36	40
Hexachlorobenzene	10.2		0.560	ug/L	9.96	<0.560	103	60-140	2.53	40
Hexachlorobutadiene	6.74		0.560	ug/L	9.96	0.297	64.8	60-140	14.5	40
Hexachlorocyclopentadiene	3.98		0.560	ug/L	9.96	0.354	36.4	60-140	26.5	40
Hexachloroethane	7.62		0.560	ug/L	9.96	<0.560	76.6	60-140	9.20	40





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**Quality Control**  
**(Continued)**

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC2654 - SW-3511 (Continued)</b>										
<b>Matrix Spike Dup (BCC2654-MSD1)</b>			<b>Source: 19B2026-02</b>		Prepared: 02/26/2019 Analyzed: 03/23/2019					
Indeno(1,2,3-cd) pyrene	9.55		0.560	ug/L	9.96	<0.560	95.9	60-140	2.78	40
Isophorone	7.03	J1	0.560	ug/L	9.96	13.7	NR	60-140	27.2	40
Naphthalene	9.68		0.560	ug/L	9.96	<0.560	97.2	60-140	6.67	40
Nitrobenzene	11.1		0.560	ug/L	9.96	<0.560	112	60-140	14.0	40
n-Nitrosodimethylamine	18.2		2.24	ug/L	49.8	0.613	35.3	60-140	22.3	40
n-Nitrosodi-n-propylamine	2.95		0.560	ug/L	9.96	0.285	26.8	60-140	85.6	40
Pentachlorophenol	19.2		1.12	ug/L	19.9	<1.12	96.4	60-140	1.46	40
Phenanthrene	10.1		0.560	ug/L	9.96	<0.560	101	60-140	5.38	40
Phenol, Total	16.5	J1	1.12	ug/L	19.9	<1.12	83.0	60-140	50.9	40
Pyrene	11.2		0.560	ug/L	9.96	<0.560	113	60-140	0.599	40
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Surrogate: 2-Fluorobiphenyl-surr			9.36	ug/L	9.96		94.0	60-140		
Surrogate: 2-Fluorophenol-surr			17.5	ug/L	19.9		88.0	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			20.0	ug/L	19.9		101	60-140		
Surrogate: Nitrobenzene-d5-surr			10.3	ug/L	9.96		104	60-140		
Surrogate: Phenol-d5-surr			13.1	ug/L	19.9		66.0	60-140		
Surrogate: p-Terphenyl-d14-surr			8.95	ug/L	9.96		89.9	60-140		

**Batch: BCD0156 - SW-3570**

Analyte	Result	Reporting Limit	Units	Prepared	Analyzed
<b>Blank (BCD0156-BLK1)</b>					
Prepared: 03/12/2019 Analyzed: 03/28/2019					
1,2,4-Trichlorobenzene	<2.54	2.54	ug/kg wet		
1,2-Dichlorobenzene (o-Dichlorobenzene)	<2.54	2.54	ug/kg wet		
1,2-Diphenylhydrazine	<2.54	2.54	ug/kg wet		
1,3-Dichlorobenzene (m-Dichlorobenzene)	<2.54	2.54	ug/kg wet		
1,4-Dichlorobenzene (p-Dichlorobenzene)	<2.54	2.54	ug/kg wet		
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl)	<2.54	2.54	ug/kg wet		
2,4,6-Trichlorophenol	<5.08	5.08	ug/kg wet		
2,4-Dichlorophenol	<5.08	5.08	ug/kg wet		
2,4-Dimethylphenol	<5.08	5.08	ug/kg wet		
2,4-Dinitrophenol	<5.08	5.08	ug/kg wet		
2,4-Dinitrotoluene (2,4-DNT)	<2.54	2.54	ug/kg wet		
2,6-Dinitrotoluene (2,6-DNT)	<2.54	2.54	ug/kg wet		
2-Chloronaphthalene	<2.54	2.54	ug/kg wet		
2-Chlorophenol	<5.08	5.08	ug/kg wet		
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph)	<20.3	20.3	ug/kg wet		
2-Nitrophenol	<5.08	5.08	ug/kg wet		
3,3'-Dichlorobenzidine	<2.54	2.54	ug/kg wet		
4-Bromophenyl phenyl ether (BDE-3)	<2.54	2.54	ug/kg wet		
4-Chloro-3-methylphenol	<5.08	5.08	ug/kg wet		
4-Chlorophenyl phenylether	<2.54	2.54	ug/kg wet		
4-Nitrophenol	<2.54	2.54	ug/kg wet		
Acenaphthene	<2.54	2.54	ug/kg wet		
Acenaphthylene	<2.54	2.54	ug/kg wet		
Anthracene	<2.54	2.54	ug/kg wet		



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Bellaire, TX 77401

Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
04/08/2019 11:59

**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0156 - SW-3570 (Continued)**

**Blank (BCD0156-BLK1)**

Prepared: 03/12/2019 Analyzed: 04/02/2019

Benzidine	<2.54		2.54	ug/kg wet						
Benzo(a)anthracene	<2.54		2.54	ug/kg wet						
Benzo(a)pyrene	<2.54		2.54	ug/kg wet						
Benzo(b)fluoranthene	<2.54		2.54	ug/kg wet						
Benzo(g,h,i)perylene	<2.54		2.54	ug/kg wet						
Benzo(k)fluoranthene	<2.54		2.54	ug/kg wet						
bis(2-Chloroethoxy)methane	<2.54		2.54	ug/kg wet						
bis(2-Chloroethyl) ether	<2.54		2.54	ug/kg wet						
Bis(2-ethylhexyl )phthalate	<2.54		2.54	ug/kg wet						
Butyl benzyl phthalate	<2.54		2.54	ug/kg wet						
Chrysene	<2.54		2.54	ug/kg wet						
Dibenzo(a,h)anthracene	<2.54		2.54	ug/kg wet						
Diethyl phthalate	<2.54		2.54	ug/kg wet						
Dimethyl phthalate	<2.54		2.54	ug/kg wet						
Di-n-butyl phthalate	<2.54		2.54	ug/kg wet						
Di-n-octyl phthalate	<2.54		2.54	ug/kg wet						
Fluoranthene	<2.54		2.54	ug/kg wet						
Fluorene	<2.54		2.54	ug/kg wet						
Hexachlorobenzene	<2.54		2.54	ug/kg wet						
Hexachlorobutadiene	<2.54		2.54	ug/kg wet						
Hexachlorocyclopentadiene	<2.54		2.54	ug/kg wet						
Hexachloroethane	<2.54		2.54	ug/kg wet						
Indeno(1,2,3-cd) pyrene	<2.54		2.54	ug/kg wet						
Isophorone	<2.54		2.54	ug/kg wet						
Naphthalene	<2.54		2.54	ug/kg wet						
Nitrobenzene	1.92		2.54	ug/kg wet						
n-Nitrosodimethylamine	<2.54		2.54	ug/kg wet						
n-Nitrosodi-n-propylamine	<2.54		2.54	ug/kg wet						
n-Nitrosodiphenylamine	<2.54		2.54	ug/kg wet						
Pentachlorophenol	<5.08		5.08	ug/kg wet						
Phenanthrene	<2.54		2.54	ug/kg wet						
Phenol, Total	2.95		5.08	ug/kg wet						
Pyrene	<2.54		2.54	ug/kg wet						
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Surrogate: 2-Fluorobiphenyl-surr		S	12.1	ug/kg wet	20.3		59.4	60-140		
Surrogate: 2-Fluorophenol-surr			35.0	ug/kg wet	40.6		86.1	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			34.8	ug/kg wet	40.6		85.7	60-140		
Surrogate: Nitrobenzene-d5-surr			13.9	ug/kg wet	20.3		68.5	60-140		
Surrogate: Phenol-d5-surr			32.7	ug/kg wet	40.6		80.4	60-140		
Surrogate: p-Terphenyl-d14-surr			18.2	ug/kg wet	20.3		89.7	60-140		

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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0156 - SW-3570 (Continued)**

**LCS (BCD0156-BS1)**

Prepared: 03/12/2019 Analyzed: 03/28/2019

1,2,4-Trichlorobenzene	11.3	J1	2.42	ug/kg wet	19.3		58.3	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	11.6		2.42	ug/kg wet	19.3		60.0	60-140		
1,2-Diphenylhydrazine	15.2		2.42	ug/kg wet	19.3		78.6	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	10.2	J1	2.42	ug/kg wet	19.3		52.7	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	10.6	J1	2.42	ug/kg wet	19.3		54.8	60-140		
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	11.2	J1	2.42	ug/kg wet	19.3		57.9	60-140		
2,4,6-Trichlorophenol	32.4		4.84	ug/kg wet	38.7		83.7	60-140		
2,4-Dichlorophenol	33.2		4.84	ug/kg wet	38.7		85.8	60-140		
2,4-Dimethylphenol	30.0		4.84	ug/kg wet	38.7		77.6	60-140		
2,4-Dinitrophenol	31.2	J1	4.84	ug/kg wet	96.7		32.3	60-140		
2,4-Dinitrotoluene (2,4-DNT)	16.3		2.42	ug/kg wet	19.3		84.4	60-140		
2,6-Dinitrotoluene (2,6-DNT)	16.3		2.42	ug/kg wet	19.3		84.5	60-140		
2-Chloronaphthalene	13.0		2.42	ug/kg wet	19.3		67.4	60-140		
2-Chlorophenol	31.3		4.84	ug/kg wet	38.7		80.8	60-140		
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	24.7		19.3	ug/kg wet	38.7		64.0	60-140		
2-Nitrophenol	32.9		4.84	ug/kg wet	38.7		85.1	60-140		
4-Bromophenyl phenyl ether (BDE-3)	15.5		2.42	ug/kg wet	19.3		80.2	60-140		
4-Chloro-3-methylphenol	32.4		4.84	ug/kg wet	38.7		83.8	60-140		
4-Chlorophenyl phenylether	16.1		2.42	ug/kg wet	19.3		83.3	60-140		
4-Nitrophenol	75.4		2.42	ug/kg wet	96.7		78.0	60-140		
Acenaphthene	13.1		2.42	ug/kg wet	19.3		67.8	60-140		
Acenaphthylene	13.4		2.42	ug/kg wet	19.3		69.4	60-140		
Anthracene	15.2		2.42	ug/kg wet	19.3		78.6	60-140		
Benzo(a)anthracene	14.4		2.42	ug/kg wet	19.3		74.2	60-140		
Benzo(a)pyrene	14.7		2.42	ug/kg wet	19.3		76.2	60-140		
Benzo(b)fluoranthene	15.7		2.42	ug/kg wet	19.3		81.3	60-140		
Benzo(g,h,i)perylene	16.7		2.42	ug/kg wet	19.3		86.3	60-140		
Benzo(k)fluoranthene	15.6		2.42	ug/kg wet	19.3		80.4	60-140		
bis(2-Chloroethoxy)methane	16.8		2.42	ug/kg wet	19.3		86.9	60-140		
bis(2-Chloroethyl) ether	16.8		2.42	ug/kg wet	19.3		86.7	60-140		
Bis(2-ethylhexyl )phtalate	14.8		2.42	ug/kg wet	19.3		76.5	60-140		
Butyl benzyl phthalate	14.8		2.42	ug/kg wet	19.3		76.3	60-140		
Chrysene	15.0		2.42	ug/kg wet	19.3		77.5	60-140		
Dibenzo(a,h)anthracene	16.4		2.42	ug/kg wet	19.3		84.8	60-140		
Diethyl phthalate	16.0		2.42	ug/kg wet	19.3		82.7	60-140		
Dimethyl phthalate	15.8		2.42	ug/kg wet	19.3		81.8	60-140		
Di-n-butyl phthalate	14.1		2.42	ug/kg wet	19.3		72.7	60-140		
Di-n-octyl phthalate	14.8		2.42	ug/kg wet	19.3		76.3	60-140		
Fluoranthene	15.5		2.42	ug/kg wet	19.3		80.1	60-140		
Fluorene	15.8		2.42	ug/kg wet	19.3		81.5	60-140		
Hexachlorobenzene	13.6		2.42	ug/kg wet	19.3		70.3	60-140		
Hexachlorobutadiene	8.70	J1	2.42	ug/kg wet	19.3		45.0	60-140		
Hexachlorocyclopentadiene	6.93	J1	2.42	ug/kg wet	19.3		35.9	60-140		
Hexachloroethane	9.60	J1	2.42	ug/kg wet	19.3		49.6	60-140		



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0156 - SW-3570 (Continued)**

**LCS (BCD0156-BS1)**

Prepared: 03/12/2019 Analyzed: 03/28/2019

Indeno(1,2,3-cd) pyrene	16.1		2.42	ug/kg wet	19.3		83.4	60-140		
Isophorone	12.5		2.42	ug/kg wet	19.3		64.5	60-140		
Naphthalene	12.7		2.42	ug/kg wet	19.3		65.5	60-140		
Nitrobenzene	18.3		2.42	ug/kg wet	19.3		94.7	60-140		
n-Nitrosodimethylamine	59.7		2.42	ug/kg wet	96.7		61.7	60-140		
n-Nitrosodi-n-propylamine	16.3		2.42	ug/kg wet	19.3		84.1	60-140		
Pentachlorophenol	29.9		4.84	ug/kg wet	38.7		77.3	60-140		
Phenanthrene	15.6		2.42	ug/kg wet	19.3		80.7	60-140		
Phenol, Total	32.0		4.84	ug/kg wet	38.7		82.8	60-140		
Pyrene	16.1		2.42	ug/kg wet	19.3		83.5	60-140		
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Surrogate: 2-Fluorobiphenyl-surr			12.8	ug/kg wet	19.3		66.4	60-140		
Surrogate: 2-Fluorophenol-surr			35.6	ug/kg wet	38.7		92.0	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			34.2	ug/kg wet	38.7		88.5	60-140		
Surrogate: Nitrobenzene-d5-surr			15.2	ug/kg wet	19.3		78.7	60-140		
Surrogate: Phenol-d5-surr			36.2	ug/kg wet	38.7		93.5	60-140		
Surrogate: p-Terphenyl-d14-surr			16.8	ug/kg wet	19.3		86.7	60-140		

**LCS (BCD0156-BS2)**

Prepared: 03/12/2019 Analyzed: 03/28/2019

3,3'-Dichlorobenzidine	3.08	J1	2.46	ug/kg wet	19.7		15.6	60-140		
Benidine	<2.46		2.46	ug/kg wet	19.7			60-140		
<hr/>										
Surrogate: 2-Fluorobiphenyl-surr		S	10.5	ug/kg wet	19.7		53.3	60-140		
Surrogate: 2-Fluorophenol-surr			35.7	ug/kg wet	39.4		90.6	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			35.6	ug/kg wet	39.4		90.2	60-140		
Surrogate: Nitrobenzene-d5-surr			14.1	ug/kg wet	19.7		71.7	60-140		
Surrogate: Phenol-d5-surr			34.9	ug/kg wet	39.4		88.5	60-140		
Surrogate: p-Terphenyl-d14-surr			18.4	ug/kg wet	19.7		93.5	60-140		

**LCS Dup (BCD0156-BSD1)**

Prepared: 03/12/2019 Analyzed: 03/28/2019

1,2,4-Trichlorobenzene	13.1		2.49	ug/kg wet	19.9		65.9	60-140	15.3	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	13.0		2.49	ug/kg wet	19.9		65.0	60-140	10.9	40
1,2-Diphenylhydrazine	17.9		2.49	ug/kg wet	19.9		89.7	60-140	16.1	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	11.8	J1	2.49	ug/kg wet	19.9		59.3	60-140	14.8	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	12.1		2.49	ug/kg wet	19.9		60.6	60-140	13.1	40
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl	13.9		2.49	ug/kg wet	19.9		69.7	60-140	21.3	40
2,4,6-Trichlorophenol	37.9		4.98	ug/kg wet	39.8		95.2	60-140	15.7	40
2,4-Dichlorophenol	39.5		4.98	ug/kg wet	39.8		99.1	60-140	17.4	40
2,4-Dimethylphenol	35.7		4.98	ug/kg wet	39.8		89.7	60-140	17.3	40
2,4-Dinitrophenol	31.0	J1	4.98	ug/kg wet	99.6		31.1	60-140	0.839	40
2,4-Dinitrotoluene (2,4-DNT)	19.6		2.49	ug/kg wet	19.9		98.5	60-140	18.4	40
2,6-Dinitrotoluene (2,6-DNT)	19.6		2.49	ug/kg wet	19.9		98.4	60-140	18.2	40
2-Chloronaphthalene	15.3		2.49	ug/kg wet	19.9		77.0	60-140	16.3	40
2-Chlorophenol	36.5		4.98	ug/kg wet	39.8		91.7	60-140	15.6	40
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	26.2		19.9	ug/kg wet	39.8		65.7	60-140	5.65	40

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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0156 - SW-3570 (Continued)**

**LCS Dup (BCD0156-BSD1)**

Prepared: 03/12/2019 Analyzed: 03/28/2019

2-Nitrophenol	36.9		4.98	ug/kg wet	39.8		92.7	60-140	11.4	40
4-Bromophenyl phenyl ether (BDE-3)	18.4		2.49	ug/kg wet	19.9		92.2	60-140	16.8	40
4-Chloro-3-methylphenol	41.0		4.98	ug/kg wet	39.8		103	60-140	23.4	40
4-Chlorophenyl phenylether	19.2		2.49	ug/kg wet	19.9		96.2	60-140	17.3	40
4-Nitrophenol	92.8		2.49	ug/kg wet	99.6		93.1	60-140	20.6	40
Acenaphthene	15.7		2.49	ug/kg wet	19.9		78.8	60-140	18.0	40
Acenaphthylene	15.9		2.49	ug/kg wet	19.9		79.9	60-140	17.0	40
Anthracene	19.3		2.49	ug/kg wet	19.9		96.9	60-140	23.8	40
Benzo(a)anthracene	17.3		2.49	ug/kg wet	19.9		86.8	60-140	18.5	40
Benzo(a)pyrene	17.5		2.49	ug/kg wet	19.9		87.7	60-140	16.9	40
Benzo(b)fluoranthene	18.8		2.49	ug/kg wet	19.9		94.3	60-140	17.7	40
Benzo(g,h,i)perylene	19.2		2.49	ug/kg wet	19.9		96.2	60-140	13.8	40
Benzo(k)fluoranthene	18.5		2.49	ug/kg wet	19.9		92.8	60-140	17.3	40
bis(2-Chloroethoxy)methane	20.1		2.49	ug/kg wet	19.9		101	60-140	18.1	40
bis(2-Chloroethyl) ether	19.7		2.49	ug/kg wet	19.9		99.0	60-140	16.2	40
Bis(2-ethylhexyl) phthalate	17.6		2.49	ug/kg wet	19.9		88.1	60-140	17.1	40
Butyl benzyl phthalate	16.9		2.49	ug/kg wet	19.9		84.7	60-140	13.4	40
Chrysene	18.1		2.49	ug/kg wet	19.9		91.0	60-140	19.0	40
Dibenzo(a,h)anthracene	20.1		2.49	ug/kg wet	19.9		101	60-140	20.3	40
Diethyl phthalate	19.2		2.49	ug/kg wet	19.9		96.2	60-140	18.0	40
Dimethyl phthalate	18.7		2.49	ug/kg wet	19.9		93.9	60-140	16.8	40
Di-n-butyl phthalate	17.8		2.49	ug/kg wet	19.9		89.4	60-140	23.5	40
Di-n-octyl phthalate	17.1		2.49	ug/kg wet	19.9		86.0	60-140	14.8	40
Fluoranthene	18.6		2.49	ug/kg wet	19.9		93.4	60-140	18.3	40
Fluorene	18.8		2.49	ug/kg wet	19.9		94.1	60-140	17.3	40
Hexachlorobenzene	15.9		2.49	ug/kg wet	19.9		79.7	60-140	15.4	40
Hexachlorobutadiene	10.1	J1	2.49	ug/kg wet	19.9		50.7	60-140	14.8	40
Hexachlorocyclopentadiene	8.15	J1	2.49	ug/kg wet	19.9		40.9	60-140	16.1	40
Hexachloroethane	10.5	J1	2.49	ug/kg wet	19.9		52.7	60-140	9.06	40
Indeno(1,2,3-cd) pyrene	19.1		2.49	ug/kg wet	19.9		95.7	60-140	16.6	40
Isophorone	15.0		2.49	ug/kg wet	19.9		75.2	60-140	18.2	40
Naphthalene	14.9		2.49	ug/kg wet	19.9		74.6	60-140	16.0	40
Nitrobenzene	21.5		2.49	ug/kg wet	19.9		108	60-140	15.8	40
n-Nitrosodimethylamine	69.3		2.49	ug/kg wet	99.6		69.6	60-140	15.0	40
n-Nitrosodi-n-propylamine	18.0		2.49	ug/kg wet	19.9		90.4	60-140	10.2	40
Pentachlorophenol	34.2		4.98	ug/kg wet	39.8		85.8	60-140	13.4	40
Phenanthrene	18.6		2.49	ug/kg wet	19.9		93.5	60-140	17.6	40
Phenol, Total	37.8		4.98	ug/kg wet	39.8		94.9	60-140	16.6	40
Pyrene	19.7		2.49	ug/kg wet	19.9		98.7	60-140	19.7	40

Surrogate: 2-Fluorobiphenyl-surr

15.7 ug/kg wet

19.9

79.0

60-140

Surrogate: 2-Fluorophenol-surr

37.4 ug/kg wet

39.8

93.9

60-140

Surrogate: 2,4,6-Tribromophenol-surr

36.8 ug/kg wet

39.8

92.4

60-140

Surrogate: Nitrobenzene-d5-surr

16.7 ug/kg wet

19.9

83.8

60-140

Surrogate: Phenol-d5-surr

38.7 ug/kg wet

39.8

97.0

60-140

Surrogate: p-Terphenyl-d14-surr

17.7 ug/kg wet

19.9

89.0

60-140



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0156 - SW-3570 (Continued)**

**LCS Dup (BCD0156-BS2)**

Prepared: 03/12/2019 Analyzed: 03/28/2019

3,3'-Dichlorobenzidine	4.26	J1	2.53	ug/kg wet	20.2		21.0	60-140	32.0	40
Benzidine	<2.53		2.53	ug/kg wet	20.2			60-140	200	40
<hr/>										
Surrogate: 2-Fluorobiphenyl-surr		S	11.6	ug/kg wet	20.2		57.5	60-140		
Surrogate: 2-Fluorophenol-surr			35.4	ug/kg wet	40.4		87.6	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			35.4	ug/kg wet	40.4		87.6	60-140		
Surrogate: Nitrobenzene-d5-surr			14.1	ug/kg wet	20.2		69.5	60-140		
Surrogate: Phenol-d5-surr			33.7	ug/kg wet	40.4		83.4	60-140		
Surrogate: p-Terphenyl-d14-surr			19.3	ug/kg wet	20.2		95.6	60-140		

**Matrix Spike (BCD0156-MS1)**

Source: 19B1833-12

Prepared: 03/12/2019 Analyzed: 03/28/2019

1,2,4-Trichlorobenzene	23.6		4.85	ug/kg dry	38.8	<4.85	60.7	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	26.0		4.85	ug/kg dry	38.8	<4.85	67.0	60-140		
1,2-Diphenylhydrazine	22.6	J1	4.85	ug/kg dry	38.8	<4.85	58.3	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	24.7		4.85	ug/kg dry	38.8	<4.85	63.6	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	24.3		4.85	ug/kg dry	38.8	<4.85	62.5	60-140		
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl	25.3		4.85	ug/kg dry	38.8	<4.85	65.2	60-140		
2,4,6-Trichlorophenol	67.7		9.70	ug/kg dry	77.6	<9.70	87.2	60-140		
2,4-Dichlorophenol	71.8		9.70	ug/kg dry	77.6	<9.70	92.5	60-140		
2,4-Dimethylphenol	70.5		9.70	ug/kg dry	77.6	<9.70	90.9	60-140		
2,4-Dinitrophenol	40.8	J1	9.70	ug/kg dry	194	<9.70	21.0	60-140		
2,4-Dinitrotoluene (2,4-DNT)	26.0		4.85	ug/kg dry	38.8	<4.85	66.9	60-140		
2,6-Dinitrotoluene (2,6-DNT)	33.3		4.85	ug/kg dry	38.8	<4.85	85.9	60-140		
2-Chloronaphthalene	22.6	J1	4.85	ug/kg dry	38.8	<4.85	58.1	60-140		
2-Chlorophenol	71.0		9.70	ug/kg dry	77.6	<9.70	91.5	60-140		
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	<38.8	J1	38.8	ug/kg dry	77.6	<38.8		60-140		
2-Nitrophenol	70.9		9.70	ug/kg dry	77.6	<9.70	91.4	60-140		
3,3'-Dichlorobenzidine	<4.85		4.85	ug/kg dry		<4.85		60-140		
4-Bromophenyl phenyl ether (BDE-3)	18.7	J1	4.85	ug/kg dry	38.8	<4.85	48.2	60-140		
4-Chloro-3-methylphenol	66.7		9.70	ug/kg dry	77.6	<9.70	86.0	60-140		
4-Chlorophenyl phenylether	22.4	J1	4.85	ug/kg dry	38.8	<4.85	57.7	60-140		
4-Nitrophenol	148		4.85	ug/kg dry	194	<4.85	76.5	60-140		
Acenaphthene	21.9	J1	4.85	ug/kg dry	38.8	<4.85	56.5	60-140		
Acenaphthylene	23.1	J1	4.85	ug/kg dry	38.8	<4.85	59.6	60-140		
Anthracene	20.7	J1	4.85	ug/kg dry	38.8	<4.85	53.4	60-140		
Benzo(a)anthracene	15.6	J1	4.85	ug/kg dry	38.8	<4.85	40.1	60-140		
Benzo(a)pyrene	14.4	J1	4.85	ug/kg dry	38.8	<4.85	37.2	60-140		
Benzo(b)fluoranthene	15.0	J1	4.85	ug/kg dry	38.8	<4.85	38.7	60-140		
Benzo(g,h,i)perylene	14.6	J1	4.85	ug/kg dry	38.8	<4.85	37.6	60-140		
Benzo(k)fluoranthene	15.6	J1	4.85	ug/kg dry	38.8	<4.85	40.3	60-140		
bis(2-Chloroethoxy)methane	38.7		4.85	ug/kg dry	38.8	<4.85	99.8	60-140		
bis(2-Chloroethyl) ether	37.9		4.85	ug/kg dry	38.8	<4.85	97.6	60-140		
Bis(2-ethylhexyl )phtalate	16.2	J1	4.85	ug/kg dry	38.8	<4.85	41.8	60-140		
Butyl benzyl phtalate	21.6	J1	4.85	ug/kg dry	38.8	<4.85	55.6	60-140		



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0156 - SW-3570 (Continued)**

**Matrix Spike (BCD0156-MS1)**

**Source: 19B1833-12**

Prepared: 03/12/2019 Analyzed: 03/28/2019

Chrysene	17.8	J1	4.85	ug/kg dry	38.8	<4.85	45.8	60-140		
Dibenzo(a,h)anthracene	15.5	J1	4.85	ug/kg dry	38.8	<4.85	39.9	60-140		
Diethyl phthalate	31.8		4.85	ug/kg dry	38.8	<4.85	82.0	60-140		
Dimethyl phthalate	33.1		4.85	ug/kg dry	38.8	<4.85	85.2	60-140		
Di-n-butyl phthalate	20.4	J1	4.85	ug/kg dry	38.8	<4.85	52.5	60-140		
Di-n-octyl phthalate	15.6	J1	4.85	ug/kg dry	38.8	<4.85	40.2	60-140		
Fluoranthene	17.8	J1	4.85	ug/kg dry	38.8	<4.85	46.0	60-140		
Fluorene	25.1		4.85	ug/kg dry	38.8	<4.85	64.8	60-140		
Hexachlorobenzene	15.1	J1	4.85	ug/kg dry	38.8	<4.85	39.0	60-140		
Hexachlorobutadiene	20.1	J1	4.85	ug/kg dry	38.8	<4.85	51.9	60-140		
Hexachlorocyclopentadiene	10.9	J1	4.85	ug/kg dry	38.8	<4.85	28.0	60-140		
Hexachloroethane	24.7		4.85	ug/kg dry	38.8	<4.85	63.6	60-140		
Indeno(1,2,3-cd) pyrene	14.5	J1	4.85	ug/kg dry	38.8	<4.85	37.4	60-140		
Isophorone	26.8		4.85	ug/kg dry	38.8	<4.85	69.2	60-140		
Naphthalene	26.6		4.85	ug/kg dry	38.8	<4.85	68.6	60-140		
Nitrobenzene	43.1		4.85	ug/kg dry	38.8	<4.85	111	60-140		
n-Nitrosodimethylamine	76.9	J1	4.85	ug/kg dry	194	<4.85	39.7	60-140		
n-Nitrosodi-n-propylamine	36.7		4.85	ug/kg dry	38.8	<4.85	94.7	60-140		
Pentachlorophenol	41.6	J1	9.70	ug/kg dry	77.6	<9.70	53.6	60-140		
Phenanthrene	21.0	J1	4.85	ug/kg dry	38.8	<4.85	54.2	60-140		
Phenol, Total	70.9		9.70	ug/kg dry	77.6	6.18	83.4	60-140		
Pyrene	18.2	J1	4.85	ug/kg dry	38.8	<4.85	46.9	60-140		
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Surrogate: 2-Fluorobiphenyl-surr		S	20.4	ug/kg dry	38.8		52.6	60-140		
Surrogate: 2-Fluorophenol-surr			63.2	ug/kg dry	77.6		81.5	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			54.5	ug/kg dry	77.6		70.2	60-140		
Surrogate: Nitrobenzene-d5-surr			29.4	ug/kg dry	38.8		75.8	60-140		
Surrogate: Phenol-d5-surr			70.6	ug/kg dry	77.6		91.0	60-140		
Surrogate: p-Terphenyl-d14-surr		S	11.7	ug/kg dry	38.8		30.2	60-140		



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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCD0156 - SW-3570 (Continued)</b>										
<b>Matrix Spike Dup (BCD0156-MSD1) Source: 19B1833-12 Prepared: 03/12/2019 Analyzed: 03/28/2019</b>										
1,2,4-Trichlorobenzene	24.0		4.66	ug/kg dry	37.3	<4.66	64.4	60-140	1.80	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	23.7		4.66	ug/kg dry	37.3	<4.66	63.6	60-140	9.30	40
1,2-Diphenylhydrazine	24.4		4.66	ug/kg dry	37.3	<4.66	65.5	60-140	7.55	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	22.7		4.66	ug/kg dry	37.3	<4.66	60.9	60-140	8.30	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	23.3		4.66	ug/kg dry	37.3	<4.66	62.4	60-140	4.22	40
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	21.3	J1	4.66	ug/kg dry	37.3	<4.66	57.1	60-140	17.2	40
2,4,6-Trichlorophenol	62.2		9.31	ug/kg dry	74.5	<9.31	83.5	60-140	8.44	40
2,4-Dichlorophenol	63.8		9.31	ug/kg dry	74.5	<9.31	85.7	60-140	11.7	40
2,4-Dimethylphenol	62.5		9.31	ug/kg dry	74.5	<9.31	83.9	60-140	12.0	40
2,4-Dinitrophenol	48.4	J1	9.31	ug/kg dry	186	<9.31	26.0	60-140	17.1	40
2,4-Dinitrotoluene (2,4-DNT)	28.1		4.66	ug/kg dry	37.3	<4.66	75.3	60-140	7.77	40
2,6-Dinitrotoluene (2,6-DNT)	30.8		4.66	ug/kg dry	37.3	<4.66	82.8	60-140	7.71	40
2-Chloronaphthalene	23.6		4.66	ug/kg dry	37.3	<4.66	63.3	60-140	4.44	40
2-Chlorophenol	59.8		9.31	ug/kg dry	74.5	<9.31	80.3	60-140	17.1	40
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	27.8	J1	37.3	ug/kg dry	74.5	<37.3	37.4	60-140	200	40
2-Nitrophenol	64.0		9.31	ug/kg dry	74.5	<9.31	85.9	60-140	10.3	40
3,3'-Dichlorobenzidine	<4.66		4.66	ug/kg dry		<4.66		60-140		40
4-Bromophenyl phenyl ether (BDE-3)	22.9		4.66	ug/kg dry	37.3	<4.66	61.5	60-140	20.2	40
4-Chloro-3-methylphenol	62.1		9.31	ug/kg dry	74.5	<9.31	83.3	60-140	7.26	40
4-Chlorophenyl phenylether	25.6		4.66	ug/kg dry	37.3	<4.66	68.8	60-140	13.4	40
4-Nitrophenol	153		4.66	ug/kg dry	186	<4.66	82.1	60-140	2.99	40
Acenaphthene	23.5		4.66	ug/kg dry	37.3	<4.66	63.0	60-140	6.77	40
Acenaphthylene	24.0		4.66	ug/kg dry	37.3	<4.66	64.3	60-140	3.55	40
Anthracene	24.9		4.66	ug/kg dry	37.3	<4.66	66.8	60-140	18.3	40
Benzo(a)anthracene	21.1	J1	4.66	ug/kg dry	37.3	<4.66	56.7	60-140	30.3	40
Benzo(a)pyrene	20.4	J1	4.66	ug/kg dry	37.3	<4.66	54.9	60-140	34.5	40
Benzo(b)fluoranthene	21.5	J1	4.66	ug/kg dry	37.3	<4.66	57.8	60-140	35.8	40
Benzo(g,h,i)perylene	21.0	J1	4.66	ug/kg dry	37.3	<4.66	56.4	60-140	36.3	40
Benzo(k)fluoranthene	21.8	J1	4.66	ug/kg dry	37.3	<4.66	58.4	60-140	32.8	40
bis(2-Chloroethoxy)methane	33.8		4.66	ug/kg dry	37.3	<4.66	90.6	60-140	13.7	40
bis(2-Chloroethyl) ether	32.5		4.66	ug/kg dry	37.3	<4.66	87.2	60-140	15.3	40
Bis(2-ethylhexyl )phthalate	18.3	J1	4.66	ug/kg dry	37.3	<4.66	49.1	60-140	12.0	40
Butyl benzyl phthalate	22.8		4.66	ug/kg dry	37.3	<4.66	61.2	60-140	5.50	40
Chrysene	23.6		4.66	ug/kg dry	37.3	<4.66	63.3	60-140	28.2	40
Dibenzo(a,h)anthracene	22.6		4.66	ug/kg dry	37.3	<4.66	60.7	60-140	37.6	40
Diethyl phthalate	29.4		4.66	ug/kg dry	37.3	<4.66	78.9	60-140	7.88	40
Dimethyl phthalate	30.4		4.66	ug/kg dry	37.3	<4.66	81.6	60-140	8.45	40
Di-n-butyl phthalate	21.6	J1	4.66	ug/kg dry	37.3	<4.66	58.1	60-140	6.15	40
Di-n-octyl phthalate	18.1	J1	4.66	ug/kg dry	37.3	<4.66	48.6	60-140	15.0	40
Fluoranthene	23.2		4.66	ug/kg dry	37.3	<4.66	62.3	60-140	26.2	40
Fluorene	26.7		4.66	ug/kg dry	37.3	<4.66	71.7	60-140	6.06	40
Hexachlorobenzene	20.7	J1	4.66	ug/kg dry	37.3	<4.66	55.4	60-140	31.0	40
Hexachlorobutadiene	20.7	J1	4.66	ug/kg dry	37.3	<4.66	55.5	60-140	2.67	40
Hexachlorocyclopentadiene	9.48	J1	4.66	ug/kg dry	37.3	<4.66	25.4	60-140	13.5	40





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Project: Phillips 66 - Bluewater SPM 2019  
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**Quality Control**  
(Continued)

**Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0156 - SW-3570 (Continued)**

**Matrix Spike Dup (BCD0156-MSD1)**

**Source: 19B1833-12**

Prepared: 03/12/2019 Analyzed: 03/28/2019

Hexachloroethane	21.3	J1	4.66	ug/kg dry	37.3	<4.66	57.2	60-140	14.6	40
Indeno(1,2,3-cd) pyrene	20.8	J1	4.66	ug/kg dry	37.3	<4.66	55.8	60-140	35.7	40
Isophorone	23.0		4.66	ug/kg dry	37.3	<4.66	61.8	60-140	15.3	40
Naphthalene	25.1		4.66	ug/kg dry	37.3	<4.66	67.5	60-140	5.68	40
Nitrobenzene	35.5		4.66	ug/kg dry	37.3	<4.66	95.2	60-140	19.4	40
n-Nitrosodimethylamine	87.1	J1	4.66	ug/kg dry	186	<4.66	46.8	60-140	12.4	40
n-Nitrosodi-n-propylamine	29.5		4.66	ug/kg dry	37.3	<4.66	79.2	60-140	21.8	40
Pentachlorophenol	48.9		9.31	ug/kg dry	74.5	<9.31	65.6	60-140	16.1	40
Phenanthrene	24.7		4.66	ug/kg dry	37.3	<4.66	66.3	60-140	16.1	40
Phenol, Total	62.3		9.31	ug/kg dry	74.5	6.18	75.3	60-140	13.0	40
Pyrene	23.9		4.66	ug/kg dry	37.3	<4.66	64.1	60-140	27.1	40
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Surrogate: 2-Fluorobiphenyl-surr			23.3	ug/kg dry	37.3		62.7	60-140		
Surrogate: 2-Fluorophenol-surr			56.5	ug/kg dry	74.5		75.9	60-140		
Surrogate: 2,4,6-Tribromophenol-surr			52.7	ug/kg dry	74.5		70.8	60-140		
Surrogate: Nitrobenzene-d5-surr			25.1	ug/kg dry	37.3		67.5	60-140		
Surrogate: Phenol-d5-surr			58.7	ug/kg dry	74.5		78.8	60-140		
Surrogate: p-Terphenyl-d14-surr		S	18.2	ug/kg dry	37.3		48.9	60-140		



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**Quality Control**  
(Continued)

**Organics by GC**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC0032 - SW-3570</b>										
<b>Blank (BCC0032-BLK1)</b>										
Prepared: 02/25/2019 Analyzed: 03/09/2019										
PCBs, Total	<1.98	C	1.98	ug/kg wet						
Surrogate: 2,4,5,6		C	0.361	ug/kg wet	0.593		60.8	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr		C	0.537	ug/kg wet	0.593		90.4	60-140		
<b>LCS (BCC0032-BS1)</b>										
Prepared: 02/25/2019 Analyzed: 03/09/2019										
Aroclor-1016 (PCB-1016)	5.66	C	1.92	ug/kg wet	5.76		98.2	60-140		
Aroclor-1260 (PCB-1260)	5.72	C	1.92	ug/kg wet	5.76		99.2	60-140		
PCBs, Total	5.70	C	1.92	ug/kg wet	5.76		98.9	60-140		
Surrogate: 2,4,5,6		C	0.365	ug/kg wet	0.576		63.4	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr		C	0.583	ug/kg wet	0.576		101	60-140		
<b>LCS Dup (BCC0032-BSD1)</b>										
Prepared: 02/25/2019 Analyzed: 03/10/2019										
Aroclor-1016 (PCB-1016)	6.37	C	2.07	ug/kg wet	6.22		102	60-140	11.8	40
Aroclor-1260 (PCB-1260)	6.39	C	2.07	ug/kg wet	6.22		103	60-140	11.2	40
PCBs, Total	6.39	C	2.07	ug/kg wet	6.22		103	60-140	11.3	40
Surrogate: 2,4,5,6		C, S	0.331	ug/kg wet	0.622		53.2	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr		C	0.581	ug/kg wet	0.622		93.3	60-140		
<b>Matrix Spike (BCC0032-MS1)</b>										
Source: 19B1833-26 Prepared: 02/25/2019 Analyzed: 03/10/2019										
Aroclor-1016 (PCB-1016)	5.78	C	2.06	ug/kg dry	6.09	<2.06	94.8	60-140		
Aroclor-1260 (PCB-1260)	5.85	C	2.06	ug/kg dry	6.09	<2.06	95.9	60-140		
PCBs, Total	5.83	C	2.06	ug/kg dry	6.09	<2.06	95.7	60-140		
Surrogate: 2,4,5,6		C	0.499	ug/kg dry	0.609		81.9	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr		C	0.623	ug/kg dry	0.609		102	60-140		
<b>Matrix Spike Dup (BCC0032-MSD1)</b>										
Source: 19B1833-26 Prepared: 02/25/2019 Analyzed: 03/10/2019										
Aroclor-1016 (PCB-1016)	6.58	C	1.98	ug/kg dry	5.86	<1.98	112	60-140	13.0	40
Aroclor-1260 (PCB-1260)	6.39	C	1.98	ug/kg dry	5.86	<1.98	109	60-140	8.88	40
PCBs, Total	6.43	C	1.98	ug/kg dry	5.86	<1.98	110	60-140	9.84	40
Surrogate: 2,4,5,6		C	0.531	ug/kg dry	0.586		90.6	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr		C	0.655	ug/kg dry	0.586		112	60-140		



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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511**

**Blank (BCC0141-BLK1)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	<0.00599		0.00599	ug/L						
4,4'-DDE	<0.00599		0.00599	ug/L						
4,4'-DDT	<0.00599		0.00599	ug/L						
Aldrin	<0.00599		0.00599	ug/L						
alpha-BHC	<0.00599		0.00599	ug/L						
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.00848	B	0.00599	ug/L						
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<0.00599		0.00599	ug/L						
cis-Chlordane (alpha-Chlordane)	<0.00599		0.00599	ug/L						
delta-BHC	<0.00599		0.00599	ug/L						
Dieldrin	<0.00599		0.00599	ug/L						
Endosulfan I	<0.00599		0.00599	ug/L						
Endosulfan II	<0.00599		0.00599	ug/L						
Endosulfan sulfate	<0.00599		0.00599	ug/L						
Endrin	<0.00599		0.00599	ug/L						
Endrin aldehyde	<0.00599		0.00599	ug/L						
Endrin ketone	<0.00599		0.00599	ug/L						
gamma-BHC (Lindane,	<0.00599		0.00599	ug/L						
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	<0.00599		0.00599	ug/L						
Heptachlor	<0.00599		0.00599	ug/L						
Heptachlor epoxide	<0.00599		0.00599	ug/L						
Toxaphene (Chlorinated Camphene)	<0.299		0.299	ug/L						
<hr/>										
Surrogate: 2,4,5,6			0.0956	ug/L	0.120		79.9	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.118	ug/L	0.120		98.2	60-140		

**LCS (BCC0141-BS1)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	0.102		0.00600	ug/L	0.120		84.8	60-140		
4,4'-DDE	0.0955		0.00600	ug/L	0.120		79.6	60-140		
4,4'-DDT	0.101		0.00600	ug/L	0.120		83.8	60-140		
Aldrin	0.0905		0.00600	ug/L	0.120		75.4	60-140		
alpha-BHC	0.105		0.00600	ug/L	0.120		87.6	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.108		0.00600	ug/L	0.120		90.4	60-140		
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	0.421		0.00600	ug/L				60-140		
cis-Chlordane (alpha-Chlordane)	0.102		0.00600	ug/L	0.120		84.8	60-140		
delta-BHC	0.107		0.00600	ug/L	0.120		89.3	60-140		
Dieldrin	0.0963		0.00600	ug/L	0.120		80.2	60-140		
Endosulfan I	0.103		0.00600	ug/L	0.120		85.6	60-140		
Endosulfan II	0.0984		0.00600	ug/L	0.120		82.0	60-140		
Endosulfan sulfate	0.109		0.00600	ug/L	0.120		91.0	60-140		
Endrin	0.0993		0.00600	ug/L	0.120		82.7	60-140		
Endrin aldehyde	0.104		0.00600	ug/L	0.120		87.1	60-140		
Endrin ketone	0.105		0.00600	ug/L	0.120		87.8	60-140		
gamma-BHC (Lindane,	0.105		0.00600	ug/L	0.120		87.8	60-140		
gamma-HexachlorocyclohexaneE)										



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**Quality Control**  
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**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**LCS (BCC0141-BS1)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

gamma-Chlordane	0.105		0.00600	ug/L	0.120		87.1	60-140		
Heptachlor	0.0966		0.00600	ug/L	0.120		80.5	60-140		
Heptachlor epoxide	0.0978		0.00600	ug/L	0.120		81.5	60-140		
Toxaphene (Chlorinated Camphene)	<0.300		0.300	ug/L				60-140		
<hr/>										
Surrogate: 2,4,5,6			0.0938	ug/L	0.120		78.2	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.118	ug/L	0.120		98.1	60-140		

**LCS (BCC0141-BS2)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	<0.00599		0.00599	ug/L				60-140		
4,4'-DDE	<0.00599		0.00599	ug/L				60-140		
4,4'-DDT	<0.00599		0.00599	ug/L				60-140		
Aldrin	<0.00599		0.00599	ug/L				60-140		
alpha-BHC	<0.00599		0.00599	ug/L				60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.00599		0.00599	ug/L				60-140		
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<0.00599		0.00599	ug/L				60-140		
cis-Chlordane (alpha-Chlordane)	<0.00599		0.00599	ug/L				60-140		
delta-BHC	<0.00599		0.00599	ug/L				60-140		
Dieldrin	<0.00599		0.00599	ug/L				60-140		
Endosulfan I	<0.00599		0.00599	ug/L				60-140		
Endosulfan II	<0.00599		0.00599	ug/L				60-140		
Endosulfan sulfate	<0.00599		0.00599	ug/L				60-140		
Endrin	<0.00599		0.00599	ug/L				60-140		
Endrin aldehyde	<0.00599		0.00599	ug/L				60-140		
Endrin ketone	<0.00599		0.00599	ug/L				60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.00599		0.00599	ug/L				60-140		
gamma-Chlordane	<0.00599		0.00599	ug/L				60-140		
Heptachlor	<0.00599		0.00599	ug/L				60-140		
Heptachlor epoxide	<0.00599		0.00599	ug/L				60-140		
Toxaphene (Chlorinated Camphene)	1.15		0.300	ug/L	1.20		96.3	60-140		
<hr/>										
Surrogate: 2,4,5,6			0.0940	ug/L	0.120		78.5	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.107	ug/L	0.120		89.1	60-140		



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**Quality Control**  
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**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

LCS Dup (BCC0141-BS1)		Prepared: 03/04/2019 Analyzed: 03/14/2019								
4,4'-DDD	0.105		0.00600	ug/L	0.120		87.6	60-140	3.22	40
4,4'-DDE	0.0957		0.00600	ug/L	0.120		79.8	60-140	0.166	40
4,4'-DDT	0.103		0.00600	ug/L	0.120		85.6	60-140	2.03	40
Aldrin	0.0922		0.00600	ug/L	0.120		76.9	60-140	1.93	40
alpha-BHC	0.114		0.00600	ug/L	0.120		95.4	60-140	8.54	40
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.110		0.00600	ug/L	0.120		91.6	60-140	1.28	40
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	0.435		0.00600	ug/L				60-140	3.39	40
cis-Chlordane (alpha-Chlordane)	0.105		0.00600	ug/L	0.120		87.3	60-140	2.84	40
delta-BHC	0.110		0.00600	ug/L	0.120		91.8	60-140	2.68	40
Dieldrin	0.0990		0.00600	ug/L	0.120		82.5	60-140	2.72	40
Endosulfan I	0.104		0.00600	ug/L	0.120		86.7	60-140	1.19	40
Endosulfan II	0.102		0.00600	ug/L	0.120		85.0	60-140	3.55	40
Endosulfan sulfate	0.111		0.00600	ug/L	0.120		92.8	60-140	1.99	40
Endrin	0.100		0.00600	ug/L	0.120		83.4	60-140	0.717	40
Endrin aldehyde	0.111		0.00600	ug/L	0.120		92.8	60-140	6.32	40
Endrin ketone	0.109		0.00600	ug/L	0.120		90.9	60-140	3.36	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.106		0.00600	ug/L	0.120		88.7	60-140	0.909	40
gamma-Chlordane	0.108		0.00600	ug/L	0.120		90.3	60-140	3.52	40
Heptachlor	0.0986		0.00600	ug/L	0.120		82.2	60-140	2.02	40
Heptachlor epoxide	0.0992		0.00600	ug/L	0.120		82.7	60-140	1.40	40
Toxaphene (Chlorinated Camphene)	<0.300		0.300	ug/L				60-140		40
<i>Surrogate: 2,4,5,6</i>			<i>0.0910</i>	<i>ug/L</i>	<i>0.120</i>		<i>75.9</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.119</i>	<i>ug/L</i>	<i>0.120</i>		<i>99.2</i>	<i>60-140</i>		

**LCS Dup (BCC0141-BS2)**

LCS Dup (BCC0141-BS2)		Prepared: 03/04/2019 Analyzed: 03/14/2019								
4,4'-DDD	<0.00597		0.00597	ug/L				60-140		40
4,4'-DDE	<0.00597		0.00597	ug/L				60-140		40
4,4'-DDT	<0.00597		0.00597	ug/L				60-140		40
Aldrin	<0.00597		0.00597	ug/L				60-140		40
alpha-BHC	<0.00597		0.00597	ug/L				60-140		40
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.00597		0.00597	ug/L				60-140		40
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<0.00597		0.00597	ug/L				60-140		40
cis-Chlordane (alpha-Chlordane)	<0.00597		0.00597	ug/L				60-140		40
delta-BHC	<0.00597		0.00597	ug/L				60-140		40
Dieldrin	<0.00597		0.00597	ug/L				60-140		40
Endosulfan I	<0.00597		0.00597	ug/L				60-140		40
Endosulfan II	<0.00597		0.00597	ug/L				60-140		40
Endosulfan sulfate	<0.00597		0.00597	ug/L				60-140		40
Endrin	<0.00597		0.00597	ug/L				60-140		40
Endrin aldehyde	<0.00597		0.00597	ug/L				60-140		40
Endrin ketone	<0.00597		0.00597	ug/L				60-140		40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.00597		0.00597	ug/L				60-140		40



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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC0141 - SW-3511 (Continued)</b>										
<b>LCS Dup (BCC0141-BS2)</b>										
					Prepared: 03/04/2019 Analyzed: 03/14/2019					
gamma-Chlordane	<0.00597		0.00597	ug/L				60-140		40
Heptachlor	<0.00597		0.00597	ug/L				60-140		40
Heptachlor epoxide	<0.00597		0.00597	ug/L				60-140		40
Toxaphene (Chlorinated Camphene)	1.09		0.299	ug/L	1.19		91.2	60-140	5.68	40
-----										
<i>Surrogate: 2,4,5,6</i>			<i>0.103</i>	<i>ug/L</i>	<i>0.119</i>		<i>85.8</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.121</i>	<i>ug/L</i>	<i>0.119</i>		<i>101</i>	<i>60-140</i>		

<b>Leach Fluid Blank (BCC0141-LBK1)</b>										
					Prepared: 03/04/2019 Analyzed: 03/16/2019					
4,4'-DDD	<0.0299		0.0299	ug/L						
4,4'-DDE	<0.0299		0.0299	ug/L						
4,4'-DDT	<0.0299		0.0299	ug/L						
Aldrin	<0.0299		0.0299	ug/L						
alpha-BHC	<0.0299		0.0299	ug/L						
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.0299		0.0299	ug/L						
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<0.0299		0.0299	ug/L						
cis-Chlordane (alpha-Chlordane)	<0.0299		0.0299	ug/L						
delta-BHC	<0.0299		0.0299	ug/L						
Dieldrin	<0.0299		0.0299	ug/L						
Endosulfan I	<0.0299		0.0299	ug/L						
Endosulfan II	<0.0299		0.0299	ug/L						
Endosulfan sulfate	<0.0299		0.0299	ug/L						
Endrin	<0.0299		0.0299	ug/L						
Endrin aldehyde	<0.0299		0.0299	ug/L						
Endrin ketone	<0.0299		0.0299	ug/L						
gamma-BHC (Lindane,	<0.0299		0.0299	ug/L						
gamma-HexachlorocyclohexanE)										
gamma-Chlordane	<0.0299		0.0299	ug/L						
Heptachlor	<0.0299		0.0299	ug/L						
Heptachlor epoxide	<0.0299		0.0299	ug/L						
Toxaphene (Chlorinated Camphene)	<1.49		1.49	ug/L						
-----										
<i>Surrogate: 2,4,5,6</i>			<i>0.418</i>	<i>ug/L</i>	<i>0.597</i>		<i>70.0</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.541</i>	<i>ug/L</i>	<i>0.597</i>		<i>90.7</i>	<i>60-140</i>		



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**Quality Control**  
**(Continued)**

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**Leach Fluid Blank (BCC0141-LBK2)**

Prepared: 03/04/2019 Analyzed: 03/16/2019

4,4'-DDD	<0.0295		0.0295	ug/L						
4,4'-DDE	<0.0295		0.0295	ug/L						
4,4'-DDT	<0.0295		0.0295	ug/L						
Aldrin	<0.0295		0.0295	ug/L						
alpha-BHC	<0.0295		0.0295	ug/L						
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.0295		0.0295	ug/L						
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<0.0295		0.0295	ug/L						
cis-Chlordane (alpha-Chlordane)	<0.0295		0.0295	ug/L						
delta-BHC	<0.0295		0.0295	ug/L						
Dieldrin	<0.0295		0.0295	ug/L						
Endosulfan I	<0.0295		0.0295	ug/L						
Endosulfan II	<0.0295		0.0295	ug/L						
Endosulfan sulfate	<0.0295		0.0295	ug/L						
Endrin	<0.0295		0.0295	ug/L						
Endrin aldehyde	<0.0295		0.0295	ug/L						
Endrin ketone	<0.0295		0.0295	ug/L						
gamma-BHC (Lindane,	<0.0295		0.0295	ug/L						
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	<0.0295		0.0295	ug/L						
Heptachlor	<0.0295		0.0295	ug/L						
Heptachlor epoxide	<0.0295		0.0295	ug/L						
Toxaphene (Chlorinated Camphene)	<1.47		1.47	ug/L						
<hr/>										
Surrogate: 2,4,5,6			0.388	ug/L	0.590		65.8	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.537	ug/L	0.590		91.1	60-140		

**Matrix Spike (BCC0141-MS1)**

**Source: 19B1155-01**

Prepared: 03/04/2019 Analyzed: 03/16/2019

4,4'-DDD	0.715		0.0295	ug/L	0.591	<0.0295	121	60-140		
4,4'-DDE	0.530		0.0295	ug/L	0.591	<0.0295	89.8	60-140		
4,4'-DDT	0.603		0.0295	ug/L	0.591	<0.0295	102	60-140		
Aldrin	0.571		0.0295	ug/L	0.591	<0.0295	96.8	60-140		
alpha-BHC	0.962		0.0295	ug/L	0.591	<0.0295	163	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.936		0.0295	ug/L	0.591	<0.0295	158	60-140		
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	3.42		0.0295	ug/L		0.253		60-140		
cis-Chlordane (alpha-Chlordane)	0.735		0.0295	ug/L	0.591	<0.0295	125	60-140		
delta-BHC	1.02		0.0295	ug/L	0.591	<0.0295	172	60-140		
Dieldrin	0.874		0.0295	ug/L	0.591	<0.0295	148	60-140		
Endosulfan I	0.916		0.0295	ug/L	0.591	<0.0295	155	60-140		
Endosulfan II	0.890		0.0295	ug/L	0.591	<0.0295	151	60-140		
Endosulfan sulfate	1.04		0.0295	ug/L	0.591	<0.0295	177	60-140		
Endrin	0.907		0.0295	ug/L	0.591	<0.0295	154	60-140		
Endrin aldehyde	1.02		0.0295	ug/L	0.591	<0.0295	173	60-140		
Endrin ketone	0.980		0.0295	ug/L	0.591	<0.0295	166	60-140		
gamma-BHC (Lindane,	0.993		0.0295	ug/L	0.591	<0.0295	168	60-140		
gamma-HexachlorocyclohexaneE)										



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**Quality Control**  
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**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**Matrix Spike (BCC0141-MS1)**

**Source: 19B1155-01**

Prepared: 03/04/2019 Analyzed: 03/16/2019

gamma-Chlordane	0.819		0.0295	ug/L	0.591	0.253	95.9	60-140		
Heptachlor	0.773		0.0295	ug/L	0.591	<0.0295	131	60-140		
Heptachlor epoxide	0.819		0.0295	ug/L	0.591	<0.0295	139	60-140		
<i>Surrogate: 2,4,5,6</i>										
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>										
			0.390	ug/L	0.591		66.1	60-140		
			0.595	ug/L	0.591		101	60-140		

**Matrix Spike (BCC0141-MS2)**

**Source: 19B1833-03**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	0.120		0.00599	ug/L	0.120	<0.00599	100	60-140		
4,4'-DDE	0.105		0.00599	ug/L	0.120	<0.00599	87.6	60-140		
4,4'-DDT	0.119		0.00599	ug/L	0.120	<0.00599	99.0	60-140		
Aldrin	0.107		0.00599	ug/L	0.120	<0.00599	89.1	60-140		
alpha-BHC	0.144		0.00599	ug/L	0.120	<0.00599	120	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.128		0.00599	ug/L	0.120	<0.00599	107	60-140		
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	0.522		0.00599	ug/L		<0.00599		60-140		
cis-Chlordane (alpha-Chlordane)	0.126		0.00599	ug/L	0.120	<0.00599	105	60-140		
delta-BHC	0.139		0.00599	ug/L	0.120	<0.00599	116	60-140		
Dieldrin	0.123		0.00599	ug/L	0.120	<0.00599	103	60-140		
Endosulfan I	0.126		0.00599	ug/L	0.120	<0.00599	105	60-140		
Endosulfan II	0.122		0.00599	ug/L	0.120	<0.00599	102	60-140		
Endosulfan sulfate	0.139		0.00599	ug/L	0.120	<0.00599	116	60-140		
Endrin	0.127		0.00599	ug/L	0.120	<0.00599	106	60-140		
Endrin aldehyde	0.130		0.00599	ug/L	0.120	<0.00599	109	60-140		
Endrin ketone	0.122		0.00599	ug/L	0.120	<0.00599	102	60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.133		0.00599	ug/L	0.120	<0.00599	111	60-140		
gamma-Chlordane	0.126		0.00599	ug/L	0.120	<0.00599	105	60-140		
Heptachlor	0.118		0.00599	ug/L	0.120	<0.00599	98.3	60-140		
Heptachlor epoxide	0.124		0.00599	ug/L	0.120	<0.00599	103	60-140		
<i>Surrogate: 2,4,5,6</i>										
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>										
			0.0826	ug/L	0.120		68.9	60-140		
			0.122	ug/L	0.120		102	60-140		





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

**Reported:**  
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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**Matrix Spike Dup (BCC0141-MSD1)**

**Source: 19B1155-01**

Prepared: 03/04/2019 Analyzed: 03/16/2019

4,4'-DDD	0.571		0.0292	ug/L	0.584	<0.0292	97.7	60-140	22.5	40
4,4'-DDE	0.511		0.0292	ug/L	0.584	<0.0292	87.4	60-140	3.73	40
4,4'-DDT	0.553		0.0292	ug/L	0.584	<0.0292	94.6	60-140	8.64	40
Aldrin	0.499		0.0292	ug/L	0.584	<0.0292	85.4	60-140	13.5	40
alpha-BHC (alpha-Hexachlorocyclohexane)	0.801		0.0292	ug/L	0.584	<0.0292	137	60-140	18.2	40
beta-BHC (beta-Hexachlorocyclohexane)	0.831		0.0292	ug/L	0.584	<0.0292	142	60-140	11.9	40
Chlordane (tech.)	3.10		0.0292	ug/L		0.253		60-140	9.93	40
cis-Chlordane (alpha-Chlordane)	0.619		0.0292	ug/L	0.584	<0.0292	106	60-140	17.1	40
delta-BHC	0.747		0.0292	ug/L	0.584	<0.0292	128	60-140	30.5	40
Dieldrin	0.674		0.0292	ug/L	0.584	<0.0292	115	60-140	25.8	40
Endosulfan I	0.758		0.0292	ug/L	0.584	<0.0292	130	60-140	18.9	40
Endosulfan II	0.675		0.0292	ug/L	0.584	<0.0292	116	60-140	27.5	40
Endosulfan sulfate	0.791		0.0292	ug/L	0.584	<0.0292	135	60-140	27.6	40
Endrin	0.772		0.0292	ug/L	0.584	<0.0292	132	60-140	16.1	40
Endrin aldehyde	0.789		0.0292	ug/L	0.584	<0.0292	135	60-140	25.5	40
Endrin ketone	0.742		0.0292	ug/L	0.584	<0.0292	127	60-140	27.7	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	0.832		0.0292	ug/L	0.584	<0.0292	142	60-140	17.7	40
gamma-Chlordane	0.789		0.0292	ug/L	0.584	0.253	91.8	60-140	3.71	40
Heptachlor	0.601		0.0292	ug/L	0.584	<0.0292	103	60-140	25.0	40
Heptachlor epoxide	0.692		0.0292	ug/L	0.584	<0.0292	118	60-140	16.8	40
<i>Surrogate: 2,4,5,6</i>			<i>0.397</i>	<i>ug/L</i>	<i>0.584</i>		<i>68.0</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.576</i>	<i>ug/L</i>	<i>0.584</i>		<i>98.6</i>	<i>60-140</i>		

**Matrix Spike Dup (BCC0141-MSD2)**

**Source: 19B1833-03**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	0.121		0.00598	ug/L	0.120	<0.00598	101	60-140	0.372	40
4,4'-DDE	0.108		0.00598	ug/L	0.120	<0.00598	90.3	60-140	2.99	40
4,4'-DDT	0.112		0.00598	ug/L	0.120	<0.00598	93.7	60-140	5.64	40
Aldrin	0.108		0.00598	ug/L	0.120	<0.00598	90.6	60-140	1.55	40
alpha-BHC (alpha-Hexachlorocyclohexane)	0.142		0.00598	ug/L	0.120	<0.00598	119	60-140	1.03	40
beta-BHC (beta-Hexachlorocyclohexane)	0.129		0.00598	ug/L	0.120	<0.00598	108	60-140	0.848	40
Chlordane (tech.)	0.513		0.00598	ug/L		<0.00598		60-140	1.73	40
cis-Chlordane (alpha-Chlordane)	0.121		0.00598	ug/L	0.120	<0.00598	101	60-140	4.54	40
delta-BHC	0.140		0.00598	ug/L	0.120	<0.00598	117	60-140	1.04	40
Dieldrin	0.120		0.00598	ug/L	0.120	<0.00598	100	60-140	2.32	40
Endosulfan I	0.127		0.00598	ug/L	0.120	<0.00598	106	60-140	0.834	40
Endosulfan II	0.122		0.00598	ug/L	0.120	<0.00598	102	60-140	0.0762	40
Endosulfan sulfate	0.136		0.00598	ug/L	0.120	<0.00598	113	60-140	2.38	40
Endrin	0.123		0.00598	ug/L	0.120	<0.00598	103	60-140	3.40	40
Endrin aldehyde	0.130		0.00598	ug/L	0.120	<0.00598	109	60-140	0.224	40
Endrin ketone	0.131		0.00598	ug/L	0.120	<0.00598	110	60-140	6.83	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	0.137		0.00598	ug/L	0.120	<0.00598	114	60-140	2.86	40
gamma-Chlordane	0.122		0.00598	ug/L	0.120	<0.00598	102	60-140	2.68	40



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Project: Phillips 66 - Bluewater SPM 2019  
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Project Manager: Dillon Johnston

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**Quality Control**  
**(Continued)**

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**Matrix Spike Dup (BCC0141-MSD2)**

**Source: 19B1833-03**

Prepared: 03/04/2019 Analyzed: 03/14/2019

Heptachlor	0.123		0.00598	ug/L	0.120	<0.00598	103	60-140	4.18	40
Heptachlor epoxide	0.118		0.00598	ug/L	0.120	<0.00598	98.7	60-140	4.50	40
<hr/>										
<i>Surrogate: 2,4,5,6</i>			<i>0.0856</i>	<i>ug/L</i>	<i>0.120</i>		<i>71.5</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.121</i>	<i>ug/L</i>	<i>0.120</i>		<i>101</i>	<i>60-140</i>		

**Batch: BCC0221 - TX 1005**

**Blank (BCC0221-BLK1)**

Prepared: 03/05/2019 Analyzed: 03/15/2019

Total Petroleum Hydrocarbons (TPH), C6-C35	<9.10		9.10	mg/L						
<hr/>										
<i>Surrogate: 1-Chlorooctadecane-surr</i>			<i>23.6</i>	<i>mg/L</i>	<i>30.3</i>		<i>77.8</i>	<i>70-130</i>		
<i>Surrogate: 1-Chlorooctane-surr</i>			<i>26.6</i>	<i>mg/L</i>	<i>30.3</i>		<i>87.8</i>	<i>70-130</i>		

**LCS (BCC0221-BS1)**

Prepared: 03/05/2019 Analyzed: 03/16/2019

C6-C12	30.4		9.30	mg/L	31.0		98.1	75-125		
>C12-C28	23.4		9.30	mg/L	31.0		75.5	75-125		
Total Petroleum Hydrocarbons (TPH), C6-C35	55.7		9.30	mg/L	62.0		89.8	75-125		
<hr/>										
<i>Surrogate: 1-Chlorooctadecane-surr</i>			<i>27.9</i>	<i>mg/L</i>	<i>31.0</i>		<i>90.0</i>	<i>70-130</i>		
<i>Surrogate: 1-Chlorooctane-surr</i>			<i>27.6</i>	<i>mg/L</i>	<i>31.0</i>		<i>89.2</i>	<i>70-130</i>		

**LCS Dup (BCC0221-BSD1)**

Prepared: 03/05/2019 Analyzed: 03/16/2019

C6-C12	27.3		9.17	mg/L	30.6		89.3	75-125	10.9	25
>C12-C28	19.0	J1	9.17	mg/L	30.6		62.1	75-125	20.8	25
Total Petroleum Hydrocarbons (TPH), C6-C35	48.4		9.17	mg/L	61.1		79.2	75-125	14.0	25
<hr/>										
<i>Surrogate: 1-Chlorooctadecane-surr</i>			<i>25.6</i>	<i>mg/L</i>	<i>30.6</i>		<i>83.7</i>	<i>70-130</i>		
<i>Surrogate: 1-Chlorooctane-surr</i>			<i>25.8</i>	<i>mg/L</i>	<i>30.6</i>		<i>84.4</i>	<i>70-130</i>		

**Matrix Spike (BCC0221-MS1)**

**Source: 19B1833-09**

Prepared: 03/05/2019 Analyzed: 03/16/2019

C6-C12	30.6		9.29	mg/L	31.0	<9.29	98.8	75-125		
>C12-C28	27.0		9.29	mg/L	31.0	<9.29	87.2	75-125		
Total Petroleum Hydrocarbons (TPH), C6-C35	58.6		9.29	mg/L	61.9	<9.29	94.6	75-125		
<hr/>										
<i>Surrogate: 1-Chlorooctadecane-surr</i>			<i>27.9</i>	<i>mg/L</i>	<i>31.0</i>		<i>90.2</i>	<i>70-130</i>		
<i>Surrogate: 1-Chlorooctane-surr</i>			<i>26.7</i>	<i>mg/L</i>	<i>31.0</i>		<i>86.3</i>	<i>70-130</i>		



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0221 - TX 1005 (Continued)**

**Matrix Spike Dup (BCC0221-MSD1)**

**Source: 19B1833-09**

Prepared: 03/05/2019 Analyzed: 03/16/2019

C6-C12	32.0		9.28	mg/L	30.9	<9.28	103	75-125	4.44	25
>C12-C28	28.0		9.28	mg/L	30.9	<9.28	90.4	75-125	3.52	25
Total Petroleum Hydrocarbons (TPH), C6-C35	61.1		9.28	mg/L	61.9	<9.28	98.7	75-125	4.13	25
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			27.6	mg/L	30.9		89.3	70-130		
Surrogate: 1-Chlorooctane-surr			27.6	mg/L	30.9		89.1	70-130		

**Batch: BCC0702 - TX 1005**

**Blank (BCC0702-BLK1)**

Prepared: 02/27/2019 Analyzed: 02/28/2019

Total Petroleum Hydrocarbons (TPH), C6-C35	<50.7		50.7	mg/kg wet						
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			233	mg/kg wet	254		91.9	70-130		
Surrogate: 1-Chlorooctane-surr			230	mg/kg wet	254		90.8	70-130		

**LCS (BCC0702-BS1)**

Prepared: 02/27/2019 Analyzed: 02/28/2019

C6-C12	196		49.8	mg/kg wet	249		78.9	75-125		
>C12-C28	228		49.8	mg/kg wet	249		91.5	75-125		
Total Petroleum Hydrocarbons (TPH), C6-C35	416		49.8	mg/kg wet	498		83.7	0-200		
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			223	mg/kg wet	249		89.4	70-130		
Surrogate: 1-Chlorooctane-surr			211	mg/kg wet	249		84.7	70-130		

**LCS Dup (BCC0702-BSD1)**

Prepared: 02/27/2019 Analyzed: 02/28/2019

C6-C12	196		51.3	mg/kg wet	257		76.6	75-125	0.153	20
>C12-C28	224		51.3	mg/kg wet	257		87.1	75-125	1.82	20
Total Petroleum Hydrocarbons (TPH), C6-C35	414		51.3	mg/kg wet	513		80.6	0-200	0.654	200
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			222	mg/kg wet	257		86.4	70-130		
Surrogate: 1-Chlorooctane-surr			208	mg/kg wet	257		81.1	70-130		



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Project: Phillips 66 - Bluewater SPM 2019  
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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0702 - TX 1005 (Continued)**

**Matrix Spike (BCC0702-MS1)**

Source: 19B1833-26

Prepared: 02/27/2019 Analyzed: 02/28/2019

C6-C12	185		49.9	mg/kg dry	246	<49.9	75.4	75-125		
>C12-C28	224		49.9	mg/kg dry	246	<49.9	91.3	75-125		
Total Petroleum Hydrocarbons (TPH), C6-C35	400		49.9	mg/kg dry	492	<49.9	81.5	0-200		
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			216	mg/kg dry	246		87.9	70-130		
Surrogate: 1-Chlorooctane-surr			210	mg/kg dry	246		85.6	70-130		

**Matrix Spike Dup (BCC0702-MSD1)**

Source: 19B1833-26

Prepared: 02/27/2019 Analyzed: 02/28/2019

C6-C12	183	J1	50.5	mg/kg dry	249	<50.5	73.4	75-125	1.41	20
>C12-C28	215		50.5	mg/kg dry	249	<50.5	86.3	75-125	4.45	20
Total Petroleum Hydrocarbons (TPH), C6-C35	390		50.5	mg/kg dry	497	<50.5	78.4	0-200	2.58	200
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			220	mg/kg dry	249		88.6	70-130		
Surrogate: 1-Chlorooctane-surr			208	mg/kg dry	249		83.6	70-130		

**Batch: BCC0904 - TX 1005**

**Blank (BCC0904-BLK1)**

Prepared: 03/11/2019 Analyzed: 03/16/2019

Total Petroleum Hydrocarbons (TPH), C6-C35	<50.1		50.1	mg/kg wet						
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			200	mg/kg wet	251		79.7	70-130		
Surrogate: 1-Chlorooctane-surr			202	mg/kg wet	251		80.6	70-130		

**LCS (BCC0904-BS1)**

Prepared: 03/11/2019 Analyzed: 03/16/2019

C6-C12	242		49.3	mg/kg wet	246		98.3	75-125		
>C12-C28	197		49.3	mg/kg wet	246		80.1	75-125		
Total Petroleum Hydrocarbons (TPH), C6-C35	451		49.3	mg/kg wet	493		91.5	0-200		
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			229	mg/kg wet	246		93.2	70-130		
Surrogate: 1-Chlorooctane-surr			240	mg/kg wet	246		97.6	70-130		



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Project: Phillips 66 - Bluewater SPM 2019  
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Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0904 - TX 1005 (Continued)**

**LCS Dup (BCC0904-BS1)**

Prepared: 03/11/2019 Analyzed: 03/16/2019

C6-C12	232		50.1	mg/kg wet	251		92.8	75-125	4.08	20
>C12-C28	215		50.1	mg/kg wet	251		85.8	75-125	8.49	20
Total Petroleum Hydrocarbons (TPH), C6-C35	452		50.1	mg/kg wet	501		90.2	0-200	0.282	200
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			253	mg/kg wet	251		101	70-130		
Surrogate: 1-Chlorooctane-surr			238	mg/kg wet	251		95.2	70-130		

**Matrix Spike (BCC0904-MS1)**

Source: 19B1833-12

Prepared: 03/11/2019 Analyzed: 03/16/2019

C6-C12	833	J1	95.7	mg/kg dry	479	<95.7	174	75-125		
>C12-C28	721	J1	95.7	mg/kg dry	479	<95.7	151	75-125		
Total Petroleum Hydrocarbons (TPH), C6-C35	1580	J1	95.7	mg/kg dry	957	<95.7	165	75-125		
<hr/>										
Surrogate: 1-Chlorooctadecane-surr	5		641	mg/kg dry	479		134	70-130		
Surrogate: 1-Chlorooctane-surr	5		643	mg/kg dry	479		134	70-130		

**Matrix Spike Dup (BCC0904-MSD1)**

Source: 19B1833-12

Prepared: 03/11/2019 Analyzed: 03/16/2019

C6-C12	418		93.6	mg/kg dry	468	<93.6	89.4	75-125	66.3	20
>C12-C28	280	J1	93.6	mg/kg dry	468	<93.6	59.7	75-125	88.2	20
Total Petroleum Hydrocarbons (TPH), C6-C35	732		93.6	mg/kg dry	936	<93.6	78.2	75-125	73.4	20
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			383	mg/kg dry	468		81.7	70-130		
Surrogate: 1-Chlorooctane-surr			397	mg/kg dry	468		84.8	70-130		

**Batch: BCC1169 - SW-3511**

**Blank (BCC1169-BLK1)**

Prepared: 02/25/2019 Analyzed: 03/02/2019

PCBs, Total	<0.0119		0.0119	ug/L						
<hr/>										
Surrogate: 2,4,5,6			0.116	ug/L	0.119		97.2	60-140		
Surrogate: Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.115	ug/L	0.119		96.2	60-140		



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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC1169 - SW-3511 (Continued)**

**LCS (BCC1169-BS1)**

Prepared: 02/25/2019 Analyzed: 03/02/2019

Aroclor-1016 (PCB-1016)	1.41		0.0120	ug/L	1.20		118	60-140		
Aroclor-1260 (PCB-1260)	1.38		0.0120	ug/L	1.20		115	60-140		
PCBs, Total	1.38		0.0120	ug/L	1.20		116	60-140		
<hr/>										
Surrogate: 2,4,5,6			0.116	ug/L	0.120		97.1	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.122	ug/L	0.120		102	60-140		

**LCS Dup (BCC1169-BS1)**

Prepared: 02/25/2019 Analyzed: 03/02/2019

Aroclor-1016 (PCB-1016)	1.38		0.0119	ug/L	1.19		115	60-140	2.17	40
Aroclor-1260 (PCB-1260)	1.32		0.0119	ug/L	1.19		111	60-140	4.04	40
PCBs, Total	1.34		0.0119	ug/L	1.19		112	60-140	3.60	40
<hr/>										
Surrogate: 2,4,5,6			0.110	ug/L	0.119		92.6	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.118	ug/L	0.119		99.3	60-140		

**Matrix Spike (BCC1169-MS1)**

Source: 19B1833-05

Prepared: 02/25/2019 Analyzed: 03/02/2019

Aroclor-1016 (PCB-1016)	1.70	J1	0.0119	ug/L	1.19	<0.0119	142	60-140		
Aroclor-1260 (PCB-1260)	1.11		0.0119	ug/L	1.19	<0.0119	93.0	60-140		
PCBs, Total	1.25		0.0119	ug/L	1.19	<0.0119	104	60-140		
<hr/>										
Surrogate: 2,4,5,6			0.117	ug/L	0.119		97.9	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0856	ug/L	0.119		71.7	60-140		

**Matrix Spike Dup (BCC1169-MSD1)**

Source: 19B1833-05

Prepared: 02/25/2019 Analyzed: 03/02/2019

Aroclor-1016 (PCB-1016)	2.06	J1	0.0120	ug/L	1.20	<0.0120	172	60-140	19.2	40
Aroclor-1260 (PCB-1260)	1.10		0.0120	ug/L	1.20	<0.0120	92.3	60-140	0.518	40
PCBs, Total	1.32		0.0120	ug/L	1.20	<0.0120	111	60-140	6.11	40
<hr/>										
Surrogate: 2,4,5,6			0.121	ug/L	0.120		101	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0854	ug/L	0.120		71.4	60-140		



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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC1712 - SW-3570**

**Blank (BCC1712-BLK1)**

Prepared: 03/01/2019 Analyzed: 03/07/2019

4,4'-DDD	<1.02		1.02	ug/kg wet						
4,4'-DDE	<1.02		1.02	ug/kg wet						
4,4'-DDT	<1.02		1.02	ug/kg wet						
Aldrin	<1.02		1.02	ug/kg wet						
alpha-BHC	<1.02		1.02	ug/kg wet						
(alpha-Hexachlorocyclohexane)										
beta-BHC	<1.02		1.02	ug/kg wet						
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<1.02		1.02	ug/kg wet						
cis-Chlordane (alpha-Chlordane)	<1.02		1.02	ug/kg wet						
delta-BHC	<1.02		1.02	ug/kg wet						
Dieldrin	<1.02		1.02	ug/kg wet						
Endosulfan I	<1.02		1.02	ug/kg wet						
Endosulfan II	<1.02		1.02	ug/kg wet						
Endosulfan sulfate	<1.02		1.02	ug/kg wet						
Endrin	<1.02		1.02	ug/kg wet						
Endrin aldehyde	<1.02		1.02	ug/kg wet						
Endrin ketone	<1.02		1.02	ug/kg wet						
gamma-BHC (Lindane,	<1.02		1.02	ug/kg wet						
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	<1.02		1.02	ug/kg wet						
Heptachlor	<1.02		1.02	ug/kg wet						
Heptachlor epoxide	<1.02		1.02	ug/kg wet						
Toxaphene (Chlorinated Camphene)	<15.3		15.3	ug/kg wet						
<hr/>										
Surrogate: 2,4,5,6			5.38	ug/kg wet	6.10		88.1	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			5.89	ug/kg wet	6.10		96.5	60-140		

**LCS (BCC1712-BS1)**

Prepared: 03/01/2019 Analyzed: 03/07/2019

4,4'-DDD	5.30		1.01	ug/kg wet	6.03		87.9	60-140		
4,4'-DDE	5.26		1.01	ug/kg wet	6.03		87.2	60-140		
4,4'-DDT	5.55		1.01	ug/kg wet	6.03		92.0	60-140		
Aldrin	5.68		1.01	ug/kg wet	6.03		94.2	60-140		
alpha-BHC	5.39		1.01	ug/kg wet	6.03		89.5	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	5.02		1.01	ug/kg wet	6.03		83.2	60-140		
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	5.13		1.01	ug/kg wet	6.03		85.1	60-140		
delta-BHC	5.40		1.01	ug/kg wet	6.03		89.6	60-140		
Dieldrin	5.19		1.01	ug/kg wet	6.03		86.1	60-140		
Endosulfan I	5.34		1.01	ug/kg wet	6.03		88.6	60-140		
Endosulfan II	4.71		1.01	ug/kg wet	6.03		78.1	60-140		
Endosulfan sulfate	4.64		1.01	ug/kg wet	6.03		77.0	60-140		
Endrin	5.22		1.01	ug/kg wet	6.03		86.6	60-140		
Endrin aldehyde	4.21		1.01	ug/kg wet	6.03		69.7	60-140		
Endrin ketone	5.16		1.01	ug/kg wet	6.03		85.5	60-140		
gamma-BHC (Lindane,	5.32		1.01	ug/kg wet	6.03		88.2	60-140		
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	5.01		1.01	ug/kg wet	6.03		83.0	60-140		



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**Quality Control**  
**(Continued)**

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC1712 - SW-3570 (Continued)**

**LCS (BCC1712-BS1)**

Prepared: 03/01/2019 Analyzed: 03/07/2019

Heptachlor	5.62		1.01	ug/kg wet	6.03		93.2	60-140		
Heptachlor epoxide	5.24		1.01	ug/kg wet	6.03		86.9	60-140		
Toxaphene (Chlorinated Camphene)	<15.1		15.1	ug/kg wet				60-140		
<hr/>										
<i>Surrogate: 2,4,5,6</i>			5.70	ug/kg wet	6.03		94.6	60-140		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			6.22	ug/kg wet	6.03		103	60-140		

**LCS (BCC1712-BS2)**

Prepared: 03/01/2019 Analyzed: 03/08/2019

4,4'-DDD	<0.997		0.997	ug/kg wet				60-140		
4,4'-DDE	<0.997		0.997	ug/kg wet				60-140		
4,4'-DDT	<0.997		0.997	ug/kg wet				60-140		
Aldrin	<0.997		0.997	ug/kg wet				60-140		
alpha-BHC	<0.997		0.997	ug/kg wet				60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.997		0.997	ug/kg wet				60-140		
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	<0.997		0.997	ug/kg wet				60-140		
delta-BHC	<0.997		0.997	ug/kg wet				60-140		
Dieldrin	<0.997		0.997	ug/kg wet				60-140		
Endosulfan I	<0.997		0.997	ug/kg wet				60-140		
Endosulfan II	<0.997		0.997	ug/kg wet				60-140		
Endosulfan sulfate	<0.997		0.997	ug/kg wet				60-140		
Endrin	<0.997		0.997	ug/kg wet				60-140		
Endrin aldehyde	<0.997		0.997	ug/kg wet				60-140		
Endrin ketone	<0.997		0.997	ug/kg wet				60-140		
gamma-BHC (Lindane,	<0.997		0.997	ug/kg wet				60-140		
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	<0.997		0.997	ug/kg wet				60-140		
Heptachlor	<0.997		0.997	ug/kg wet				60-140		
Heptachlor epoxide	<0.997		0.997	ug/kg wet				60-140		
Toxaphene (Chlorinated Camphene)	61.9		15.0	ug/kg wet	59.8		103	60-140		
<hr/>										
<i>Surrogate: 2,4,5,6</i>			5.45	ug/kg wet	5.98		91.1	60-140		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			6.01	ug/kg wet	5.98		100	60-140		





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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC1712 - SW-3570 (Continued)**

**LCS Dup (BCC1712-BS1)**

Prepared: 03/01/2019 Analyzed: 03/07/2019

4,4'-DDD	5.15		0.970	ug/kg wet	5.82		88.5	60-140	2.91	40
4,4'-DDE	5.15		0.970	ug/kg wet	5.82		88.6	60-140	2.04	40
4,4'-DDT	5.43		0.970	ug/kg wet	5.82		93.3	60-140	2.16	40
Aldrin	5.51		0.970	ug/kg wet	5.82		94.7	60-140	3.03	40
alpha-BHC	5.08		0.970	ug/kg wet	5.82		87.3	60-140	5.96	40
(alpha-Hexachlorocyclohexane)										
beta-BHC	4.92		0.970	ug/kg wet	5.82		84.6	60-140	1.92	40
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	4.87		0.970	ug/kg wet	5.82		83.7	60-140	5.13	40
delta-BHC	5.26		0.970	ug/kg wet	5.82		90.4	60-140	2.65	40
Dieldrin	5.01		0.970	ug/kg wet	5.82		86.1	60-140	3.54	40
Endosulfan I	5.13		0.970	ug/kg wet	5.82		88.2	60-140	4.05	40
Endosulfan II	4.57		0.970	ug/kg wet	5.82		78.5	60-140	3.02	40
Endosulfan sulfate	4.52		0.970	ug/kg wet	5.82		77.6	60-140	2.79	40
Endrin	4.96		0.970	ug/kg wet	5.82		85.2	60-140	5.18	40
Endrin aldehyde	4.24		0.970	ug/kg wet	5.82		72.9	60-140	0.836	40
Endrin ketone	5.03		0.970	ug/kg wet	5.82		86.4	60-140	2.61	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	5.04		0.970	ug/kg wet	5.82		86.7	60-140	5.33	40
gamma-Chlordane	4.84		0.970	ug/kg wet	5.82		83.2	60-140	3.32	40
Heptachlor	5.40		0.970	ug/kg wet	5.82		92.7	60-140	4.11	40
Heptachlor epoxide	5.05		0.970	ug/kg wet	5.82		86.8	60-140	3.70	40
Toxaphene (Chlorinated Camphene)	<14.5		14.5	ug/kg wet				60-140		40
<hr/>										
Surrogate: 2,4,5,6			5.28	ug/kg wet	5.82		90.7	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			5.98	ug/kg wet	5.82		103	60-140		

**LCS Dup (BCC1712-BS2)**

Prepared: 03/01/2019 Analyzed: 03/08/2019

4,4'-DDD	<1.02		1.02	ug/kg wet				60-140		40
4,4'-DDE	<1.02		1.02	ug/kg wet				60-140		40
4,4'-DDT	<1.02		1.02	ug/kg wet				60-140		40
Aldrin	<1.02		1.02	ug/kg wet				60-140		40
alpha-BHC	<1.02		1.02	ug/kg wet				60-140		40
(alpha-Hexachlorocyclohexane)										
beta-BHC	<1.02		1.02	ug/kg wet				60-140		40
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	<1.02		1.02	ug/kg wet				60-140		40
delta-BHC	<1.02		1.02	ug/kg wet				60-140		40
Dieldrin	<1.02		1.02	ug/kg wet				60-140		40
Endosulfan I	<1.02		1.02	ug/kg wet				60-140		40
Endosulfan II	<1.02		1.02	ug/kg wet				60-140		40
Endosulfan sulfate	<1.02		1.02	ug/kg wet				60-140		40
Endrin	<1.02		1.02	ug/kg wet				60-140		40
Endrin aldehyde	<1.02		1.02	ug/kg wet				60-140		40
Endrin ketone	<1.02		1.02	ug/kg wet				60-140		40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<1.02		1.02	ug/kg wet				60-140		40
gamma-Chlordane	<1.02		1.02	ug/kg wet				60-140		40
Heptachlor	<1.02		1.02	ug/kg wet				60-140		40



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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC1712 - SW-3570 (Continued)**

**LCS Dup (BCC1712-BS2)**

Prepared: 03/01/2019 Analyzed: 03/08/2019

Heptachlor epoxide	<1.02		1.02	ug/kg wet				60-140		40
Toxaphene (Chlorinated Camphene)	64.2		15.3	ug/kg wet	61.2		105	60-140	3.63	40
<hr/>										
<i>Surrogate: 2,4,5,6</i>			5.76	ug/kg wet	6.12		94.2	60-140		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			6.56	ug/kg wet	6.12		107	60-140		

**Matrix Spike (BCC1712-MS1)**

**Source: 19B1833-26**

Prepared: 03/01/2019 Analyzed: 03/07/2019

4,4'-DDD	5.13		1.00	ug/kg dry	5.92	<1.00	86.7	60-140		
4,4'-DDE	5.09		1.00	ug/kg dry	5.92	<1.00	86.0	60-140		
4,4'-DDT	5.29		1.00	ug/kg dry	5.92	<1.00	89.5	60-140		
Aldrin	5.07		1.00	ug/kg dry	5.92	<1.00	85.7	60-140		
alpha-BHC	4.79		1.00	ug/kg dry	5.92	<1.00	80.9	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	4.07		1.00	ug/kg dry	5.92	<1.00	68.8	60-140		
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	4.81		1.00	ug/kg dry	5.92	<1.00	81.2	60-140		
delta-BHC	5.09		1.00	ug/kg dry	5.92	<1.00	86.0	60-140		
Dieldrin	4.64		1.00	ug/kg dry	5.92	<1.00	78.5	60-140		
Endosulfan I	5.01		1.00	ug/kg dry	5.92	<1.00	84.6	60-140		
Endosulfan II	4.55		1.00	ug/kg dry	5.92	<1.00	76.9	60-140		
Endosulfan sulfate	4.64		1.00	ug/kg dry	5.92	<1.00	78.4	60-140		
Endrin	4.82		1.00	ug/kg dry	5.92	<1.00	81.5	60-140		
Endrin aldehyde	4.33		1.00	ug/kg dry	5.92	<1.00	73.2	60-140		
Endrin ketone	5.09		1.00	ug/kg dry	5.92	<1.00	86.1	60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	4.77		1.00	ug/kg dry	5.92	<1.00	80.5	60-140		
gamma-Chlordane	4.71		1.00	ug/kg dry	5.92	<1.00	79.7	60-140		
Heptachlor	5.16		1.00	ug/kg dry	5.92	<1.00	87.3	60-140		
Heptachlor epoxide	5.21		1.00	ug/kg dry	5.92	<1.00	88.1	60-140		
<hr/>										
<i>Surrogate: 2,4,5,6</i>			4.82	ug/kg dry	5.92		81.5	60-140		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			5.88	ug/kg dry	5.92		99.3	60-140		



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**Quality Control**  
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**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC1712 - SW-3570 (Continued)**

**Matrix Spike Dup (BCC1712-MSD1)**

**Source: 19B1833-26**

Prepared: 03/01/2019 Analyzed: 03/08/2019

4,4'-DDD	4.99		0.977	ug/kg dry	5.78	<0.977	86.4	60-140	2.72	40
4,4'-DDE	4.99		0.977	ug/kg dry	5.78	<0.977	86.3	60-140	2.01	40
4,4'-DDT	5.20		0.977	ug/kg dry	5.78	<0.977	90.0	60-140	1.83	40
Aldrin	5.08		0.977	ug/kg dry	5.78	<0.977	88.0	60-140	0.295	40
alpha-BHC	4.69		0.977	ug/kg dry	5.78	<0.977	81.2	60-140	1.96	40
(alpha-Hexachlorocyclohexane)										
beta-BHC	3.90		0.977	ug/kg dry	5.78	<0.977	67.6	60-140	4.18	40
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	4.73		0.977	ug/kg dry	5.78	<0.977	81.8	60-140	1.63	40
delta-BHC	5.17		0.977	ug/kg dry	5.78	<0.977	89.4	60-140	1.52	40
Dieldrin	4.50		0.977	ug/kg dry	5.78	<0.977	77.8	60-140	3.20	40
Endosulfan I	4.92		0.977	ug/kg dry	5.78	<0.977	85.2	60-140	1.67	40
Endosulfan II	4.42		0.977	ug/kg dry	5.78	<0.977	76.5	60-140	2.91	40
Endosulfan sulfate	4.41		0.977	ug/kg dry	5.78	<0.977	76.3	60-140	5.09	40
Endrin	4.82		0.977	ug/kg dry	5.78	<0.977	83.4	60-140	0.0180	40
Endrin aldehyde	4.30		0.977	ug/kg dry	5.78	<0.977	74.3	60-140	0.813	40
Endrin ketone	4.97		0.977	ug/kg dry	5.78	<0.977	86.0	60-140	2.48	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	4.71		0.977	ug/kg dry	5.78	<0.977	81.4	60-140	1.25	40
gamma-Chlordane	4.62		0.977	ug/kg dry	5.78	<0.977	79.9	60-140	2.13	40
Heptachlor	5.24		0.977	ug/kg dry	5.78	<0.977	90.6	60-140	1.41	40
Heptachlor epoxide	5.08		0.977	ug/kg dry	5.78	<0.977	88.0	60-140	2.51	40
<hr/>										
Surrogate: 2,4,5,6			4.36	ug/kg dry	5.78		75.4	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			5.37	ug/kg dry	5.78		93.0	60-140		

**Batch: BCC2501 - TX 1005**

**Blank (BCC2501-BLK1)**

Prepared: 03/01/2019 Analyzed: 03/14/2019

Total Petroleum Hydrocarbons (TPH), C6-C35	<9.58		9.58	mg/L						
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			29.4	mg/L	31.9		92.0	70-130		
Surrogate: 1-Chlorooctane-surr			27.9	mg/L	31.9		87.5	70-130		



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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2501 - TX 1005 (Continued)**

**LCS (BCC2501-BS1)**

Prepared: 03/01/2019 Analyzed: 03/14/2019

C6-C12	38.4		9.45	mg/L	31.5		122	75-125		
>C12-C28	33.7		9.45	mg/L	31.5		107	75-125		
Total Petroleum Hydrocarbons (TPH), C6-C35	73.3		9.45	mg/L	63.0		116	75-125		
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			27.9	mg/L	31.5		88.5	70-130		
Surrogate: 1-Chlorooctane-surr			31.9	mg/L	31.5		101	70-130		

**LCS Dup (BCC2501-BS1)**

Prepared: 03/01/2019 Analyzed: 03/15/2019

C6-C12	35.2		9.31	mg/L	31.0		113	75-125	8.69	25
>C12-C28	30.0		9.31	mg/L	31.0		96.8	75-125	11.4	25
Total Petroleum Hydrocarbons (TPH), C6-C35	66.6		9.31	mg/L	62.1		107	75-125	9.59	25
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			28.6	mg/L	31.0		92.1	70-130		
Surrogate: 1-Chlorooctane-surr			29.9	mg/L	31.0		96.4	70-130		

**Matrix Spike (BCC2501-MS1)**

Source: 19B1832-02

Prepared: 03/01/2019 Analyzed: 03/15/2019

C6-C12	38.1	J1	9.06	mg/L	30.2	<9.06	126	75-125		
>C12-C28	36.7		9.06	mg/L	30.2	<9.06	122	75-125		
Total Petroleum Hydrocarbons (TPH), C6-C35	75.4		9.06	mg/L	60.4	<9.06	125	75-125		
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			29.9	mg/L	30.2		99.2	70-130		
Surrogate: 1-Chlorooctane-surr			31.2	mg/L	30.2		103	70-130		

**Matrix Spike Dup (BCC2501-MSD1)**

Source: 19B1832-02

Prepared: 03/01/2019 Analyzed: 03/15/2019

C6-C12	32.5		8.97	mg/L	29.9	<8.97	109	75-125	15.9	25
>C12-C28	28.8		8.97	mg/L	29.9	<8.97	96.4	75-125	24.2	25
Total Petroleum Hydrocarbons (TPH), C6-C35	62.4		8.97	mg/L	59.8	<8.97	104	75-125	18.9	25
<hr/>										
Surrogate: 1-Chlorooctadecane-surr			28.2	mg/L	29.9		94.3	70-130		
Surrogate: 1-Chlorooctane-surr			26.8	mg/L	29.9		89.7	70-130		



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Project: Phillips 66 - Bluewater SPM 2019  
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Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2694 - SW-3511**

**Blank (BCC2694-BLK1)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	<0.00595		0.00595	ug/L						
4,4'-DDE	<0.00595		0.00595	ug/L						
4,4'-DDT	<0.00595		0.00595	ug/L						
Aldrin	<0.00595		0.00595	ug/L						
alpha-BHC	<0.00595		0.00595	ug/L						
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.00595		0.00595	ug/L						
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<0.00595		0.00595	ug/L						
cis-Chlordane (alpha-Chlordane)	<0.00595		0.00595	ug/L						
delta-BHC	<0.00595		0.00595	ug/L						
Dieldrin	<0.00595		0.00595	ug/L						
Endosulfan I	<0.00595		0.00595	ug/L						
Endosulfan II	<0.00595		0.00595	ug/L						
Endosulfan sulfate	<0.00595		0.00595	ug/L						
Endrin	<0.00595		0.00595	ug/L						
Endrin aldehyde	<0.00595		0.00595	ug/L						
Endrin ketone	<0.00595		0.00595	ug/L						
gamma-BHC (Lindane,	<0.00595		0.00595	ug/L						
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	<0.00595		0.00595	ug/L						
Heptachlor	<0.00595		0.00595	ug/L						
Heptachlor epoxide	<0.00595		0.00595	ug/L						
Toxaphene (Chlorinated Camphene)	<0.298		0.298	ug/L						
<hr/>										
Surrogate: 2,4,5,6			0.0860	ug/L	0.119		72.3	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.108	ug/L	0.119		90.9	60-140		

**LCS (BCC2694-BS1)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	0.115		0.00597	ug/L	0.119		96.3	60-140		
4,4'-DDE	0.103		0.00597	ug/L	0.119		86.1	60-140		
4,4'-DDT	0.105		0.00597	ug/L	0.119		88.1	60-140		
Aldrin	0.0993		0.00597	ug/L	0.119		83.2	60-140		
alpha-BHC	0.104		0.00597	ug/L	0.119		87.2	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.101		0.00597	ug/L	0.119		84.8	60-140		
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	0.456		0.00597	ug/L				60-140		
cis-Chlordane (alpha-Chlordane)	0.108		0.00597	ug/L	0.119		90.4	60-140		
delta-BHC	0.109		0.00597	ug/L	0.119		91.2	60-140		
Dieldrin	0.113		0.00597	ug/L	0.119		94.8	60-140		
Endosulfan I	0.117		0.00597	ug/L	0.119		97.7	60-140		
Endosulfan II	0.107		0.00597	ug/L	0.119		89.9	60-140		
Endosulfan sulfate	0.108		0.00597	ug/L	0.119		90.0	60-140		
Endrin	0.118		0.00597	ug/L	0.119		98.7	60-140		
Endrin aldehyde	0.115		0.00597	ug/L	0.119		96.4	60-140		
Endrin ketone	0.110		0.00597	ug/L	0.119		91.7	60-140		
gamma-BHC (Lindane,	0.108		0.00597	ug/L	0.119		90.6	60-140		
gamma-HexachlorocyclohexaneE)										



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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2694 - SW-3511 (Continued)**

**LCS (BCC2694-BS1)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

gamma-Chlordane	0.123		0.00597	ug/L	0.119		103	60-140		
Heptachlor	0.0958		0.00597	ug/L	0.119		80.2	60-140		
Heptachlor epoxide	0.109		0.00597	ug/L	0.119		91.6	60-140		
Toxaphene (Chlorinated Camphene)	<0.299		0.299	ug/L				60-140		
<hr/>										
Surrogate: 2,4,5,6			0.0761	ug/L	0.119		63.7	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.113	ug/L	0.119		94.5	60-140		

**LCS (BCC2694-BS2)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	<0.00600		0.00600	ug/L				60-140		
4,4'-DDE	<0.00600		0.00600	ug/L				60-140		
4,4'-DDT	<0.00600		0.00600	ug/L				60-140		
Aldrin	<0.00600		0.00600	ug/L				60-140		
alpha-BHC	<0.00600		0.00600	ug/L				60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.00600		0.00600	ug/L				60-140		
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<0.00600		0.00600	ug/L				60-140		
cis-Chlordane (alpha-Chlordane)	<0.00600		0.00600	ug/L				60-140		
delta-BHC	<0.00600		0.00600	ug/L				60-140		
Dieldrin	<0.00600		0.00600	ug/L				60-140		
Endosulfan I	<0.00600		0.00600	ug/L				60-140		
Endosulfan II	<0.00600		0.00600	ug/L				60-140		
Endosulfan sulfate	<0.00600		0.00600	ug/L				60-140		
Endrin	<0.00600		0.00600	ug/L				60-140		
Endrin aldehyde	<0.00600		0.00600	ug/L				60-140		
Endrin ketone	<0.00600		0.00600	ug/L				60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.00600		0.00600	ug/L				60-140		
gamma-Chlordane	<0.00600		0.00600	ug/L				60-140		
Heptachlor	<0.00600		0.00600	ug/L				60-140		
Heptachlor epoxide	<0.00600		0.00600	ug/L				60-140		
Toxaphene (Chlorinated Camphene)	1.43		0.300	ug/L	1.20		119	60-140		
<hr/>										
Surrogate: 2,4,5,6			0.102	ug/L	0.120		85.1	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.138	ug/L	0.120		115	60-140		



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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2694 - SW-3511 (Continued)**

**LCS Dup (BCC2694-BS1)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	0.117		0.00594	ug/L	0.119		98.7	60-140	1.99	40
4,4'-DDE	0.106		0.00594	ug/L	0.119		89.5	60-140	3.40	40
4,4'-DDT	0.111		0.00594	ug/L	0.119		93.7	60-140	5.66	40
Aldrin	0.107		0.00594	ug/L	0.119		90.4	60-140	7.90	40
alpha-BHC (alpha-Hexachlorocyclohexane)	0.104		0.00594	ug/L	0.119		87.5	60-140	0.133	40
beta-BHC (beta-Hexachlorocyclohexane)	0.102		0.00594	ug/L	0.119		85.7	60-140	0.603	40
Chlordane (tech.)	0.454		0.00594	ug/L				60-140	0.402	40
cis-Chlordane (alpha-Chlordane)	0.108		0.00594	ug/L	0.119		90.7	60-140	0.0956	40
delta-BHC	0.111		0.00594	ug/L	0.119		93.4	60-140	1.95	40
Dieldrin	0.113		0.00594	ug/L	0.119		95.0	60-140	0.245	40
Endosulfan I	0.117		0.00594	ug/L	0.119		98.3	60-140	0.136	40
Endosulfan II	0.107		0.00594	ug/L	0.119		90.2	60-140	0.188	40
Endosulfan sulfate	0.108		0.00594	ug/L	0.119		91.2	60-140	0.804	40
Endrin	0.116		0.00594	ug/L	0.119		97.4	60-140	1.75	40
Endrin aldehyde	0.114		0.00594	ug/L	0.119		96.3	60-140	0.518	40
Endrin ketone	0.118		0.00594	ug/L	0.119		99.7	60-140	7.86	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.110		0.00594	ug/L	0.119		92.6	60-140	1.66	40
gamma-Chlordane	0.121		0.00594	ug/L	0.119		102	60-140	1.82	40
Heptachlor	0.0990		0.00594	ug/L	0.119		83.3	60-140	3.22	40
Heptachlor epoxide	0.108		0.00594	ug/L	0.119		90.8	60-140	1.40	40
Toxaphene (Chlorinated Camphene)	<0.297		0.297	ug/L				60-140		40
<hr/>										
Surrogate: 2,4,5,6 Tetrachloro-m-xylene-surr			0.0763	ug/L	0.119		64.2	60-140		
Surrogate: Decachlorobiphenyl-surr			0.114	ug/L	0.119		95.8	60-140		

**LCS Dup (BCC2694-BS2)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	<0.00598		0.00598	ug/L				60-140		40
4,4'-DDE	<0.00598		0.00598	ug/L				60-140		40
4,4'-DDT	<0.00598		0.00598	ug/L				60-140		40
Aldrin	<0.00598		0.00598	ug/L				60-140		40
alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00598		0.00598	ug/L				60-140		40
beta-BHC (beta-Hexachlorocyclohexane)	<0.00598		0.00598	ug/L				60-140		40
Chlordane (tech.)	<0.00598		0.00598	ug/L				60-140		40
cis-Chlordane (alpha-Chlordane)	<0.00598		0.00598	ug/L				60-140		40
delta-BHC	<0.00598		0.00598	ug/L				60-140		40
Dieldrin	<0.00598		0.00598	ug/L				60-140		40
Endosulfan I	<0.00598		0.00598	ug/L				60-140		40
Endosulfan II	<0.00598		0.00598	ug/L				60-140		40
Endosulfan sulfate	<0.00598		0.00598	ug/L				60-140		40
Endrin	<0.00598		0.00598	ug/L				60-140		40
Endrin aldehyde	<0.00598		0.00598	ug/L				60-140		40
Endrin ketone	<0.00598		0.00598	ug/L				60-140		40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.00598		0.00598	ug/L				60-140		40



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**Quality Control**  
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**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2694 - SW-3511 (Continued)**

**LCS Dup (BCC2694-BSD2)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

gamma-Chlordane	<0.00598		0.00598	ug/L				60-140		40
Heptachlor	<0.00598		0.00598	ug/L				60-140		40
Heptachlor epoxide	<0.00598		0.00598	ug/L				60-140		40
Toxaphene (Chlorinated Camphene)	1.30		0.299	ug/L	1.20		109	60-140	9.64	40
<hr/>										
Surrogate: 2,4,5,6			0.0852	ug/L	0.120		71.3	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.110	ug/L	0.120		91.7	60-140		

**Matrix Spike (BCC2694-MS1)**

**Source: 19B2026-02**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	0.0989		0.00598	ug/L	0.120	<0.00598	82.7	60-140		
4,4'-DDE	0.0791		0.00598	ug/L	0.120	<0.00598	66.1	60-140		
4,4'-DDT	0.0748		0.00598	ug/L	0.120	<0.00598	62.5	60-140		
Aldrin	0.0861		0.00598	ug/L	0.120	<0.00598	72.0	60-140		
alpha-BHC	0.109		0.00598	ug/L	0.120	0.00708	85.3	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.117		0.00598	ug/L	0.120	<0.00598	97.5	60-140		
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	0.409		0.00598	ug/L		<0.00598		60-140		
cis-Chlordane (alpha-Chlordane)	0.0957		0.00598	ug/L	0.120	<0.00598	80.0	60-140		
delta-BHC	0.114		0.00598	ug/L	0.120	<0.00598	95.4	60-140		
Dieldrin	0.113		0.00598	ug/L	0.120	<0.00598	94.6	60-140		
Endosulfan I	0.107		0.00598	ug/L	0.120	<0.00598	89.2	60-140		
Endosulfan II	0.113		0.00598	ug/L	0.120	<0.00598	94.0	60-140		
Endosulfan sulfate	0.118		0.00598	ug/L	0.120	<0.00598	98.8	60-140		
Endrin	0.114		0.00598	ug/L	0.120	<0.00598	95.0	60-140		
Endrin aldehyde	0.115		0.00598	ug/L	0.120	<0.00598	95.7	60-140		
Endrin ketone	0.117		0.00598	ug/L	0.120	<0.00598	97.5	60-140		
gamma-BHC (Lindane,	0.122		0.00598	ug/L	0.120	0.0134	91.1	60-140		
gamma-HexachlorocyclohexanE)										
gamma-Chlordane	0.102		0.00598	ug/L	0.120	<0.00598	85.3	60-140		
Heptachlor	0.102		0.00598	ug/L	0.120	<0.00598	85.2	60-140		
Heptachlor epoxide	0.103		0.00598	ug/L	0.120	<0.00598	86.5	60-140		
<hr/>										
Surrogate: 2,4,5,6			0.0811	ug/L	0.120		67.8	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr	S		0.0618	ug/L	0.120		51.7	60-140		





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Project: Phillips 66 - Bluewater SPM 2019  
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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2694 - SW-3511 (Continued)**

**Matrix Spike Dup (BCC2694-MSD1)**

**Source: 19B2026-02**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	0.0984		0.00599	ug/L	0.120	<0.00599	82.1	60-140	0.532	40
4,4'-DDE	0.0751		0.00599	ug/L	0.120	<0.00599	62.7	60-140	5.18	40
4,4'-DDT	0.0724		0.00599	ug/L	0.120	<0.00599	60.4	60-140	3.21	40
Aldrin	0.0899		0.00599	ug/L	0.120	<0.00599	75.0	60-140	4.24	40
alpha-BHC	0.110		0.00599	ug/L	0.120	0.00708	85.7	60-140	0.614	40
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.123		0.00599	ug/L	0.120	<0.00599	103	60-140	5.15	40
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	0.398		0.00599	ug/L		<0.00599		60-140	2.80	40
cis-Chlordane (alpha-Chlordane)	0.0916		0.00599	ug/L	0.120	<0.00599	76.4	60-140	4.36	40
delta-BHC	0.110		0.00599	ug/L	0.120	<0.00599	91.7	60-140	3.79	40
Dieldrin	0.0971		0.00599	ug/L	0.120	<0.00599	81.0	60-140	15.3	40
Endosulfan I	0.100		0.00599	ug/L	0.120	<0.00599	83.8	60-140	6.09	40
Endosulfan II	0.0962		0.00599	ug/L	0.120	<0.00599	80.3	60-140	15.6	40
Endosulfan sulfate	0.106		0.00599	ug/L	0.120	<0.00599	88.1	60-140	11.3	40
Endrin	0.0928		0.00599	ug/L	0.120	<0.00599	77.5	60-140	20.1	40
Endrin aldehyde	0.104		0.00599	ug/L	0.120	<0.00599	87.0	60-140	9.36	40
Endrin ketone	0.109		0.00599	ug/L	0.120	<0.00599	90.8	60-140	6.90	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.123		0.00599	ug/L	0.120	0.0134	91.2	60-140	0.262	40
gamma-Chlordane	0.0942		0.00599	ug/L	0.120	<0.00599	78.6	60-140	7.91	40
Heptachlor	0.104		0.00599	ug/L	0.120	<0.00599	86.6	60-140	1.85	40
Heptachlor epoxide	0.0981		0.00599	ug/L	0.120	<0.00599	81.9	60-140	5.33	40
<hr/>										
Surrogate: 2,4,5,6			0.0849	ug/L	0.120		70.8	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr	S		0.0610	ug/L	0.120		50.9	60-140		

**Batch: BCC2891 - SW-3511**

**Blank (BCC2891-BLK1)**

Prepared: 03/04/2019 Analyzed: 03/09/2019

PCBs, Total	<0.0119		0.0119	ug/L						
<hr/>										
Surrogate: 2,4,5,6			0.101	ug/L	0.119		84.2	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0893	ug/L	0.119		74.8	60-140		



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Project: Phillips 66 - Bluewater SPM 2019  
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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2891 - SW-3511 (Continued)**

**LCS (BCC2891-BS1)**

Prepared: 03/04/2019 Analyzed: 03/09/2019

Aroclor-1016 (PCB-1016)	1.39		0.0120	ug/L	1.20		116	60-140		
Aroclor-1260 (PCB-1260)	1.06		0.0120	ug/L	1.20		88.7	60-140		
PCBs, Total	1.14		0.0120	ug/L	1.20		95.0	60-140		
<hr/>										
Surrogate: 2,4,5,6			0.0896	ug/L	0.120		74.7	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0774	ug/L	0.120		64.6	60-140		

**LCS Dup (BCC2891-BS1)**

Prepared: 03/04/2019 Analyzed: 03/09/2019

Aroclor-1016 (PCB-1016)	1.61		0.0120	ug/L	1.20		135	60-140	15.0	40
Aroclor-1260 (PCB-1260)	1.20		0.0120	ug/L	1.20		101	60-140	12.4	40
PCBs, Total	1.30		0.0120	ug/L	1.20		108	60-140	13.1	40
<hr/>										
Surrogate: 2,4,5,6			0.0926	ug/L	0.120		77.4	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0806	ug/L	0.120		67.4	60-140		

**Matrix Spike (BCC2891-MS1)**

Source: 19B1833-03

Prepared: 03/04/2019 Analyzed: 03/09/2019

Aroclor-1016 (PCB-1016)	2.17	J1	0.0119	ug/L	1.19	<0.0119	182	60-140		
Aroclor-1260 (PCB-1260)	1.41		0.0119	ug/L	1.19	<0.0119	118	60-140		
PCBs, Total	1.59		0.0119	ug/L	1.19	<0.0119	133	60-140		
<hr/>										
Surrogate: 2,4,5,6			0.121	ug/L	0.119		101	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0862	ug/L	0.119		72.2	60-140		

**Matrix Spike Dup (BCC2891-MSD1)**

Source: 19B1833-03

Prepared: 03/04/2019 Analyzed: 03/09/2019

Aroclor-1016 (PCB-1016)	1.58		0.0120	ug/L	1.20	<0.0120	132	60-140	31.7	40
Aroclor-1260 (PCB-1260)	1.05		0.0120	ug/L	1.20	<0.0120	87.5	60-140	29.7	40
PCBs, Total	1.17		0.0120	ug/L	1.20	<0.0120	97.6	60-140	30.3	40
<hr/>										
Surrogate: 2,4,5,6			0.0859	ug/L	0.120		71.8	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr		S	0.0670	ug/L	0.120		56.0	60-140		



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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0440 - SW-3570**

**Blank (BCD0440-BLK1)**

Prepared: 03/08/2019 Analyzed: 04/02/2019

4,4'-DDD	<1.01		1.01	ug/kg wet						
4,4'-DDE	<1.01		1.01	ug/kg wet						
4,4'-DDT	<1.01		1.01	ug/kg wet						
Aldrin	<1.01		1.01	ug/kg wet						
alpha-BHC	<1.01		1.01	ug/kg wet						
(alpha-Hexachlorocyclohexane)										
beta-BHC	<1.01		1.01	ug/kg wet						
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<1.01		1.01	ug/kg wet						
cis-Chlordane (alpha-Chlordane)	<1.01		1.01	ug/kg wet						
delta-BHC	<1.01		1.01	ug/kg wet						
Dieldrin	<1.01		1.01	ug/kg wet						
Endosulfan I	<1.01		1.01	ug/kg wet						
Endosulfan II	<1.01		1.01	ug/kg wet						
Endosulfan sulfate	<1.01		1.01	ug/kg wet						
Endrin	<1.01		1.01	ug/kg wet						
Endrin aldehyde	<1.01		1.01	ug/kg wet						
Endrin ketone	<1.01		1.01	ug/kg wet						
gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<1.01		1.01	ug/kg wet						
gamma-Chlordane	<1.01		1.01	ug/kg wet						
Heptachlor	<1.01		1.01	ug/kg wet						
Heptachlor epoxide	<1.01		1.01	ug/kg wet						
Toxaphene (Chlorinated Camphene)	<15.1		15.1	ug/kg wet						
<hr/>										
Surrogate: 2,4,5,6		S	3.42	ug/kg wet	6.05		56.5	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			5.42	ug/kg wet	6.05		89.5	60-140		

**LCS (BCD0440-BS1)**

Prepared: 03/08/2019 Analyzed: 04/02/2019

4,4'-DDD	4.94		1.01	ug/kg wet	6.05		81.5	60-140		
4,4'-DDE	4.93		1.01	ug/kg wet	6.05		81.4	60-140		
4,4'-DDT	5.02		1.01	ug/kg wet	6.05		82.9	60-140		
Aldrin	5.13		1.01	ug/kg wet	6.05		84.7	60-140		
alpha-BHC	5.35		1.01	ug/kg wet	6.05		88.4	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	5.24		1.01	ug/kg wet	6.05		86.6	60-140		
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	5.45		1.01	ug/kg wet	6.05		90.0	60-140		
delta-BHC	5.39		1.01	ug/kg wet	6.05		89.1	60-140		
Dieldrin	5.29		1.01	ug/kg wet	6.05		87.4	60-140		
Endosulfan I	4.99		1.01	ug/kg wet	6.05		82.4	60-140		
Endosulfan II	4.33		1.01	ug/kg wet	6.05		71.5	60-140		
Endosulfan sulfate	4.69		1.01	ug/kg wet	6.05		77.4	60-140		
Endrin	4.72		1.01	ug/kg wet	6.05		78.0	60-140		
Endrin aldehyde	2.47	J1	1.01	ug/kg wet	6.05		40.9	60-140		
Endrin ketone	5.32		1.01	ug/kg wet	6.05		87.9	60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	5.09		1.01	ug/kg wet	6.05		84.0	60-140		
gamma-Chlordane	5.35		1.01	ug/kg wet	6.05		88.4	60-140		



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**Quality Control**  
**(Continued)**

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0440 - SW-3570 (Continued)**

**LCS (BCD0440-BS1)**

Prepared: 03/08/2019 Analyzed: 04/02/2019

Heptachlor	4.99		1.01	ug/kg wet	6.05		82.3	60-140		
Heptachlor epoxide	5.00		1.01	ug/kg wet	6.05		82.6	60-140		
Toxaphene (Chlorinated Camphene)	<15.1		15.1	ug/kg wet				60-140		
<hr/>										
<i>Surrogate: 2,4,5,6</i>			3.76	ug/kg wet	6.05		62.1	60-140		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			5.64	ug/kg wet	6.05		93.2	60-140		

**LCS (BCD0440-BS2)**

Prepared: 03/08/2019 Analyzed: 04/03/2019

4,4'-DDD	<1.01		1.01	ug/kg wet				60-140		
4,4'-DDE	<1.01		1.01	ug/kg wet				60-140		
4,4'-DDT	<1.01		1.01	ug/kg wet				60-140		
Aldrin	<1.01		1.01	ug/kg wet				60-140		
alpha-BHC	<1.01		1.01	ug/kg wet				60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	<1.01		1.01	ug/kg wet				60-140		
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	<1.01		1.01	ug/kg wet				60-140		
delta-BHC	<1.01		1.01	ug/kg wet				60-140		
Dieldrin	<1.01		1.01	ug/kg wet				60-140		
Endosulfan I	<1.01		1.01	ug/kg wet				60-140		
Endosulfan II	<1.01		1.01	ug/kg wet				60-140		
Endosulfan sulfate	<1.01		1.01	ug/kg wet				60-140		
Endrin	<1.01		1.01	ug/kg wet				60-140		
Endrin aldehyde	<1.01		1.01	ug/kg wet				60-140		
Endrin ketone	<1.01		1.01	ug/kg wet				60-140		
gamma-BHC (Lindane,	<1.01		1.01	ug/kg wet				60-140		
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	<1.01		1.01	ug/kg wet				60-140		
Heptachlor	<1.01		1.01	ug/kg wet				60-140		
Heptachlor epoxide	<1.01		1.01	ug/kg wet				60-140		
Toxaphene (Chlorinated Camphene)	49.8		15.1	ug/kg wet	60.4		82.5	60-140		
<hr/>										
<i>Surrogate: 2,4,5,6</i>			3.89	ug/kg wet	6.04		64.4	60-140		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			5.27	ug/kg wet	6.04		87.4	60-140		



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**Quality Control**  
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**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0440 - SW-3570 (Continued)**

LCS Dup (BCD0440-BSD1)		Prepared: 03/08/2019 Analyzed: 04/03/2019								
4,4'-DDD	5.10		1.01	ug/kg wet	6.07		84.0	60-140	3.28	40
4,4'-DDE	5.19		1.01	ug/kg wet	6.07		85.4	60-140	5.13	40
4,4'-DDT	5.27		1.01	ug/kg wet	6.07		86.8	60-140	4.82	40
Aldrin	5.42		1.01	ug/kg wet	6.07		89.3	60-140	5.63	40
alpha-BHC	5.54		1.01	ug/kg wet	6.07		91.3	60-140	3.44	40
(alpha-Hexachlorocyclohexane)										
beta-BHC	5.40		1.01	ug/kg wet	6.07		88.9	60-140	2.95	40
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	5.78		1.01	ug/kg wet	6.07		95.1	60-140	5.81	40
delta-BHC	5.68		1.01	ug/kg wet	6.07		93.5	60-140	5.18	40
Dieldrin	5.52		1.01	ug/kg wet	6.07		90.8	60-140	4.10	40
Endosulfan I	5.39		1.01	ug/kg wet	6.07		88.7	60-140	7.69	40
Endosulfan II	4.68		1.01	ug/kg wet	6.07		77.0	60-140	7.76	40
Endosulfan sulfate	4.97		1.01	ug/kg wet	6.07		81.8	60-140	5.81	40
Endrin	4.94		1.01	ug/kg wet	6.07		81.3	60-140	4.48	40
Endrin aldehyde	5.11	J1	1.01	ug/kg wet	6.07		84.1	60-140	69.5	40
Endrin ketone	5.45		1.01	ug/kg wet	6.07		89.8	60-140	2.46	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	5.38		1.01	ug/kg wet	6.07		88.5	60-140	5.55	40
gamma-Chlordane	5.75		1.01	ug/kg wet	6.07		94.6	60-140	7.09	40
Heptachlor	5.29		1.01	ug/kg wet	6.07		87.1	60-140	5.91	40
Heptachlor epoxide	5.29		1.01	ug/kg wet	6.07		87.1	60-140	5.55	40
Toxaphene (Chlorinated Camphene)	<15.2		15.2	ug/kg wet				60-140		40
-----										
Surrogate: 2,4,5,6			3.74	ug/kg wet	6.07		61.5	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			5.89	ug/kg wet	6.07		97.1	60-140		

LCS Dup (BCD0440-BSD2)		Prepared: 03/08/2019 Analyzed: 04/03/2019								
4,4'-DDD	<0.995		0.995	ug/kg wet				60-140		40
4,4'-DDE	<0.995		0.995	ug/kg wet				60-140		40
4,4'-DDT	<0.995		0.995	ug/kg wet				60-140		40
Aldrin	<0.995		0.995	ug/kg wet				60-140		40
alpha-BHC	<0.995		0.995	ug/kg wet				60-140		40
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.995		0.995	ug/kg wet				60-140		40
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	<0.995		0.995	ug/kg wet				60-140		40
delta-BHC	<0.995		0.995	ug/kg wet				60-140		40
Dieldrin	<0.995		0.995	ug/kg wet				60-140		40
Endosulfan I	<0.995		0.995	ug/kg wet				60-140		40
Endosulfan II	<0.995		0.995	ug/kg wet				60-140		40
Endosulfan sulfate	<0.995		0.995	ug/kg wet				60-140		40
Endrin	<0.995		0.995	ug/kg wet				60-140		40
Endrin aldehyde	<0.995		0.995	ug/kg wet				60-140		40
Endrin ketone	<0.995		0.995	ug/kg wet				60-140		40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.995		0.995	ug/kg wet				60-140		40
gamma-Chlordane	<0.995		0.995	ug/kg wet				60-140		40
Heptachlor	<0.995		0.995	ug/kg wet				60-140		40



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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0440 - SW-3570 (Continued)**

**LCS Dup (BCD0440-BSD2)**

Prepared: 03/08/2019 Analyzed: 04/03/2019

Heptachlor epoxide	<0.995		0.995	ug/kg wet				60-140		40
Toxaphene (Chlorinated Camphene)	51.0		14.9	ug/kg wet	59.7		85.5	60-140	2.51	40
<hr/>										
<i>Surrogate: 2,4,5,6</i>		<i>S</i>	<i>2.99</i>	<i>ug/kg wet</i>	<i>5.97</i>		<i>50.0</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>5.30</i>	<i>ug/kg wet</i>	<i>5.97</i>		<i>88.8</i>	<i>60-140</i>		

**Matrix Spike (BCD0440-MS1)**

**Source: 19B1833-12**

Prepared: 03/08/2019 Analyzed: 04/03/2019

4,4'-DDD	9.62		1.94	ug/kg dry	11.7	<1.94	82.5	60-140		
4,4'-DDE	9.65		1.94	ug/kg dry	11.7	<1.94	82.8	60-140		
4,4'-DDT	9.81		1.94	ug/kg dry	11.7	<1.94	84.2	60-140		
Aldrin	10.1		1.94	ug/kg dry	11.7	<1.94	86.5	60-140		
alpha-BHC	10.4		1.94	ug/kg dry	11.7	<1.94	89.5	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	9.70		1.94	ug/kg dry	11.7	<1.94	83.2	60-140		
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	10.4		1.94	ug/kg dry	11.7	<1.94	89.4	60-140		
delta-BHC	10.6		1.94	ug/kg dry	11.7	<1.94	91.0	60-140		
Dieldrin	9.72		1.94	ug/kg dry	11.7	<1.94	83.4	60-140		
Endosulfan I	9.85		1.94	ug/kg dry	11.7	<1.94	84.5	60-140		
Endosulfan II	9.06		1.94	ug/kg dry	11.7	<1.94	77.8	60-140		
Endosulfan sulfate	9.59		1.94	ug/kg dry	11.7	<1.94	82.3	60-140		
Endrin	9.32		1.94	ug/kg dry	11.7	<1.94	80.0	60-140		
Endrin aldehyde	8.66		1.94	ug/kg dry	11.7	<1.94	74.3	60-140		
Endrin ketone	10.3		1.94	ug/kg dry	11.7	<1.94	88.8	60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	9.60		1.94	ug/kg dry	11.7	<1.94	82.4	60-140		
gamma-Chlordane	10.5		1.94	ug/kg dry	11.7	<1.94	90.5	60-140		
Heptachlor	9.84		1.94	ug/kg dry	11.7	<1.94	84.5	60-140		
Heptachlor epoxide	9.82		1.94	ug/kg dry	11.7	<1.94	84.3	60-140		
<hr/>										
<i>Surrogate: 2,4,5,6</i>			<i>9.94</i>	<i>ug/kg dry</i>	<i>11.7</i>		<i>85.3</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>10.9</i>	<i>ug/kg dry</i>	<i>11.7</i>		<i>93.3</i>	<i>60-140</i>		



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**Quality Control**  
(Continued)

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0440 - SW-3570 (Continued)**

**Matrix Spike Dup (BCD0440-MSD1)**

**Source: 19B1833-12**

Prepared: 03/08/2019 Analyzed: 04/03/2019

4,4'-DDD	9.10		1.92	ug/kg dry	11.5	<1.92	79.2	60-140	5.48	40
4,4'-DDE	9.10		1.92	ug/kg dry	11.5	<1.92	79.1	60-140	5.90	40
4,4'-DDT	9.39		1.92	ug/kg dry	11.5	<1.92	81.7	60-140	4.33	40
Aldrin	10.0		1.92	ug/kg dry	11.5	<1.92	87.2	60-140	0.547	40
alpha-BHC	9.84		1.92	ug/kg dry	11.5	<1.92	85.6	60-140	5.81	40
(alpha-Hexachlorocyclohexane)										
beta-BHC	9.40		1.92	ug/kg dry	11.5	<1.92	81.8	60-140	3.06	40
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	10.1		1.92	ug/kg dry	11.5	<1.92	88.0	60-140	2.87	40
delta-BHC	10.7		1.92	ug/kg dry	11.5	<1.92	93.3	60-140	1.20	40
Dieldrin	9.73		1.92	ug/kg dry	11.5	<1.92	84.6	60-140	0.105	40
Endosulfan I	9.59		1.92	ug/kg dry	11.5	<1.92	83.4	60-140	2.65	40
Endosulfan II	8.64		1.92	ug/kg dry	11.5	<1.92	75.2	60-140	4.73	40
Endosulfan sulfate	8.94		1.92	ug/kg dry	11.5	<1.92	77.8	60-140	7.01	40
Endrin	9.02		1.92	ug/kg dry	11.5	<1.92	78.5	60-140	3.27	40
Endrin aldehyde	9.90		1.92	ug/kg dry	11.5	<1.92	86.1	60-140	13.4	40
Endrin ketone	9.77		1.92	ug/kg dry	11.5	<1.92	84.9	60-140	5.76	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	9.33		1.92	ug/kg dry	11.5	<1.92	81.1	60-140	2.82	40
gamma-Chlordane	10.2		1.92	ug/kg dry	11.5	<1.92	88.8	60-140	3.19	40
Heptachlor	10.1		1.92	ug/kg dry	11.5	<1.92	87.5	60-140	2.16	40
Heptachlor epoxide	9.63		1.92	ug/kg dry	11.5	<1.92	83.7	60-140	1.96	40
<hr/>										
Surrogate: 2,4,5,6			8.98	ug/kg dry	11.5		78.1	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			10.2	ug/kg dry	11.5		88.5	60-140		

**Batch: BCD0445 - SW-3570**

**Blank (BCD0445-BLK1)**

Prepared: 03/07/2019 Analyzed: 03/27/2019

PCBs, Total	<1.97		1.97	ug/kg wet						
<hr/>										
Surrogate: 2,4,5,6	S		0.189	ug/kg wet	0.591		32.0	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr	S		0.352	ug/kg wet	0.591		59.6	60-140		



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**Quality Control**  
**(Continued)**

**Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0445 - SW-3570 (Continued)**

**LCS (BCD0445-BS1)**

Prepared: 03/07/2019 Analyzed: 03/27/2019

Aroclor-1016 (PCB-1016)	3.74		1.97	ug/kg wet	5.91		63.3	60-140		
Aroclor-1260 (PCB-1260)	3.65		1.97	ug/kg wet	5.91		61.8	60-140		
PCBs, Total	3.78		1.97	ug/kg wet	5.91		63.9	60-140		
<hr/>										
Surrogate: 2,4,5,6		S	0.192	ug/kg wet	0.591		32.4	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.378	ug/kg wet	0.591		64.0	60-140		

**LCS Dup (BCD0445-BSD1)**

Prepared: 03/07/2019 Analyzed: 03/27/2019

Aroclor-1016 (PCB-1016)	4.23		1.99	ug/kg wet	5.98		70.8	60-140	12.3	40
Aroclor-1260 (PCB-1260)	4.15		1.99	ug/kg wet	5.98		69.4	60-140	12.8	40
PCBs, Total	4.25		1.99	ug/kg wet	5.98		71.0	60-140	11.7	40
<hr/>										
Surrogate: 2,4,5,6		S	0.171	ug/kg wet	0.598		28.6	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.365	ug/kg wet	0.598		61.0	60-140		

**Matrix Spike (BCD0445-MS1)**

Source: 19B2026-07RE1

Prepared: 03/07/2019 Analyzed: 03/27/2019

Aroclor-1016 (PCB-1016)	16.7	J1	1.92	ug/kg wet	5.77	13.3	57.9	60-140		
Aroclor-1260 (PCB-1260)	5.16		1.92	ug/kg wet	5.77	<1.92	89.5	60-140		
PCBs, Total	8.39	J1	1.92	ug/kg wet	5.77	13.3	NR	60-140		
<hr/>										
Surrogate: 2,4,5,6		S	0.330	ug/kg wet	0.577		57.3	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.445	ug/kg wet	0.577		77.2	60-140		

**Matrix Spike Dup (BCD0445-MSD1)**

Source: 19B2026-07RE1

Prepared: 03/07/2019 Analyzed: 03/27/2019

Aroclor-1016 (PCB-1016)	18.7		1.95	ug/kg wet	5.85	13.3	92.7	60-140	11.8	40
Aroclor-1260 (PCB-1260)	2.78	J1	1.95	ug/kg wet	5.85	<1.95	47.5	60-140	60.0	40
PCBs, Total	7.02	J1	1.95	ug/kg wet	5.85	13.3	NR	60-140	17.8	40
<hr/>										
Surrogate: 2,4,5,6		S	0.287	ug/kg wet	0.585		49.1	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.412	ug/kg wet	0.585		70.5	60-140		





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**Quality Control**  
(Continued)

**Metals, Total**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0090 - CR VI**

**Blank (BCC0090-BLK1)**

Prepared & Analyzed: 03/06/2019

Chromium (VI) <0.119 0.119 mg/kg wet

**LCS (BCC0090-BS1)**

Prepared: 03/05/2019 Analyzed: 03/06/2019

Chromium (VI) 9.20 0.112 mg/kg wet 9.33 98.7 80-120

**Duplicate (BCC0090-DUP1)**

**Source: 19B1833-12**

Prepared: 03/05/2019 Analyzed: 03/06/2019

Chromium (VI) <0.227 0.227 mg/kg dry <0.227 20

**Duplicate (BCC0090-DUP2)**

**Source: 19B1833-22**

Prepared: 03/05/2019 Analyzed: 03/06/2019

Chromium (VI) <0.160 0.160 mg/kg dry <0.160 20

**Matrix Spike (BCC0090-MS1)**

**Source: 19B1833-12**

Prepared: 03/05/2019 Analyzed: 03/06/2019

Chromium (VI) 16.9 0.244 mg/kg dry 20.3 <0.244 83.0 75-125

**Matrix Spike (BCC0090-MS2)**

**Source: 19B1833-12**

Prepared: 03/05/2019 Analyzed: 03/06/2019

Chromium (VI) 749 56.3 mg/kg dry 968 <56.3 77.4 75-125

**Post Spike (BCC0090-PS1)**

**Source: 19B1833-12**

Prepared: 03/05/2019 Analyzed: 03/06/2019

Chromium (VI) 243 ug/L 250 0.690 96.8 85-115

**Batch: BCC0532 - EPA 200.8**

**Blank (BCC0532-BLK1)**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Selenium <5.00 5.00 ug/L

**LCS (BCC0532-BS1)**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Selenium 216 5.00 ug/L 200 108 85-115



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**Quality Control**  
(Continued)

**Metals, Total (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC0532 - EPA 200.8 (Continued)</b>										
<b>Duplicate (BCC0532-DUP1)</b>			<b>Source: 19B1833-01</b>		Prepared: 03/07/2019 Analyzed: 03/08/2019					
Selenium	<5.00		5.00	ug/L		<5.00				20
<b>Duplicate (BCC0532-DUP2)</b>			<b>Source: 19B1833-02</b>		Prepared: 03/07/2019 Analyzed: 03/08/2019					
Selenium	3.93		25.0	ug/L		4.46			12.7	20
<b>Matrix Spike (BCC0532-MS1)</b>			<b>Source: 19B1833-01</b>		Prepared: 03/07/2019 Analyzed: 03/08/2019					
Selenium	206		5.00	ug/L	200	<5.00	103	75-125		
<b>Matrix Spike (BCC0532-MS2)</b>			<b>Source: 19B1833-02</b>		Prepared: 03/07/2019 Analyzed: 03/08/2019					
Selenium	186		25.0	ug/L	200	4.46	91.0	75-125		

**Batch: BCC0775 - EPA 200.8 Solid**

<b>Blank (BCC0775-BLK1)</b>			Prepared: 03/08/2019 Analyzed: 03/11/2019							
Antimony	<0.100		0.100	mg/kg wet						
Arsenic	<0.0500		0.0500	mg/kg wet						
Beryllium	<0.0200		0.0200	mg/kg wet						
Cadmium	<0.100		0.100	mg/kg wet						
Chromium	<0.300		0.300	mg/kg wet						
Copper	<0.100		0.100	mg/kg wet						
Lead	<0.0500		0.0500	mg/kg wet						
Nickel	<0.100		0.100	mg/kg wet						
Selenium	<0.500		0.500	mg/kg wet						
Silver	<0.0500		0.0500	mg/kg wet						
Thallium	<0.0500		0.0500	mg/kg wet						
Zinc	<0.200		0.200	mg/kg wet						



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**Quality Control**  
(Continued)

**Metals, Total (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0775 - EPA 200.8 Solid (Continued)**

**LCS (BCC0775-BS1)**

Prepared: 03/08/2019 Analyzed: 03/11/2019

Antimony	10.9		0.100	mg/kg wet	10.0		109	85-115		
Arsenic	5.27		0.0500	mg/kg wet	5.00		105	85-115		
Beryllium	2.07		0.0200	mg/kg wet	2.00		104	85-115		
Cadmium	10.3		0.100	mg/kg wet	10.0		103	85-115		
Chromium	30.9		0.300	mg/kg wet	30.0		103	85-115		
Copper	10.5		0.100	mg/kg wet	10.0		105	85-115		
Lead	5.34		0.0500	mg/kg wet	5.00		107	85-115		
Nickel	10.4		0.100	mg/kg wet	10.0		104	85-115		
Selenium	21.5		0.500	mg/kg wet	20.0		107	85-115		
Silver	5.14		0.0500	mg/kg wet	5.00		103	85-115		
Thallium	5.22		0.0500	mg/kg wet	5.00		104	85-115		
Zinc	21.2		0.200	mg/kg wet	20.0		106	85-115		

**Duplicate (BCC0775-DUP1)**

**Source: 19B1833-12**

Prepared: 03/08/2019 Analyzed: 03/11/2019

Antimony	<0.258		0.258	mg/kg dry		<0.258			20	
Arsenic	7.11		0.129	mg/kg dry		6.96		2.15	20	
Beryllium	0.752		0.0514	mg/kg dry		0.768		2.04	20	
Cadmium	0.0434		0.258	mg/kg dry		0.0442		1.75	20	
Chromium	16.9		0.772	mg/kg dry		16.4		2.85	20	
Copper	8.89		0.258	mg/kg dry		9.03		1.55	20	
Lead	13.3		0.129	mg/kg dry		13.7		2.96	20	
Nickel	15.7		0.258	mg/kg dry		15.8		0.845	20	
Selenium	1.10		1.29	mg/kg dry		1.05		4.62	20	
Silver	0.0261		0.129	mg/kg dry		0.0271		3.54	20	
Thallium	0.146		0.129	mg/kg dry		0.144		1.13	20	
Zinc	54.5		0.514	mg/kg dry		54.1		0.796	20	

**Duplicate (BCC0775-DUP2)**

**Source: 19B1833-22**

Prepared: 03/08/2019 Analyzed: 03/11/2019

Arsenic	2.02		0.0661	mg/kg dry		2.03		0.951	20	
Beryllium	0.118		0.0264	mg/kg dry		0.121		2.05	20	
Cadmium	0.00837		0.133	mg/kg dry		0.00977		15.4	20	
Chromium	3.16		0.397	mg/kg dry		3.07		2.95	20	
Copper	0.807		0.133	mg/kg dry		0.816		1.10	20	
Lead	3.78		0.0661	mg/kg dry		3.75		0.759	20	
Nickel	3.23		0.133	mg/kg dry		3.24		0.212	20	
Selenium	0.363		0.661	mg/kg dry		0.383		5.34	20	
Silver	0.00440		0.0661	mg/kg dry		0.00535		19.6	20	
Thallium	0.0291		0.0661	mg/kg dry		0.0288		1.09	20	
Zinc	15.3		0.264	mg/kg dry		15.5		1.56	20	



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**Quality Control**  
(Continued)

**Metals, Total (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0775 - EPA 200.8 Solid (Continued)**

**Duplicate (BCC0775-DUP3)**

**Source: 19B1833-22**

Prepared: 03/08/2019 Analyzed: 03/11/2019

Antimony	<0.133		0.133	mg/kg dry		<0.133				20
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**Matrix Spike (BCC0775-MS1)**

**Source: 19B1833-12**

Prepared: 03/08/2019 Analyzed: 03/11/2019

Antimony	5.65	J1	0.251	mg/kg dry	12.5	<0.251	45.1	75-125		
Arsenic	13.1		0.125	mg/kg dry	6.26	6.96	97.8	75-125		
Beryllium	3.13		0.0500	mg/kg dry	2.50	0.768	94.3	75-125		
Cadmium	12.0		0.251	mg/kg dry	12.5	0.0442	95.4	75-125		
Chromium	53.3		0.751	mg/kg dry	37.6	16.4	98.3	75-125		
Copper	20.4		0.251	mg/kg dry	12.5	9.03	90.5	75-125		
Lead	19.6		0.125	mg/kg dry	6.26	13.7	95.0	75-125		
Nickel	27.4		0.251	mg/kg dry	12.5	15.8	93.0	75-125		
Selenium	23.8		1.25	mg/kg dry	25.0	1.05	90.7	75-125		
Silver	5.93		0.125	mg/kg dry	6.26	0.0271	94.3	75-125		
Thallium	5.89		0.125	mg/kg dry	6.26	0.144	91.7	75-125		
Zinc	78.1		0.500	mg/kg dry	25.0	54.1	95.8	75-125		

**Matrix Spike (BCC0775-MS2)**

**Source: 19B1833-22**

Prepared: 03/08/2019 Analyzed: 03/11/2019

Arsenic	5.28		0.0674	mg/kg dry	3.37	2.03	96.1	75-125		
Beryllium	1.37		0.0270	mg/kg dry	1.35	0.121	92.5	75-125		
Cadmium	6.60		0.135	mg/kg dry	6.75	0.00977	97.7	75-125		
Chromium	22.3		0.405	mg/kg dry	20.2	3.07	94.9	75-125		
Copper	7.11		0.135	mg/kg dry	6.75	0.816	93.4	75-125		
Lead	7.33		0.0674	mg/kg dry	3.37	3.75	106	75-125		
Nickel	9.47		0.135	mg/kg dry	6.75	3.24	92.4	75-125		
Selenium	13.5		0.674	mg/kg dry	13.5	0.383	97.0	75-125		
Silver	3.22		0.0674	mg/kg dry	3.37	0.00535	95.3	75-125		
Thallium	3.45		0.0674	mg/kg dry	3.37	0.0288	102	75-125		
Zinc	28.3		0.270	mg/kg dry	13.5	15.5	94.8	75-125		



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**Quality Control**  
(Continued)

**Metals, Total (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0775 - EPA 200.8 Solid (Continued)**

<b>Matrix Spike (BCC0775-MS3)</b>		<b>Source: 19B1833-22</b>		Prepared: 03/08/2019		Analyzed: 03/11/2019				
Antimony	5.21		0.135	mg/kg dry	6.75	<0.135	77.2	75-125		

**Batch: BCC0930 - EPA 245.1**

<b>Blank (BCC0930-BLK1)</b>				Prepared & Analyzed: 03/11/2019						
Mercury	<0.200		0.200	ug/L						

<b>LCS (BCC0930-BS1)</b>				Prepared & Analyzed: 03/11/2019						
Mercury	5.07		0.200	ug/L	5.00		101	85-115		

<b>Duplicate (BCC0930-DUP1)</b>		<b>Source: 19B1833-03</b>		Prepared & Analyzed: 03/11/2019						
Mercury	<0.200		0.200	ug/L		<0.200				20

<b>Duplicate (BCC0930-DUP2)</b>		<b>Source: 19B2026-01</b>		Prepared & Analyzed: 03/11/2019						
Mercury	<0.200		0.200	ug/L		<0.200				20

<b>MRL Check (BCC0930-MRL1)</b>				Prepared & Analyzed: 03/11/2019						
Mercury	<0.200		0.200	ug/L	0.100			50-150		

<b>Matrix Spike (BCC0930-MS1)</b>		<b>Source: 19B1833-03</b>		Prepared & Analyzed: 03/11/2019						
Mercury	4.84		0.200	ug/L	5.00	<0.200	96.8	70-130		

<b>Matrix Spike (BCC0930-MS2)</b>		<b>Source: 19B2026-01</b>		Prepared & Analyzed: 03/11/2019						
Mercury	4.81		0.200	ug/L	5.00	<0.200	96.2	70-130		

**Batch: BCC1371 - SW-7471**

<b>Blank (BCC1371-BLK1)</b>				Prepared & Analyzed: 03/14/2019						
Mercury	<0.0200		0.0200	mg/kg wet						



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**Quality Control**  
**(Continued)**

**Metals, Total (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC1371 - SW-7471 (Continued)</b>										
<b>LCS (BCC1371-BS1)</b>										
Mercury	0.251		0.0200	mg/kg wet	0.250		100	80-120		
					Prepared & Analyzed: 03/14/2019					
<b>MRL Check (BCC1371-MRL1)</b>										
Mercury	<0.0200		0.0200	mg/kg wet	0.0100			50-150		
					Prepared & Analyzed: 03/14/2019					
<b>Matrix Spike (BCC1371-MS1)</b>										
			<b>Source: 19B1833-12</b>			Prepared & Analyzed: 03/14/2019				
Mercury	0.519		0.0327	mg/kg dry	0.408	0.0365	118	80-120		
<b>Matrix Spike Dup (BCC1371-MSD1)</b>										
			<b>Source: 19B1833-12</b>			Prepared & Analyzed: 03/14/2019				
Mercury	0.520		0.0327	mg/kg dry	0.408	0.0365	119	80-120	0.283	20



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**Quality Control**  
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**Metals, Dissolved**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0535 - EPA 200.8 Dissolved**

**Blank (BCC0535-BLK1)**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	<1.00		1.00	ug/L						
Arsenic	<0.500		0.500	ug/L						
Beryllium	0.0103		0.200	ug/L						
Cadmium	<1.00		1.00	ug/L						
Chromium	<3.00		3.00	ug/L						
Copper	<1.00		1.00	ug/L						
Lead	<0.500		0.500	ug/L						
Nickel	<1.00		1.00	ug/L						
Silver	<0.500		0.500	ug/L						
Thallium	<0.500		0.500	ug/L						
Zinc	0.373		2.00	ug/L						

**LCS (BCC0535-BS1)**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	114		1.00	ug/L	100	114		85-115		
Arsenic	52.7		0.500	ug/L	50.0	105		85-115		
Beryllium	21.0		0.200	ug/L	20.0	105		85-115		
Cadmium	103		1.00	ug/L	100	103		85-115		
Chromium	305		3.00	ug/L	300	102		85-115		
Copper	103		1.00	ug/L	100	103		85-115		
Lead	52.3		0.500	ug/L	50.0	105		85-115		
Nickel	103		1.00	ug/L	100	103		85-115		
Silver	51.4		0.500	ug/L	50.0	103		85-115		
Thallium	52.1		0.500	ug/L	50.0	104		85-115		
Zinc	211		2.00	ug/L	200	105		85-115		

**Duplicate (BCC0535-DUP1)**

**Source: 19B1833-01**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	<1.00		1.00	ug/L	<1.00					20
Arsenic	<0.500		0.500	ug/L	<0.500					20
Beryllium	0.0108	J1	0.200	ug/L	<0.200				200	20
Cadmium	<1.00		1.00	ug/L	<1.00					20
Chromium	<3.00		3.00	ug/L	<3.00					20
Copper	0.252		1.00	ug/L	0.247				2.09	20
Lead	<0.500		0.500	ug/L	<0.500					20
Nickel	<1.00	J1	1.00	ug/L	0.0774				200	20
Silver	<0.500		0.500	ug/L	<0.500					20
Thallium	<0.500		0.500	ug/L	<0.500					20
Zinc	0.289	J1	2.00	ug/L	0.902				103	20



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**Quality Control**  
(Continued)

**Metals, Dissolved (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0535 - EPA 200.8 Dissolved (Continued)**

**Duplicate (BCC0535-DUP2)**

**Source: 19B1833-02**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	<5.00		5.00	ug/L		<5.00				20
Arsenic	2.23		2.50	ug/L		1.99			11.6	20
Beryllium	<1.00		1.00	ug/L		<1.00				20
Cadmium	<5.00		5.00	ug/L		<5.00				20
Chromium	<15.0		15.0	ug/L		<15.0				20
Copper	<5.00		5.00	ug/L		<5.00				20
Lead	<2.50		2.50	ug/L		<2.50				20
Nickel	0.565		5.00	ug/L		0.587			3.79	20
Silver	<2.50		2.50	ug/L		<2.50				20
Thallium	<2.50		2.50	ug/L		<2.50				20
Zinc	<10.0		10.0	ug/L		<10.0				20

**Matrix Spike (BCC0535-MS1)**

**Source: 19B1833-01**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	114		1.00	ug/L	100	<1.00	114	75-125		
Arsenic	51.4		0.500	ug/L	50.0	<0.500	103	75-125		
Beryllium	21.2		0.200	ug/L	20.0	<0.200	106	75-125		
Cadmium	99.4		1.00	ug/L	100	<1.00	99.4	75-125		
Chromium	308		3.00	ug/L	300	<3.00	103	75-125		
Copper	102		1.00	ug/L	100	0.247	102	75-125		
Lead	49.7		0.500	ug/L	50.0	<0.500	99.5	75-125		
Nickel	102		1.00	ug/L	100	0.0774	102	75-125		
Silver	50.3		0.500	ug/L	50.0	<0.500	101	75-125		
Thallium	49.0		0.500	ug/L	50.0	<0.500	98.0	75-125		
Zinc	197		2.00	ug/L	200	0.902	98.1	75-125		

**Matrix Spike (BCC0535-MS2)**

**Source: 19B1833-02**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	102		5.00	ug/L	100	<5.00	102	75-125		
Arsenic	47.6		2.50	ug/L	50.0	1.99	91.3	75-125		
Beryllium	19.6		1.00	ug/L	20.0	<1.00	97.8	75-125		
Cadmium	78.6		5.00	ug/L	100	<5.00	78.6	75-125		
Chromium	335		15.0	ug/L	300	<15.0	112	75-125		
Copper	94.7		5.00	ug/L	100	<5.00	94.7	75-125		
Lead	43.7		2.50	ug/L	50.0	<2.50	87.3	75-125		
Nickel	97.6		5.00	ug/L	100	0.587	97.1	75-125		
Silver	41.6		2.50	ug/L	50.0	<2.50	83.3	75-125		
Thallium	40.6		2.50	ug/L	50.0	<2.50	81.2	75-125		
Zinc	150		10.0	ug/L	200	<10.0	75.2	75-125		





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**Quality Control**  
(Continued)

**Metals, Dissolved (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC0724 - CR VI</b>										
<b>Matrix Spike (BCC0724-MS1)</b>										
Chromium (VI)	258		3.02	ug/L	251	<3.02	103	70-130		
<b>Source: 19B1833-01</b> Prepared & Analyzed: 02/22/2019										
<b>Matrix Spike Dup (BCC0724-MSD1)</b>										
Chromium (VI)	263		3.02	ug/L	251	<3.02	105	70-130	1.92	20
<b>Source: 19B1833-01</b> Prepared & Analyzed: 02/22/2019										
<b>Batch: BCC0807 - CR VI</b>										
<b>Matrix Spike (BCC0807-MS1)</b>										
Chromium (VI)	248		3.02	ug/L	251	<3.02	98.5	70-130		
<b>Source: 19B1833-02</b> Prepared & Analyzed: 03/01/2019										
<b>Matrix Spike Dup (BCC0807-MSD1)</b>										
Chromium (VI)	251		3.02	ug/L	251	<3.02	99.9	70-130	1.40	20
<b>Source: 19B1833-02</b> Prepared & Analyzed: 03/01/2019										



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**Quality Control**  
(Continued)

**General Chemistry**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCB1365 - NH3-N SEAL-350.1**

**MRL Check (BCB1365-MRL1)**

Prepared & Analyzed: 02/22/2019

Ammonia as N	0.00590	J1		mg/L	0.0500		11.8	50-150		
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**Matrix Spike (BCB1365-MS1)**

**Source: 19B1832-03**

Prepared & Analyzed: 02/22/2019

Ammonia as N	2.06	J1	0.100	mg/L	1.25	0.597	117	90-110		
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**Matrix Spike Dup (BCB1365-MSD1)**

**Source: 19B1832-03**

Prepared & Analyzed: 02/22/2019

Ammonia as N	2.09	J1	0.100	mg/L	1.25	0.597	120	90-110	1.66	20
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**Batch: BCB1445 - Percent Solids**

**Blank (BCB1445-BLK1)**

Prepared: 02/22/2019 Analyzed: 02/25/2019

% Solids	<0.100		0.100	%						
% Volatile Solid	<0.0200		0.0200	%						

**Duplicate (BCB1445-DUP1)**

**Source: 19B1832-08**

Prepared: 02/22/2019 Analyzed: 02/26/2019

% Volatile Solid	1.66		0.0200	%		1.63			1.51	10
% Solids	69.0		0.100	%		68.0			1.45	10

**Batch: BCC0080 - CN-9014**

**Blank (BCC0080-BLK1)**

Prepared & Analyzed: 03/01/2019

Total Cyanide	<0.105		0.105	mg/kg wet						
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**LCS (BCC0080-BS1)**

Prepared & Analyzed: 03/01/2019

Total Cyanide	0.611		0.102	mg/kg wet	0.612		99.7	90-110		
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**Quality Control**  
(Continued)

**General Chemistry (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC0080 - CN-9014 (Continued)</b>										
<b>MRL Check (BCC0080-MRL1)</b>										
Total Cyanide	0.0809		0.103	mg/kg wet	0.0619		131	50-150		
					Prepared & Analyzed: 03/01/2019					
<b>Matrix Spike (BCC0080-MS1)</b>										
<b>Source: 19B1832-08</b>										
Total Cyanide	0.828		0.141	mg/kg dry	0.848	<0.141	97.6	80-120		
					Prepared & Analyzed: 03/01/2019					
<b>Matrix Spike Dup (BCC0080-MSD1)</b>										
<b>Source: 19B1832-08</b>										
Total Cyanide	0.908		0.155	mg/kg dry	0.929	<0.155	97.7	80-120	9.13	20
<b>Batch: BCC0081 - CN-9014</b>										
<b>Blank (BCC0081-BLK1)</b>										
Total Cyanide	<0.0926		0.0926	mg/kg wet						
					Prepared & Analyzed: 03/01/2019					
<b>LCS (BCC0081-BS1)</b>										
Total Cyanide	0.582		0.102	mg/kg wet	0.612		95.0	90-110		
					Prepared & Analyzed: 03/01/2019					
<b>MRL Check (BCC0081-MRL1)</b>										
Total Cyanide	0.0555		0.0990	mg/kg wet	0.0594		93.5	50-150		
					Prepared & Analyzed: 03/01/2019					
<b>Matrix Spike (BCC0081-MS1)</b>										
<b>Source: 19B1833-12</b>										
Total Cyanide	0.904		0.171	mg/kg dry	1.02	<0.171	88.3	80-120		
					Prepared & Analyzed: 03/01/2019					
<b>Matrix Spike Dup (BCC0081-MSD1)</b>										
<b>Source: 19B1833-12</b>										
Total Cyanide	1.00		0.188	mg/kg dry	1.13	<0.188	89.1	80-120	10.5	20
<b>Batch: BCC0082 - CN-4500</b>										
<b>Blank (BCC0082-BLK1)</b>										
Total Cyanide	<0.0100		0.0100	mg/L						
					Prepared & Analyzed: 03/01/2019					



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**Quality Control**  
(Continued)

**General Chemistry (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC0082 - CN-4500 (Continued)</b>										
<b>LCS (BCC0082-BS1)</b>										
Total Cyanide	0.100		0.0100	mg/L	0.100		100	90-110		
					Prepared & Analyzed: 03/01/2019					
<b>MRL Check (BCC0082-MRL1)</b>										
Total Cyanide	0.0119		0.0100	mg/L	0.0100		119	50-150		
					Prepared & Analyzed: 03/01/2019					
<b>Matrix Spike (BCC0082-MS1)</b>										
			<b>Source: 19B1832-02</b>							
Total Cyanide	0.0935		0.0100	mg/L	0.100	<0.0100	93.5	80-120		
					Prepared & Analyzed: 03/01/2019					
<b>Matrix Spike Dup (BCC0082-MSD1)</b>										
			<b>Source: 19B1832-02</b>							
Total Cyanide	0.0909		0.0100	mg/L	0.100	<0.0100	90.9	80-120	2.89	20
					Prepared & Analyzed: 03/01/2019					
<b>Batch: BCC0256 - NH3-N SEAL-350.1</b>										
<b>MRL Check (BCC0256-MRL1)</b>										
Ammonia as N	0.0291			mg/L	0.0500		58.2	50-150		
					Prepared & Analyzed: 03/05/2019					
<b>Matrix Spike (BCC0256-MS1)</b>										
			<b>Source: 19C1298-02</b>							
Ammonia as N	1.31		0.100	mg/L	1.25	0.0900	97.8	90-110		
					Prepared & Analyzed: 03/05/2019					
<b>Matrix Spike (BCC0256-MS2)</b>										
			<b>Source: 19C1294-01</b>							
Ammonia as N	1.09	J1	0.100	mg/L	1.25	0.0316	84.6	90-110		
					Prepared & Analyzed: 03/05/2019					
<b>Matrix Spike (BCC0256-MS3)</b>										
			<b>Source: 19C1224-02</b>							
Ammonia as N	1.92	J1	0.100	mg/L	1.25	0.796	89.8	90-110		
					Prepared & Analyzed: 03/05/2019					
<b>Matrix Spike (BCC0256-MS4)</b>										
			<b>Source: 19B1833-09</b>							
Ammonia as N	2.83		1.00	mg/L	1.25	1.64	95.7	90-110		
					Prepared & Analyzed: 03/05/2019					



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**Quality Control**  
(Continued)

**General Chemistry (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0256 - NH3-N SEAL-350.1 (Continued)**

<b>Matrix Spike Dup (BCC0256-MSD1)</b>		<b>Source: 19C1298-02</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	1.30		0.100	mg/L	1.25	0.0900	96.7	90-110	1.10	20
<b>Matrix Spike Dup (BCC0256-MSD2)</b>		<b>Source: 19C1294-01</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	1.10	J1	0.100	mg/L	1.25	0.0316	85.5	90-110	1.11	20
<b>Matrix Spike Dup (BCC0256-MSD3)</b>		<b>Source: 19C1224-02</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	1.96		0.100	mg/L	1.25	0.796	93.4	90-110	2.29	20
<b>Matrix Spike Dup (BCC0256-MSD4)</b>		<b>Source: 19B1833-09</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	2.80		1.00	mg/L	1.25	1.64	93.0	90-110	1.21	20

**Batch: BCC0306 - Percent Solids**

<b>Blank (BCC0306-BLK1)</b>		Prepared: 03/05/2019 Analyzed: 03/11/2019								
% Volatile Solid	<0.0200		0.0200	%						
% Solids	<0.100		0.100	%						
<b>Duplicate (BCC0306-DUP1)</b>		<b>Source: 19B1833-12</b>		Prepared: 03/05/2019 Analyzed: 03/07/2019						
% Solids	54.4		0.100	%		53.3			2.14	10
% Volatile Solid	3.58	J1	0.0200	%		3.20			11.3	10
<b>Duplicate (BCC0306-DUP2)</b>		<b>Source: 19B1833-22</b>		Prepared: 03/05/2019 Analyzed: 03/11/2019						
% Volatile Solid	0.989		0.0200	%		0.996			0.695	10
% Solids	74.8		0.100	%		74.9			0.122	10

**Batch: BCC0764 - NH3-N T**

<b>Blank (BCC0764-BLK1)</b>		Prepared & Analyzed: 03/08/2019								
Ammonia as N	<45.5		45.5	mg/kg wet						



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**Quality Control**  
(Continued)

**General Chemistry (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0764 - NH3-N T (Continued)**

**LCS (BCC0764-BS1)**

Ammonia as N	804		46.3	mg/kg wet	926		86.8	85-115		
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Prepared & Analyzed: 03/08/2019

**Duplicate (BCC0764-DUP1)**

Ammonia as N	24.3	J	86.9	mg/kg dry		29.3			18.5	20
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Source: 19B1832-15

Prepared & Analyzed: 03/08/2019

**Matrix Spike (BCC0764-MS1)**

Ammonia as N	1720		97.7	mg/kg dry	1950	29.3	86.7	85-115		
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Source: 19B1832-15

Prepared & Analyzed: 03/08/2019

**Batch: BCC1033 - TOC-ASI**

**Blank (BCC1033-BLK1)**

Total Organic Carbon (TOC)	<0.000100		0.000100	%						
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Prepared: 03/05/2019 Analyzed: 03/09/2019

**Blank (BCC1033-BLK2)**

Total Organic Carbon (TOC)	<0.000100		0.000100	%						
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Prepared: 03/05/2019 Analyzed: 03/09/2019

**Blank (BCC1033-BLK3)**

Total Organic Carbon (TOC)	<0.000100		0.000100	%						
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Prepared: 03/05/2019 Analyzed: 03/09/2019

**LCS (BCC1033-BS1)**

Total Organic Carbon (TOC)	0.00495		0.000100	%	0.00500		99.0	90-110		
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Prepared: 03/05/2019 Analyzed: 03/09/2019

**LCS (BCC1033-BS2)**

Total Organic Carbon (TOC)	0.00500		0.000100	%	0.00500		99.9	90-110		
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Prepared: 03/05/2019 Analyzed: 03/09/2019

**LCS (BCC1033-BS3)**

Total Organic Carbon (TOC)	0.00497		0.000100	%	0.00500		99.5	90-110		
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Prepared: 03/05/2019 Analyzed: 03/09/2019



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**Quality Control**  
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**General Chemistry (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC1033 - TOC-ASI (Continued)</b>										
<b>Matrix Spike (BCC1033-MS1)</b>			<b>Source: 19C1279-01</b>			Prepared: 03/05/2019 Analyzed: 03/09/2019				
Total Organic Carbon (TOC)	0.00491		0.000100	%	0.00500	<0.000100	98.2	85-115		
<b>Matrix Spike Dup (BCC1033-MSD1)</b>			<b>Source: 19C1279-01</b>			Prepared: 03/05/2019 Analyzed: 03/09/2019				
Total Organic Carbon (TOC)	0.00495		0.000100	%	0.00500	<0.000100	98.9	85-115	0.751	200
<b>Batch: BCD0712 - TOC-9060 ASI</b>										
<b>Blank (BCD0712-BLK1)</b>						Prepared & Analyzed: 04/05/2019				
Total Organic Carbon (TOC)	<0.0100		0.0100	% wet						
<b>Blank (BCD0712-BLK2)</b>						Prepared & Analyzed: 04/05/2019				
Total Organic Carbon (TOC)	0.00727		0.0100	% wet						
<b>Blank (BCD0712-BLK3)</b>						Prepared & Analyzed: 04/05/2019				
Total Organic Carbon (TOC)	0.0105		0.0100	% wet						
<b>LCS (BCD0712-BS1)</b>						Prepared & Analyzed: 04/05/2019				
Total Organic Carbon (TOC)	0.504		0.0100	% wet	0.500		101	90-110		
<b>LCS (BCD0712-BS2)</b>						Prepared & Analyzed: 04/05/2019				
Total Organic Carbon (TOC)	0.504		0.0100	% wet	0.500		101	90-110		
<b>LCS (BCD0712-BS3)</b>						Prepared & Analyzed: 04/05/2019				
Total Organic Carbon (TOC)	0.503		0.0100	% wet	0.500		101	90-110		
<b>Matrix Spike (BCD0712-MS1)</b>			<b>Source: 19B1833-12</b>			Prepared & Analyzed: 04/05/2019				
Total Organic Carbon (TOC)	1.01	J1	0.0188	% dry	0.939	0.651	38.7	85-115		



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**Quality Control**  
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**General Chemistry (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCD0712 - TOC-9060 ASI (Continued)**

**Matrix Spike Dup (BCD0712-MSD1)**

**Source: 19B1833-12**

Prepared & Analyzed: 04/05/2019

Total Organic Carbon (TOC)	1.00	J1	0.0188	% dry	0.939	0.651	37.5	85-115	1.08	200
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**Quality Control**  
(Continued)

**Elutriate Volatile Organic Compounds by GCMS**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCB1643 - SW-5030**

**Blank (BCB1643-BLK1)**

Prepared & Analyzed: 02/25/2019

Ethylbenzene	<5.00		5.00	ug/L						
m+p-xylene	<5.00		5.00	ug/L						
o-Xylene	<5.00		5.00	ug/L						
Tetrachloroethylene (Perchloroethylene)	<5.00		5.00	ug/L						
Trichloroethene (Trichloroethylene)	<5.00		5.00	ug/L						
<hr/>										
<i>Surrogate: 4-Bromofluorobenzene-surr</i>			44.6	ug/L	50.0		89.2	70-130		
<i>Surrogate: Dibromofluoromethane-surr</i>			55.6	ug/L	50.0		111	70-130		
<i>Surrogate: Toluene-d8-surr</i>			55.6	ug/L	50.0		111	70-130		
<i>Surrogate: 1,2-Dichloroethane-d4-surr</i>			54.9	ug/L	50.0		110	70-130		

**LCS (BCB1643-BS1)**

Prepared & Analyzed: 02/25/2019

Ethylbenzene	56.3		5.00	ug/L	50.0		113	70-130		
m+p-xylene	115		5.00	ug/L	100		115	70-130		
o-Xylene	59.5		5.00	ug/L	50.0		119	70-130		
Tetrachloroethylene (Perchloroethylene)	53.2		5.00	ug/L	50.0		106	70-130		
Trichloroethene (Trichloroethylene)	54.3		5.00	ug/L				70-130		
<hr/>										
<i>Surrogate: 4-Bromofluorobenzene-surr</i>			56.5	ug/L	50.0		113	70-130		
<i>Surrogate: Dibromofluoromethane-surr</i>			46.7	ug/L	50.0		93.3	70-130		
<i>Surrogate: Toluene-d8-surr</i>			49.6	ug/L	50.0		99.1	70-130		
<i>Surrogate: 1,2-Dichloroethane-d4-surr</i>			45.1	ug/L	50.0		90.2	70-130		

**LCS Dup (BCB1643-BSD1)**

Prepared & Analyzed: 02/25/2019

Ethylbenzene	54.3		5.00	ug/L	50.0		109	70-130	3.71	30
m+p-xylene	111		5.00	ug/L	100		111	70-130	3.58	30
o-Xylene	58.6		5.00	ug/L	50.0		117	70-130	1.56	30
Tetrachloroethylene (Perchloroethylene)	52.0		5.00	ug/L	50.0		104	70-130	2.20	30
Trichloroethene (Trichloroethylene)	54.5		5.00	ug/L				70-130	0.423	30
<hr/>										
<i>Surrogate: 4-Bromofluorobenzene-surr</i>			54.9	ug/L	50.0		110	70-130		
<i>Surrogate: Dibromofluoromethane-surr</i>			48.4	ug/L	50.0		96.7	70-130		
<i>Surrogate: Toluene-d8-surr</i>			50.1	ug/L	50.0		100	70-130		
<i>Surrogate: 1,2-Dichloroethane-d4-surr</i>			47.7	ug/L	50.0		95.3	70-130		



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**Quality Control**  
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**Elutriate Volatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCB1643 - SW-5030 (Continued)**

**Matrix Spike (BCB1643-MS1)**

**Source: 19B1833-10**

Prepared & Analyzed: 02/25/2019

Ethylbenzene	60.6		5.00	ug/L	50.0	<5.00	121	70-130		
m+p-xylene	127		5.00	ug/L	100	<5.00	127	70-130		
o-Xylene	64.0		5.00	ug/L	50.0	<5.00	128	70-130		
Tetrachloroethylene (Perchloroethylene)	67.6	J1	5.00	ug/L	50.0	<5.00	135	70-130		
Trichloroethene (Trichloroethylene)	66.4		5.00	ug/L		<5.00		70-130		
<hr/>										
Surrogate: 4-Bromofluorobenzene-surr			58.0	ug/L	50.0		116	70-130		
Surrogate: Dibromofluoromethane-surr			51.2	ug/L	50.0		102	70-130		
Surrogate: Toluene-d8-surr			59.3	ug/L	50.0		119	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			43.0	ug/L	50.0		85.9	70-130		

**Matrix Spike Dup (BCB1643-MSD1)**

**Source: 19B1833-10**

Prepared & Analyzed: 02/25/2019

Ethylbenzene	46.6		5.00	ug/L	50.0	<5.00	93.2	70-130	26.1	30
m+p-xylene	95.2		5.00	ug/L	100	<5.00	95.2	70-130	28.3	30
o-Xylene	49.1		5.00	ug/L	50.0	<5.00	98.3	70-130	26.3	30
Tetrachloroethylene (Perchloroethylene)	53.3		5.00	ug/L	50.0	<5.00	107	70-130	23.7	30
Trichloroethene (Trichloroethylene)	54.9		5.00	ug/L		<5.00		70-130	19.0	30
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Surrogate: 4-Bromofluorobenzene-surr			55.8	ug/L	50.0		112	70-130		
Surrogate: Dibromofluoromethane-surr			52.2	ug/L	50.0		104	70-130		
Surrogate: Toluene-d8-surr			56.4	ug/L	50.0		113	70-130		
Surrogate: 1,2-Dichloroethane-d4-surr			50.1	ug/L	50.0		100	70-130		



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**Quality Control**  
(Continued)

**Elutriate Semivolatile Organic Compounds by GCMS**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511**

**Blank (BCC0727-BLK1)**

Prepared: 03/08/2019 Analyzed: 03/26/2019

1,2,4-Trichlorobenzene	<0.562		0.562	ug/L						
1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.562		0.562	ug/L						
1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.562		0.562	ug/L						
1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.562		0.562	ug/L						
2,4-Dichlorophenol	<0.562		0.562	ug/L						
2,4-Dimethylphenol	<1.12		1.12	ug/L						
2,4-Dinitrophenol	<4.50		4.50	ug/L						
Acenaphthene	<0.562		0.562	ug/L						
Acenaphthylene	<0.562		0.562	ug/L						
Anthracene	<0.562		0.562	ug/L						
Benzo(a)anthracene	<0.562		0.562	ug/L						
Benzo(a)pyrene	<0.562		0.562	ug/L						
Benzo(b)fluoranthene	<0.562		0.562	ug/L						
Benzo(g,h,i)perylene	<0.562		0.562	ug/L						
Benzo(k)fluoranthene	<0.562		0.562	ug/L						
Chrysene	<0.562		0.562	ug/L						
Dibenzo(a,h)anthracene	<0.562		0.562	ug/L						
Diethyl phthalate	<0.562		0.562	ug/L						
Fluoranthene	<0.562		0.562	ug/L						
Fluorene	<0.562		0.562	ug/L						
Hexachlorobenzene	<0.562		0.562	ug/L						
Indeno(1,2,3-cd) pyrene	<0.562		0.562	ug/L						
Naphthalene	<0.562		0.562	ug/L						
Pentachlorophenol	<1.12		1.12	ug/L						
Phenanthrene	<0.562		0.562	ug/L						
Phenol, Total	<1.12		1.12	ug/L						
Pyrene	<0.562		0.562	ug/L						
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Surrogate: 2-Fluorobiphenyl-surr			3.88	ug/L	5.00		77.6	60-149		
Surrogate: 2-Fluorophenol-surr			7.39	ug/L	9.99		74.0	60-149		
Surrogate: 2,4,6-Tribromophenol-surr	S		15.7	ug/L	9.99		157	60-149		
Surrogate: Nitrobenzene-d5-surr			3.77	ug/L	5.00		75.5	60-149		
Surrogate: Phenol-d5-surr			6.87	ug/L	9.99		68.7	60-149		
Surrogate: p-Terphenyl-d14-surr			4.20	ug/L	5.00		84.1	60-149		



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**Quality Control**  
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**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511 (Continued)**

**LCS (BCC0727-BS1)**

Prepared: 03/06/2019 Analyzed: 03/26/2019

1,2,4-Trichlorobenzene	4.80		0.560	ug/L	4.98		96.4	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	4.57		0.560	ug/L	4.98		91.8	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	4.37		0.560	ug/L	4.98		87.7	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	4.01		0.560	ug/L	4.98		80.4	60-140		
2,4-Dichlorophenol	9.85		0.560	ug/L	9.96		98.9	60-140		
2,4-Dimethylphenol	11.0		1.12	ug/L	9.96		110	60-140		
2,4-Dinitrophenol	33.0		4.48	ug/L	39.8		82.8	60-140		
Acenaphthene	5.32		0.560	ug/L	4.98		107	60-140		
Acenaphthylene	4.27		0.560	ug/L	4.98		85.8	60-140		
Anthracene	5.14		0.560	ug/L	4.98		103	60-140		
Benzo(a)anthracene	5.04		0.560	ug/L	4.98		101	60-140		
Benzo(a)pyrene	5.04		0.560	ug/L	4.98		101	60-140		
Benzo(b)fluoranthene	4.84		0.560	ug/L	4.98		97.1	60-140		
Benzo(g,h,i)perylene	5.42		0.560	ug/L	4.98		109	60-140		
Benzo(k)fluoranthene	4.82		0.560	ug/L	4.98		96.8	60-140		
Chrysene	5.41		0.560	ug/L	4.98		109	60-140		
Dibenzo(a,h)anthracene	4.89		0.560	ug/L	4.98		98.2	60-140		
Diethyl phthalate	6.20		0.560	ug/L	4.98		125	60-140		
Fluoranthene	6.01		0.560	ug/L	4.98		121	60-140		
Fluorene	5.40		0.560	ug/L	4.98		108	60-140		
Hexachlorobenzene	5.59		0.560	ug/L	4.98		112	60-140		
Indeno(1,2,3-cd) pyrene	5.01		0.560	ug/L	4.98		101	60-140		
Naphthalene	5.22		0.560	ug/L	4.98		105	60-140		
Pentachlorophenol	10.7		1.12	ug/L	9.96		107	60-140		
Phenanthrene	5.28		0.560	ug/L	4.98		106	60-140		
Phenol, Total	8.09		1.12	ug/L	9.96		81.2	60-140		
Pyrene	6.44		0.560	ug/L	4.98		129	60-140		
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Surrogate: 2-Fluorobiphenyl-surr			4.43	ug/L	4.98		88.9	60-149		
Surrogate: 2-Fluorophenol-surr			10.3	ug/L	9.96		103	60-149		
Surrogate: 2,4,6-Tribromophenol-surr			13.6	ug/L	9.96		136	60-149		
Surrogate: Nitrobenzene-d5-surr			4.42	ug/L	4.98		88.8	60-149		
Surrogate: Phenol-d5-surr			9.97	ug/L	9.96		100	60-149		
Surrogate: p-Terphenyl-d14-surr			4.68	ug/L	4.98		93.9	60-149		



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**Quality Control**  
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**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC0727 - SW-3511 (Continued)</b>										
<b>LCS Dup (BCC0727-BS1)</b>										
					Prepared: 03/06/2019 Analyzed: 03/26/2019					
1,2,4-Trichlorobenzene	4.49		0.562	ug/L	4.99		89.9	60-140	6.79	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	4.17		0.562	ug/L	4.99		83.6	60-140	9.18	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	3.95		0.562	ug/L	4.99		79.1	60-140	10.2	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	4.14		0.562	ug/L	4.99		82.9	60-140	3.28	40
2,4-Dichlorophenol	8.73		0.562	ug/L	9.98		87.4	60-140	12.1	40
2,4-Dimethylphenol	7.34		1.12	ug/L	9.98		73.5	60-140	39.8	40
2,4-Dinitrophenol	32.4		4.49	ug/L	39.9		81.2	60-140	1.68	40
Acenaphthene	5.07		0.562	ug/L	4.99		102	60-140	4.66	40
Acenaphthylene	4.09		0.562	ug/L	4.99		82.0	60-140	4.24	40
Anthracene	4.82		0.562	ug/L	4.99		96.7	60-140	6.41	40
Benzo(a)anthracene	4.80		0.562	ug/L	4.99		96.1	60-140	5.01	40
Benzo(a)pyrene	4.78		0.562	ug/L	4.99		95.7	60-140	5.48	40
Benzo(b)fluoranthene	4.76		0.562	ug/L	4.99		95.4	60-140	1.51	40
Benzo(g,h,i)perylene	5.21		0.562	ug/L	4.99		104	60-140	3.86	40
Benzo(k)fluoranthene	4.64		0.562	ug/L	4.99		92.9	60-140	3.93	40
Chrysene	5.13		0.562	ug/L	4.99		103	60-140	5.31	40
Dibenzo(a,h)anthracene	4.89		0.562	ug/L	4.99		97.9	60-140	0.0997	40
Diethyl phthalate	5.99		0.562	ug/L	4.99		120	60-140	3.56	40
Fluoranthene	5.71		0.562	ug/L	4.99		114	60-140	5.11	40
Fluorene	5.21		0.562	ug/L	4.99		104	60-140	3.55	40
Hexachlorobenzene	5.25		0.562	ug/L	4.99		105	60-140	6.38	40
Indeno(1,2,3-cd) pyrene	4.97		0.562	ug/L	4.99		99.6	60-140	0.887	40
Naphthalene	4.92		0.562	ug/L	4.99		98.5	60-140	5.98	40
Pentachlorophenol	9.97		1.12	ug/L	9.98		99.9	60-140	6.94	40
Phenanthrene	5.00		0.562	ug/L	4.99		100	60-140	5.40	40
Phenol, Total	7.52		1.12	ug/L	9.98		75.4	60-140	7.26	40
Pyrene	6.05		0.562	ug/L	4.99		121	60-140	6.24	40
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Surrogate: 2-Fluorobiphenyl-surr			4.10	ug/L	4.99		82.1	60-149		
Surrogate: 2-Fluorophenol-surr			9.32	ug/L	9.98		93.4	60-149		
Surrogate: 2,4,6-Tribromophenol-surr			12.6	ug/L	9.98		126	60-149		
Surrogate: Nitrobenzene-d5-surr			4.06	ug/L	4.99		81.3	60-149		
Surrogate: Phenol-d5-surr			8.07	ug/L	9.98		80.8	60-149		
Surrogate: p-Terphenyl-d14-surr			4.23	ug/L	4.99		84.7	60-149		



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**Quality Control**  
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**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511 (Continued)**

**Matrix Spike (BCC0727-MS2)**

**Source: 19B1833-04**

Prepared: 03/06/2019 Analyzed: 03/26/2019

1,2,4-Trichlorobenzene	4.43		0.562	ug/L	5.00	<0.562	88.7	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	4.30		0.562	ug/L	5.00	<0.562	86.0	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	4.03		0.562	ug/L	5.00	<0.562	80.7	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	4.33		0.562	ug/L	5.00	<0.562	86.8	60-140		
2,4-Dichlorophenol	8.36		0.562	ug/L	9.99	<0.562	83.7	60-140		
2,4-Dimethylphenol	12.3		1.12	ug/L	9.99	<1.12	124	60-140		
2,4-Dinitrophenol	36.5		4.50	ug/L	40.0	<4.50	91.4	60-140		
Acenaphthene	5.36		0.562	ug/L	5.00	<0.562	107	60-140		
Acenaphthylene	4.29		0.562	ug/L	5.00	<0.562	85.8	60-140		
Anthracene	5.68		0.562	ug/L	5.00	<0.562	114	60-140		
Benzo(a)anthracene	4.95		0.562	ug/L	5.00	<0.562	99.2	60-140		
Benzo(a)pyrene	5.05		0.562	ug/L	5.00	<0.562	101	60-140		
Benzo(b)fluoranthene	4.55		0.562	ug/L	5.00	<0.562	91.2	60-140		
Benzo(g,h,i)perylene	5.43		0.562	ug/L	5.00	<0.562	109	60-140		
Benzo(k)fluoranthene	4.67		0.562	ug/L	5.00	<0.562	93.6	60-140		
Chrysene	5.31		0.562	ug/L	5.00	<0.562	106	60-140		
Dibenzo(a,h)anthracene	5.07		0.562	ug/L	5.00	<0.562	102	60-140		
Diethyl phthalate	6.22		0.562	ug/L	5.00	<0.562	125	60-140		
Fluoranthene	6.86		0.562	ug/L	5.00	<0.562	137	60-140		
Fluorene	5.15		0.562	ug/L	5.00	<0.562	103	60-140		
Hexachlorobenzene	6.05		0.562	ug/L	5.00	<0.562	121	60-140		
Indeno(1,2,3-cd) pyrene	5.09		0.562	ug/L	5.00	<0.562	102	60-140		
Naphthalene	5.08		0.562	ug/L	5.00	<0.562	102	60-140		
Pentachlorophenol	11.0		1.12	ug/L	9.99	<1.12	110	60-140		
Phenanthrene	5.52		0.562	ug/L	5.00	<0.562	110	60-140		
Phenol, Total	6.81		1.12	ug/L	9.99	<1.12	68.2	60-140		
Pyrene	6.26		0.562	ug/L	5.00	<0.562	125	60-140		

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Surrogate: 2-Fluorobiphenyl-surr			4.26	ug/L	5.00		85.3	60-149		
Surrogate: 2-Fluorophenol-surr			8.19	ug/L	9.99		81.9	60-149		
Surrogate: 2,4,6-Tribromophenol-surr			14.4	ug/L	9.99		144	60-149		
Surrogate: Nitrobenzene-d5-surr			4.45	ug/L	5.00		89.1	60-149		
Surrogate: Phenol-d5-surr			8.60	ug/L	9.99		86.1	60-149		
Surrogate: p-Terphenyl-d14-surr			4.25	ug/L	5.00		85.0	60-149		



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**Quality Control**  
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**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0727 - SW-3511 (Continued)**

**Matrix Spike Dup (BCC0727-MSD2)**

**Source: 19B1833-04**

Prepared: 03/06/2019 Analyzed: 03/26/2019

1,2,4-Trichlorobenzene	4.02		0.562	ug/L	5.00	<0.562	80.4	60-140	9.74	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	4.02		0.562	ug/L	5.00	<0.562	80.4	60-140	6.65	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	3.84		0.562	ug/L	5.00	<0.562	76.9	60-140	4.71	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	3.99		0.562	ug/L	5.00	<0.562	79.8	60-140	8.35	40
2,4-Dichlorophenol	7.58		0.562	ug/L	10.0	<0.562	75.8	60-140	9.84	40
2,4-Dimethylphenol	8.89		1.12	ug/L	10.0	<1.12	88.9	60-140	32.5	40
2,4-Dinitrophenol	33.6		4.50	ug/L	40.0	<4.50	84.1	60-140	8.20	40
Acenaphthene	5.00		0.562	ug/L	5.00	<0.562	100	60-140	6.85	40
Acenaphthylene	3.97		0.562	ug/L	5.00	<0.562	79.4	60-140	7.65	40
Anthracene	5.26		0.562	ug/L	5.00	<0.562	105	60-140	7.69	40
Benzo(a)anthracene	4.65		0.562	ug/L	5.00	<0.562	93.1	60-140	6.21	40
Benzo(a)pyrene	4.72		0.562	ug/L	5.00	<0.562	94.5	60-140	6.72	40
Benzo(b)fluoranthene	4.53		0.562	ug/L	5.00	<0.562	90.6	60-140	0.526	40
Benzo(g,h,i)perylene	4.98		0.562	ug/L	5.00	<0.562	99.7	60-140	8.66	40
Benzo(k)fluoranthene	4.43		0.562	ug/L	5.00	<0.562	88.6	60-140	5.40	40
Chrysene	4.97		0.562	ug/L	5.00	<0.562	99.4	60-140	6.59	40
Dibenzo(a,h)anthracene	4.71		0.562	ug/L	5.00	<0.562	94.2	60-140	7.39	40
Diethyl phthalate	5.44		0.562	ug/L	5.00	<0.562	109	60-140	13.4	40
Fluoranthene	5.87		0.562	ug/L	5.00	<0.562	117	60-140	15.5	40
Fluorene	4.31		0.562	ug/L	5.00	<0.562	86.3	60-140	17.7	40
Hexachlorobenzene	5.22		0.562	ug/L	5.00	<0.562	104	60-140	14.8	40
Indeno(1,2,3-cd) pyrene	4.74		0.562	ug/L	5.00	<0.562	94.9	60-140	6.98	40
Naphthalene	4.72		0.562	ug/L	5.00	<0.562	94.4	60-140	7.42	40
Pentachlorophenol	10.5		1.12	ug/L	10.0	<1.12	106	60-140	4.47	40
Phenanthrene	5.04		0.562	ug/L	5.00	<0.562	101	60-140	9.04	40
Phenol, Total	4.57	J1	1.12	ug/L	10.0	<1.12	45.7	60-140	39.5	40
Pyrene	6.32		0.562	ug/L	5.00	<0.562	126	60-140	1.04	40
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Surrogate: 2-Fluorobiphenyl-surr			3.77	ug/L	5.00		75.4	60-149		
Surrogate: 2-Fluorophenol-surr			7.55	ug/L	10.0		75.5	60-149		
Surrogate: 2,4,6-Tribromophenol-surr			12.8	ug/L	10.0		128	60-149		
Surrogate: Nitrobenzene-d5-surr			4.14	ug/L	5.00		82.7	60-149		
Surrogate: Phenol-d5-surr			6.15	ug/L	10.0		61.5	60-149		
Surrogate: p-Terphenyl-d14-surr			3.86	ug/L	5.00		77.1	60-149		



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**Quality Control**  
(Continued)

**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511**

**Blank (BCC2654-BLK1)**

Prepared: 02/26/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	<0.561		0.561	ug/L						
1,2-Dichlorobenzene (o-Dichlorobenzene)	<0.561		0.561	ug/L						
1,3-Dichlorobenzene (m-Dichlorobenzene)	<0.561		0.561	ug/L						
1,4-Dichlorobenzene (p-Dichlorobenzene)	<0.561		0.561	ug/L						
2,4-Dichlorophenol	0.585	B	0.561	ug/L						
2,4-Dimethylphenol	<1.12		1.12	ug/L						
2,4-Dinitrophenol	<4.49		4.49	ug/L						
Acenaphthene	<0.561		0.561	ug/L						
Acenaphthylene	<0.561		0.561	ug/L						
Anthracene	<0.561		0.561	ug/L						
Benzo(a)anthracene	<0.561		0.561	ug/L						
Benzo(a)pyrene	<0.561		0.561	ug/L						
Benzo(b)fluoranthene	<0.561		0.561	ug/L						
Benzo(g,h,i)perylene	<0.561		0.561	ug/L						
Benzo(k)fluoranthene	<0.561		0.561	ug/L						
Chrysene	<0.561		0.561	ug/L						
Dibenzo(a,h)anthracene	<0.561		0.561	ug/L						
Diethyl phthalate	<0.561		0.561	ug/L						
Fluoranthene	<0.561		0.561	ug/L						
Fluorene	<0.561		0.561	ug/L						
Hexachlorobenzene	<0.561		0.561	ug/L						
Indeno(1,2,3-cd) pyrene	<0.561		0.561	ug/L						
Naphthalene	<0.561		0.561	ug/L						
Pentachlorophenol	<1.12		1.12	ug/L						
Phenanthrene	<0.561		0.561	ug/L						
Phenol, Total	1.06		1.12	ug/L						
Pyrene	<0.561		0.561	ug/L						
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Surrogate: 2-Fluorobiphenyl-surr			8.89	ug/L	9.98		89.1	60-149		
Surrogate: 2-Fluorophenol-surr			21.2	ug/L	20.0		106	60-149		
Surrogate: 2,4,6-Tribromophenol-surr			21.2	ug/L	20.0		106	60-149		
Surrogate: Nitrobenzene-d5-surr			9.71	ug/L	9.98		97.4	60-149		
Surrogate: Phenol-d5-surr			18.7	ug/L	20.0		93.7	60-149		
Surrogate: p-Terphenyl-d14-surr			10.1	ug/L	9.98		101	60-149		





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**Quality Control**  
(Continued)

**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511 (Continued)**

**LCS (BCC2654-BS2)**

Prepared: 02/26/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	9.90		0.561	ug/L	9.97		99.3	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	9.25		0.561	ug/L	9.97		92.8	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	9.22		0.561	ug/L	9.97		92.5	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	9.95		0.561	ug/L	9.97		99.8	60-140		
2,4-Dichlorophenol	23.3		0.561	ug/L	19.9		117	60-140		
2,4-Dimethylphenol	20.3		1.12	ug/L	19.9		102	60-140		
2,4-Dinitrophenol	71.8	J1	4.49	ug/L	49.8		144	60-140		
Acenaphthene	10.4		0.561	ug/L	9.97		104	60-140		
Acenaphthylene	9.33		0.561	ug/L	9.97		93.6	60-140		
Anthracene	11.0		0.561	ug/L	9.97		110	60-140		
Benzo(a)anthracene	10.3		0.561	ug/L	9.97		104	60-140		
Benzo(a)pyrene	9.99		0.561	ug/L	9.97		100	60-140		
Benzo(b)fluoranthene	10.9		0.561	ug/L	9.97		110	60-140		
Benzo(g,h,i)perylene	11.0		0.561	ug/L	9.97		110	60-140		
Benzo(k)fluoranthene	10.9		0.561	ug/L	9.97		109	60-140		
Chrysene	11.0		0.561	ug/L	9.97		110	60-140		
Dibenzo(a,h)anthracene	10.6		0.561	ug/L	9.97		106	60-140		
Diethyl phthalate	11.4		0.561	ug/L	9.97		115	60-140		
Fluoranthene	10.9		0.561	ug/L	9.97		110	60-140		
Fluorene	11.0		0.561	ug/L	9.97		110	60-140		
Hexachlorobenzene	10.5		0.561	ug/L	9.97		105	60-140		
Indeno(1,2,3-cd) pyrene	10.4		0.561	ug/L	9.97		104	60-140		
Naphthalene	10.4		0.561	ug/L	9.97		105	60-140		
Pentachlorophenol	21.1		1.12	ug/L	19.9		106	60-140		
Phenanthrene	10.9		0.561	ug/L	9.97		109	60-140		
Phenol, Total	21.9		1.12	ug/L	19.9		110	60-140		
Pyrene	11.2		0.561	ug/L	9.97		113	60-140		
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Surrogate: 2-Fluorobiphenyl-surr			10.7	ug/L	9.97		108	60-149		
Surrogate: 2-Fluorophenol-surr			20.3	ug/L	19.9		102	60-149		
Surrogate: 2,4,6-Tribromophenol-surr			22.0	ug/L	19.9		110	60-149		
Surrogate: Nitrobenzene-d5-surr			10.0	ug/L	9.97		101	60-149		
Surrogate: Phenol-d5-surr			20.9	ug/L	19.9		105	60-149		
Surrogate: p-Terphenyl-d14-surr			10.1	ug/L	9.97		101	60-149		



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**Quality Control**  
(Continued)

**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC2654 - SW-3511 (Continued)</b>										
<b>LCS Dup (BCC2654-BSD2)</b>										
					Prepared: 02/26/2019 Analyzed: 03/23/2019					
1,2,4-Trichlorobenzene	9.31		0.562	ug/L	9.99		93.2	60-140	6.11	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	8.83		0.562	ug/L	9.99		88.4	60-140	4.70	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	9.20		0.562	ug/L	9.99		92.1	60-140	0.283	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	9.83		0.562	ug/L	9.99		98.4	60-140	1.24	40
2,4-Dichlorophenol	21.8		0.562	ug/L	20.0		109	60-140	6.87	40
2,4-Dimethylphenol	17.2		1.12	ug/L	20.0		86.0	60-140	16.7	40
2,4-Dinitrophenol	70.5	J1	4.49	ug/L	49.9		141	60-140	1.83	40
Acenaphthene	9.77		0.562	ug/L	9.99		97.9	60-140	5.81	40
Acenaphthylene	8.94		0.562	ug/L	9.99		89.6	60-140	4.26	40
Anthracene	10.8		0.562	ug/L	9.99		108	60-140	1.83	40
Benzo(a)anthracene	9.68		0.562	ug/L	9.99		97.0	60-140	6.65	40
Benzo(a)pyrene	9.64		0.562	ug/L	9.99		96.5	60-140	3.56	40
Benzo(b)fluoranthene	10.6		0.562	ug/L	9.99		106	60-140	3.04	40
Benzo(g,h,i)perylene	10.8		0.562	ug/L	9.99		108	60-140	1.68	40
Benzo(k)fluoranthene	10.5		0.562	ug/L	9.99		105	60-140	3.23	40
Chrysene	10.5		0.562	ug/L	9.99		105	60-140	4.53	40
Dibenzo(a,h)anthracene	10.5		0.562	ug/L	9.99		105	60-140	0.401	40
Diethyl phthalate	10.4		0.562	ug/L	9.99		104	60-140	9.79	40
Fluoranthene	10.4		0.562	ug/L	9.99		104	60-140	4.96	40
Fluorene	10.5		0.562	ug/L	9.99		105	60-140	4.69	40
Hexachlorobenzene	10.3		0.562	ug/L	9.99		103	60-140	1.49	40
Indeno(1,2,3-cd) pyrene	10.1		0.562	ug/L	9.99		102	60-140	2.54	40
Naphthalene	9.76		0.562	ug/L	9.99		97.8	60-140	6.66	40
Pentachlorophenol	19.1		1.12	ug/L	20.0		95.8	60-140	9.74	40
Phenanthrene	10.3		0.562	ug/L	9.99		104	60-140	4.75	40
Phenol, Total	16.9		1.12	ug/L	20.0		84.8	60-140	25.7	40
Pyrene	11.0		0.562	ug/L	9.99		110	60-140	2.60	40
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Surrogate: 2-Fluorobiphenyl-surr			9.45	ug/L	9.99		94.6	60-149		
Surrogate: 2-Fluorophenol-surr			20.2	ug/L	20.0		101	60-149		
Surrogate: 2,4,6-Tribromophenol-surr			21.2	ug/L	20.0		106	60-149		
Surrogate: Nitrobenzene-d5-surr			9.80	ug/L	9.99		98.1	60-149		
Surrogate: Phenol-d5-surr			18.9	ug/L	20.0		94.4	60-149		
Surrogate: p-Terphenyl-d14-surr			9.54	ug/L	9.99		95.6	60-149		



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**Quality Control**  
(Continued)

**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511 (Continued)**

**Matrix Spike (BCC2654-MS1)**

**Source: 19B2026-02**

Prepared: 02/26/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	9.74		0.561	ug/L	9.97	<0.561	97.7	60-140		
1,2-Dichlorobenzene (o-Dichlorobenzene)	8.97		0.561	ug/L	9.97	<0.561	90.0	60-140		
1,3-Dichlorobenzene (m-Dichlorobenzene)	9.09		0.561	ug/L	9.97	<0.561	91.2	60-140		
1,4-Dichlorobenzene (p-Dichlorobenzene)	9.69		0.561	ug/L	9.97	<0.561	97.3	60-140		
2,4-Dichlorophenol	21.3		0.561	ug/L	19.9	<0.561	107	60-140		
2,4-Dimethylphenol	12.6		1.12	ug/L	19.9	<1.12	63.0	60-140		
2,4-Dinitrophenol	74.8	J1	4.48	ug/L	49.8	<4.48	150	60-140		
Acenaphthene	10.3		0.561	ug/L	9.97	<0.561	103	60-140		
Acenaphthylene	9.26		0.561	ug/L	9.97	<0.561	92.9	60-140		
Anthracene	11.2		0.561	ug/L	9.97	<0.561	112	60-140		
Benzo(a)anthracene	9.78		0.561	ug/L	9.97	<0.561	98.1	60-140		
Benzo(a)pyrene	9.22		0.561	ug/L	9.97	<0.561	92.6	60-140		
Benzo(b)fluoranthene	10.0		0.561	ug/L	9.97	<0.561	100	60-140		
Benzo(g,h,i)perylene	10.4		0.561	ug/L	9.97	0.385	100	60-140		
Benzo(k)fluoranthene	9.92		0.561	ug/L	9.97	<0.561	99.6	60-140		
Chrysene	10.5		0.561	ug/L	9.97	<0.561	106	60-140		
Dibenzo(a,h)anthracene	9.93		0.561	ug/L	9.97	<0.561	99.7	60-140		
Diethyl phthalate	11.1		0.561	ug/L	9.97	<0.561	112	60-140		
Fluoranthene	10.9		0.561	ug/L	9.97	<0.561	110	60-140		
Fluorene	10.7		0.561	ug/L	9.97	<0.561	108	60-140		
Hexachlorobenzene	10.5		0.561	ug/L	9.97	<0.561	105	60-140		
Indeno(1,2,3-cd) pyrene	9.82		0.561	ug/L	9.97	<0.561	98.5	60-140		
Naphthalene	10.3		0.561	ug/L	9.97	<0.561	104	60-140		
Pentachlorophenol	18.9		1.12	ug/L	19.9	<1.12	94.9	60-140		
Phenanthrene	10.7		0.561	ug/L	9.97	<0.561	107	60-140		
Phenol, Total	9.82	J1	1.12	ug/L	19.9	<1.12	49.3	60-140		
Pyrene	11.3		0.561	ug/L	9.97	<0.561	113	60-140		
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Surrogate: 2-Fluorobiphenyl-surr			10.3	ug/L	9.97		104	60-149		
Surrogate: 2-Fluorophenol-surr			18.0	ug/L	19.9		90.4	60-149		
Surrogate: 2,4,6-Tribromophenol-surr			20.7	ug/L	19.9		104	60-149		
Surrogate: Nitrobenzene-d5-surr			10.8	ug/L	9.97		108	60-149		
Surrogate: Phenol-d5-surr		S	8.75	ug/L	19.9		43.9	60-149		
Surrogate: p-Terphenyl-d14-surr			9.08	ug/L	9.97		91.2	60-149		



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**Quality Control**  
(Continued)

**Elutriate Semivolatile Organic Compounds by GCMS (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2654 - SW-3511 (Continued)**

**Matrix Spike Dup (BCC2654-MSD1)**

**Source: 19B2026-02**

Prepared: 02/26/2019 Analyzed: 03/23/2019

1,2,4-Trichlorobenzene	9.20		0.560	ug/L	9.96	<0.560	92.4	60-140	5.71	40
1,2-Dichlorobenzene (o-Dichlorobenzene)	8.94		0.560	ug/L	9.96	<0.560	89.8	60-140	0.378	40
1,3-Dichlorobenzene (m-Dichlorobenzene)	8.44		0.560	ug/L	9.96	<0.560	84.8	60-140	7.38	40
1,4-Dichlorobenzene (p-Dichlorobenzene)	9.41		0.560	ug/L	9.96	<0.560	94.5	60-140	2.98	40
2,4-Dichlorophenol	21.1		0.560	ug/L	19.9	<0.560	106	60-140	1.14	40
2,4-Dimethylphenol	15.8		1.12	ug/L	19.9	<1.12	79.1	60-140	22.6	40
2,4-Dinitrophenol	70.4	J1	4.48	ug/L	49.8	<4.48	141	60-140	6.14	40
Acenaphthene	9.78		0.560	ug/L	9.96	<0.560	98.2	60-140	4.68	40
Acenaphthylene	8.75		0.560	ug/L	9.96	<0.560	87.8	60-140	5.72	40
Anthracene	10.9		0.560	ug/L	9.96	<0.560	110	60-140	1.89	40
Benzo(a)anthracene	9.32		0.560	ug/L	9.96	<0.560	93.6	60-140	4.83	40
Benzo(a)pyrene	8.93		0.560	ug/L	9.96	<0.560	89.7	60-140	3.21	40
Benzo(b)fluoranthene	9.78		0.560	ug/L	9.96	<0.560	98.3	60-140	2.32	40
Benzo(g,h,i)perylene	9.84		0.560	ug/L	9.96	0.385	95.0	60-140	5.31	40
Benzo(k)fluoranthene	9.47		0.560	ug/L	9.96	<0.560	95.1	60-140	4.68	40
Chrysene	10.3		0.560	ug/L	9.96	<0.560	103	60-140	2.46	40
Dibenzo(a,h)anthracene	9.83		0.560	ug/L	9.96	<0.560	98.7	60-140	1.06	40
Diethyl phthalate	10.6		0.560	ug/L	9.96	<0.560	106	60-140	5.01	40
Fluoranthene	10.8		0.560	ug/L	9.96	<0.560	108	60-140	1.67	40
Fluorene	10.5		0.560	ug/L	9.96	<0.560	105	60-140	2.36	40
Hexachlorobenzene	10.2		0.560	ug/L	9.96	<0.560	103	60-140	2.53	40
Indeno(1,2,3-cd) pyrene	9.55		0.560	ug/L	9.96	<0.560	95.9	60-140	2.78	40
Naphthalene	9.68		0.560	ug/L	9.96	<0.560	97.2	60-140	6.67	40
Pentachlorophenol	19.2		1.12	ug/L	19.9	<1.12	96.4	60-140	1.46	40
Phenanthrene	10.1		0.560	ug/L	9.96	<0.560	101	60-140	5.38	40
Phenol, Total	16.5	J1	1.12	ug/L	19.9	<1.12	83.0	60-140	50.9	40
Pyrene	11.2		0.560	ug/L	9.96	<0.560	113	60-140	0.599	40
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Surrogate: 2-Fluorobiphenyl-surr			9.36	ug/L	9.96		94.0	60-149		
Surrogate: 2-Fluorophenol-surr			17.5	ug/L	19.9		88.0	60-149		
Surrogate: 2,4,6-Tribromophenol-surr			20.0	ug/L	19.9		101	60-149		
Surrogate: Nitrobenzene-d5-surr			10.3	ug/L	9.96		104	60-149		
Surrogate: Phenol-d5-surr			13.1	ug/L	19.9		66.0	60-149		
Surrogate: p-Terphenyl-d14-surr			8.95	ug/L	9.96		89.9	60-149		



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Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Elutriate Organics by GC**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511**

**Blank (BCC0141-BLK1)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	<0.00299		0.00299	ug/L						
4,4'-DDE	<0.00998		0.00998	ug/L						
4,4'-DDT	<0.0110		0.0110	ug/L						
Aldrin	<0.00299		0.00299	ug/L						
alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00499		0.00499	ug/L						
beta-BHC (beta-Hexachlorocyclohexane)	<0.0299		0.0299	ug/L						
Chlordane (tech.)	<0.00599		0.00599	ug/L						
cis-Chlordane (alpha-Chlordane)	<0.00698		0.00698	ug/L						
delta-BHC	<0.0120		0.0120	ug/L						
Dieldrin	<0.00299		0.00299	ug/L						
Endosulfan I	<0.00599		0.00599	ug/L						
Endosulfan II	<0.0120		0.0120	ug/L						
Endosulfan sulfate	<0.0259		0.0259	ug/L						
Endrin	<0.00798		0.00798	ug/L						
Endrin aldehyde	<0.0229		0.0229	ug/L						
Endrin ketone	<0.0150		0.0150	ug/L						
gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.0110		0.0110	ug/L						
gamma-Chlordane	<0.00399		0.00399	ug/L						
Heptachlor	<0.0379		0.0379	ug/L						
Heptachlor epoxide	<0.00599		0.00599	ug/L						
Toxaphene (Chlorinated Camphene)	<0.00599		0.00599	ug/L						
<hr/>										
Surrogate: 2,4,5,6			0.0956	ug/L	0.120		79.9	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.118	ug/L	0.120		98.2	60-140		

**LCS (BCC0141-BS1)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	0.102		0.00300	ug/L	0.120		84.8	60-140		
4,4'-DDE	0.0955		0.0100	ug/L	0.120		79.6	60-140		
4,4'-DDT	0.101		0.0110	ug/L	0.120		83.8	60-140		
Aldrin	0.0905		0.00300	ug/L	0.120		75.4	60-140		
alpha-BHC (alpha-Hexachlorocyclohexane)	0.105		0.00500	ug/L	0.120		87.6	60-140		
beta-BHC (beta-Hexachlorocyclohexane)	0.108		0.0300	ug/L	0.120		90.4	60-140		
cis-Chlordane (alpha-Chlordane)	0.102		0.00700	ug/L	0.120		84.8	60-140		
delta-BHC	0.107		0.0120	ug/L	0.120		89.3	60-140		
Dieldrin	0.0963		0.00300	ug/L	0.120		80.2	60-140		
Endosulfan I	0.103		0.00600	ug/L	0.120		85.6	60-140		
Endosulfan II	0.0984		0.0120	ug/L	0.120		82.0	60-140		
Endosulfan sulfate	0.109		0.0260	ug/L	0.120		91.0	60-140		
Endrin	0.0993		0.00800	ug/L	0.120		82.7	60-140		
Endrin aldehyde	0.104		0.0230	ug/L	0.120		87.1	60-140		
Endrin ketone	0.105		0.0150	ug/L	0.120		87.8	60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	0.105		0.0110	ug/L	0.120		87.8	60-140		
gamma-Chlordane	0.105		0.00400	ug/L	0.120		87.1	60-140		



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**Quality Control**  
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**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**LCS (BCC0141-BS1)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

Heptachlor	0.0966		0.0380	ug/L	0.120		80.5	60-140		
Heptachlor epoxide	0.0978		0.00600	ug/L	0.120		81.5	60-140		
Toxaphene (Chlorinated Camphene)	<0.00600		0.00600	ug/L				60-140		
<hr/>										
<i>Surrogate: 2,4,5,6</i>			<i>0.0938</i>	<i>ug/L</i>	<i>0.120</i>		<i>78.2</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.118</i>	<i>ug/L</i>	<i>0.120</i>		<i>98.1</i>	<i>60-140</i>		

**LCS (BCC0141-BS2)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	<0.00300		0.00300	ug/L				60-140		
4,4'-DDE	<0.00999		0.00999	ug/L				60-140		
4,4'-DDT	<0.0110		0.0110	ug/L				60-140		
Aldrin	<0.00300		0.00300	ug/L				60-140		
alpha-BHC	<0.00499		0.00499	ug/L				60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.0300		0.0300	ug/L				60-140		
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	<0.00699		0.00699	ug/L				60-140		
delta-BHC	<0.0120		0.0120	ug/L				60-140		
Dieldrin	<0.00300		0.00300	ug/L				60-140		
Endosulfan I	<0.00599		0.00599	ug/L				60-140		
Endosulfan II	<0.0120		0.0120	ug/L				60-140		
Endosulfan sulfate	<0.0260		0.0260	ug/L				60-140		
Endrin	<0.00799		0.00799	ug/L				60-140		
Endrin aldehyde	<0.0230		0.0230	ug/L				60-140		
Endrin ketone	<0.0150		0.0150	ug/L				60-140		
gamma-BHC (Lindane,	<0.0110		0.0110	ug/L				60-140		
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	<0.00399		0.00399	ug/L				60-140		
Heptachlor	<0.0379		0.0379	ug/L				60-140		
Heptachlor epoxide	<0.00599		0.00599	ug/L				60-140		
Toxaphene (Chlorinated Camphene)	1.15		0.00599	ug/L	1.20		96.3	60-140		
<hr/>										
<i>Surrogate: 2,4,5,6</i>			<i>0.0940</i>	<i>ug/L</i>	<i>0.120</i>		<i>78.5</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.107</i>	<i>ug/L</i>	<i>0.120</i>		<i>89.1</i>	<i>60-140</i>		



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**Quality Control**  
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**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**LCS Dup (BCC0141-BS1)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	0.105		0.00300	ug/L	0.120		87.6	60-140	3.22	40
4,4'-DDE	0.0957		0.00999	ug/L	0.120		79.8	60-140	0.166	40
4,4'-DDT	0.103		0.0110	ug/L	0.120		85.6	60-140	2.03	40
Aldrin	0.0922		0.00300	ug/L	0.120		76.9	60-140	1.93	40
alpha-BHC (alpha-Hexachlorocyclohexane)	0.114		0.00500	ug/L	0.120		95.4	60-140	8.54	40
beta-BHC (beta-Hexachlorocyclohexane)	0.110		0.0300	ug/L	0.120		91.6	60-140	1.28	40
cis-Chlordane (alpha-Chlordane)	0.105		0.00700	ug/L	0.120		87.3	60-140	2.84	40
delta-BHC	0.110		0.0120	ug/L	0.120		91.8	60-140	2.68	40
Dieldrin	0.0990		0.00300	ug/L	0.120		82.5	60-140	2.72	40
Endosulfan I	0.104		0.00600	ug/L	0.120		86.7	60-140	1.19	40
Endosulfan II	0.102		0.0120	ug/L	0.120		85.0	60-140	3.55	40
Endosulfan sulfate	0.111		0.0260	ug/L	0.120		92.8	60-140	1.99	40
Endrin	0.100		0.00800	ug/L	0.120		83.4	60-140	0.717	40
Endrin aldehyde	0.111		0.0230	ug/L	0.120		92.8	60-140	6.32	40
Endrin ketone	0.109		0.0150	ug/L	0.120		90.9	60-140	3.36	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.106		0.0110	ug/L	0.120		88.7	60-140	0.909	40
gamma-Chlordane	0.108		0.00400	ug/L	0.120		90.3	60-140	3.52	40
Heptachlor	0.0986		0.0380	ug/L	0.120		82.2	60-140	2.02	40
Heptachlor epoxide	0.0992		0.00600	ug/L	0.120		82.7	60-140	1.40	40
Toxaphene (Chlorinated Camphene)	<0.00600		0.00600	ug/L				60-140		40
<hr/>										
Surrogate: 2,4,5,6			0.0910	ug/L	0.120		75.9	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.119	ug/L	0.120		99.2	60-140		

**LCS Dup (BCC0141-BS2)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	<0.00299		0.00299	ug/L				60-140		40
4,4'-DDE	<0.00996		0.00996	ug/L				60-140		40
4,4'-DDT	<0.0110		0.0110	ug/L				60-140		40
Aldrin	<0.00299		0.00299	ug/L				60-140		40
alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00498		0.00498	ug/L				60-140		40
beta-BHC (beta-Hexachlorocyclohexane)	<0.0299		0.0299	ug/L				60-140		40
cis-Chlordane (alpha-Chlordane)	<0.00697		0.00697	ug/L				60-140		40
delta-BHC	<0.0119		0.0119	ug/L				60-140		40
Dieldrin	<0.00299		0.00299	ug/L				60-140		40
Endosulfan I	<0.00597		0.00597	ug/L				60-140		40
Endosulfan II	<0.0119		0.0119	ug/L				60-140		40
Endosulfan sulfate	<0.0259		0.0259	ug/L				60-140		40
Endrin	<0.00797		0.00797	ug/L				60-140		40
Endrin aldehyde	<0.0229		0.0229	ug/L				60-140		40
Endrin ketone	<0.0149		0.0149	ug/L				60-140		40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.0110		0.0110	ug/L				60-140		40
gamma-Chlordane	<0.00398		0.00398	ug/L				60-140		40
Heptachlor	<0.0378		0.0378	ug/L				60-140		40



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**Quality Control**  
(Continued)

**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**LCS Dup (BCC0141-BS2)**

Prepared: 03/04/2019 Analyzed: 03/14/2019

Heptachlor epoxide	<0.00597		0.00597	ug/L				60-140		40
Toxaphene (Chlorinated Camphene)	1.09		0.00597	ug/L	1.19		91.2	60-140	5.68	40
<hr/>										
<i>Surrogate: 2,4,5,6</i>			<i>0.103</i>	<i>ug/L</i>	<i>0.119</i>		<i>85.8</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.121</i>	<i>ug/L</i>	<i>0.119</i>		<i>101</i>	<i>60-140</i>		

**Leach Fluid Blank (BCC0141-LBK1)**

Prepared: 03/04/2019 Analyzed: 03/16/2019

4,4'-DDD	<0.0299		0.0299	ug/L						
4,4'-DDE	<0.0299		0.0299	ug/L						
4,4'-DDT	<0.0299		0.0299	ug/L						
Aldrin	<0.0299		0.0299	ug/L						
alpha-BHC	<0.0299		0.0299	ug/L						
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.0299		0.0299	ug/L						
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<0.0299		0.0299	ug/L						
cis-Chlordane (alpha-Chlordane)	<0.0299		0.0299	ug/L						
delta-BHC	<0.0299		0.0299	ug/L						
Dieldrin	<0.0299		0.0299	ug/L						
Endosulfan I	<0.0299		0.0299	ug/L						
Endosulfan II	<0.0299		0.0299	ug/L						
Endosulfan sulfate	<0.0299		0.0299	ug/L						
Endrin	<0.0299		0.0299	ug/L						
Endrin aldehyde	<0.0299		0.0299	ug/L						
Endrin ketone	<0.0299		0.0299	ug/L						
gamma-BHC (Lindane,	<0.0299		0.0299	ug/L						
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	<0.0299		0.0299	ug/L						
Heptachlor	<0.0299		0.0299	ug/L						
Heptachlor epoxide	<0.0299		0.0299	ug/L						
Toxaphene (Chlorinated Camphene)	<1.49		1.49	ug/L						
<hr/>										
<i>Surrogate: 2,4,5,6</i>			<i>0.418</i>	<i>ug/L</i>	<i>0.597</i>		<i>70.0</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.541</i>	<i>ug/L</i>	<i>0.597</i>		<i>90.7</i>	<i>60-140</i>		





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**Quality Control**  
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**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**Leach Fluid Blank (BCC0141-LBK2)**

Prepared: 03/04/2019 Analyzed: 03/16/2019

4,4'-DDD	<0.0295		0.0295	ug/L						
4,4'-DDE	<0.0295		0.0295	ug/L						
4,4'-DDT	<0.0295		0.0295	ug/L						
Aldrin	<0.0295		0.0295	ug/L						
alpha-BHC	<0.0295		0.0295	ug/L						
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.0295		0.0295	ug/L						
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<0.0295		0.0295	ug/L						
cis-Chlordane (alpha-Chlordane)	<0.0295		0.0295	ug/L						
delta-BHC	<0.0295		0.0295	ug/L						
Dieldrin	<0.0295		0.0295	ug/L						
Endosulfan I	<0.0295		0.0295	ug/L						
Endosulfan II	<0.0295		0.0295	ug/L						
Endosulfan sulfate	<0.0295		0.0295	ug/L						
Endrin	<0.0295		0.0295	ug/L						
Endrin aldehyde	<0.0295		0.0295	ug/L						
Endrin ketone	<0.0295		0.0295	ug/L						
gamma-BHC (Lindane,	<0.0295		0.0295	ug/L						
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	<0.0295		0.0295	ug/L						
Heptachlor	<0.0295		0.0295	ug/L						
Heptachlor epoxide	<0.0295		0.0295	ug/L						
Toxaphene (Chlorinated Camphene)	<1.47		1.47	ug/L						
<hr/>										
Surrogate: 2,4,5,6			0.388	ug/L	0.590		65.8	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.537	ug/L	0.590		91.1	60-140		

**Matrix Spike (BCC0141-MS1)**

**Source: 19B1155-01**

Prepared: 03/04/2019 Analyzed: 03/16/2019

4,4'-DDD	0.715		0.0295	ug/L	0.591	<0.0295	121	60-140		
4,4'-DDE	0.530		0.0295	ug/L	0.591	<0.0295	89.8	60-140		
4,4'-DDT	0.603		0.0295	ug/L	0.591	<0.0295	102	60-140		
Aldrin	0.571		0.0295	ug/L	0.591	<0.0295	96.8	60-140		
alpha-BHC	0.962		0.0295	ug/L	0.591	<0.0295	163	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.936		0.0295	ug/L	0.591	<0.0295	158	60-140		
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	0.735		0.0295	ug/L	0.591	<0.0295	125	60-140		
delta-BHC	1.02		0.0295	ug/L	0.591	<0.0295	172	60-140		
Dieldrin	0.874		0.0295	ug/L	0.591	<0.0295	148	60-140		
Endosulfan I	0.916		0.0295	ug/L	0.591	<0.0295	155	60-140		
Endosulfan II	0.890		0.0295	ug/L	0.591	<0.0295	151	60-140		
Endosulfan sulfate	1.04		0.0295	ug/L	0.591	<0.0295	177	60-140		
Endrin	0.907		0.0295	ug/L	0.591	<0.0295	154	60-140		
Endrin aldehyde	1.02		0.0295	ug/L	0.591	<0.0295	173	60-140		
Endrin ketone	0.980		0.0295	ug/L	0.591	<0.0295	166	60-140		
gamma-BHC (Lindane,	0.993		0.0295	ug/L	0.591	<0.0295	168	60-140		
gamma-HexachlorocyclohexaneE)										
gamma-Chlordane	0.819		0.0295	ug/L	0.591	0.253	95.9	60-140		



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**Quality Control**  
(Continued)

**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**Matrix Spike (BCC0141-MS1)**

**Source: 19B1155-01**

Prepared: 03/04/2019 Analyzed: 03/16/2019

Heptachlor	0.773		0.0295	ug/L	0.591	<0.0295	131	60-140		
Heptachlor epoxide	0.819		0.0295	ug/L	0.591	<0.0295	139	60-140		
<i>Surrogate: 2,4,5,6</i>										
<i>Tetrachloro-m-xylene-surr</i>			0.390	ug/L	0.591		66.1	60-140		
<i>Surrogate: Decachlorobiphenyl-surr</i>			0.595	ug/L	0.591		101	60-140		

**Matrix Spike (BCC0141-MS2)**

**Source: 19B1833-03**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	0.120		0.00299	ug/L	0.120	<0.00299	100	60-140		
4,4'-DDE	0.105		0.00998	ug/L	0.120	<0.00998	87.6	60-140		
4,4'-DDT	0.119		0.0110	ug/L	0.120	<0.0110	99.0	60-140		
Aldrin	0.107		0.00299	ug/L	0.120	<0.00299	89.1	60-140		
alpha-BHC	0.144		0.00499	ug/L	0.120	<0.00499	120	60-140		
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.128		0.0299	ug/L	0.120	<0.0299	107	60-140		
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	0.126		0.00699	ug/L	0.120	<0.00699	105	60-140		
delta-BHC	0.139		0.0120	ug/L	0.120	<0.0120	116	60-140		
Dieldrin	0.123		0.00299	ug/L	0.120	<0.00299	103	60-140		
Endosulfan I	0.126		0.00599	ug/L	0.120	<0.00599	105	60-140		
Endosulfan II	0.122		0.0120	ug/L	0.120	<0.0120	102	60-140		
Endosulfan sulfate	0.139		0.0260	ug/L	0.120	<0.0260	116	60-140		
Endrin	0.127		0.00799	ug/L	0.120	<0.00799	106	60-140		
Endrin aldehyde	0.130		0.0230	ug/L	0.120	<0.0230	109	60-140		
Endrin ketone	0.122		0.0150	ug/L	0.120	<0.0150	102	60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.133		0.0110	ug/L	0.120	<0.0110	111	60-140		
gamma-Chlordane	0.126		0.00399	ug/L	0.120	<0.00399	105	60-140		
Heptachlor	0.118		0.0379	ug/L	0.120	<0.0379	98.3	60-140		
Heptachlor epoxide	0.124		0.00599	ug/L	0.120	<0.00599	103	60-140		
<i>Surrogate: 2,4,5,6</i>										
<i>Tetrachloro-m-xylene-surr</i>			0.0826	ug/L	0.120		68.9	60-140		
<i>Surrogate: Decachlorobiphenyl-surr</i>			0.122	ug/L	0.120		102	60-140		



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**Quality Control**  
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**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**Matrix Spike Dup (BCC0141-MSD1)**

**Source: 19B1155-01**

Prepared: 03/04/2019 Analyzed: 03/16/2019

4,4'-DDD	0.571		0.0292	ug/L	0.584	<0.0292	97.7	60-140	22.5	40
4,4'-DDE	0.511		0.0292	ug/L	0.584	<0.0292	87.4	60-140	3.73	40
4,4'-DDT	0.553		0.0292	ug/L	0.584	<0.0292	94.6	60-140	8.64	40
Aldrin	0.499		0.0292	ug/L	0.584	<0.0292	85.4	60-140	13.5	40
alpha-BHC (alpha-Hexachlorocyclohexane)	0.801		0.0292	ug/L	0.584	<0.0292	137	60-140	18.2	40
beta-BHC (beta-Hexachlorocyclohexane)	0.831		0.0292	ug/L	0.584	<0.0292	142	60-140	11.9	40
cis-Chlordane (alpha-Chlordane)	0.619		0.0292	ug/L	0.584	<0.0292	106	60-140	17.1	40
delta-BHC	0.747		0.0292	ug/L	0.584	<0.0292	128	60-140	30.5	40
Dieldrin	0.674		0.0292	ug/L	0.584	<0.0292	115	60-140	25.8	40
Endosulfan I	0.758		0.0292	ug/L	0.584	<0.0292	130	60-140	18.9	40
Endosulfan II	0.675		0.0292	ug/L	0.584	<0.0292	116	60-140	27.5	40
Endosulfan sulfate	0.791		0.0292	ug/L	0.584	<0.0292	135	60-140	27.6	40
Endrin	0.772		0.0292	ug/L	0.584	<0.0292	132	60-140	16.1	40
Endrin aldehyde	0.789		0.0292	ug/L	0.584	<0.0292	135	60-140	25.5	40
Endrin ketone	0.742		0.0292	ug/L	0.584	<0.0292	127	60-140	27.7	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.832		0.0292	ug/L	0.584	<0.0292	142	60-140	17.7	40
gamma-Chlordane	0.789		0.0292	ug/L	0.584	0.253	91.8	60-140	3.71	40
Heptachlor	0.601		0.0292	ug/L	0.584	<0.0292	103	60-140	25.0	40
Heptachlor epoxide	0.692		0.0292	ug/L	0.584	<0.0292	118	60-140	16.8	40
<i>Surrogate: 2,4,5,6</i>			<i>0.397</i>	<i>ug/L</i>	<i>0.584</i>		<i>68.0</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.576</i>	<i>ug/L</i>	<i>0.584</i>		<i>98.6</i>	<i>60-140</i>		

**Matrix Spike Dup (BCC0141-MSD2)**

**Source: 19B1833-03**

Prepared: 03/04/2019 Analyzed: 03/14/2019

4,4'-DDD	0.121		0.00299	ug/L	0.120	<0.00299	101	60-140	0.372	40
4,4'-DDE	0.108		0.00997	ug/L	0.120	<0.00997	90.3	60-140	2.99	40
4,4'-DDT	0.112		0.0110	ug/L	0.120	<0.0110	93.7	60-140	5.64	40
Aldrin	0.108		0.00299	ug/L	0.120	<0.00299	90.6	60-140	1.55	40
alpha-BHC (alpha-Hexachlorocyclohexane)	0.142		0.00499	ug/L	0.120	<0.00499	119	60-140	1.03	40
beta-BHC (beta-Hexachlorocyclohexane)	0.129		0.0299	ug/L	0.120	<0.0299	108	60-140	0.848	40
cis-Chlordane (alpha-Chlordane)	0.121		0.00698	ug/L	0.120	<0.00698	101	60-140	4.54	40
delta-BHC	0.140		0.0120	ug/L	0.120	<0.0120	117	60-140	1.04	40
Dieldrin	0.120		0.00299	ug/L	0.120	<0.00299	100	60-140	2.32	40
Endosulfan I	0.127		0.00598	ug/L	0.120	<0.00598	106	60-140	0.834	40
Endosulfan II	0.122		0.0120	ug/L	0.120	<0.0120	102	60-140	0.0762	40
Endosulfan sulfate	0.136		0.0259	ug/L	0.120	<0.0259	113	60-140	2.38	40
Endrin	0.123		0.00798	ug/L	0.120	<0.00798	103	60-140	3.40	40
Endrin aldehyde	0.130		0.0229	ug/L	0.120	<0.0229	109	60-140	0.224	40
Endrin ketone	0.131		0.0150	ug/L	0.120	<0.0150	110	60-140	6.83	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.137		0.0110	ug/L	0.120	<0.0110	114	60-140	2.86	40
gamma-Chlordane	0.122		0.00399	ug/L	0.120	<0.00399	102	60-140	2.68	40
Heptachlor	0.123		0.0379	ug/L	0.120	<0.0379	103	60-140	4.18	40
Heptachlor epoxide	0.118		0.00598	ug/L	0.120	<0.00598	98.7	60-140	4.50	40



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**Quality Control**  
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**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0141 - SW-3511 (Continued)**

**Matrix Spike Dup (BCC0141-MSD2)**

**Source: 19B1833-03**

Prepared: 03/04/2019 Analyzed: 03/14/2019

Surrogate: 2,4,5,6			0.0856	ug/L	0.120		71.5	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.121	ug/L	0.120		101	60-140		

**Batch: BCC0221 - TX 1005**

**Blank (BCC0221-BLK1)**

Prepared: 03/05/2019 Analyzed: 03/15/2019

Total Petroleum Hydrocarbons (TPH), C6-C35	<9.10		9.10	mg/L						
Surrogate: 1-Chlorooctadecane-surr			23.6	mg/L	30.3		77.8	70-130		
Surrogate: 1-Chlorooctane-surr			26.6	mg/L	30.3		87.8	70-130		

**LCS (BCC0221-BS1)**

Prepared: 03/05/2019 Analyzed: 03/16/2019

Total Petroleum Hydrocarbons (TPH), C6-C35	55.7		9.30	mg/L	62.0		89.8	75-125		
Surrogate: 1-Chlorooctadecane-surr			27.9	mg/L	31.0		90.0	70-130		
Surrogate: 1-Chlorooctane-surr			27.6	mg/L	31.0		89.2	70-130		

**LCS Dup (BCC0221-BSD1)**

Prepared: 03/05/2019 Analyzed: 03/16/2019

Total Petroleum Hydrocarbons (TPH), C6-C35	48.4		9.17	mg/L	61.1		79.2	75-125	14.0	25
Surrogate: 1-Chlorooctadecane-surr			25.6	mg/L	30.6		83.7	70-130		
Surrogate: 1-Chlorooctane-surr			25.8	mg/L	30.6		84.4	70-130		

**Matrix Spike (BCC0221-MS1)**

**Source: 19B1833-09**

Prepared: 03/05/2019 Analyzed: 03/16/2019

Total Petroleum Hydrocarbons (TPH), C6-C35	58.6		9.29	mg/L	61.9	<9.29	94.6	75-125		
Surrogate: 1-Chlorooctadecane-surr			27.9	mg/L	31.0		90.2	70-130		
Surrogate: 1-Chlorooctane-surr			26.7	mg/L	31.0		86.3	70-130		

**Matrix Spike Dup (BCC0221-MSD1)**

**Source: 19B1833-09**

Prepared: 03/05/2019 Analyzed: 03/16/2019

Total Petroleum Hydrocarbons (TPH), C6-C35	61.1		9.28	mg/L	61.9	<9.28	98.7	75-125	4.13	25
Surrogate: 1-Chlorooctadecane-surr			27.6	mg/L	30.9		89.3	70-130		
Surrogate: 1-Chlorooctane-surr			27.6	mg/L	30.9		89.1	70-130		



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**Quality Control**  
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**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC1169 - SW-3511</b>										
<b>Blank (BCC1169-BLK1)</b>										
					Prepared: 02/25/2019 Analyzed: 03/02/2019					
PCBs, Total	<0.0119		0.0119	ug/L						
-----										
Surrogate: 2,4,5,6			0.116	ug/L	0.119		97.2	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.115	ug/L	0.119		96.2	60-140		
-----										
<b>LCS (BCC1169-BS1)</b>										
					Prepared: 02/25/2019 Analyzed: 03/02/2019					
Aroclor-1016 (PCB-1016)	1.41		0.0120	ug/L	1.20		118	60-140		
Aroclor-1260 (PCB-1260)	1.38		0.0120	ug/L	1.20		115	60-140		
PCBs, Total	1.38		0.0120	ug/L	1.20		116	60-140		
-----										
Surrogate: 2,4,5,6			0.116	ug/L	0.120		97.1	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.122	ug/L	0.120		102	60-140		
-----										
<b>LCS Dup (BCC1169-BSD1)</b>										
					Prepared: 02/25/2019 Analyzed: 03/02/2019					
Aroclor-1016 (PCB-1016)	1.38		0.0119	ug/L	1.19		115	60-140	2.17	40
Aroclor-1260 (PCB-1260)	1.32		0.0119	ug/L	1.19		111	60-140	4.04	40
PCBs, Total	1.34		0.0119	ug/L	1.19		112	60-140	3.60	40
-----										
Surrogate: 2,4,5,6			0.110	ug/L	0.119		92.6	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.118	ug/L	0.119		99.3	60-140		
-----										
<b>Matrix Spike (BCC1169-MS1)</b>										
			<b>Source: 19B1833-05</b>			Prepared: 02/25/2019 Analyzed: 03/02/2019				
Aroclor-1016 (PCB-1016)	1.70	J1	0.0119	ug/L	1.19	<0.0119	142	60-140		
Aroclor-1260 (PCB-1260)	1.11		0.0119	ug/L	1.19	<0.0119	93.0	60-140		
PCBs, Total	1.25		0.0119	ug/L	1.19	<0.0119	104	60-140		
-----										
Surrogate: 2,4,5,6			0.117	ug/L	0.119		97.9	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0856	ug/L	0.119		71.7	60-140		
-----										
<b>Matrix Spike Dup (BCC1169-MSD1)</b>										
			<b>Source: 19B1833-05</b>			Prepared: 02/25/2019 Analyzed: 03/02/2019				
Aroclor-1016 (PCB-1016)	2.06	J1	0.0120	ug/L	1.20	<0.0120	172	60-140	19.2	40
Aroclor-1260 (PCB-1260)	1.10		0.0120	ug/L	1.20	<0.0120	92.3	60-140	0.518	40
PCBs, Total	1.32		0.0120	ug/L	1.20	<0.0120	111	60-140	6.11	40
-----										
Surrogate: 2,4,5,6			0.121	ug/L	0.120		101	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0854	ug/L	0.120		71.4	60-140		



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**Quality Control**  
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**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC2501 - TX 1005</b>										
<b>Blank (BCC2501-BLK1)</b>										
					Prepared: 03/01/2019 Analyzed: 03/14/2019					
C6-C12	<9.58		9.58	mg/L						
>C12-C28	<9.58		9.58	mg/L						
>C12-C35	<9.58		9.58	mg/L						
>C28-C35	<9.58		9.58	mg/L						
Total Petroleum Hydrocarbons (TPH), C6-C35	<9.58		9.58	mg/L						
-----										
Surrogate: 1-Chlorooctadecane-surr			29.4	mg/L	31.9		92.0	70-130		
Surrogate: 1-Chlorooctane-surr			27.9	mg/L	31.9		87.5	70-130		
-----										
<b>LCS (BCC2501-BS1)</b>										
					Prepared: 03/01/2019 Analyzed: 03/14/2019					
C6-C12	38.4		9.45	mg/L	31.5		122	75-125		
>C12-C28	33.7		9.45	mg/L	31.5		107	75-125		
Total Petroleum Hydrocarbons (TPH), C6-C35	73.3		9.45	mg/L	63.0		116	75-125		
-----										
Surrogate: 1-Chlorooctadecane-surr			27.9	mg/L	31.5		88.5	70-130		
Surrogate: 1-Chlorooctane-surr			31.9	mg/L	31.5		101	70-130		
-----										
<b>LCS Dup (BCC2501-BSD1)</b>										
					Prepared: 03/01/2019 Analyzed: 03/15/2019					
C6-C12	35.2		9.31	mg/L	31.0		113	75-125	8.69	25
>C12-C28	30.0		9.31	mg/L	31.0		96.8	75-125	11.4	25
Total Petroleum Hydrocarbons (TPH), C6-C35	66.6		9.31	mg/L	62.1		107	75-125	9.59	25
-----										
Surrogate: 1-Chlorooctadecane-surr			28.6	mg/L	31.0		92.1	70-130		
Surrogate: 1-Chlorooctane-surr			29.9	mg/L	31.0		96.4	70-130		
-----										
<b>Matrix Spike (BCC2501-MS1)</b>										
			<b>Source: 19B1832-02</b>		Prepared: 03/01/2019 Analyzed: 03/15/2019					
C6-C12	38.1	J1	9.06	mg/L	30.2	<9.06	126	75-125		
>C12-C28	36.7		9.06	mg/L	30.2	<9.06	122	75-125		
Total Petroleum Hydrocarbons (TPH), C6-C35	75.4		9.06	mg/L	60.4	<9.06	125	75-125		
-----										
Surrogate: 1-Chlorooctadecane-surr			29.9	mg/L	30.2		99.2	70-130		
Surrogate: 1-Chlorooctane-surr			31.2	mg/L	30.2		103	70-130		



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**Quality Control**  
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**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC2501 - TX 1005 (Continued)</b>										
<b>Matrix Spike Dup (BCC2501-MSD1)</b>			<b>Source: 19B1832-02</b>		Prepared: 03/01/2019 Analyzed: 03/15/2019					
C6-C12	32.5		8.97	mg/L	29.9	<8.97	109	75-125	15.9	25
>C12-C28	28.8		8.97	mg/L	29.9	<8.97	96.4	75-125	24.2	25
Total Petroleum Hydrocarbons (TPH), C6-C35	62.4		8.97	mg/L	59.8	<8.97	104	75-125	18.9	25
-----										
Surrogate: 1-Chlorooctadecane-surr			28.2	mg/L	29.9		94.3	70-130		
Surrogate: 1-Chlorooctane-surr			26.8	mg/L	29.9		89.7	70-130		

**Batch: BCC2694 - SW-3511**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Blank (BCC2694-BLK1)</b>										
					Prepared: 02/26/2019 Analyzed: 03/07/2019					
4,4'-DDD	<0.00595		0.00595	ug/L						
4,4'-DDE	<0.00595		0.00595	ug/L						
4,4'-DDT	<0.00595		0.00595	ug/L						
Aldrin	<0.00595		0.00595	ug/L						
alpha-BHC	<0.00595		0.00595	ug/L						
(alpha-Hexachlorocyclohexane)										
beta-BHC	<0.00595		0.00595	ug/L						
(beta-Hexachlorocyclohexane)										
Chlordane (tech.)	<0.00595		0.00595	ug/L						
cis-Chlordane (alpha-Chlordane)	<0.00595		0.00595	ug/L						
delta-BHC	<0.00595		0.00595	ug/L						
Dieldrin	<0.00595		0.00595	ug/L						
Endosulfan I	<0.00595		0.00595	ug/L						
Endosulfan II	<0.00595		0.00595	ug/L						
Endosulfan sulfate	<0.00595		0.00595	ug/L						
Endrin	<0.00595		0.00595	ug/L						
Endrin aldehyde	<0.00595		0.00595	ug/L						
Endrin ketone	<0.00595		0.00595	ug/L						
gamma-BHC (Lindane, gamma-HexachlorocyclohexaneE)	<0.00595		0.00595	ug/L						
gamma-Chlordane	<0.00595		0.00595	ug/L						
Heptachlor	<0.00595		0.00595	ug/L						
Heptachlor epoxide	<0.00595		0.00595	ug/L						
Toxaphene (Chlorinated Camphene)	<0.00595		0.00595	ug/L						
-----										
Surrogate: 2,4,5,6			0.0860	ug/L	0.119		72.3	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.108	ug/L	0.119		90.9	60-140		



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**Quality Control**  
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**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2694 - SW-3511 (Continued)**

**LCS (BCC2694-BS1)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	0.115		0.00597	ug/L	0.119		96.3	60-140		
4,4'-DDE	0.103		0.00597	ug/L	0.119		86.1	60-140		
4,4'-DDT	0.105		0.00597	ug/L	0.119		88.1	60-140		
Aldrin	0.0993		0.00597	ug/L	0.119		83.2	60-140		
alpha-BHC (alpha-Hexachlorocyclohexane)	0.104		0.00597	ug/L	0.119		87.2	60-140		
beta-BHC (beta-Hexachlorocyclohexane)	0.101		0.00597	ug/L	0.119		84.8	60-140		
cis-Chlordane (alpha-Chlordane)	0.108		0.00597	ug/L	0.119		90.4	60-140		
delta-BHC	0.109		0.00597	ug/L	0.119		91.2	60-140		
Dieldrin	0.113		0.00597	ug/L	0.119		94.8	60-140		
Endosulfan I	0.117		0.00597	ug/L	0.119		97.7	60-140		
Endosulfan II	0.107		0.00597	ug/L	0.119		89.9	60-140		
Endosulfan sulfate	0.108		0.00597	ug/L	0.119		90.0	60-140		
Endrin	0.118		0.00597	ug/L	0.119		98.7	60-140		
Endrin aldehyde	0.115		0.00597	ug/L	0.119		96.4	60-140		
Endrin ketone	0.110		0.00597	ug/L	0.119		91.7	60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.108		0.00597	ug/L	0.119		90.6	60-140		
gamma-Chlordane	0.123		0.00597	ug/L	0.119		103	60-140		
Heptachlor	0.0958		0.00597	ug/L	0.119		80.2	60-140		
Heptachlor epoxide	0.109		0.00597	ug/L	0.119		91.6	60-140		
Toxaphene (Chlorinated Camphene)	<0.00597		0.00597	ug/L				60-140		
<hr/>										
Surrogate: 2,4,5,6			0.0761	ug/L	0.119		63.7	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.113	ug/L	0.119		94.5	60-140		

**LCS (BCC2694-BS2)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	<0.00300		0.00300	ug/L				60-140		
4,4'-DDE	<0.0100		0.0100	ug/L				60-140		
4,4'-DDT	<0.0110		0.0110	ug/L				60-140		
Aldrin	<0.00300		0.00300	ug/L				60-140		
alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00500		0.00500	ug/L				60-140		
beta-BHC (beta-Hexachlorocyclohexane)	<0.0300		0.0300	ug/L				60-140		
cis-Chlordane (alpha-Chlordane)	<0.00700		0.00700	ug/L				60-140		
delta-BHC	<0.0120		0.0120	ug/L				60-140		
Dieldrin	<0.00300		0.00300	ug/L				60-140		
Endosulfan I	<0.00600		0.00600	ug/L				60-140		
Endosulfan II	<0.0120		0.0120	ug/L				60-140		
Endosulfan sulfate	<0.0260		0.0260	ug/L				60-140		
Endrin	<0.00800		0.00800	ug/L				60-140		
Endrin aldehyde	<0.0230		0.0230	ug/L				60-140		
Endrin ketone	<0.0150		0.0150	ug/L				60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.0110		0.0110	ug/L				60-140		
gamma-Chlordane	<0.00400		0.00400	ug/L				60-140		
Heptachlor	<0.0380		0.0380	ug/L				60-140		





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Project: Phillips 66 - Bluewater SPM 2019  
Project Number:  
Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2694 - SW-3511 (Continued)**

**LCS (BCC2694-BS2)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

Heptachlor epoxide	<0.00600		0.00600	ug/L				60-140		
Toxaphene (Chlorinated Camphene)	1.43		0.00600	ug/L	1.20		119	60-140		
<hr/>										
<i>Surrogate: 2,4,5,6</i>			<i>0.102</i>	<i>ug/L</i>	<i>0.120</i>		<i>85.1</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.138</i>	<i>ug/L</i>	<i>0.120</i>		<i>115</i>	<i>60-140</i>		

**LCS Dup (BCC2694-BS1)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	0.117		0.00594	ug/L	0.119		98.7	60-140	1.99	40
4,4'-DDE	0.106		0.00594	ug/L	0.119		89.5	60-140	3.40	40
4,4'-DDT	0.111		0.00594	ug/L	0.119		93.7	60-140	5.66	40
Aldrin	0.107		0.00594	ug/L	0.119		90.4	60-140	7.90	40
alpha-BHC	0.104		0.00594	ug/L	0.119		87.5	60-140	0.133	40
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.102		0.00594	ug/L	0.119		85.7	60-140	0.603	40
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	0.108		0.00594	ug/L	0.119		90.7	60-140	0.0956	40
delta-BHC	0.111		0.00594	ug/L	0.119		93.4	60-140	1.95	40
Dieldrin	0.113		0.00594	ug/L	0.119		95.0	60-140	0.245	40
Endosulfan I	0.117		0.00594	ug/L	0.119		98.3	60-140	0.136	40
Endosulfan II	0.107		0.00594	ug/L	0.119		90.2	60-140	0.188	40
Endosulfan sulfate	0.108		0.00594	ug/L	0.119		91.2	60-140	0.804	40
Endrin	0.116		0.00594	ug/L	0.119		97.4	60-140	1.75	40
Endrin aldehyde	0.114		0.00594	ug/L	0.119		96.3	60-140	0.518	40
Endrin ketone	0.118		0.00594	ug/L	0.119		99.7	60-140	7.86	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.110		0.00594	ug/L	0.119		92.6	60-140	1.66	40
gamma-Chlordane	0.121		0.00594	ug/L	0.119		102	60-140	1.82	40
Heptachlor	0.0990		0.00594	ug/L	0.119		83.3	60-140	3.22	40
Heptachlor epoxide	0.108		0.00594	ug/L	0.119		90.8	60-140	1.40	40
Toxaphene (Chlorinated Camphene)	<0.00594		0.00594	ug/L				60-140		40
<hr/>										
<i>Surrogate: 2,4,5,6</i>			<i>0.0763</i>	<i>ug/L</i>	<i>0.119</i>		<i>64.2</i>	<i>60-140</i>		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>			<i>0.114</i>	<i>ug/L</i>	<i>0.119</i>		<i>95.8</i>	<i>60-140</i>		



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**Quality Control**  
(Continued)

**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2694 - SW-3511 (Continued)**

**LCS Dup (BCC2694-BS2)**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	<0.00299		0.00299	ug/L				60-140		40
4,4'-DDE	<0.00996		0.00996	ug/L				60-140		40
4,4'-DDT	<0.0110		0.0110	ug/L				60-140		40
Aldrin	<0.00299		0.00299	ug/L				60-140		40
alpha-BHC (alpha-Hexachlorocyclohexane)	<0.00498		0.00498	ug/L				60-140		40
beta-BHC (beta-Hexachlorocyclohexane)	<0.0299		0.0299	ug/L				60-140		40
cis-Chlordane (alpha-Chlordane)	<0.00697		0.00697	ug/L				60-140		40
delta-BHC	<0.0120		0.0120	ug/L				60-140		40
Dieldrin	<0.00299		0.00299	ug/L				60-140		40
Endosulfan I	<0.00598		0.00598	ug/L				60-140		40
Endosulfan II	<0.0120		0.0120	ug/L				60-140		40
Endosulfan sulfate	<0.0259		0.0259	ug/L				60-140		40
Endrin	<0.00797		0.00797	ug/L				60-140		40
Endrin aldehyde	<0.0229		0.0229	ug/L				60-140		40
Endrin ketone	<0.0149		0.0149	ug/L				60-140		40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	<0.0110		0.0110	ug/L				60-140		40
gamma-Chlordane	<0.00398		0.00398	ug/L				60-140		40
Heptachlor	<0.0378		0.0378	ug/L				60-140		40
Heptachlor epoxide	<0.00598		0.00598	ug/L				60-140		40
Toxaphene (Chlorinated Camphene)	1.30		0.00598	ug/L	1.20		109	60-140	9.64	40
<hr/>										
Surrogate: 2,4,5,6			0.0852	ug/L	0.120		71.3	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.110	ug/L	0.120		91.7	60-140		

**Matrix Spike (BCC2694-MS1)**

**Source: 19B2026-02**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	0.0989		0.00598	ug/L	0.120	<0.00598	82.7	60-140		
4,4'-DDE	0.0791		0.00598	ug/L	0.120	<0.00598	66.1	60-140		
4,4'-DDT	0.0748		0.00598	ug/L	0.120	<0.00598	62.5	60-140		
Aldrin	0.0861		0.00598	ug/L	0.120	<0.00598	72.0	60-140		
alpha-BHC (alpha-Hexachlorocyclohexane)	0.109		0.00598	ug/L	0.120	0.00708	85.3	60-140		
beta-BHC (beta-Hexachlorocyclohexane)	0.117		0.00598	ug/L	0.120	<0.00598	97.5	60-140		
cis-Chlordane (alpha-Chlordane)	0.0957		0.00598	ug/L	0.120	<0.00598	80.0	60-140		
delta-BHC	0.114		0.00598	ug/L	0.120	<0.00598	95.4	60-140		
Dieldrin	0.113		0.00598	ug/L	0.120	<0.00598	94.6	60-140		
Endosulfan I	0.107		0.00598	ug/L	0.120	<0.00598	89.2	60-140		
Endosulfan II	0.113		0.00598	ug/L	0.120	<0.00598	94.0	60-140		
Endosulfan sulfate	0.118		0.00598	ug/L	0.120	<0.00598	98.8	60-140		
Endrin	0.114		0.00598	ug/L	0.120	<0.00598	95.0	60-140		
Endrin aldehyde	0.115		0.00598	ug/L	0.120	<0.00598	95.7	60-140		
Endrin ketone	0.117		0.00598	ug/L	0.120	<0.00598	97.5	60-140		
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.122		0.00598	ug/L	0.120	0.0134	91.1	60-140		
gamma-Chlordane	0.102		0.00598	ug/L	0.120	<0.00598	85.3	60-140		
Heptachlor	0.102		0.00598	ug/L	0.120	<0.00598	85.2	60-140		



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**Quality Control**  
(Continued)

**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC2694 - SW-3511 (Continued)**

**Matrix Spike (BCC2694-MS1)**

**Source: 19B2026-02**

Prepared: 02/26/2019 Analyzed: 03/07/2019

Heptachlor epoxide	0.103		0.00598	ug/L	0.120	<0.00598	86.5	60-140		
<hr/>										
<i>Surrogate: 2,4,5,6</i>			0.0811	ug/L	0.120		67.8	60-140		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>	S		0.0618	ug/L	0.120		51.7	60-140		

**Matrix Spike Dup (BCC2694-MSD1)**

**Source: 19B2026-02**

Prepared: 02/26/2019 Analyzed: 03/07/2019

4,4'-DDD	0.0984		0.00599	ug/L	0.120	<0.00599	82.1	60-140	0.532	40
4,4'-DDE	0.0751		0.00599	ug/L	0.120	<0.00599	62.7	60-140	5.18	40
4,4'-DDT	0.0724		0.00599	ug/L	0.120	<0.00599	60.4	60-140	3.21	40
Aldrin	0.0899		0.00599	ug/L	0.120	<0.00599	75.0	60-140	4.24	40
alpha-BHC	0.110		0.00599	ug/L	0.120	0.00708	85.7	60-140	0.614	40
(alpha-Hexachlorocyclohexane)										
beta-BHC	0.123		0.00599	ug/L	0.120	<0.00599	103	60-140	5.15	40
(beta-Hexachlorocyclohexane)										
cis-Chlordane (alpha-Chlordane)	0.0916		0.00599	ug/L	0.120	<0.00599	76.4	60-140	4.36	40
delta-BHC	0.110		0.00599	ug/L	0.120	<0.00599	91.7	60-140	3.79	40
Dieldrin	0.0971		0.00599	ug/L	0.120	<0.00599	81.0	60-140	15.3	40
Endosulfan I	0.100		0.00599	ug/L	0.120	<0.00599	83.8	60-140	6.09	40
Endosulfan II	0.0962		0.00599	ug/L	0.120	<0.00599	80.3	60-140	15.6	40
Endosulfan sulfate	0.106		0.00599	ug/L	0.120	<0.00599	88.1	60-140	11.3	40
Endrin	0.0928		0.00599	ug/L	0.120	<0.00599	77.5	60-140	20.1	40
Endrin aldehyde	0.104		0.00599	ug/L	0.120	<0.00599	87.0	60-140	9.36	40
Endrin ketone	0.109		0.00599	ug/L	0.120	<0.00599	90.8	60-140	6.90	40
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	0.123		0.00599	ug/L	0.120	0.0134	91.2	60-140	0.262	40
gamma-Chlordane	0.0942		0.00599	ug/L	0.120	<0.00599	78.6	60-140	7.91	40
Heptachlor	0.104		0.00599	ug/L	0.120	<0.00599	86.6	60-140	1.85	40
Heptachlor epoxide	0.0981		0.00599	ug/L	0.120	<0.00599	81.9	60-140	5.33	40
<hr/>										
<i>Surrogate: 2,4,5,6</i>			0.0849	ug/L	0.120		70.8	60-140		
<i>Tetrachloro-m-xylene-surr</i>										
<i>Surrogate: Decachlorobiphenyl-surr</i>	S		0.0610	ug/L	0.120		50.9	60-140		



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**Quality Control**  
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**Elutriate Organics by GC (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC2891 - SW-3511</b>										
<b>Blank (BCC2891-BLK1)</b>										
					Prepared: 03/04/2019 Analyzed: 03/09/2019					
PCBs, Total	<0.0119		0.0119	ug/L						
-----										
Surrogate: 2,4,5,6			0.101	ug/L	0.119		84.2	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0893	ug/L	0.119		74.8	60-140		
-----										
<b>LCS (BCC2891-BS1)</b>										
					Prepared: 03/04/2019 Analyzed: 03/09/2019					
Aroclor-1016 (PCB-1016)	1.39		0.0120	ug/L	1.20		116	60-140		
Aroclor-1260 (PCB-1260)	1.06		0.0120	ug/L	1.20		88.7	60-140		
PCBs, Total	1.14		0.0120	ug/L	1.20		95.0	60-140		
-----										
Surrogate: 2,4,5,6			0.0896	ug/L	0.120		74.7	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0774	ug/L	0.120		64.6	60-140		
-----										
<b>LCS Dup (BCC2891-BSD1)</b>										
					Prepared: 03/04/2019 Analyzed: 03/09/2019					
Aroclor-1016 (PCB-1016)	1.61		0.0120	ug/L	1.20		135	60-140	15.0	40
Aroclor-1260 (PCB-1260)	1.20		0.0120	ug/L	1.20		101	60-140	12.4	40
PCBs, Total	1.30		0.0120	ug/L	1.20		108	60-140	13.1	40
-----										
Surrogate: 2,4,5,6			0.0926	ug/L	0.120		77.4	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0806	ug/L	0.120		67.4	60-140		
-----										
<b>Matrix Spike (BCC2891-MS1)</b>										
			<b>Source: 19B1833-03</b>			Prepared: 03/04/2019 Analyzed: 03/09/2019				
Aroclor-1016 (PCB-1016)	2.17	J1	0.0119	ug/L	1.19	<0.0119	182	60-140		
Aroclor-1260 (PCB-1260)	1.41		0.0119	ug/L	1.19	<0.0119	118	60-140		
PCBs, Total	1.59		0.0119	ug/L	1.19	<0.0119	133	60-140		
-----										
Surrogate: 2,4,5,6			0.121	ug/L	0.119		101	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr			0.0862	ug/L	0.119		72.2	60-140		
-----										
<b>Matrix Spike Dup (BCC2891-MSD1)</b>										
			<b>Source: 19B1833-03</b>			Prepared: 03/04/2019 Analyzed: 03/09/2019				
Aroclor-1016 (PCB-1016)	1.58		0.0120	ug/L	1.20	<0.0120	132	60-140	31.7	40
Aroclor-1260 (PCB-1260)	1.05		0.0120	ug/L	1.20	<0.0120	87.5	60-140	29.7	40
PCBs, Total	1.17		0.0120	ug/L	1.20	<0.0120	97.6	60-140	30.3	40
-----										
Surrogate: 2,4,5,6			0.0859	ug/L	0.120		71.8	60-140		
Tetrachloro-m-xylene-surr										
Surrogate: Decachlorobiphenyl-surr		S	0.0670	ug/L	0.120		56.0	60-140		



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**Quality Control**  
(Continued)

**Elutriate Metals, Dissolved**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0535 - EPA 200.8 Dissolved**

**Blank (BCC0535-BLK1)**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	<1.00		1.00	ug/L						
Arsenic	<0.500		0.500	ug/L						
Beryllium	0.0103		0.200	ug/L						
Cadmium	<1.00		1.00	ug/L						
Chromium	<3.00		3.00	ug/L						
Copper	<1.00		1.00	ug/L						
Lead	<0.500		0.500	ug/L						
Nickel	<1.00		1.00	ug/L						
Silver	<0.500		0.500	ug/L						
Thallium	<0.500		0.500	ug/L						
Zinc	0.373		2.00	ug/L						

**LCS (BCC0535-BS1)**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	114		1.00	ug/L	100	114		85-115		
Arsenic	52.7		0.500	ug/L	50.0	105		85-115		
Beryllium	21.0		0.200	ug/L	20.0	105		85-115		
Cadmium	103		1.00	ug/L	100	103		85-115		
Chromium	305		3.00	ug/L	300	102		85-115		
Copper	103		1.00	ug/L	100	103		85-115		
Lead	52.3		0.500	ug/L	50.0	105		85-115		
Nickel	103		1.00	ug/L	100	103		85-115		
Silver	51.4		0.500	ug/L	50.0	103		85-115		
Thallium	52.1		0.500	ug/L	50.0	104		85-115		
Zinc	211		2.00	ug/L	200	105		85-115		

**Duplicate (BCC0535-DUP1)**

**Source: 19B1833-01**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	<1.00		1.00	ug/L	<1.00					20
Arsenic	<0.500		0.500	ug/L	<0.500					20
Beryllium	0.0108	J1	0.200	ug/L	<0.200				200	20
Cadmium	<1.00		1.00	ug/L	<1.00					20
Chromium	<3.00		3.00	ug/L	<3.00					20
Copper	0.252		1.00	ug/L	0.247				2.09	20
Lead	<0.500		0.500	ug/L	<0.500					20
Nickel	<1.00	J1	1.00	ug/L	0.0774				200	20
Silver	<0.500		0.500	ug/L	<0.500					20
Thallium	<0.500		0.500	ug/L	<0.500					20
Zinc	0.289	J1	2.00	ug/L	0.902				103	20



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Project Number:  
Project Manager: Dillon Johnston

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**Quality Control**  
(Continued)

**Elutriate Metals, Dissolved (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0535 - EPA 200.8 Dissolved (Continued)**

**Duplicate (BCC0535-DUP2)**

**Source: 19B1833-02**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	<5.00		5.00	ug/L		<5.00				20
Arsenic	2.23		2.50	ug/L		1.99			11.6	20
Beryllium	<1.00		1.00	ug/L		<1.00				20
Cadmium	<5.00		5.00	ug/L		<5.00				20
Chromium	<15.0		15.0	ug/L		<15.0				20
Copper	<5.00		5.00	ug/L		<5.00				20
Lead	<2.50		2.50	ug/L		<2.50				20
Nickel	0.565		5.00	ug/L		0.587			3.79	20
Silver	<2.50		2.50	ug/L		<2.50				20
Thallium	<2.50		2.50	ug/L		<2.50				20
Zinc	<10.0		10.0	ug/L		<10.0				20

**Matrix Spike (BCC0535-MS1)**

**Source: 19B1833-01**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	114		1.00	ug/L	100	<1.00	114	75-125		
Arsenic	51.4		0.500	ug/L	50.0	<0.500	103	75-125		
Beryllium	21.2		0.200	ug/L	20.0	<0.200	106	75-125		
Cadmium	99.4		1.00	ug/L	100	<1.00	99.4	75-125		
Chromium	308		3.00	ug/L	300	<3.00	103	75-125		
Copper	102		1.00	ug/L	100	0.247	102	75-125		
Lead	49.7		0.500	ug/L	50.0	<0.500	99.5	75-125		
Nickel	102		1.00	ug/L	100	0.0774	102	75-125		
Silver	50.3		0.500	ug/L	50.0	<0.500	101	75-125		
Thallium	49.0		0.500	ug/L	50.0	<0.500	98.0	75-125		
Zinc	197		2.00	ug/L	200	0.902	98.1	75-125		

**Matrix Spike (BCC0535-MS2)**

**Source: 19B1833-02**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Antimony	102		5.00	ug/L	100	<5.00	102	75-125		
Arsenic	47.6		2.50	ug/L	50.0	1.99	91.3	75-125		
Beryllium	19.6		1.00	ug/L	20.0	<1.00	97.8	75-125		
Cadmium	78.6		5.00	ug/L	100	<5.00	78.6	75-125		
Chromium	335		15.0	ug/L	300	<15.0	112	75-125		
Copper	94.7		5.00	ug/L	100	<5.00	94.7	75-125		
Lead	43.7		2.50	ug/L	50.0	<2.50	87.3	75-125		
Nickel	97.6		5.00	ug/L	100	0.587	97.1	75-125		
Silver	41.6		2.50	ug/L	50.0	<2.50	83.3	75-125		
Thallium	40.6		2.50	ug/L	50.0	<2.50	81.2	75-125		
Zinc	150		10.0	ug/L	200	<10.0	75.2	75-125		



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**Quality Control**  
 (Continued)

**Elutriate Metals, Dissolved (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC0723 - CR VI</b>										
<b>Matrix Spike (BCC0723-MS1)</b>										
Chromium (VI)	264		3.00	ug/L	250	2.69	105	70-130		
<b>Source: 19B1833-07</b> Prepared & Analyzed: 03/06/2019										
<b>Matrix Spike Dup (BCC0723-MSD1)</b>										
Chromium (VI)	264		3.00	ug/L	250	2.69	105	70-130	0.0568	20
<b>Source: 19B1833-07</b> Prepared & Analyzed: 03/06/2019										
<b>Batch: BCC0795 - CR VI</b>										
<b>Matrix Spike (BCC0795-MS1)</b>										
Chromium (VI)	275		3.02	ug/L	251	<3.02	110	70-130		
<b>Source: 19B1832-05</b> Prepared & Analyzed: 02/26/2019										
<b>Matrix Spike Dup (BCC0795-MSD1)</b>										
Chromium (VI)	275		3.02	ug/L	251	<3.02	109	70-130	0.205	20
<b>Source: 19B1832-05</b> Prepared & Analyzed: 02/26/2019										



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**Quality Control**  
(Continued)

**Elutriate Metals, Total**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC0532 - EPA 200.8**

**Blank (BCC0532-BLK1)**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Selenium	<5.00		5.00	ug/L						
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**LCS (BCC0532-BS1)**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Selenium	216		5.00	ug/L	200		108	85-115		
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**Duplicate (BCC0532-DUP1)**

**Source: 19B1833-01**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Selenium	<5.00		5.00	ug/L		<5.00				20
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**Duplicate (BCC0532-DUP2)**

**Source: 19B1833-02**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Selenium	3.93		25.0	ug/L		4.46			12.7	20
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**Matrix Spike (BCC0532-MS1)**

**Source: 19B1833-01**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Selenium	206		5.00	ug/L	200	<5.00	103	75-125		
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**Matrix Spike (BCC0532-MS2)**

**Source: 19B1833-02**

Prepared: 03/07/2019 Analyzed: 03/08/2019

Selenium	186		25.0	ug/L	200	4.46	91.0	75-125		
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**Batch: BCC0930 - EPA 245.1**

**Blank (BCC0930-BLK1)**

Prepared & Analyzed: 03/11/2019

Mercury	<0.200		0.200	ug/L						
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**LCS (BCC0930-BS1)**

Prepared & Analyzed: 03/11/2019

Mercury	5.07		0.200	ug/L	5.00		101	85-115		
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**Duplicate (BCC0930-DUP1)**

**Source: 19B1833-03**

Prepared & Analyzed: 03/11/2019

Mercury	<0.200		0.200	ug/L		<0.200				20
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**Quality Control**  
 (Continued)

**Elutriate Metals, Total (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC0930 - EPA 245.1 (Continued)</b>										
<b>Duplicate (BCC0930-DUP2) Source: 19B2026-01 Prepared &amp; Analyzed: 03/11/2019</b>										
Mercury	<0.200		0.200	ug/L		<0.200				20
<b>MRL Check (BCC0930-MRL1) Prepared &amp; Analyzed: 03/11/2019</b>										
Mercury	<0.200		0.200	ug/L	0.100			50-150		
<b>Matrix Spike (BCC0930-MS1) Source: 19B1833-03 Prepared &amp; Analyzed: 03/11/2019</b>										
Mercury	4.84		0.200	ug/L	5.00	<0.200	96.8	70-130		
<b>Matrix Spike (BCC0930-MS2) Source: 19B2026-01 Prepared &amp; Analyzed: 03/11/2019</b>										
Mercury	4.81		0.200	ug/L	5.00	<0.200	96.2	70-130		



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**Quality Control**  
(Continued)

**Elutriate General Chemistry**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCB1482 - NH3-N SEAL-350.1</b>										
<b>MRL Check (BCB1482-MRL1)</b>										
Ammonia as N	0.0374		0.100	mg/L	0.0500		74.8	50-150		
<b>Matrix Spike (BCB1482-MS1) Source: 19B1832-05</b>										
Ammonia as N	3.20	J1	0.200	mg/L	1.25	1.76	116	90-110		
<b>Matrix Spike Dup (BCB1482-MSD1) Source: 19B1832-05</b>										
Ammonia as N	3.06		0.200	mg/L	1.25	1.76	104	90-110	4.68	20
<b>Batch: BCC0082 - CN-4500</b>										
<b>Blank (BCC0082-BLK1)</b>										
Total Cyanide	<0.0100		0.0100	mg/L						
<b>LCS (BCC0082-BS1)</b>										
Total Cyanide	0.100		0.0100	mg/L	0.100		100	90-110		
<b>MRL Check (BCC0082-MRL1)</b>										
Total Cyanide	0.0119		0.0100	mg/L	0.0100		119	50-150		
<b>Matrix Spike (BCC0082-MS1) Source: 19B1832-02</b>										
Total Cyanide	0.0935		0.0100	mg/L	0.100	<0.0100	93.5	80-120		
<b>Matrix Spike Dup (BCC0082-MSD1) Source: 19B1832-02</b>										
Total Cyanide	0.0909		0.0100	mg/L	0.100	<0.0100	90.9	80-120	2.89	20
<b>Batch: BCC0256 - NH3-N SEAL-350.1</b>										
<b>MRL Check (BCC0256-MRL1)</b>										
Ammonia as N	0.0291			mg/L	0.0500		58.2	50-150		



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**Quality Control**  
**(Continued)**

**Elutriate General Chemistry (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch: BCC0256 - NH3-N SEAL-350.1 (Continued)</b>										
<b>Matrix Spike (BCC0256-MS1)</b>		<b>Source: 19C1298-02</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	1.31		0.100	mg/L	1.25	0.0900	97.8	90-110		
<b>Matrix Spike (BCC0256-MS2)</b>		<b>Source: 19C1294-01</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	1.09	J1	0.100	mg/L	1.25	0.0316	84.6	90-110		
<b>Matrix Spike (BCC0256-MS3)</b>		<b>Source: 19C1224-02</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	1.92	J1	0.100	mg/L	1.25	0.796	89.8	90-110		
<b>Matrix Spike (BCC0256-MS4)</b>		<b>Source: 19B1833-09</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	2.83		1.00	mg/L	1.25	1.64	95.7	90-110		
<b>Matrix Spike Dup (BCC0256-MSD1)</b>		<b>Source: 19C1298-02</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	1.30		0.100	mg/L	1.25	0.0900	96.7	90-110	1.10	20
<b>Matrix Spike Dup (BCC0256-MSD2)</b>		<b>Source: 19C1294-01</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	1.10	J1	0.100	mg/L	1.25	0.0316	85.5	90-110	1.11	20
<b>Matrix Spike Dup (BCC0256-MSD3)</b>		<b>Source: 19C1224-02</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	1.96		0.100	mg/L	1.25	0.796	93.4	90-110	2.29	20
<b>Matrix Spike Dup (BCC0256-MSD4)</b>		<b>Source: 19B1833-09</b>		Prepared & Analyzed: 03/05/2019						
Ammonia as N	2.80		1.00	mg/L	1.25	1.64	93.0	90-110	1.21	20
<b>Batch: BCC1033 - TOC-ASI</b>										
<b>Blank (BCC1033-BLK1)</b>				Prepared: 03/05/2019 Analyzed: 03/09/2019						
Total Organic Carbon (TOC)	<0.000100		0.000100	%						



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**Quality Control**  
(Continued)

**Elutriate General Chemistry (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC1033 - TOC-ASI (Continued)**

<b>Blank (BCC1033-BLK2)</b>										
Total Organic Carbon (TOC)	<0.000100		0.000100	%	Prepared: 03/05/2019 Analyzed: 03/09/2019					
<b>Blank (BCC1033-BLK3)</b>										
Total Organic Carbon (TOC)	<0.000100		0.000100	%	Prepared: 03/05/2019 Analyzed: 03/09/2019					
<b>LCS (BCC1033-BS1)</b>										
Total Organic Carbon (TOC)	0.00495		0.000100	%	0.00500		99.0	90-110		
<b>LCS (BCC1033-BS2)</b>										
Total Organic Carbon (TOC)	0.00500		0.000100	%	0.00500		99.9	90-110		
<b>LCS (BCC1033-BS3)</b>										
Total Organic Carbon (TOC)	0.00497		0.000100	%	0.00500		99.5	90-110		
<b>Matrix Spike (BCC1033-MS1) Source: 19C1279-01</b>										
Total Organic Carbon (TOC)	0.00491		0.000100	%	0.00500	<0.000100	98.2	85-115		
<b>Matrix Spike Dup (BCC1033-MSD1) Source: 19C1279-01</b>										
Total Organic Carbon (TOC)	0.00495		0.000100	%	0.00500	<0.000100	98.9	85-115	0.751	200

**Batch: BCC1125 - CN-4500**

<b>Blank (BCC1125-BLK1)</b>										
Total Cyanide	<0.0100		0.0100	mg/L	Prepared: 03/11/2019 Analyzed: 03/12/2019					
<b>LCS (BCC1125-BS1)</b>										
Total Cyanide	0.0948		0.0100	mg/L	0.100		94.8	90-110		



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**Reported:**  
04/08/2019 11:59

**Quality Control**  
(Continued)

**Elutriate General Chemistry (Continued)**

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
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**Batch: BCC1125 - CN-4500 (Continued)**

**MRL Check (BCC1125-MRL1)**

Prepared: 03/11/2019 Analyzed: 03/12/2019

Total Cyanide	0.0102		0.0100	mg/L	0.0100		102	50-150		
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**Matrix Spike (BCC1125-MS1)**

**Source: 19C1572-01**

Prepared: 03/11/2019 Analyzed: 03/12/2019

Total Cyanide	0.102		0.0100	mg/L	0.100	<0.0100	102	80-120		
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**Matrix Spike Dup (BCC1125-MSD1)**

**Source: 19C1572-01**

Prepared: 03/11/2019 Analyzed: 03/12/2019

Total Cyanide	0.100		0.0100	mg/L	0.100	<0.0100	100	80-120	1.19	20
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### Sample Condition Checklist

**Work Order: 19B1833**

#### Check Points

No	Custody Seals
Yes	Containers Intact
Yes	COC/Labels Agree
Yes	Preservation Confirmed
Yes	Received On Ice
Yes	Appropriate Containers
Yes	Appropriate Sample Volume
Yes	Coolers Intact
Yes	Samples Accepted



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### Term and Qualifier Definitions

<b>Item</b>	<b>Definition</b>
B	Analyte was found in the associated method blank.
C	Associated calibration QC is outside the established quality control criteria for accuracy.
H	The parameter was analyzed outside the method specified holding time
J	Estimated value - The reported value is between the detection limit and reporting limit.
J1	Estimated value - The reported value is outside the established quality control criteria for accuracy and /or precision.
P	Difference between GC column results greater than 40% RPD. Higher result reported.
S	The surrogate recovery was outside the established laboratory recovery limit.
U	Non-detected compound.
V	Analyte was detected in both sample and method blank.
DF	Dilution Factor - the factor applied to the reported data due to sample preparation, dilution, or moisture content
RPD	Relative Percent Difference
%REC	Percent Recovery
Source	Sample that was matrix spiked or duplicated



# CHAIN OF CUSTODY RECORD

**North Water District Laboratory Services**  
 8725 Fawn Trail - The Woodlands, TX 77385  
 (936) 321-6060 - fax (936) 321-6061 - lab@nwdls.com  
 TCEQ Cert ID: T104704238

**Phillips 66 - Bluewater SPM 2019**

Lloyd Engineering, Inc.  
 Dillon Johnston  
 6565 West Loop, Suite 708  
 Bellaire, TX 77401  
 Phone: (832) 426-4656



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**19B1833**

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-01	BW/SPM-18-EQ BL		A-C Corrected 02/20/2019 9 15:15	AQ Grab	A HDPE 250mL HNO3 after filtration B HDPE 250mL C HDPE 250mL HNO3	Antimony KED D ICPMS HNO3 Arsenic KED D ICPMS 2i HNO3 Beryllium KED D ICPMS HNO3 Cadmium KED D ICPMS HNO3 Chromium KED D ICPMS HNO3 Copper KED D ICPMS 2i HNO3 Cr III D ICPMS [Group Analysis] Hg-245, 1 HNO3 Lead KED D ICPMS 200i HNO3 Nickel KED D ICPMS 20i HNO3 Selenium KED ICPMS 2C HNO3 Silver KED D ICPMS 200 HNO3 Thallium KED D ICPMS 1i HNO3 Zinc KED D ICPMS 200i HNO3 Cr VI-D 3500 4°C	

### Remarks

Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By: (Signature) <i>Dillon Johnston</i>	Date/Time 2/20/19 - 12:35	Received By: (Signature) <i>[Signature]</i>	Date/Time
Print Name Dillon R. Johnston	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Affiliation LEI	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time 2/21/2019





# CHAIN OF CUSTODY RECORD

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Phillips 66 - Bluewater SPM 2019

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 Phone: (832) 426-4656

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-05	BW/SPM-18-15-W		A-V collected 2/20/2019 G 14:55	AQ Grab	A HDPE 250mL HNO3 after filtration B HDPE 250mL NaOH C HDPE 250mL D HDPE 250mL HNO3 E HDPE 250mL H2SO4 F Glass VOA 60mL G Glass VOA 60mL H Glass VOA 60mL I Glass VOA 60mL J Glass VOA 60mL K Glass VOA 60mL L Amber 1L w/ Teflon-lined Lid M Amber 1L w/ Teflon-lined Lid N Amber 1L w/ Teflon-lined Lid O Glass VOA 60mL P Glass VOA 60mL Q Glass VOA 60mL R HDPE 250mL H2SO4 S Glass VOA 40mL HCl T Glass VOA 40mL HCl U Glass VOA 40mL HCl V Glass VOA 40mL HCl pH<2	Antimony KED D ICPMS HNO3 Arsenic KED D ICPMS 2i HNO3 Beryllium KED D ICPMS HNO3 Cadmium KED D ICPMS HNO3 Chromium KED D ICPMS HNO3 Copper KED D ICPMS 2i HNO3 Cr III D ICPMS [Group Analysis] Hg-245.1 HNO3 Lead KED D ICPMS 200. HNO3 Nickel KED D ICPMS 20i HNO3 Selenium KED ICPMS 2C HNO3 Silver KED D ICPMS 200 HNO3 Thallium KED D ICPMS 2i HNO3 Zinc KED D ICPMS 200.1 HNO3 OCP-8081 4°C PCB-8082 4°C SYOA-8270 4°C TPH-1005 4°C VOA-8260 4°C CN T-4500 NaOH 4°C Cr VI-D 3500 4°C NH3-N SEAL-350.1 H2SO4 4°C Site Water Elutriate Prep 4°C TOC-415.1 H2SO4 4°C	

## Remarks

Sampler (Signature) <i>[Signature]</i>	Relinquished By: (Signature) <i>[Signature]</i>	Date/Time 2/21/19 - 12:38	Received By: (Signature) <i>[Signature]</i>	Date/Time
Print Name Dillon R Johnston	Relinquished By: (Signature) <i>[Signature]</i>	Date/Time	Received By: (Signature) <i>[Signature]</i>	Date/Time
Affiliation LEI	Relinquished To: Lab By: (Signature)	Date/Time	Received By: (Signature) <i>[Signature]</i>	Date/Time 2-21-19

2-21-19 12:35



# CHAIN OF CUSTODY RECORD

North Water District Laboratory Services

8725 Fawn Trail - The Woodlands, TX 77385

(936) 321-6060 - fax (936) 321-6061 - lab@nwmdls.com

TCEQ Cert ID: T104704238

Phillips 66 - Bluewater SPM 2019

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Lloyd Engineering, Inc.  
Dillon Johnston  
6565 West Loop, Suite 708  
Bellaire, TX 77401  
Phone: (832) 426-4656

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-06	BWSPM-18-18-W		A-V collected 2/20/19 9 14:30	AQ Grab	A HDPE 250ml HNO3 after filtration B HDPE 250ml NaOH C HDPE 250ml D HDPE 250ml HNO3 E HDPE 250ml H2SO4 F Glass VOA 60ml G Glass VOA 60ml H Glass VOA 60ml I Glass VOA 60ml J Glass VOA 60ml K Glass VOA 60ml L Amber 1L w/ Teflon-lined Lid M Amber 1L w/ Teflon-lined Lid N Amber 1L w/ Teflon-lined Lid O Glass VOA 60ml P Glass VOA 60ml Q Glass VOA 60ml R HDPE 250ml H2SO4 S Glass VOA 40ml HCl T Glass VOA 40ml HCl U Glass VOA 40ml HCl V Glass VOA 40ml HCl pH<2	Antimony KED D ICPMS HNO3 Arsenic KED D ICPMS 2 HNO3 Beryllium KED D ICPMS HNO3 Cadmium KED D ICPMS HNO3 Chromium KED D ICPMS HNO3 Copper KED D ICPMS 2HNO3 Cr III D ICPMS [Group Analysis] Hg-245.1 HNO3 Lead KED D ICPMS 200. HNO3 Nickel KED D ICPMS 200.HNO3 Selenium KED ICPMS 20.HNO3 Silver KED D ICPMS 200 HNO3 Thallium KED D ICPMS ; HNO3 Zinc KED D ICPMS 200; HNO3 OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 4°C VOA-8260 4°C CN T-4500 NaOH 4°C Cr VI-D 3500 4°C NH3-N SEAL-350.1 H2SO4 4°C Site Water Elutriate Prep 4°C TOC-415.1 H2SO4 4°C	

## Remarks

Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By (Signature) <i>Dillon Johnston</i>	Date/Time 2/21/19 - 12:35	Received By (Signature) <i>[Signature]</i>	Date/Time 2/19/2019
Print Name Dillon Johnston	Relinquished By (Signature) <i>Dillon Johnston</i>	Date/Time	Received by Laboratory By (Signature) <i>[Signature]</i>	Date/Time 2/19
Affiliation LEI	Relinquished To Lab By (Signature)	Date/Time		





**North Water District Laboratory Services**  
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 TCEQ Cert ID: T104704238

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 Dillon Johnston  
 6565 West Loop, Suite 708  
 Bellaire, TX 77401  
 Phone: (832) 426-4656



**19B1833**

(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-10	BW/SPM-18-15-E		A Collected 2/19/2019 6:00 14:40	S Grab	A Glass Wide TL w/ Teflon-lined Lid	Antimony KED D ICPMS 4°C Arsenic KED D ICPMS E 4°C Beryllium KED D ICPMS 4°C Cadmium KED D ICPMS 4°C Chromium KED D ICPMS 4°C Copper KED D ICPMS E 4°C Cr III D ICPMS ELUT [Group Analysis] Hg-245-1-ELUT 4°C Lead KED D ICPMS ELU 4°C Nickel KED D ICPMS EL 4°C Selenium KED ICPMS EL 4°C Silver KED D ICPMS ELU 4°C Thallium KED D ICPMS I 4°C Zinc KED D ICPMS ELU 4°C OCP-8081-ELUT 4°C PCB-8082-ELUT 4°C SVOA-8270-ELUT 4°C TPH-1005-ELUT 4°C VOA-8260-ELUT 4°C CN T-ELUT 4°C Cr VI-D-ELUT 4°C ELUT Bottle 4°C NH3-N SEAL-350.1-ELU 4°C TOC-415.1-ELUT 4°C	

<b>Remarks</b>			
Sampler (Signature) <i>Dillon R. Johnston</i>	Relinquished By: (Signature) <i>Dillon R. Johnston</i>	Date/Time 2/21/19-1235	Received By: (Signature) <i>[Signature]</i>
Print Name Dillon R. Johnston	Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) <i>[Signature]</i>
Affiliation LEI	Relinquished To Lab By: (Signature)	Date/Time	Date/Time 2-21-19



# CHAIN OF CUSTODY RECORD

North Water District Laboratory Services  
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 Bellaire, TX 77401  
 Phone: (832) 426-4656

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-11	BWSPM-18-18-E		A Collected 2/19/2019 G 13:02	S Grab	A Glass Wide 1L w/ Teflon-lined Lid	Antimony KED D ICPMS 4°C Arsenic KED D ICPMS E 4°C Beryllium KED D ICPMS 4°C Cadmium KED D ICPMS 4°C Chromium KED D ICPMS 4°C Copper KED D ICPMS E 4°C Cr III D ICPMS ELUT [Group Analysis] Hg-245,1-ELUT 4°C Lead KED D ICPMS ELU 4°C Nickel KED D ICPMS EL 4°C Selenium KED ICPMS EI 4°C Silver KED D ICPMS ELL 4°C Thallium KED D ICPMS I 4°C Zinc KED D ICPMS ELU 4°C OCP-8081-ELUT 4°C PCB-8082-ELUT 4°C SVOA-8270-ELUT 4°C TPH-1005-ELUT 4°C VOA-8260-ELUT 4°C CN T-ELUT 4°C Cr VI-D ELUT 4°C ELUT Bottle 4°C NH3-N SEAL-350.1-ELU 4°C TOC-415.1-ELUT 4°C	

### Remarks

Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By (Signature) <i>Dillon Johnston</i>	Date/Time 2/21/19 - 12:45	Received By (Signature) <i>[Signature]</i>	Date/Time
Print Name Dillon Johnston	Relinquished By (Signature)	Date/Time	Received By (Signature)	Date/Time
Affiliation LEI	Relinquished To Lab By (Signature)	Date/Time	Reserved for Laboratory By (Signature) <i>[Signature]</i>	Date/Time 2-21-19

2-21-19 12:35



# CHAIN OF CUSTODY RECORD



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Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-26	BWS-PM-18-15-S		2/19/2019 G 14:45	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Barium KED ICPMS 20.4°C Cadmium KED ICPMS 20.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <-20°C VOA-8260-Meds 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

### Remarks

Sampler (Signature)	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Print Name	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Affiliation	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time





**North Water District Laboratory Services**  
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 Bellaire, TX 77401  
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Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-27	BWSPM-18-16-S		A-E collected 2/14/2019 G 14:05	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 20.4°C Cadmium KED ICPMS 21.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4 4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <20°C VOA-8260-Meds 4°C MeOH CN-T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

**Remarks**

Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By: (Signature) <i>Dillon Johnston</i>	Date/Time 2/21/19 - 12:30	Received By: (Signature) <i>[Signature]</i>	Date/Time
Print Name Dillon R. Johnston	Relinquished By: (Signature) <i>Dillon Johnston</i>	Date/Time	Received By: (Signature) <i>[Signature]</i>	Date/Time
Affiliation LEI	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature) <i>[Signature]</i>	Date/Time 2/19/19



# CHAIN OF CUSTODY RECORD

North Water District Laboratory Services  
 8725 Fawn Trail - The Woodlands, TX 77385  
 (936) 321-6060 - fax (936) 321-6061 - lab@nwdls.com  
 TCEQ Cert ID: T104704238

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 Dillon Johnston  
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 Bellaire, TX 77401  
 Phone: (832) 426-4656



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Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-28	BW-SPM-18-17-S		A-E collected 2/19/2019 9 13:30	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 20.4°C Cadmium KED ICPMS 20.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 24°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <-20°C VOA-8260-Meds 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

<b>Remarks</b>	
Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By: (Signature) <i>Dillon Johnston</i>
Print Name Dillon Johnston	Relinquished By: (Signature) <i>Dillon Johnston</i>
Affiliation LCEI	Relinquished To Lab By: (Signature)
Date/Time 2/21/19 - 12:35	Received By: (Signature) <i>[Signature]</i>
Date/Time 2/21/19	Received By: (Signature) <i>[Signature]</i>
Date/Time 2/21/19	Received for Laboratory By: (Signature) <i>[Signature]</i>
Date/Time 2/21/19	Date/Time 2/21/19





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 TCEQ Cert ID: T104704238

Phillips 66 - Bluewater SPM 2019

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 Bellaire, TX 77401  
 Phone: (832) 426-4656

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-29	BWSPM-18-18-S		A-E Collected 2/14/2019 G 13:00	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 2C 4°C Arsenic KED ICPMS 200 4°C Beryllium KED ICPMS 2C 4°C Cadmium KED ICPMS 2I 4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2 4°C Copper KED ICPMS 200 4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4 4°C Selenium KED ICPMS 2C 4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20I 4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <-20°C VOA-8260-Meds 4°C MeOH CN-T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

Remarks	
Sampler (Signature)	Relinquished By: (Signature)
Print Name	Relinquished By: (Signature)
Affiliation	Relinquished To Lab By: (Signature)
Date/Time	Received By: (Signature)
Date/Time	Received by: (Signature)
Date/Time	Received for Laboratory By: (Signature)
Date/Time	Date/Time





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North Water District Laboratory Services  
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 TCEQ Cert ID: T104704238

Phillips 66 - Bluewater SPM 2019

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19B1833

Lloyd Engineering, Inc.  
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 Bellaire, TX 77401  
 Phone: (832) 426-4656

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-02	BWSPM-18-01-W		BWSPM-18-01-W Corrected on 2/28/2019 13:37	AQ Grab	A HDPE 250mL HNO3 after filtration B HDPE 250mL NaOH C HDPE 250mL D HDPE 250mL HNO3 E HDPE 250mL H2SO4 F Glass VOA 60mL G Glass VOA 60mL H Glass VOA 60mL I Glass VOA 60mL J Glass VOA 60mL K Glass VOA 60mL L Amber 1L w/ Teflon-lined Lid M Amber 1L w/ Teflon-lined Lid N Amber 1L w/ Teflon-lined Lid O Glass VOA 60mL P Glass VOA 60mL Q Glass VOA 60mL R HDPE 250mL H2SO4 S Glass VOA 40mL HCl T Glass VOA 40mL HCl U Glass VOA 40mL HCl V Glass VOA 40mL HCl pH<2	Antimony KED D ICPMS HNO3 Arsenic KED D ICPMS 2:HNO3 Beryllium KED D ICPMS HNO3 Cadmium KED D ICPMS HNO3 Chromium KED D ICPMS HNO3 Copper KED D ICPMS 2:HNO3 Cr III D ICPMS [Group Analysis] Hg-245.1 HNO3 Lead KED D ICPMS 200. HNO3 Nickel KED D ICPMS 201 HNO3 Selenium KED D ICPMS 200 HNO3 Silver KED D ICPMS 200 HNO3 Thallium KED D ICPMS ; HNO3 Zinc KED D ICPMS 200. ; HNO3 OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 4°C VOA-8260 4°C CN T-4500 NaOH 4°C Cr VI-D 3500 4°C NH3-N SEAL-350.1 H2SO4 4°C Site Water Elutriate Prep 4°C TOC-415.1 H2SO4 4°C	

### Remarks

Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By: (Signature) <i>Dillon Johnston</i>	Date/Time 03/21/19 13:05	Received By: (Signature) <i>ARC</i>	Date/Time 3-1-19 1305
Print Name Dillon Johnston	Relinquished By: (Signature)	Date/Time	Received By: (Signature) <i>ARC</i>	Date/Time
Affiliation LEI	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature) <i>ARC</i>	Date/Time 3-1-19 1000



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North Water District Laboratory Services  
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Phillips 66 - Bluewater SPM 2019

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19B1833

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 Phone: (832) 426-4656

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-03	BW/SPM-18-08-W		2/28/2019 9 15:05	AQ Grab	A HDPE 250mL HNO3 after filtration B HDPE 250mL NaOH C HDPE 250mL D HDPE 250mL HNO3 E HDPE 250mL H2SO4 F Glass VOA 60mL G Glass VOA 60mL H Glass VOA 60mL I Glass VOA 60mL J Glass VOA 60mL K Glass VOA 60mL L Amber 1L w/ Teflon-lined Lid M Amber 1L w/ Teflon-lined Lid N Amber 1L w/ Teflon-lined Lid O Glass VOA 60mL P Glass VOA 60mL Q Glass VOA 60mL R HDPE 250mL H2SO4 S Glass VOA 40mL HCl T Glass VOA 40mL HCl U Glass VOA 40mL HCl V Glass VOA 40mL HCl pH<2	Antimony KED D ICPMS HNO3 Arsenic KED D ICPMS 2 HNO3 Beryllium KED D ICPMS HNO3 Cadmium KED D ICPMS HNO3 Chromium KED D ICPMS HNO3 Copper KED D ICPMS 2 HNO3 Cr III D ICPMS [Group Analysis] Hg-245 1 HNO3 Lead KED D ICPMS 200 HNO3 Nickel KED D ICPMS 200 HNO3 Selenium KED D ICPMS 200 HNO3 Silver KED D ICPMS 200 HNO3 Thallium KED D ICPMS 2 HNO3 Zinc KED D ICPMS 200 HNO3 OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 4°C VOA-8260 4°C CN T-4500 NaOH 4°C Cr-VI-D 3500 4°C NH3-N SEAL-350.1 H2SO4 4°C Site Water Elutriate Prep 4°C TOC-415.1 H2SO4 4°C	

### Remarks

Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By: (Signature) <i>Dillon Johnston</i>	Date/Time 03/01/19 - 13:05	Received By: (Signature) <i>Age</i>	Date/Time 3-1-19
Prd Name <i>Phillips 66 Johnston</i>	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time 1305
Affiliation <i>LC-1</i>	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature) <i>Age</i>	Date/Time 3-1-19 1600





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**19B1833**

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**Phillips 66 - Bluewater SPM 2019**

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Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-04	BWSPM-18-14-W		BWSPM-18-14-W collected on 2/28/2019 (9:15:59)	AQ Grab	A HDPE 250mL HNO3 after filtration B HDPE 250mL NaOH C HDPE 250mL D HDPE 250mL HNO3 E HDPE 250mL H2SO4 F Glass VOA 60mL G Glass VOA 60mL H Glass VOA 60mL I Glass VOA 60mL J Glass VOA 60mL K Glass VOA 60mL L Amber 1L w/ Teflon-lined Lid M Amber 1L w/ Teflon-lined Lid N Amber 1L w/ Teflon-lined Lid O Glass VOA 60mL P Glass VOA 60mL Q Glass VOA 60mL R HDPE 250mL H2SO4 S Glass VOA 40mL HCl T Glass VOA 40mL HCl U Glass VOA 40mL HCl V Glass VOA 40mL HCl pH<2	Antimony KED D ICPMS HNO3 Arsenic KED D ICPMS 2 HNO3 Beryllium KED D ICPMS HNO3 Cadmium KED D ICPMS HNO3 Chromium KED D ICPMS HNO3 Copper KED D ICPMS 2 HNO3 Cr III D ICPMS [Group Analysis] Hg-245.1 HNO3 Lead KED D ICPMS 200. HNO3 Nickel KED D ICPMS 200 HNO3 Selenium KED ICPMS 20 HNO3 Silver KED D ICPMS 200 HNO3 Thallium KED D ICPMS ; HNO3 Zinc KED D ICPMS 200 ; HNO3 OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 4°C VOA-8260 4°C CN T-4500 NaOH 4°C Cr VLD 3500 4°C NH3-N SEAL-350.1 H2SO4 4°C Site Water Elutriate Prep 4°C TOC-415.1 H2SO4 4°C	

## Remarks

Samples (Signature)  Print Name Dillon Johnston Affiliation LEI	Relinquished By: (Signature)  Relinquished By: (Signature)  Date/Time 03/01/19-13:20	Received By: (Signature)  Received By: (Signature)  Date/Time 1305
Relinquished To Lab By: (Signature)	Received for Laboratory By: (Signature)  Date/Time 1600	



# CHAIN OF CUSTODY RECORD



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 Phone: (832) 426-4656

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-07	BWSPM-18-01-E		BWSPM-18-01-E collected on 2/27/2019 9 16:35	S Grab	A Glass Wide 1L w/ Teflon-lined Lid	Antimony KED D ICPMS 4°C Arsenic KED D ICPMS E 4°C Beryllium KED D ICPMS 4°C Cadmium KED D ICPMS 4°C Chromium KED D ICPMS 4°C Copper KED D ICPMS E 4°C Cr III D ICPMS ELUT [Group Analysis] Hg-245-1-ELUT 4°C Lead KED D ICPMS ELU 4°C Nickel KED D ICPMS EL 4°C Selenium KED ICPMS EL 4°C Silver KED D ICPMS EL 4°C Thallium KED D ICPMS 14°C Zinc KED D ICPMS ELU 4°C OCP-8081-ELUT 4°C PCB-8082-ELUT 4°C SVOA-8270-ELUT 4°C TPH-1005-ELUT 4°C VOA-8260-ELUT 4°C CN T-ELUT 4°C Cr-VI-D-ELUT 4°C ELUT Bottle 4°C NH3-N SEAL-350-1-ELU 4°C TOC-415-1-ELUT 4°C	

**Remarks**

Sampler (Signature) *Dillon Johnston* Relinquished By: (Signature) *Dillon Johnston* Date/Time *03/01/19 13:05* Received By: (Signature) *AYC* Date/Time *3-1-19 13:05*

Print Name *Dillon R Johnston* Relinquished By: (Signature) *Dillon R Johnston* Date/Time *03/01/19 13:05* Received By: (Signature) *AYC* Date/Time *3-1-19 13:05*

Affiliation *CEI* Relinquished To Lab By: (Signature) *AYC* Date/Time *3-1-19 16:00*





# CHAIN OF CUSTODY RECORD

North Water District Laboratory Services  
 8725 Fawn Trail - The Woodlands, TX 77385  
 (936) 321-6060 - fax (936) 321-6061 - lab@nwdls.com  
 TCEQ Cert ID: T104704238

Phillips 66 - Bluewater SPM 2019

Lloyd Engineering, Inc.  
 Dillon Johnston  
 6565 West Loop, Suite 708  
 Bellaire, TX 77401  
 Phone: (832) 426-4656



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(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-08	BWSPM-18-08-E		BWSM-18-08-E Collected on 2/27/2019 G 20:41	S Grab	A Glass Wide 1L w/ Teflon-lined Lid	Antimony KED D ICPMS 4°C Arsenic KED D ICPMS E 4°C Beryllium KED D ICPMS 4°C Cadmium KED D ICPMS 4°C Chromium KED D ICPMS 4°C Copper KED D ICPMS E 4°C Cr III D ICPMS ELUT [Group Analysis] Hg-245-1-ELUT 4°C Lead KED D ICPMS ELU 4°C Nickel KED D ICPMS EL 4°C Selenium KED ICPMS EL 4°C Silver KED D ICPMS EL 4°C Thallium KED D ICPMS 14°C Zinc KED D ICPMS ELU 4°C OCP-8081-ELUT 4°C PCB-8082-ELUT 4°C SVOA-8270-ELUT 4°C TPH-1005-ELUT 4°C VOA-8260-ELUT 4°C CN T-ELUT 4°C Cr VI-D-ELUT 4°C ELUT Bottle 4°C NH3-N SEAL-350-1-ELU 4°C TOC-415-1-ELUT 4°C	

### Remarks

Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By: (Signature) <i>Dillon Johnston</i>	Date/Time 3/1/19-13:45	Received By: (Signature) <i>AGL</i>	Date/Time 3-1-19
Print Name Dillon Johnston	Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) <i>AGL</i>	Date/Time 3-1-19
Affiliation LEI	Relinquished To Lab By: (Signature)	Date/Time		Date/Time 1000



# CHAIN OF CUSTODY RECORD

North Water District Laboratory Services  
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 Phone: (832) 426-4556



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(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-09	BWSPM-18-14-E		Begin - 12-14-E Collected on 2/28/19 G 0:16	S Grab	A Glass Wide 1L w/ Teflon-lined Lid	Antimony KED D ICPMS 4°C Arsenic KED D ICPMS E 4°C Beryllium KED D ICPMS 4°C Cadmium KED D ICPMS 4°C Chromium KED D ICPMS 4°C Copper KED D ICPMS E 4°C Cr III D ICPMS ELUT [Group Analysis] Hg-245.1-ELUT 4°C Lead KED D ICPMS ELU 4°C Nickel KED D ICPMS EL 4°C Selenium KED ICPMS EL 4°C Silver KED D ICPMS ELU 4°C Thallium KED D ICPMS 14°C Zinc KED D ICPMS ELU 4°C OCP-8081-ELUT 4°C PCB-8082-ELUT 4°C SVOA-8270-ELUT 4°C TPH-1005-ELUT 4°C VOA-8260-ELUT 4°C CN T-ELUT 4°C Cr VI-D ELUT 4°C ELUT Bottle 4°C NH3-N SEAL-350.1-ELU 4°C TOC-415.1-ELUT 4°C	

Remarks							
Sampler (Signature)	<i>[Signature]</i>	Relinquished By: (Signature)	<i>[Signature]</i>	Date/Time	3/1/19 - 13:05	Received By: (Signature)	<i>[Signature]</i>
Print Name	Dillon R Johnston	Relinquished By: (Signature)		Date/Time		Received By: (Signature)	
Affiliation	LEC	Relinquished To Lab By: (Signature)		Date/Time		Received for Laboratory By: (Signature)	
				Date/Time			3/5/19
				Date/Time			1000



# CHAIN OF CUSTODY RECORD



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 Bellaire, TX 77401  
 Phone: (832) 426-4656

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-12	BWSPPM-18-01-S		2/27/2019 16:35 Collected on 2/27/2019 (g)	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 20.4°C Cadmium KED ICPMS 20.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C S/VOA-8270 4°C TPH-1005 <-20°C VOA-8260-Meds 4°C MeOH CN-T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

### Remarks

Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By: (Signature) <i>Dillon Johnston</i>	Date/Time 3/1/19 - 13:05	Received By: (Signature) <i>AKC</i>	Date/Time 3-1-19
Print Name Dillon Johnston	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time 1305
Affiliation LEI	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature) <i>AKC</i>	Date/Time 1000





# CHAIN OF CUSTODY RECORD

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 Bellaire, TX 77401  
 Phone: (832) 426-4656



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(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-13	BW/SPM-18-02-S		Bussan - 18-02-S Collected on 2/27/2019 17:02	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 2t 4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 2t 4°C Cadmium KED ICPMS 2t 4°C Chromium ICP 6010 4°C Chromium KED ICPMS 24°C Copper KED ICPMS 200 4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.44°C Selenium KED ICPMS 2t 4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20t 4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SV/VOA-8270 4°C TPH-1005 <-20°C VOA-8260-MedS 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

Remarks	
Sampler (Signature) Print Name Affiliation	Relinquished By: (Signature) Relinquished By: (Signature) Relinquished To Lab By: (Signature)
Date/Time Date/Time Date/Time	Received By: (Signature) Received By: (Signature) Received for Laboratory By: (Signature)
Date/Time Date/Time Date/Time	Date/Time Date/Time Date/Time





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**19B1833**

(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-14	BWSPM-18-03-S		2/27/2019 Collected on 2/27/2019 17:45	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 20.4°C Cadmium KED ICPMS 20.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <:20°C VOA-8260-Meds 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

**Remarks**

Sample (Signature)	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Dillon R Johnston	Dillon R Johnston	3/1/19 - 13:25	QAL	3-1-19 13:05
Print Name	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Dillon R Johnston	Dillon R Johnston		DJR	3-1-19 10:00
Affiliation	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time
LEI				







# CHAIN OF CUSTODY RECORD

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 Bellaire, TX 77401  
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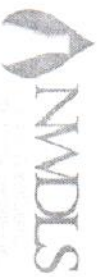
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Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-16	BWSPM-18-05-S		Busspm-18-05-S Collected on 2/27/2019 18:58	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 20.4°C Cadmium KED ICPMS 20.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <20°C VOA-8260-Meds 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

Remarks	
Sampler (Signature) <i>[Signature]</i>	Relinquished By (Signature) <i>[Signature]</i>
Print Name Dillon Johnston	Relinquished By (Signature) <i>[Signature]</i>
Affiliation LEI	Relinquished To Lab By (Signature) <i>[Signature]</i>
Date/Time 3/1/19 13:05	Received By (Signature) <i>[Signature]</i>
Date/Time 3/1/19 16:00	Received for Laboratory By (Signature) <i>[Signature]</i>







# CHAIN OF CUSTODY RECORD



**19B1833**

**North Water District Laboratory Services**  
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 TCEQ Cert ID: T104704238

**Phillips 66 - Bluewater SPM 2019**

(Continued)

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 Bellaire, TX 77401  
 Phone: (832) 426-4656

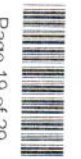
Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-18	BWSPPM-18-07-S		Resign- 18-07-S Collected on 2/27/2019 D 2019	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 2C 4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 2C 4°C Cadmium KED ICPMS 2C 4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200 4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4 4°C Selenium KED ICPMS 2C 4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 204.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <20°C VOA-8260-Meds 4°C MeOH CNT-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

## Remarks

Sampler (Signature) <i>[Signature]</i>	Relinquished By: (Signature) <i>[Signature]</i>	Date/Time 3/1/19 13:05	Received By: (Signature) <i>ASC</i>	Date/Time 3-1-19
Print Name Dillon Johnston	Relinquished By: (Signature) <i>[Signature]</i>	Date/Time	Received By: (Signature) <i>ASC</i>	Date/Time
Affiliation LEI	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time 3-1-19



# CHAIN OF CUSTODY RECORD



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## 19B1833

**North Water District Laboratory Services**  
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 TCEQ Cert ID: T104704238

**Phillips 66 - Bluewater SPM 2019**

(Continued)

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 Phone: (832) 426-4656

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-19	BW/SPM-18-08-S		Bussem-18-08-S Collected on 2/27/2019 G 20:41	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 20.4°C Cadmium KED ICPMS 21.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <-20°C VOA-8260-Meds 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

### Remarks

Sampler (Signature)	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
<i>Dillon Johnston</i>	<i>Dillon Johnston</i>	3/1/19 - 13:58	<i>ADL</i>	3-1-19 1305
Print Name	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
<i>Dillon Johnston</i>			<i>ADL</i>	3-1-19 1000
Affiliation	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time
<i>LEI</i>			<i>ADL</i>	3-1-19 1000





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19B1833

(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-20	BW/SPM-18-09-S		18-09-15 Collected on 2/27/2019 9 2:51	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 20.4°C Cadmium KED ICPMS 20.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4 4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <-20°C VOA-8260-Meds 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

Remarks	
Sampler (Signature) <i>[Signature]</i>	Relinquished By (Signature) <i>[Signature]</i>
Print Name Dillon R Johnston	Relinquished By (Signature) <i>[Signature]</i>
Affiliation LEI	Relinquished To Lab By (Signature) <i>[Signature]</i>
Date/Time 3/1/19 13:05	Date/Time 3-1-19 1305
Received By (Signature) <i>[Signature]</i>	Received for Laboratory By (Signature) <i>[Signature]</i>
Date/Time 3-1-19	Date/Time 1600



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North Water District Laboratory Services  
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19B1833



(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-21	BW SPM-18-10-S		Buson - 18-10-S Collected in 2/27/2019 G 22:18	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 20.4°C Cadmium KED ICPMS 20.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <-20°C VOA-8260-Meds 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

### Remarks

Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By: (Signature) <i>Dillon Johnston</i>	Date/Time 3/1/19 13:05	Received By: (Signature) <i>AKL</i>	Date/Time 3-1-19 1305
Print Name Dillon R Johnston	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
Affiliation L E I	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature) <i>AKL</i>	Date/Time 3-1-19 1600





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19B1833



(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-22	BWSPM-18-11-S		2/27/2019 Checked on 2:59 2:59	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 2C 4°C Arsenic KED ICPMS 200 4°C Beryllium KED ICPMS 2C 4°C Cadmium KED ICPMS 2I 4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2 4°C Copper KED ICPMS 200 4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4 4°C Selenium KED ICPMS 2I 4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20I 4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <20°C VOA-8260-Meds 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

Sampler (Signature)	Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	3/1/19 13:05	<i>[Signature]</i>	3-1-19 1305
Print Name Dillon Johnston	Relinquished By: (Signature) <i>[Signature]</i>	Date/Time	Received By: (Signature) <i>[Signature]</i>	Date/Time 1600
Affiliation LEI	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature) <i>[Signature]</i>	Date/Time 1600



# CHAIN OF CUSTODY RECORD

North Water District Laboratory Services  
 8725 Fawn Trail - The Woodlands, TX 77385  
 (936) 321-6060 - fax (936) 321-6061 - lab@nwdls.com  
 TCEQ Cert ID: T104704238

Phillips 66 - Bluewater SPM 2019

Lloyd Engineering, Inc.  
 Dillon Johnston  
 6565 West Loop, Suite 708  
 Bellaire, TX 77401  
 Phone: (832) 426-4656



19B1833

(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-23	BWSPM-18-12-S		DUSPM-18-12-S Collected on 2/27/2019 G 23.29	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 200 4°C Arsenic KED ICPMS 200 4°C Beryllium KED ICPMS 20 4°C Cadmium KED ICPMS 20 4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2 4°C Copper KED ICPMS 200 4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4 4°C Selenium KED ICPMS 20 4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 201 4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <-20°C VOA-8260-MedS 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

### Remarks

Sampler (Signature) <i>Dillon P Johnston</i>	Relinquished By: (Signature) <i>Dillon P Johnston</i>	Date/Time 3/1/19 1:30 PM	Received By: (Signature) <i>ASL</i>	Date/Time 1805
Print Name Dillon P Johnston	Relinquished By: (Signature)	Date/Time	Received for Laboratory By: (Signature) <i>ASL</i>	Date/Time 1000
Affiliation LEI	Relinquished To Lab By: (Signature)	Date/Time		





North Water District Laboratory Services  
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# CHAIN OF CUSTODY RECORD

Phillips 66 - Bluewater SPM 2019

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**19B1833**

(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-24	BWSFM-18-13-S		2/27/2019 Collected on 23-55	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 20.4°C Cadmium KED ICPMS 20.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <-20°C VOA-8260-Meds 4°C MeOH CN T-9014 4°C Cr-III Solid [Group Analysis] Cr-VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-150.4 4°C	

**Remarks**

Sampler (Signature) <i>Dillon Johnston</i>	Relinquished By (Signature) <i>Dillon Johnston</i>	Date/Time 3/1/19 13:05	Received By (Signature) <i>AK</i>	Date/Time 3-1-19 1305
Print Name Dillon Johnston	Relinquished By (Signature)	Date/Time	Received for Laboratory By (Signature) <i>AK</i>	Date/Time 3-1-19 1000
Affiliation LEI	Relinquished To Lab By (Signature)	Date/Time		



# CHAIN OF CUSTODY RECORD

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**19B1833**

(Continued)

Sample ID	Collection Point	Date/Time Begin	Date/Time Sampled	Sample Type	Container	Analysis/Preservation	Field Results
19B1833-25	BWSPM-18-14-S		BWSM-18-14-S Collected on 2/28/2019 G 0:16	S Grab	A Glass 250mL w/ Teflon-lined Lid B Glass 250mL w/ Teflon-lined Lid C Glass 250mL D Glass VOA 40mL MeOH E Glass VOA 40mL MeOH	Antimony KED ICPMS 20.4°C Arsenic KED ICPMS 200.4°C Beryllium KED ICPMS 20.4°C Cadmium KED ICPMS 21.4°C Chromium ICP 6010 4°C Chromium KED ICPMS 2.4°C Copper KED ICPMS 200.4°C Hg-7471 4°C Lead KED ICPMS 200.8 4°C Nickel KED ICPMS 200.4°C Selenium KED ICPMS 20.4°C Silver KED ICPMS 200.8 4°C Thallium KED ICPMS 20.4°C Zinc KED ICPMS 200.8 4°C OCP-8081 4°C PCB-8082 4°C SVOA-8270 4°C TPH-1005 <20°C VOA-8260-Meds 4°C MeOH CN T-9014 4°C Cr III Solid [Group Analysis] Cr VI-7196 4°C Grain Size 4°C NH3-N T-350.2 4°C TOC-9060 4°C TS-2540 G 4°C VS-160.4 4°C	

### Remarks

Sample (Signature) <i>Dillon R. Johnston</i>	Relinquished By: (Signature) <i>Dillon R. Johnston</i>	Date/Time 3/1/19 13:05	Received By: (Signature) <i>ASL</i>	Date/Time 3-1-19 1305
Print Name Dillon R Johnston	Relinquished By: (Signature)	Date/Time	Received By: (Signature) <i>ASL</i>	Date/Time 1000
Affiliation LEI	Relinquished To Lab By: (Signature)	Date/Time	Received for Laboratory By: (Signature)	Date/Time 1000

**Appendix E**  
**Electronic Data Deliverable (EDD): Raw Laboratory**  
**Results Data**







**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminal LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-W	19B1833-02	Marine Water	VOA-8260	SW-8260	Xylene (total)	FALSE	0.00			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-W	19B1833-02	Marine Water	VOA-8260	SW-8260	1,1-Dichloropropene	FALSE	<0.621	0.621	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-W	19B1833-02	Marine Water	VOA-8260	SW-8260	p-Isopropyltoluene	FALSE	<0.590	0.590	5.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-W	19B1833-02	Marine Water	VOA-8260	SW-8260	1,2,3-Trichlorobenzene	FALSE	<1.55	1.55	5.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-W	19B1833-02	Marine Water	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	24.2			mg/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-W	19B1833-02	Marine Water	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	23.0			mg/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-W	19B1833-02	Marine Water	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<4.59	4.59	9.18	mg/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Antimony KED D ICPCMS 200.8	EPA 200.8	Antimony	FALSE	1.19	1.00	5.00	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Arsenic KED D ICPCMS 200.8	EPA 200.8	Arsenic	FALSE	1.89	0.500	2.50	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Beryllium KED D ICPCMS 200.8	EPA 200.8	Beryllium	FALSE	0.0625	0.0500	1.00	ug/L	B
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Cadmium KED D ICPCMS 200.8	EPA 200.8	Cadmium	FALSE	<0.250	0.250	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Chromium KED D ICPCMS 200.8	EPA 200.8	Chromium	FALSE	0.409	0.400	15.0	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Copper KED D ICPCMS 200.8	EPA 200.8	Copper	FALSE	<1.00	1.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Lead KED D ICPCMS 200.8	EPA 200.8	Lead	FALSE	<0.500	0.500	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Nickel KED D ICPCMS 200.8	EPA 200.8	Nickel	FALSE	0.555	0.250	5.00	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Selenium KED ICPCMS 200.8	EPA 200.8	Selenium	FALSE	4.64	1.65	25.0	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Silver KED D ICPCMS 200.8	EPA 200.8	Silver	FALSE	<0.150	0.150	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Thallium KED D ICPCMS 200.8	EPA 200.8	Thallium	FALSE	<0.150	0.150	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Zinc KED D ICPCMS 200.8	EPA 200.8	Zinc	FALSE	<1.00	1.00	10.0	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Hg-245.1	EPA 245.1	Mercury	FALSE	<0.150	0.150	0.200	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	NH3-N SEAL-350.1	EPA 350.1	Ammonia as N	FALSE	0.629	0.0200	0.100	mg/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	TOC-415.1	EPA 415.1	Total Organic Carbon (TOC)	FALSE	0.000201	5.00E-5	0.000100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	Cr VI-D 3500	SM 3500-Cr B	Chromium (VI)	FALSE	<3.00	3.00	3.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	CN T-4500	SM 4500-CN C	Total Cyanide	FALSE	<0.00500	0.00500	0.0100	mg/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	2,4,5,6-Tetrachloro-m-xylene-surr	TRUE	0.0893			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Decachlorobiphenyl-surr	TRUE	0.121			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	cis-Chlordane (alpha-Chlordane)	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	delta-BHC	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Dieldrin	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Endosulfan I	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Endosulfan II	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Endosulfan sulfate	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Endrin	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Endrin aldehyde	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Endrin ketone	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	gamma-Chlordane	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Heptachlor	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Heptachlor epoxide	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Toxaphene (Chlorinated Camphene)	FALSE	<0.300	0.300	0.300	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	4,4'-DDD	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	4,4'-DDE	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	4,4'-DDT	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	Aldrin	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	OCF-8081	SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	FALSE	<0.00600	0.00600	0.00600	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	PCB-8082	SW-8082	2,4,5,6-Tetrachloro-m-xylene-surr	TRUE	0.0854			ug/L	C
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	PCB-8082	SW-8082	Decachlorobiphenyl-surr	TRUE	0.0662			ug/L	C, S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	PCB-8082	SW-8082	PCBs, Total	FALSE	<0.00598	0.00598	0.0120	ug/L	C, U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,1,1,2-Tetrachloroethane	FALSE	<0.676	0.676	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,2,3-Trichloropropane	FALSE	<0.813	0.813	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	4-Bromofluorobenzene-surr	TRUE	41.1			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Toluene-d8-surr	TRUE	54.7			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Dibromofluoromethane-surr	TRUE	57.8			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	60.2			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,2,4-Trichlorobenzene	FALSE	<1.13	1.13	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,2,4-Trimethylbenzene	FALSE	<0.929	0.929	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,2-Dibromo-3-chloropropane (DBCP)	FALSE	<0.999	0.999	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,2-Dibromoethane (EDB, Ethylene dibromide)	FALSE	<0.706	0.706	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,2-Dichlorobenzene (o-Dichlorobenzene)	FALSE	<0.881	0.881	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,2-Dichloroethane (Ethylene dichloride)	FALSE	<0.870	0.870	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,2-Dichloropropane	FALSE	<0.854	0.854	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,3,5-Trimethylbenzene	FALSE	<0.766	0.766	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,1,1-Trichloro-2,2,2-trifluoroethane (Freon 113a)	FALSE	<0.635	0.635	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,3-Dichlorobenzene (m-Dichlorobenzene)	FALSE					



**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Bluewater Texas Terminal LLC - Bluewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,4-Dichlorobenzene (p-Dichlorobenzene)	FALSE	<0.641	0.641	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	2,2-Dichloropropane	FALSE	<0.661	0.661	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	2-Butanone (Methyl ethyl ketone, MEK)	FALSE	<7.38	7.38	22.0	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	2-Chloroethyl vinyl ether	FALSE	<3.14	3.14	9.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	2-Chlorotoluene	FALSE	<0.794	0.794	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	2-Hexanone (Methyl butyl ketone, MBK)	FALSE	<8.67	8.67	26.0	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	4-Chlorotoluene	FALSE	<0.922	0.922	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,1,1-Trichloroethane	FALSE	<0.622	0.622	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	4-Methyl-2-pentanone (MIBK)	FALSE	<8.48	8.48	25.0	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Acetone	FALSE	<7.86	7.86	24.0	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Acetonitrile	FALSE	<16.0	16.0	48.0	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Acrolein (Propenal)	FALSE	<5.68	5.68	17.0	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Acrylonitrile	FALSE	<1.60	1.60	5.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Allyl chloride (3-Chloropropene)	FALSE	<0.824	0.824	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Benzene	FALSE	<0.604	0.604	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Bromobenzene	FALSE	<0.749	0.749	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Bromochloromethane	FALSE	<0.861	0.861	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Bromodichloromethane	FALSE	<0.727	0.727	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,1,2,2-Tetrachloroethane	FALSE	<0.867	0.867	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Bromofom	FALSE	<0.678	0.678	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Carbon disulfide	FALSE	<1.04	1.04	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Carbon tetrachloride	FALSE	<0.500	0.500	1.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Chlorobenzene	FALSE	<0.724	0.724	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Chlorodibromomethane	FALSE	<0.802	0.802	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Chloroethane (Ethyl chloride)	FALSE	<1.30	1.30	4.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Chloroform	FALSE	<0.688	0.688	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Chloroprene (2-Chloro-1,3-butadiene)	FALSE	<0.897	0.897	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	cis-1,2-Dichloroethylene	FALSE	<0.900	0.900	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	cis-1,3-Dichloropropene	FALSE	<0.580	0.580	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,1,2-Trichloroethane	FALSE	<0.789	0.789	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Dibromomethane (Methylene bromide)	FALSE	<0.754	0.754	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Dichlorodifluoromethane (Freon-12)	FALSE	<0.848	0.848	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Diethyl ether	FALSE	<1.14	1.14	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Ethylbenzene	FALSE	<0.727	0.727	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Hexachlorobutadiene	FALSE	<1.38	1.38	4.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Isopropylbenzene	FALSE	<0.743	0.743	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	m+p-xylene	FALSE	<1.89	1.89	6.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Methyl bromide (Bromomethane)	FALSE	<1.42	1.42	4.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Methyl chloride (Chloromethane)	FALSE	<0.765	0.765	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,1-Dichloroethane	FALSE	<0.967	0.967	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Methyl tert-butyl ether (MTBE)	FALSE	<2.94	2.94	9.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Methylene chloride (Dichloromethane)	FALSE	<1.60	1.60	5.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Naphthalene	FALSE	<2.20	2.20	7.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	n-Butylbenzene	FALSE	<0.829	0.829	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	n-Propylbenzene	FALSE	<0.794	0.794	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	o-Xylene	FALSE	<0.806	0.806	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Pentachloroethane	FALSE	<0.819	0.819	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	sec-Butylbenzene	FALSE	<0.931	0.931	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Styrene	FALSE	<0.884	0.884	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	tert-Butylbenzene	FALSE	<0.931	0.931	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,1-Dichloroethylene	FALSE	<0.849	0.849	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<0.703	0.703	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Toluene	FALSE	<0.649	0.649	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	trans-1,2-Dichloroethylene	FALSE	<0.899	0.899	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	trans-1,3-Dichloropropylene	FALSE	<0.496	0.496	1.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Trichloroethane (Trichloroethylene)	FALSE	<0.744	0.744	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Trichlorofluoromethane (Fluorotrichloromethane, Fr	FALSE	<0.577	0.577	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Vinyl acetate	FALSE	<0.877	0.877	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Vinyl chloride (Chloroethane)	FALSE	1.70	1.30	4.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	Xylene (total)	FALSE	0.00			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,1-Dichloropropene	FALSE	<0.621	0.621	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	p-Isopropyltoluene	FALSE	<0.590	0.590	5.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	VOA-8260	SW-8260	1,2,3-Trichlorobenzene	FALSE	<1.55	1.55	5.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	32.4			mg/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	32.0			mg/L	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-W	19B1833-03	Marine Water	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<4.65	4.65	9.30	mg/L	

**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminal LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Antimony KED D ICPMS 200.8	EPA 200.8	Antimony	FALSE	<1.00	1.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Arsenic KED D ICPMS 200.8	EPA 200.8	Arsenic	FALSE	1.82	0.500	2.50	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Beryllium KED D ICPMS 200.8	EPA 200.8	Beryllium	FALSE	<0.0500	0.0500	1.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Cadmium KED D ICPMS 200.8	EPA 200.8	Cadmium	FALSE	<0.250	0.250	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Chromium KED D ICPMS 200.8	EPA 200.8	Chromium	FALSE	<0.400	0.400	15.0	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Copper KED D ICPMS 200.8	EPA 200.8	Copper	FALSE	<1.00	1.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Lead KED D ICPMS 200.8	EPA 200.8	Lead	FALSE	<0.500	0.500	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Nickel KED D ICPMS 200.8	EPA 200.8	Nickel	FALSE	0.631	0.250	5.00	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	4.05	1.65	25.0	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Silver KED D ICPMS 200.8	EPA 200.8	Silver	FALSE	<0.150	0.150	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Thallium KED D ICPMS 200.8	EPA 200.8	Thallium	FALSE	<0.150	0.150	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Zinc KED D ICPMS 200.8	EPA 200.8	Zinc	FALSE	<1.00	1.00	10.0	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Hg-245.1	EPA 245.1	Mercury	FALSE	<0.150	0.150	0.200	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	NH3-N SEAL-350.1	EPA 350.1	Ammonia as N	FALSE	0.688	0.0200	0.100	mg/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	TOC-415.1	EPA 415.1	Total Organic Carbon (TOC)	FALSE	0.000262	5.00E-5	0.00100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	Cr VI-D 3500	SM 3500-Cr B	Chromium (VI)	FALSE	<-3.00	3.00	3.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	CN T-4500	SM 4500-CN C	Total Cyanide	FALSE	<0.00500	0.00500	0.0100	mg/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	2,4,5,6 Tetrachloro-m-xylene-surr	TRUE	0.0827			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Decachlorobiphenyl-surr	TRUE	0.120			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	cis-Chlordane (alpha-Chlordane)	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	delta-BHC	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Dieldrin	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Endosulfan I	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Endosulfan II	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Endosulfan sulfate	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Endrin	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Endrin aldehyde	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Endrin ketone	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	gamma-Chlordane	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Heptachlor	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Heptachlor epoxide	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Toxaphene (Chlorinated Camphene)	FALSE	<0.300	0.300	0.300	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	4,4'-DDD	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	4,4'-DDE	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	4,4'-DDT	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	Aldrin	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	OCF-8081	SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	PCB-8082	SW-8082	2,4,5,6 Tetrachloro-m-xylene-surr	TRUE	0.0843			ug/L	C
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	PCB-8082	SW-8082	Decachlorobiphenyl-surr	TRUE	0.0677			ug/L	C, S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	PCB-8082	SW-8082	PCBs, Total	FALSE	<0.00595	0.00595	0.0119	ug/L	C, U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,1,1,2-Tetrachloroethane	FALSE	<0.676	0.676	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,2,3-Trichloropropane	FALSE	<0.813	0.813	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	4-Bromofluorobenzene-surr	TRUE	39.8			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	Toluene-d8-surr	TRUE	54.9			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	Dibromofluoromethane-surr	TRUE	56.7			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	60.2			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,2,4-Trichlorobenzene	FALSE	<1.13	1.13	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,2,4-Trimethylbenzene	FALSE	<0.929	0.929	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,2-Dibromo-3-chloropropane (DBCP)	FALSE	<0.999	0.999	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,2-Dibromoethane (EDB, Ethylene dibromide)	FALSE	<0.706	0.706	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,2-Dichlorobenzene (o-Dichlorobenzene)	FALSE	<0.881	0.881	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,2-Dichloroethane (Ethylene dichloride)	FALSE	<0.870	0.870	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,2-Dichloropropane	FALSE	<0.854	0.854	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,3,5-Trimethylbenzene	FALSE	<0.766	0.766	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,1,1-Trichloro-2,2,2-trifluoroethane (Freon 113a)	FALSE	<0.635	0.635	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,3-Dichlorobenzene (m-Dichlorobenzene)	FALSE	<0.717	0.717	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,3-Dichloropropane	FALSE	<0.876	0.876	3.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	1,4-Dichlorobenzene (p-Dichlorobenzene)	FALSE	<0.641	0.641	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	2,2-Dichloropropane	FALSE	<0.661	0.661	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	2-Butanone (Methyl ethyl ketone, MEK)	FALSE	<7.38	7.38	22.0	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	2-Chloroethyl vinyl ether	FALSE	<3.14	3.14	9.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04	Marine Water	VOA-8260	SW-8260	2-Chlorotoluene	FALSE	<0.794	0.794	2.00	ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-W	19B1833-04										







**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminal LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-W	19B1833-06	Marine Water	VOA-8260	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<0.703	0.703	2.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-W	19B1833-06	Marine Water	VOA-8260	SW-8260	Trichloroethene (Trichloroethylene)	FALSE	<0.744	0.744	2.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-W	19B1833-06	Marine Water	VOA-8260	SW-8260	Xylene (total)	FALSE	0.00			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-W	19B1833-06	Marine Water	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	27.9			mg/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-W	19B1833-06	Marine Water	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	28.4			mg/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-W	19B1833-06	Marine Water	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<4.41	4.41	8.82	mg/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Antimony KED D ICPMS ELUT	EPA 200.8	Antimony	FALSE	1.43	1.00	5.00	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Arsenic KED D ICPMS ELUT	EPA 200.8	Arsenic	FALSE	12.6	0.500	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Beryllium KED D ICPMS ELUT	EPA 200.8	Beryllium	FALSE	<0.0500	0.0500	1.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Cadmium KED D ICPMS ELUT	EPA 200.8	Cadmium	FALSE	<0.250	0.250	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Chromium KED D ICPMS ELUT	EPA 200.8	Chromium	FALSE	<0.400	0.400	15.0	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Copper KED D ICPMS ELUT	EPA 200.8	Copper	FALSE	<1.00	1.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Lead KED D ICPMS ELUT	EPA 200.8	Lead	FALSE	<0.500	0.500	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Nickel KED D ICPMS ELUT	EPA 200.8	Nickel	FALSE	0.685	0.250	5.00	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Selenium KED ICPMS ELUT	EPA 200.8	Selenium	FALSE	4.86	1.65	25.0	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Silver KED D ICPMS ELUT	EPA 200.8	Silver	FALSE	<0.150	0.150	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Thallium KED D ICPMS ELUT	EPA 200.8	Thallium	FALSE	<0.150	0.150	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Zinc KED D ICPMS ELUT	EPA 200.8	Zinc	FALSE	<1.00	1.00	10.0	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Hg-245.1-ELUT	EPA 245.1	Mercury	FALSE	<0.150	0.150	0.200	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	NH3-N SEAL-350.1-ELUT	EPA 350.1	Ammonia as N	FALSE	1.18	0.0200	0.100	mg/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	TOC-415.1-ELUT	EPA 415.1	Total Organic Carbon (TOC)	FALSE	0.000288	5.00E-5	0.000100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	Cr VI-D ELUT	SM 3500-Cr B	Chromium (VI)	FALSE	2.69	1.50	3.00	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	CN T-ELUT	SM 4500-CN C	Total Cyanide	FALSE	<0.00500	0.00500	0.0100	mg/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	2,4,5,6 Tetrachloro-m-xylene-surr	TRUE	0.0903			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Decachlorobiphenyl-surr	TRUE	0.119			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	cis-Chlordane (alpha-Chlordane)	FALSE	<0.00240	0.00240	0.00699	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	delta-BHC	FALSE	<0.00409	0.00409	0.0120	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Dieldrin	FALSE	<0.00110	0.00110	0.00299	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Endosulfan I	FALSE	<0.00200	0.00200	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Endosulfan II	FALSE	<0.00399	0.00399	0.0120	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Endosulfan sulfate	FALSE	<0.00858	0.00858	0.0260	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Endrin	FALSE	<0.00260	0.00260	0.00799	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Endrin aldehyde	FALSE	<0.00769	0.00769	0.0230	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Endrin ketone	FALSE	<0.00489	0.00489	0.0150	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	FALSE	<0.00359	0.00359	0.0110	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	gamma-Chlordane	FALSE	<0.00140	0.00140	0.00399	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Heptachlor	FALSE	<0.0128	0.0128	0.0379	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Heptachlor epoxide	FALSE	<0.00210	0.00210	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Toxaphene (Chlorinated Camphene)	FALSE	<0.00299	0.00299	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	4,4'-DDD	FALSE	<0.000898	0.000898	0.00299	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	4,4'-DDE	FALSE	<0.00339	0.00339	0.00998	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	4,4'-DDT	FALSE	<0.00379	0.00379	0.0110	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	Aldrin	FALSE	<0.00110	0.00110	0.00299	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	FALSE	<0.00150	0.00150	0.00499	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	OCF-8081-ELUT	SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	FALSE	<0.00988	0.00988	0.0299	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	PCB-8082-ELUT	SW-8082	2,4,5,6 Tetrachloro-m-xylene-surr	TRUE	0.0808			ug/L	C
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	PCB-8082-ELUT	SW-8082	Decachlorobiphenyl-surr	TRUE	0.0621			ug/L	C, S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	PCB-8082-ELUT	SW-8082	PCBs, Total	FALSE	<0.00596	0.00596	0.0119	ug/L	C, U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,1,1,2-Tetrachloroethane	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,2,3-Trichloropropane	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	4-Bromofluorobenzene-surr	TRUE	42.1			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	Dibromofluoromethane-surr	TRUE	57.4			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	Toluene-d8-surr	TRUE	54.2			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	60.5			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,2,4-Trichlorobenzene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,2,4-Trimethylbenzene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dibromo-3-chloropropane (DBCP)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dibromomethane (EDB, Ethylene dibromide)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dichlorobenzene (o-Dichlorobenzene)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dichloroethane (Ethylene dichloride)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dichloropropane	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,3,5-Trimethylbenzene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,1,1-Trichloro-2,2,2-trifluoroethane (Freon 113a)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-E	19B1833-07	Elutriate	VOA-8260-ELUT	SW-8260	1,3-Dichlorobenzene (m-Dichlorobenzene)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.												





**Appendix F**  
**Electronic Data Deliverable (EDD) - Raw Laboratory Results Data**  
**Blewater Texas Terminal LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Cadmium KED D ICPCMS ELUT	EPA 200.8	Cadmium	FALSE	<0.250	0.250	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Chromium KED D ICPCMS ELUT	EPA 200.8	Chromium	FALSE	<0.400	0.400	15.0	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Copper KED D ICPCMS ELUT	EPA 200.8	Copper	FALSE	<1.00	1.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Lead KED D ICPCMS ELUT	EPA 200.8	Lead	FALSE	<0.500	0.500	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Nickel KED D ICPCMS ELUT	EPA 200.8	Nickel	FALSE	0.688	0.250	5.00	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Selenium KED ICPCMS ELUT	EPA 200.8	Selenium	FALSE	4.98	1.65	25.0	ug/L	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Silver KED D ICPCMS ELUT	EPA 200.8	Silver	FALSE	<0.150	0.150	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Thallium KED D ICPCMS ELUT	EPA 200.8	Thallium	FALSE	<0.150	0.150	2.50	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Zinc KED D ICPCMS ELUT	EPA 200.8	Zinc	FALSE	<1.00	1.00	10.0	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Hg-245.1-ELUT	EPA 245.1	Mercury	FALSE	<0.150	0.150	0.200	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	NH3-N SEAL-350.1-ELUT	EPA 350.1	Ammonia as N	FALSE	1.21	0.0200	0.100	mg/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	TOC-415.1-ELUT	EPA 415.1	Total Organic Carbon (TOC)	FALSE	0.000333	5.00E-5	0.000100	%	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	Cr VI-D ELUT	SM 3500-Cr B	Chromium (VI)	FALSE	<1.50	1.50	3.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	CN T-ELUT	SM 4500-CN C	Total Cyanide	FALSE	<0.00500	0.00500	0.0100	mg/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	2,4,5,6 Tetrachloro-m-xylene-surr	TRUE	0.0822			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Decachlorobiphenyl-surr	TRUE	0.122			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	cis-Chlordane (alpha-Chlordane)	FALSE	<0.00239	0.00239	0.00698	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	delta-Chlordane	FALSE	<0.00409	0.00409	0.0120	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Dieldrin	FALSE	<0.00110	0.00110	0.00299	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Endosulfan I	FALSE	<0.00199	0.00199	0.00598	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Endosulfan II	FALSE	<0.00399	0.00399	0.0120	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Endosulfan sulfate	FALSE	<0.00858	0.00858	0.0259	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Endrin	FALSE	<0.00259	0.00259	0.00798	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Endrin aldehyde	FALSE	<0.00768	0.00768	0.0229	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Endrin ketone	FALSE	<0.00489	0.00489	0.0150	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	FALSE	<0.00359	0.00359	0.0110	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	gamma-Chlordane	FALSE	<0.00140	0.00140	0.00399	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Heptachlor	FALSE	<0.0128	0.0128	0.0379	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Heptachlor epoxide	FALSE	<0.00209	0.00209	0.00598	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Toxaphene (Chlorinated Camphene)	FALSE	<0.00299	0.00299	0.00598	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	4,4'-DDD	FALSE	<0.000898	0.000898	0.00299	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	4,4'-DDE	FALSE	<0.00339	0.00339	0.00997	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	4,4'-DDT	FALSE	<0.00379	0.00379	0.0110	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	Aldrin	FALSE	<0.00110	0.00110	0.00299	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	FALSE	<0.00150	0.00150	0.00499	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	OCF-8081-ELUT	SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	FALSE	<0.00987	0.00987	0.0299	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	PCB-8082-ELUT	SW-8082	2,4,5,6 Tetrachloro-m-xylene-surr	TRUE	0.0850			ug/L	C
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	PCB-8082-ELUT	SW-8082	Decachlorobiphenyl-surr	TRUE	0.0758			ug/L	C
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	PCB-8082-ELUT	SW-8082	PCBs, Total	FALSE	<0.00597	0.00597	0.0119	ug/L	C, U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,1,1,2-Tetrachloroethane	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,2,3-Trichloropropane	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	4-Bromofluorobenzene-surr	TRUE	40.2			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	Dibromofluoromethane-surr	TRUE	57.4			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	Toluene-d8-surr	TRUE	55.5			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	61.1			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,2,4-Trichlorobenzene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,2,4-Trimethylbenzene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dibromo-3-chloropropane (DBCP)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dibromoethane (EDB, Ethylene dibromide)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dichlorobenzene (o-Dichlorobenzene)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dichloroethane (Ethylene dichloride)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dichloropropane	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,3,5-Trimethylbenzene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,1,1-Trichloro-2,2,2-Trifluoroethane (Freon 113a)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,3-Dichlorobenzene (m-Dichlorobenzene)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,3-Dichloropropane	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,4-Dichlorobenzene (p-Dichlorobenzene)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	2,2-Dichloropropane	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	2-Butanone (Methyl ethyl ketone, MEK)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	2-Chloroethyl vinyl ether	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	2-Chlorotoluene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	2-Hexanone (Methyl butyl ketone, MBK)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	4-Chlorotoluene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-E	19B1833-08	Elutriate	VOA-8260-ELUT	SW-8260	1,1,1-Trichloroethane	FALSE					









**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminal LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	OCF-8081-ELUT	SW-8081	Heptachlor epoxide	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	OCF-8081-ELUT	SW-8081	Toxaphene (Chlorinated Camphene)	FALSE	<0.00299	0.00299	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	OCF-8081-ELUT	SW-8081	4,4'-DDD	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	OCF-8081-ELUT	SW-8081	4,4'-DDE	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	OCF-8081-ELUT	SW-8081	4,4'-DDT	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	OCF-8081-ELUT	SW-8081	Aldrin	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	OCF-8081-ELUT	SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	OCF-8081-ELUT	SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	FALSE	<0.00599	0.00599	0.00599	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	PCB-8082-ELUT	SW-8082	2,4,5,6 Tetrachloro-m-xylene-surr	TRUE	0.116			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	PCB-8082-ELUT	SW-8082	Decachlorobiphenyl-surr	TRUE	0.0650			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	PCB-8082-ELUT	SW-8082	PCBs, Total	FALSE	<0.00598	0.00598	0.0120	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	VOA-8260-ELUT	SW-8260	4-Bromofluorobenzene-surr	TRUE	41.8			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	VOA-8260-ELUT	SW-8260	Dibromofluoromethane-surr	TRUE	51.3			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	VOA-8260-ELUT	SW-8260	Toluene-d8-surr	TRUE	54.2			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	VOA-8260-ELUT	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	53.8			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	VOA-8260-ELUT	SW-8260	Ethylbenzene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	VOA-8260-ELUT	SW-8260	m+p-xylene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	VOA-8260-ELUT	SW-8260	o-Xylene	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	VOA-8260-ELUT	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	VOA-8260-ELUT	SW-8260	Trichloroethene (Trichloroethylene)	FALSE	<2.00	2.00	5.00	ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	TPH-1005-ELUT	TX 1005	1-Chlorooctadecane-surr	TRUE	33.8			mg/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	TPH-1005-ELUT	TX 1005	1-Chlorooctane-surr	TRUE	33.7			mg/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-E	19B1833-11	Elutriate	TPH-1005-ELUT	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<4.55	4.55	9.10	mg/L	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Cr III Solid [CALC]		Chromium (III)	FALSE	<0.126	0.0630	0.126	mg/kg	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	3.20	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Antimony KED ICPMS 200.8	EPA 200.8	Antimony	FALSE	<0.132	0.132	0.265	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Arsenic KED ICPMS 200.8	EPA 200.8	Arsenic	FALSE	6.96	0.0132	0.132	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	0.768	0.00265	0.0528	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	0.0442	0.0132	0.265	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	16.4	0.0397	0.793	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	9.03	0.0528	0.265	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	13.7	0.0132	0.132	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	15.8	0.265	0.265	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	1.05	0.265	1.32	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.0271	0.00662	0.132	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.144	0.00662	0.132	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	54.1	0.265	0.528	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	NH3-N T-350.2	EPA 350.2	Ammonia as N	FALSE	130	18.6	93.0	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	53.3	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	<0.118	0.118	0.237	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0365	0.0185	0.0369	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4340			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5430			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5440			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5610			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<168	168	463	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<438	438	1390	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<187	187	463	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<163	163	463	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VOA-8260-MedS	SW-8260	Trichloroethene (Trichloroethylene)	FALSE	<172	172	463	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	VOA-8260-MedS	SW-8260	Xylene (total)	FALSE	0.00			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2-Fluorobiphenyl-surr	TRUE	21.6	2.42	4.85	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2-Fluorophenol-surr	TRUE	57.3	2.42	4.85	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2,4,6-Tribromophenol-surr	TRUE	54.2	2.42	4.85	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	Nitrobenzene-d5-surr	TRUE	22.2	2.42	4.85	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	Phenol-d5-surr	TRUE	56.2	2.42	4.85	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	p-Terphenyl-d14-surr	TRUE	16.5	2.42	4.85	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2,4,6-Trichlorophenol	FALSE	<4.85	4.85	9.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2,4-Dichlorophenol	FALSE	<4.85	4.85	9.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2,4-Dimethylphenol	FALSE	<4.85	4.85	9.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2,4-Dinitrophenol	FALSE	<4.85	4.85	9.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2,4-Dinitrotoluene (2,4-DNT)	FALSE	<2.42	2.42	4.85	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2,6-Dinitrotoluene (2,6-DNT)	FALSE	<2.42	2.42	4.85	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2-Chloronaphthalene	FALSE	<2.42	2.42	4.85	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270	2-Chlorophenol	FALSE	<4.85	4.85	9.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-01-S	19B1833-12	Sediment	SVOA-8270	SW-8270							







**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminal LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	SVOA-8270	SW-8270	Naphthalene	FALSE	<2.24	2.24	4.49	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	SVOA-8270	SW-8270	Nitrobenzene	FALSE	<2.24	2.24	4.49	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	SVOA-8270	SW-8270	n-Nitrosodimethylamine	FALSE	<2.24	2.24	4.49	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	SVOA-8270	SW-8270	n-Nitrosodi-n-propylamine	FALSE	<2.24	2.24	4.49	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<2.24	2.24	4.49	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<4.49	4.49	8.97	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	<2.24	2.24	4.49	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	5.29	4.49	8.97	ug/kg dry	B, J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	<2.24	2.24	4.49	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.102	0.102	0.203	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	398			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	398			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-02-S	19B1833-13	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<90.1	90.1	90.1	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	2.79	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Antimony KED ICPMS 200.8	EPA 200.8	Antimony	FALSE	<0.102	0.102	0.204	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Arsenic KED ICPMS 200.8	EPA 200.8	Arsenic	FALSE	5.93	0.0102	0.102	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	0.547	0.00204	0.0407	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	0.0303	0.0102	0.204	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	12.7	0.0306	0.612	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	6.01	0.0407	0.204	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	10.4	0.0102	0.102	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	12.1	0.204	0.204	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	0.854	0.204	1.02	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.0217	0.00510	0.102	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.114	0.00510	0.102	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	44.9	0.204	0.407	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	NH3-N T-350.2	EPA 350.2	Ammonia as N	FALSE	75.7	18.0	90.1	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	58.4	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0271	0.0153	0.0307	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4450			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5480			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5530			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5650			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<150	150	414	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<391	391	1240	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<167	167	414	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<145	145	414	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VOA-8260-MedS	SW-8260	Trichloroethylene (Trichloroethylene)	FALSE	<154	154	414	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	VOA-8260-MedS	SW-8260	Xylene (total)	FALSE	0.00			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2-Fluorobiphenyl-surr	TRUE	17.3	2.19	4.37	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2-Fluorophenol-surr	TRUE	57.8	2.19	4.37	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2,4,6-Tribromophenol-surr	TRUE	46.0	2.19	4.37	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Nitrobenzene-d5-surr	TRUE	22.3	2.19	4.37	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Phenol-d5-surr	TRUE	57.7	2.19	4.37	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	p-Terphenyl-d14-surr	TRUE	15.0	2.19	4.37	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2,4,6-Trichlorophenol	FALSE	<4.37	4.37	8.75	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2,4-Dichlorophenol	FALSE	<4.37	4.37	8.75	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2,4-Dimethylphenol	FALSE	<4.37	4.37	8.75	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2,4-Dinitrophenol	FALSE	<4.37	4.37	8.75	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2,4-Dinitrotoluene (2,4-DNT)	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2,6-Dinitrotoluene (2,6-DNT)	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2-Chloronaphthalene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2-Chlorophenol	FALSE	<4.37	4.37	8.75	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	1,2,4-Trichlorobenzene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	FALSE	<17.5	17.5	35.0	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2-Nitrophenol	FALSE	<4.37	4.37	8.75	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	3,3-Dichlorobenzidine	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	4-Bromophenyl phenyl ether (BDE-3)	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	4-Chloro-3-methylphenol	FALSE	<4.37	4.37	8.75	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	4-Chlorophenyl phenylether	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	4-Nitrophenol	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Acenaphthene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Acenaphthylene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Anthracene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	1,2-Diphenylhydrazine	FALSE	<2.19	2.19	4.37	ug/kg dry	U

**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminal LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Benzo(a)anthracene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Benzo(a)pyrene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Benzo(b)fluoranthene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Benzo(g,h)perylene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Benzo(k)fluoranthene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethoxy)methane	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethyl) ether	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Bis(2-ethylhexyl) phthalate	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Butyl benzyl phthalate	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Chrysene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Dibenzo(a,h)anthracene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Diethyl phthalate	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Dimethyl phthalate	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Di-n-butyl phthalate	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Di-n-octyl phthalate	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Fluoranthene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Fluorene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Hexachlorobenzene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Hexachlorobutadiene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Hexachlorocyclopentadiene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Hexachloroethane	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Indeno(1,2,3-cd) pyrene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Isophorone	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Naphthalene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Nitrobenzene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	n-Nitrosodimethylamine	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	n-Nitrosodi-n-propylamine	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<4.37	4.37	8.75	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	5.34	4.37	8.75	ug/kg dry	B, J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	<2.19	2.19	4.37	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.0962	0.0962	0.192	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	387			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	378			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-03-S	19B1833-14	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<88.5	88.5	88.5	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Cr III Solid	[CALC]	Chromium (III)	FALSE	<0.117	0.0584	0.117	mg/kg	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	3.39	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Antimony KED ICPMs 200.8	EPA 200.8	Antimony	FALSE	<0.105	0.105	0.211	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Arsenic KED ICPMs 200.8	EPA 200.8	Arsenic	FALSE	6.49	0.0105	0.105	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Beryllium KED ICPMs 200.8	EPA 200.8	Beryllium	FALSE	0.611	0.00211	0.0420	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Cadmium KED ICPMs 200.8	EPA 200.8	Cadmium	FALSE	0.0341	0.0105	0.211	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Chromium KED ICPMs 200.8	EPA 200.8	Chromium	FALSE	13.5	0.0315	0.631	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Copper KED ICPMs 200.8	EPA 200.8	Copper	FALSE	6.98	0.0420	0.211	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Lead KED ICPMs 200.8	EPA 200.8	Lead	FALSE	11.6	0.0105	0.105	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Nickel KED ICPMs 200.8	EPA 200.8	Nickel	FALSE	13.3	0.211	0.211	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Selenium KED ICPMs 200.8	EPA 200.8	Selenium	FALSE	1.05	0.211	1.05	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Silver KED ICPMs 200.8	EPA 200.8	Silver	FALSE	0.0220	0.00526	0.105	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Thallium KED ICPMs 200.8	EPA 200.8	Thallium	FALSE	0.128	0.00526	0.105	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Zinc KED ICPMs 200.8	EPA 200.8	Zinc	FALSE	47.2	0.211	0.420	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	NH3-N T-350.2	EPA 350.2	Ammonia as N	FALSE	91.8	13.1	65.6	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	57.3	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	<0.102	0.102	0.204	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0306	0.0147	0.0295	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4380			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5450			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5630			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5760			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<154	154	423	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<400	400	1270	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<171	171	423	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethene (Perchloroethylene)	FALSE	<149	149	423	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	VOA-8260-MedS	SW-8260	Trichloroethene (Trichloroethylene)	FALSE	<158	158	423	ug/kg dry	U



**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminals LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-04-S	19B1833-15	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<85.7	85.7	85.7	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Cr III Solid	[CALC]	Chromium (III)	FALSE	<0.127	0.0636	0.127	mg/kg	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	2.95	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Antimony KED ICPMs 200.8	EPA 200.8	Antimony	FALSE	<0.122	0.122	0.244	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Arsenic KED ICPMs 200.8	EPA 200.8	Arsenic	FALSE	7.46	0.0122	0.122	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Beryllium KED ICPMs 200.8	EPA 200.8	Beryllium	FALSE	0.768	0.00244	0.0486	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Cadmium KED ICPMs 200.8	EPA 200.8	Cadmium	FALSE	0.0387	0.0122	0.244	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Chromium KED ICPMs 200.8	EPA 200.8	Chromium	FALSE	15.9	0.0365	0.730	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Copper KED ICPMs 200.8	EPA 200.8	Copper	FALSE	8.96	0.0486	0.244	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Lead KED ICPMs 200.8	EPA 200.8	Lead	FALSE	12.4	0.0122	0.122	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Nickel KED ICPMs 200.8	EPA 200.8	Nickel	FALSE	15.5	0.244	0.244	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Selenium KED ICPMs 200.8	EPA 200.8	Selenium	FALSE	1.11	0.244	1.22	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Silver KED ICPMs 200.8	EPA 200.8	Silver	FALSE	0.0239	0.0608	0.122	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Thallium KED ICPMs 200.8	EPA 200.8	Thallium	FALSE	0.143	0.0608	0.122	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Zinc KED ICPMs 200.8	EPA 200.8	Zinc	FALSE	52.5	0.244	0.486	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	NH3-N T-350.2	EPA 350.2	Ammonia as N	FALSE	139	16.6	83.0	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	57.9	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	0.154	0.110	0.220	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0301	0.0150	0.0300	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4350			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5530			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5500			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5690			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<152	152	418	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<395	395	1250	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<168	168	418	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<147	147	418	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VOA-8260-MedS	SW-8260	Trichloroethene (Trichloroethylene)	FALSE	<156	156	418	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	VOA-8260-MedS	SW-8260	Xylene (total)	FALSE	0.00			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2-Fluorobiphenyl-surr	TRUE	17.8	2.15	4.30	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2-Fluorophenol-surr	TRUE	47.6	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2,4,6-Tribromophenol-surr	TRUE	44.2	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Nitrobenzene-d5-surr	TRUE	20.3	2.15	4.30	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Phenol-d5-surr	TRUE	47.8	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	p-Terphenyl-d14-surr	TRUE	16.3	2.15	4.30	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2,4,6-Trichlorophenol	FALSE	<4.30	4.30	8.60	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2,4-Dichlorophenol	FALSE	<4.30	4.30	8.60	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2,4-Dimethylphenol	FALSE	<4.30	4.30	8.60	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2,4-Dinitrophenol	FALSE	<4.30	4.30	8.60	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2,4-Dinitrotoluene (2,4-DNT)	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2,6-Dinitrotoluene (2,6-DNT)	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2-Chloronaphthalene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2-Chlorophenol	FALSE	<4.30	4.30	8.60	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	1,2,4-Trichlorobenzene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	FALSE	<17.2	17.2	34.4	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2-Nitrophenol	FALSE	<4.30	4.30	8.60	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	3,3'-Dichlorobenzidine	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	4-Bromophenyl phenyl ether (BDE-3)	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	4-Chloro-3-methylphenol	FALSE	<4.30	4.30	8.60	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	4-Chlorophenyl phenylether	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	4-Nitrophenol	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Acenaphthene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Acenaphthylene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Anthracene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	1,2-Diphenylhydrazine	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Benzo(a)anthracene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Benzo(a)pyrene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Benzo(b)fluoranthene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Benzo(g,h,i)perylene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Benzo(k)fluoranthene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethoxy)methane	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethyl) ether	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Bis(2-ethylhexyl) phthalate	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Butyl benzyl phthalate	FALSE					

**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminals LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Chrysenes	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Dibenzo(a,h)anthracene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Diethyl phthalate	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Dimethyl phthalate	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Di-n-butyl phthalate	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Di-n-octyl phthalate	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Fluoranthene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Fluorene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Hexachlorobenzene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Hexachlorobutadiene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Hexachlorocyclopentadiene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Hexachloroethane	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Indeno(1,2,3-cd) pyrene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Isophorone	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Naphthalene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Nitrobenzene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	n-Nitrosodimethylamine	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	n-Nitrosodi-n-propylamine	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<4.30	4.30	8.60	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	4.69	4.30	8.60	ug/kg dry	B, J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	<2.15	2.15	4.30	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.0872	0.0872	0.174	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	390			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	415			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-05-S	19B1833-16	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<87.1	87.1	87.1	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Cr III Solid	[CALC]	Chromium (III)	FALSE	<0.126	0.0628	0.126	mg/kg	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	3.53	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Antimony KED ICPMS 200.8	EPA 200.8	Antimony	FALSE	<0.107	0.107	0.215	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Arsenic KED ICPMS 200.8	EPA 200.8	Arsenic	FALSE	6.93	0.0107	0.107	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	0.726	0.00215	0.0429	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	0.0455	0.0107	0.215	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	15.8	0.0322	0.644	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	8.23	0.0429	0.215	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	12.6	0.0107	0.107	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	14.7	0.215	0.215	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	1.06	0.215	1.07	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.0263	0.00537	0.107	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.136	0.00537	0.107	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	51.1	0.215	0.429	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	NH3-N T-350.2	EPA 350.2	Ammonia as N	FALSE	91.0	16.2	81.2	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	57.5	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	<0.109	0.109	0.218	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0318	0.0168	0.0336	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4380			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5400			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5540			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5680			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<153	153	421	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<398	398	1260	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<170	170	421	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<148	148	421	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VOA-8260-MedS	SW-8260	Trichloroethylene (Trichloroethylene)	FALSE	<157	157	421	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	VOA-8260-MedS	SW-8260	Xylene (total)	FALSE	0.00			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	SVOA-8270	SW-8270	2-Fluorobiphenyl-surr	TRUE	21.1	2.16	4.31	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	SVOA-8270	SW-8270	2-Fluorophenol-surr	TRUE	56.0	2.16	4.31	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	SVOA-8270	SW-8270	2,4,6-Tribromophenol-surr	TRUE	51.7	2.16	4.31	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	SVOA-8270	SW-8270	Nitrobenzene-d5-surr	TRUE	23.4	2.16	4.31	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	SVOA-8270	SW-8270	Phenol-d5-surr	TRUE	54.8	2.16	4.31	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	SVOA-8270	SW-8270	p-Terphenyl-d14-surr	TRUE	17.4	2.16	4.31	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	SVOA-8270	SW-8270	2,4,6-Trichlorophenol	FALSE	<4.31	4.31	8.63	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	SVOA-8270	SW-8270	2,4-Dichlorophenol	FALSE	<4.31	4.31	8.63	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-06-S	19B1833-17	Sediment	SVOA-8270	SW-8270	2,4-Dimethylphenol	FALSE	<4.31	4.31	8.63	ug/kg dry	U







**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminals LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Hexachlorobutadiene	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Hexachlorocyclopentadiene	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Hexachloroethane	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Indeno(1,2,3-cd) pyrene	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Isophorone	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Naphthalene	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Nitrobenzene	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	n-Nitrosodimethylamine	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	n-Nitrosodi-n-propylamine	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<4.73	4.73	9.45	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	5.35	4.73	9.45	ug/kg dry	B, J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	<2.36	2.36	4.73	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.106	0.106	0.211	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	408			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	427			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-07-S	19B1833-18	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<93.6	93.6	93.6	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Cr III Solid	[CALC]	Chromium (III)	FALSE	<0.117	0.0586	0.117	mg/kg	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	3.10	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Antimony KED ICPMS 200.8	EPA 200.8	Antimony	FALSE	<0.113	0.113	0.227	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Arsenic KED ICPMS 200.8	EPA 200.8	Arsenic	FALSE	6.97	0.0113	0.113	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	0.740	0.00227	0.0453	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	0.0448	0.0113	0.227	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	15.9	0.0340	0.680	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	8.42	0.0453	0.227	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	13.6	0.0113	0.113	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	14.8	0.227	0.227	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	1.17	0.227	1.13	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.0306	0.00567	0.113	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.139	0.00567	0.113	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	53.4	0.227	0.453	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	NH3-N T-350.2	EPA 350.2	Ammonia as N	FALSE	110	15.7	78.4	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	53.1	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	<0.110	0.110	0.221	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0456	0.0185	0.0370	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4200			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5610			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5480			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5740			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<169	169	465	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<439	439	1390	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<187	187	465	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethene (Perchloroethylene)	FALSE	<163	163	465	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VOA-8260-MedS	SW-8260	Trichloroethene (Trichloroethylene)	FALSE	<173	173	465	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	VOA-8260-MedS	SW-8260	Xylene (total)	FALSE	0.00			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2-Fluorobiphenyl-surr	TRUE	20.6	2.41	4.82	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2-Fluorophenol-surr	TRUE	67.6	2.41	4.82	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2,4,6-Tribromophenol-surr	TRUE	56.7	2.41	4.82	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Nitrobenzene-d5-surr	TRUE	26.2	2.41	4.82	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Phenol-d5-surr	TRUE	68.1	2.41	4.82	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	p-Terphenyl-d14-surr	TRUE	15.1	2.41	4.82	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2,4,6-Trichlorophenol	FALSE	<4.82	4.82	9.65	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2,4-Dichlorophenol	FALSE	<4.82	4.82	9.65	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2,4-Dimethylphenol	FALSE	<4.82	4.82	9.65	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2,4-Dinitrophenol	FALSE	<4.82	4.82	9.65	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2,4-Dinitrotoluene (2,4-DNT)	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2,6-Dinitrotoluene (2,6-DNT)	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2-Chloronaphthalene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2-Chlorophenol	FALSE	<4.82	4.82	9.65	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	1,2,4-Trichlorobenzene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	FALSE	<19.3	19.3	38.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2-Nitrophenol	FALSE	<4.82	4.82	9.65	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	3,3'-Dichlorobenzidine	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	4-Bromophenyl phenyl ether (BDE-3)	FALSE	<2.41	2.41	4.82	ug/kg dry	U

**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminals LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	4-Chloro-3-methylphenol	FALSE	<4.82	4.82	9.65	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	4-Chlorophenyl phenylether	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	4-Nitrophenol	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Acenaphthene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Acenaphthylene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Anthracene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	1,2-Diphenylhydrazine	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Benzo(a)anthracene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Benzo(a)pyrene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Benzo(b)fluoranthene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Benzo(g,h,i)perylene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Benzo(k)fluoranthene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethoxy)methane	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethyl) ether	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Bis(2-ethylhexyl) phthalate	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Butyl benzyl phthalate	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Chrysene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Dibenzo(a,h)anthracene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Diethyl phthalate	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Dimethyl phthalate	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Di-n-butyl phthalate	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Di-n-octyl phthalate	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Fluoranthene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Fluorene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Hexachlorobenzene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Hexachlorobutadiene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Hexachlorocyclopentadiene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Hexachloroethane	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methyl)	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Indeno(1,2,3-cd) pyrene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Isophorone	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Naphthalene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Nitrobenzene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	n-Nitrosodimethylamine	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	n-Nitrosodi-n-propylamine	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<4.82	4.82	9.65	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	9.07	4.82	9.65	ug/kg dry	B, J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	<2.41	2.41	4.82	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.0840	0.0840	0.168	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	483			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	506			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-08-S	19B1833-19	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<92.6	92.6	92.6	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Cr III Solid	[CALC]	Chromium (III)	FALSE	<0.118	0.0588	0.118	mg/kg	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	VS-160.4	EPA 160.4	% Volatile Oil	FALSE	2.81	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Antimony KED ICPMS 200.8	EPA 200.8	Antimony	FALSE	<0.101	0.101	0.202	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Arsenic KED ICPMS 200.8	EPA 200.8	Arsenic	FALSE	5.27	0.0101	0.0101	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	0.575	0.0202	0.0402	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	0.0406	0.0101	0.202	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	11.9	0.0302	0.604	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	6.18	0.0402	0.202	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	10.5	0.0101	0.101	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	11.2	0.202	0.202	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	0.912	0.202	1.01	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.0225	0.00503	0.101	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.105	0.00503	0.101	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	42.3	0.202	0.402	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	NH3-N T-350.2	EPA 350.2	Ammonia as N	FALSE	146	14.9	74.3	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	60.6	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	0.121	0.0971	0.194	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0261	0.0150	0.0300	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4230				



**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminals LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<2.03	2.03	4.06	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<4.06	4.06	8.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	<2.03	2.03	4.06	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	4.97	4.06	8.13	ug/kg dry	B, J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	<2.03	2.03	4.06	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.0786	0.0786	0.157	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	320			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	353			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-09-S	19B1833-20	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<84.2	84.2	84.2	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	2.85	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Antimony KED ICPMs 200.8	EPA 200.8	Antimony	FALSE	<0.0887	0.0887	0.178	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Arsenic KED ICPMs 200.8	EPA 200.8	Arsenic	FALSE	4.07	0.00887	0.0887	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Beryllium KED ICPMs 200.8	EPA 200.8	Beryllium	FALSE	0.403	0.00178	0.0355	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Cadmium KED ICPMs 200.8	EPA 200.8	Cadmium	FALSE	0.0272	0.00887	0.178	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Chromium KED ICPMs 200.8	EPA 200.8	Chromium	FALSE	9.05	0.0266	0.533	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Copper KED ICPMs 200.8	EPA 200.8	Copper	FALSE	4.26	0.0355	0.178	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Lead KED ICPMs 200.8	EPA 200.8	Lead	FALSE	8.50	0.00887	0.0887	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Nickel KED ICPMs 200.8	EPA 200.8	Nickel	FALSE	9.31	0.178	0.178	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Selenium KED ICPMs 200.8	EPA 200.8	Selenium	FALSE	0.716	0.178	0.887	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Silver KED ICPMs 200.8	EPA 200.8	Silver	FALSE	0.0160	0.00444	0.0887	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Thallium KED ICPMs 200.8	EPA 200.8	Thallium	FALSE	0.0879	0.00444	0.0887	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Zinc KED ICPMs 200.8	EPA 200.8	Zinc	FALSE	34.1	0.178	0.355	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	67.0	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0206	0.0147	0.0293	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4360			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5660			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5600			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5770			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<126	126	347	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<328	328	1040	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<140	140	347	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<122	122	347	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VOA-8260-MedS	SW-8260	Trichloroethene (Trichloroethylene)	FALSE	<129	129	347	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	VOA-8260-MedS	SW-8260	Xylene (total)	FALSE	0.00			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2-Fluorobiphenyl-surr	TRUE	25.3	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2-Fluorophenol-surr	TRUE	62.1	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2,4,6-Tribromophenol-surr	TRUE	54.1	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Nitrobenzene-d5-surr	TRUE	25.5	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Phenol-d5-surr	TRUE	62.6	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	p-Terphenyl-d14-surr	TRUE	13.4	1.85	3.70	ug/kg dry	S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2,4,6-Trichlorophenol	FALSE	<3.70	3.70	7.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2,4-Dichlorophenol	FALSE	<3.70	3.70	7.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2,4-Dimethylphenol	FALSE	<3.70	3.70	7.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2,4-Dinitrophenol	FALSE	<3.70	3.70	7.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2,4-Dinitrotoluene (2,4-DNT)	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2,6-Dinitrotoluene (2,6-DNT)	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2-Chloronaphthalene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2-Chlorophenol	FALSE	<3.70	3.70	7.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	1,2,4-Trichlorobenzene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	FALSE	<14.8	14.8	29.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2-Nitrophenol	FALSE	<3.70	3.70	7.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	3,3'-Dichlorobenzidine	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	4-Bromophenyl phenyl ether (BDE-3)	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	4-Chloro-3-methylphenol	FALSE	<3.70	3.70	7.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	4-Chlorophenyl phenylether	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	4-Nitrophenol	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Acenaphthene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Acenaphthylene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Anthracene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	1,2-Diphenylhydrazine	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Benzo(a)anthracene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Benzo(a)pyrene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Benzo(b)fluoranthene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Benzo(g,h,i)perylene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Benzo(k)fluoranthene	FALSE	<1.85	1.85			

**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Bluewater Texas Terminals LLC - Bluewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethoxy)methane	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethyl) ether	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Bis(2-ethylhexyl) phthalate	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Butyl benzyl phthalate	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Chrysenes	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Dibenzo(a,h)anthracene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Diethyl phthalate	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Dimethyl phthalate	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Di-n-butyl phthalate	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Di-n-octyl phthalate	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Fluranthene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Fluorene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Hexachlorobenzene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Hexachlorobutadiene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Hexachlorocyclopentadiene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Hexachloroethane	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-meth	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Indeno(1,2,3-cd) pyrene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Isophorone	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Naphthalene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Nitrobenzene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	n-Nitrosodimethylamine	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	n-Nitrosodi-n-propylamine	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<3.70	3.70	7.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	40.0	3.70	7.41	ug/kg dry	B
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	<1.85	1.85	3.70	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.0857	0.0857	0.171	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	TPH-1005	TX 1005	1-Chlorodecane-surr	TRUE	283			mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	292			mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-10-S	19B1833-21	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<75.8	75.8	75.8	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Cr III Solid	[CALC]	Chromium (III)	FALSE	<0.114	0.0570	0.114	mg/kg	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	0.996	0.0200	0.0200	%	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Antimony KED ICPMS 200.8	EPA 200.8	Antimony	FALSE	<0.0695	0.0695	0.139	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Arsenic KED ICPMS 200.8	EPA 200.8	Arsenic	FALSE	2.03	0.0695	0.0695	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	0.121	0.00139	0.0278	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	0.00977	0.00695	0.139	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	3.07	0.0209	0.417	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	0.816	0.0278	0.139	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	3.75	0.0695	0.0695	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	3.24	0.139	0.139	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	0.383	0.139	0.695	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.00535	0.00348	0.0695	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.0288	0.00348	0.0695	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	15.5	0.139	0.278	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	TS-2540 G	MS 2540 G	% Solids	FALSE	74.9	0.100	0.100	%	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	<0.0762	0.0762	0.152	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	<0.0131	0.0131	0.0263	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4140			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5580			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5540			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5660			ug/L	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<109	109	301	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<284	284	902	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<121	121	301	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<106	106	301	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VOA-8260-MedS	SW-8260	Trichloroethylene (Trichloroethylene)	FALSE	<112	112	301	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	VOA-8260-MedS	SW-8260	Xylene (total)	FALSE	0.00			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	SVOA-8270	SW-8270	2-Fluorobiphenyl-surr	TRUE	23.4	1.71	3.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	SVOA-8270	SW-8270	2-Fluorophenol-surr	TRUE	52.6	1.71	3.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	SVOA-8270	SW-8270	2,4,6-Tribromophenol-surr	TRUE	44.3	1.71	3.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	SVOA-8270	SW-8270	Nitrobenzene-d5-surr	TRUE	21.1	1.71	3.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-11-S	19B1833-22	Sediment	SVOA-8270	SW-8270	Phenol-d5-surr	TRUE	55.2	1.71			





**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminals LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Fluoranthene	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Fluorene	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Hexachlorobenzene	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Hexachlorobutadiene	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Hexachlorocyclopentadiene	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Hexachloroethane	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Indeno(1,2,3-cd) pyrene	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Isophorone	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Naphthalene	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Nitrobenzene	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	n-Nitrosodimethylamine	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	n-Nitrosodi-n-propylamine	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<3.13	3.13	6.25	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	3.84	3.13	6.25	ug/kg dry	B, J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	<1.56	1.56	3.13	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.0581	0.0581	0.116	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	369			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	358			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-12-S	19B1833-23	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<68.7	68.7	68.7	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Cr III Solid	[CALC]	Chromium (III)	FALSE	<0.120	0.0598	0.120	mg/kg	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VS-160.4	EPA 160.4	% Volatile (Oil)	FALSE	0.779	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Antimony KED ICPMS 200.8	EPA 200.8	Antimony	FALSE	<0.0730	0.0730	0.146	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Arsenic KED ICPMS 200.8	EPA 200.8	Arsenic	FALSE	1.83	0.00730	0.0730	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	0.100	0.00146	0.0292	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	<0.00730	0.00730	0.146	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	2.80	0.0219	0.438	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	0.646	0.0292	0.146	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	3.92	0.00730	0.0730	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	2.62	0.146	0.146	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	0.404	0.146	0.730	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.00389	0.00366	0.0730	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.0280	0.00366	0.0730	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	14.0	0.146	0.292	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	76.0	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	0.0980	0.0786	0.157	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0116	0.0116	0.0232	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4380			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5480			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5480			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5700			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<107	107	295	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<278	278	884	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<119	119	295	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<104	104	295	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VOA-8260-MedS	SW-8260	Trichloroethene (Trichloroethylene)	FALSE	<110	110	295	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	VOA-8260-MedS	SW-8260	Xylene (total)	FALSE	0.0260			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2-Fluorobiphenyl-surr	TRUE	22.3	1.67	3.34	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2-Fluorophenol-surr	TRUE	50.6	1.67	3.34	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2,4,6-Tribromophenol-surr	TRUE	44.8	1.67	3.34	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	Nitrobenzene-d5-surr	TRUE	20.9	1.67	3.34	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	Phenol-d5-surr	TRUE	51.7	1.67	3.34	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	p-Terphenyl-d14-surr	TRUE	20.8	1.67	3.34	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2,4,6-Trichlorophenol	FALSE	<3.34	3.34	6.69	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2,4-Dichlorophenol	FALSE	<3.34	3.34	6.69	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2,4-Dimethylphenol	FALSE	<3.34	3.34	6.69	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2,4-Dinitrophenol	FALSE	<3.34	3.34	6.69	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2,4-Dinitrotoluene (2,4-DNT)	FALSE	<1.67	1.67	3.34	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2,6-Dinitrotoluene (2,6-DNT)	FALSE	<1.67	1.67	3.34	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2-Chloronaphthalene	FALSE	<1.67	1.67	3.34	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2-Chlorophenol	FALSE	<3.34	3.34	6.69	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	1,2,4-Trichlorobenzene	FALSE	<1.67	1.67	3.34	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	FALSE	<13.4	13.4	26.8	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-13-S	19B1833-24	Sediment	SVOA-8270	SW-8270	2-Nitrophenol	FALSE	<3.34	3.34	6.69	ug/kg dry	U</







**Appendix F  
Electronic Data Deliverable (EDD): Raw Laboratory Results Data  
Blewater Texas Terminals LLC - Blewater SPM Project  
February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-S	19B1833-25	Sediment	SVOA-8270	SW-8270	n-Nitrosod-n-propylamine	FALSE	<2.43	2.43	4.85	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-S	19B1833-25	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<2.43	2.43	4.85	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-S	19B1833-25	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<4.85	4.85	9.71	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-S	19B1833-25	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	<2.43	2.43	4.85	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-S	19B1833-25	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	7.49	4.85	9.71	ug/kg dry	B, J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-S	19B1833-25	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	<2.43	2.43	4.85	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-S	19B1833-25	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.105	0.105	0.211	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-S	19B1833-25	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	483			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-S	19B1833-25	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	428			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-14-S	19B1833-25	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<101	101	101	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Cr III Solid	[CALC]	Chromium (III)	FALSE	<0.105	0.0523	0.105	mg/kg	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	0.389	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Antimony KED ICPMS 200.8	EPA 200.8	Antimony	FALSE	<0.0490	0.0490	0.0982	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Arsenic KED ICPMS 200.8	EPA 200.8	Arsenic	FALSE	0.687	0.00490	0.0490	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	0.0314	0.000982	0.0196	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	<0.00490	0.00490	0.0982	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	0.750	0.0147	0.294	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	0.294	0.0196	0.0982	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	1.20	0.00490	0.0490	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	0.569	0.0982	0.0982	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	0.177	0.0982	0.490	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.00303	0.00245	0.0490	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.0183	0.00245	0.0490	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	2.66	0.0982	0.196	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	101	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	0.132	0.0523	0.105	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0152	0.0100	0.0200	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Chlordane (tech.)	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	2,4,5,6 Tetrachloro-m-xylene-surr	TRUE	4.64			ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Decachlorobiphenyl-surr	TRUE	5.94			ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	cis-Chlordane (alpha-Chlordane)	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	delta-BHC	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Dieldrin	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Endosulfan I	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Endosulfan II	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Endosulfan sulfate	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Endrin	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Endrin aldehyde	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Endrin ketone	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	gamma-BHC (Lindane, alpha-HexachlorocyclohexaneE)	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	gamma-Chlordane	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Heptachlor	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Heptachlor epoxide	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Toxaphene (Chlorinated Camphene)	FALSE	<15.2	15.2	15.2	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	4,4'-DDD	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	4,4'-DDE	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	4,4'-DDT	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	Aldrin	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	OCF-8081	SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	FALSE	<0.304	0.304	1.01	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	PCB-8082	SW-8082	2,4,5,6 Tetrachloro-m-xylene-surr	TRUE	0.441			ug/kg dry	C
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	PCB-8082	SW-8082	Decachlorobiphenyl-surr	TRUE	0.478			ug/kg dry	C
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	PCB-8082	SW-8082	PCBs, Total	FALSE	<0.962	0.962	1.92	ug/kg dry	C, U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4280			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5270			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5260			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5320			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<72.2	72.2	199	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<188	188	596	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<80.0	80.0	199	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<69.8	69.8	199	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VOA-8260-MedS	SW-8260	Trichloroethene (Trichloroethylene)	FALSE	<73.9	73.9	199	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	VOA-8260-MedS	SW-8260	Xylene (total)	FALSE	0.00			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	SVOA-8270	SW-8270	2-Fluorobiphenyl-surr	TRUE	16.7	1.25	2.49	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	SVOA-8270	SW-8270	2-Fluorophenol-surr	TRUE	42.0	1.25	2.49	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-15-S	19B1833-26	Sediment	SVOA-8270	SW-8270	2,4,6-Tribromophenol-surr	TRUE	36.7	1.25	2.49	ug/kg dry	



**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminals LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	0.0894	0.00129	0.0257	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	0.0152	0.00643	0.129	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	1.97	0.0193	0.386	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	1.16	0.0257	0.129	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	2.09	0.00643	0.0643	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	1.59	0.129	0.129	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	0.300	0.129	0.643	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.00825	0.00322	0.0643	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.0404	0.00322	0.0643	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	6.85	0.129	0.257	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	72.0	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	0.191	0.0864	0.173	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.0191	0.0126	0.0252	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Chlordane (tech.)	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	2,4,5,6-Tetrachloro-m-xylene-surr	TRUE	6.56			ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Decachlorobiphenyl-surr	TRUE	7.93			ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	cis-Chlordane (alpha-Chlordane)	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	delta-BHC	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Dieldrin	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Endosulfan I	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Endosulfan II	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Endosulfan sulfate	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Endrin	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Endrin aldehyde	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Endrin ketone	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	gamma-Chlordane	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Heptachlor	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Heptachlor epoxide	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Toxaphene (Chlorinated Camphene)	FALSE	<21.1	21.1	21.1	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	4,4'-DDD	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	4,4'-DDE	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	4,4'-DDT	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	Aldrin	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	alpha-BHC (alpha-Hexachlorocyclohexane)	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	OCF-8081	SW-8081	beta-BHC (beta-Hexachlorocyclohexane)	FALSE	<0.423	0.423	1.41	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	PCB-8082	SW-8082	2,4,5,6 Tetrachloro-m-xylene-surr	TRUE	0.692			ug/kg dry	C
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	PCB-8082	SW-8082	Decachlorobiphenyl-surr	TRUE	1.45			ug/kg dry	C, S
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	PCB-8082	SW-8082	PCBs, Total	FALSE	<1.34	1.34	2.68	ug/kg dry	C, U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	VOA-8260-MedS	SW-8260	4-Bromofluorobenzene-surr	TRUE	4520			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	VOA-8260-MedS	SW-8260	Toluene-d8-surr	TRUE	5370			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	VOA-8260-MedS	SW-8260	Dibromofluoromethane-surr	TRUE	5350			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	VOA-8260-MedS	SW-8260	1,2-Dichloroethane-d4-surr	TRUE	5260			ug/L	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	VOA-8260-MedS	SW-8260	Ethylbenzene	FALSE	<115	115	317	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	VOA-8260-MedS	SW-8260	m+p-xylene	FALSE	<299	299	950	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	VOA-8260-MedS	SW-8260	o-Xylene	FALSE	<128	128	317	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	VOA-8260-MedS	SW-8260	Tetrachloroethylene (Perchloroethylene)	FALSE	<111	111	317	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	VOA-8260-MedS	SW-8260	Trichloroethene (Trichloroethylene)	FALSE	<118	118	317	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	VOA-8260-MedS	SW-8260	Xylene (total)	FALSE	0.0260			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2-Fluorobiphenyl-surr	TRUE	24.2	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2-Fluorophenol-surr	TRUE	56.5	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2,4,6-Tribromophenol-surr	TRUE	46.2	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Nitrobenzene-d5-surr	TRUE	25.8	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Phenol-d5-surr	TRUE	63.4	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	p-Terphenyl-d14-surr	TRUE	22.6	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2,4-Trichlorophenol	FALSE	<3.44	3.44	6.87	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2,4-Dichlorophenol	FALSE	<3.44	3.44	6.87	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2,4-Dimethylphenol	FALSE	<3.44	3.44	6.87	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2,4-Dinitrophenol	FALSE	<3.44	3.44	6.87	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2,4-Dinitrotoluene (2,4-DNT)	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2,6-Dinitrotoluene (2,6-DNT)	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2-Chloronaphthalene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2-Chlorophenol	FALSE	<3.44	3.44	6.87	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	1,2,4-Trichlorobenzene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylph	FALSE	<13.7	13.7	27.5	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2-Nitrophenol	FALSE	<3.44	3.44	6.87</		

**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminals LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	4-Bromophenyl phenyl ether (BDE-3)	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	1,2-Dichlorobenzene (o-Dichlorobenzene)	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	4-Chloro-3-methylphenol	FALSE	<3.44	3.44	6.87	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	4-Chlorophenyl phenylether	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	4-Nitrophenol	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Acenaphthene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Acenaphthylene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Anthracene	FALSE	8.97	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	1,2-Diphenylhydrazine	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Benzo(a)anthracene	FALSE	4.50	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Benzo(a)pyrene	FALSE	2.63	1.72	3.44	ug/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Benzo(b)fluoranthene	FALSE	3.79	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Benzo(g,h,i)perylene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Benzo(k)fluoranthene	FALSE	2.53	1.72	3.44	ug/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethoxy)methane	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethyl) ether	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Bis(2-ethylhexyl)phthalate	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Butyl benzyl phthalate	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Chrysene	FALSE	4.29	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Dibenzo(a,h)anthracene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Diethyl phthalate	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Dimethyl phthalate	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Di-n-butyl phthalate	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Di-n-octyl phthalate	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Fluoranthene	FALSE	13.6	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Fluorene	FALSE	2.03	1.72	3.44	ug/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Hexachlorobenzene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Hexachlorobutadiene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Hexachlorocyclopentadiene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Hexachloroethane	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	2,2-Oxybis(1-chloropropane), bis(2-Chloro-1-meth	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Indeno(1,2,3-cd)pyrene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Isothorone	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Naphthalene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Nitrobenzene	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	n-Nitrosodimethylamine	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	n-Nitrosodi-n-propylamine	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<1.72	1.72	3.44	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<3.44	3.44	6.87	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	9.12	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	<3.44	3.44	6.87	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	9.32	1.72	3.44	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.0837	0.0837	0.167	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	306			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	299			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-16-S	19B1833-27	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<70.6	70.6	70.6	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Cr III Solid	[CALC]	Chromium (III)	FALSE	<0.127	0.0636	0.127	mg/kg	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	8.47	0.0200	0.0200	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Antimony KED ICPMS 200.8	EPA 200.8	Antimony	FALSE	<0.300	0.300	0.601	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Arsenic KED ICPMS 200.8	EPA 200.8	Arsenic	FALSE	7.74	0.0300	0.300	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	1.00	0.0601	0.120	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	0.394	0.0300	0.601	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	18.5	0.0900	1.80	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	19.0	0.120	0.601	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	17.6	0.0300	0.300	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	15.6	0.601	0.601	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	1.75	0.601	3.00	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.0758	0.0150	0.300	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.260	0.0150	0.300	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	71.5	0.601	1.20	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	23.8	0.100	0.100	%	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Cr VI-7196	SW-7196	Chromium (VI)	FALSE	0.439	0.267	0.534	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.107	0.0406	0.0813	mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	OCP-8081	SW-8081	Chlordane (tech.)	FALSE	<1.31	1.31	4.37	ug/kg dry	U



**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Blewater Texas Terminals LLC - Blewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	1,3-Dichlorobenzene (m-Dichlorobenzene)	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethoxy)methane	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	bis(2-Chloroethyl) ether	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Bis(2-ethylhexyl) phthalate	FALSE	5.12	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Butyl benzyl phthalate	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Chrysene	FALSE	25.4	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Dibenzo(a,h)anthracene	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	1,4-Dichlorobenzene (p-Dichlorobenzene)	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Diethyl phthalate	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Dimethyl phthalate	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Di-n-butyl phthalate	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Di-n-octyl phthalate	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Fluoranthene	FALSE	14.9	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Fluorene	FALSE	6.40	5.28	10.6	ug/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Hexachlorobenzene	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Hexachlorobutadiene	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Hexachlorocyclopentadiene	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Hexachloroethane	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-meth	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Indeno(1,2,3-cd) pyrene	FALSE	13.9	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Isophorone	FALSE	21.0	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Naphthalene	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Nitrobenzene	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	n-Nitrosodimethylamine	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	n-Nitrosodi-n-propylamine	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<5.28	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<10.6	10.6	21.1	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	17.3	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	<10.6	10.6	21.1	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	21.2	5.28	10.6	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	Cr N T-9014	SW-9014	Total Cyanide	FALSE	<0.236	0.236	0.472	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-28	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	1060			mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	898			mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-17-S	19B1833-28	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<213	213	213	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Cr III Solid	[CALC]	Chromium (III)	FALSE	<0.120	0.0598	0.120	mg/kg	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	VS-160.4	EPA 160.4	% Volatile Solid	FALSE	11.2	0.0200	0.0200	%	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Antimony KED ICPMS 200.8	EPA 200.8	Antimony	FALSE	<0.294	0.294	0.590	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Arsenic KED ICPMS 200.8	EPA 200.8	Arsenic	FALSE	9.49	0.0294	0.294	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Beryllium KED ICPMS 200.8	EPA 200.8	Beryllium	FALSE	1.04	0.00590	0.118	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Cadmium KED ICPMS 200.8	EPA 200.8	Cadmium	FALSE	0.482	0.0294	0.590	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Chromium KED ICPMS 200.8	EPA 200.8	Chromium	FALSE	20.0	0.0883	1.77	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Copper KED ICPMS 200.8	EPA 200.8	Copper	FALSE	30.4	0.118	0.590	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Lead KED ICPMS 200.8	EPA 200.8	Lead	FALSE	18.4	0.0294	0.294	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Nickel KED ICPMS 200.8	EPA 200.8	Nickel	FALSE	16.3	0.590	0.590	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Selenium KED ICPMS 200.8	EPA 200.8	Selenium	FALSE	1.83	0.590	2.94	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Silver KED ICPMS 200.8	EPA 200.8	Silver	FALSE	0.0870	0.0147	0.294	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Thallium KED ICPMS 200.8	EPA 200.8	Thallium	FALSE	0.278	0.0147	0.294	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Zinc KED ICPMS 200.8	EPA 200.8	Zinc	FALSE	92.0	0.590	1.18	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	TS-2540 G	SM 2540 G	% Solids	FALSE	20.5	0.100	0.100	%	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Cr Vi-7196	SW-7196	Chromium (VI)	FALSE	0.409	0.292	0.584	mg/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	Hg-7471	SW-7471B	Mercury	FALSE	0.111	0.0438	0.0875	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	Chlordane (tech.)	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	2,4,5,6-Tetrachloro-m-xylene-surr	TRUE	22.3			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	Decachlorobiphenyl-surr	TRUE	28.3			ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	cis-Chlordane (alpha-Chlordane)	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	delta-BHC	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	Dieldrin	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	Endosulfan I	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	Endosulfan II	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	Endosulfan sulfate	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	Endrin	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	Endrin aldehyde	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	Endrin ketone	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	gamma-Chlordane	FALSE	<1.48	1.48	4.94	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Blewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	OCF-8081	SW-8081	Heptachlor	FALSE	<1.48	1.48	4.94	ug/kg dry	U

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**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Bluewater Texas Terminals LLC - Bluewater SPM Project**  
**February 2019**

CLIENT	PROJECT	LabName	SAMPLE NAME	LAB SAMP ID	RPT MATRIX	METHOD CODE	METHOD NAME	ANALYTE	SURROGATE	Result	DL	RL	UNITS	ANOTE
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Hexachlorobenzene	FALSE	<5.83	5.83	11.7	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Hexachlorobutadiene	FALSE	<5.83	5.83	11.7	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Hexachlorocyclopentadiene	FALSE	<5.83	5.83	11.7	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Hexachloroethane	FALSE	<5.83	5.83	11.7	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methy	FALSE	<5.83	5.83	11.7	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Indeno(1,2,3-cd) pyrene	FALSE	18.7	5.83	11.7	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Isophorone	FALSE	10.4	5.83	11.7	ug/kg dry	J
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Naphthalene	FALSE	<5.83	5.83	11.7	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Nitrobenzene	FALSE	<5.83	5.83	11.7	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	n-Nitrosodimethylamine	FALSE	<5.83	5.83	11.7	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	n-Nitrosodi-n-propylamine	FALSE	<5.83	5.83	11.7	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	n-Nitrosodiphenylamine	FALSE	<5.83	5.83	11.7	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Pentachlorophenol	FALSE	<11.7	11.7	23.3	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Phenanthrene	FALSE	23.5	5.83	11.7	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Phenol, Total	FALSE	<11.7	11.7	23.3	ug/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	SVOA-8270	SW-8270	Pyrene	FALSE	69.6	5.83	11.7	ug/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	CN T-9014	SW-9014	Total Cyanide	FALSE	<0.242	0.242	0.484	mg/kg dry	U
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	TPH-1005	TX 1005	1-Chlorooctadecane-surr	TRUE	1100			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	TPH-1005	TX 1005	1-Chlorooctane-surr	TRUE	1060			mg/kg dry	
Lloyd Engineering, Inc.	Phillips 66 - Bluewater SPM 2019	North Water District Laboratory Services, Inc.	BWSPM-18-18-S	19B1833-29	Sediment	TPH-1005	TX 1005	Total Petroleum Hydrocarbons (TPH), C6-C35	FALSE	<245	245	245	mg/kg dry	U

**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Bluewater Texas Terminals LLC - Bluewater SPM Project**  
**February 2019**

**LASER GRAIN SIZE SUMMARY**

North Water District Laboratory Services, Inc.  
 Phillips 66 - Bluewater SPM



Sediment  
 File: HH-103387  
 Date: 3-7-19

Sample ID	Gravel	Sand					Silt					Clay
	Grn %	Crs %	Med %	Fine %	Vf %	Total	Crs %	Med %	Fine %	Vf %	Total	Clay %
BWSPM-18-01-S	0.0	0.0	0.2	7.7	14.5	<b>22.4</b>	8.7	8.7	12.6	14.6	<b>44.5</b>	33.0
BWSPM-18-02-S	0.0	0.0	0.1	8.2	20.2	<b>28.4</b>	9.1	7.8	13.5	16.3	<b>46.6</b>	24.9
BWSPM-18-03-S	0.0	0.0	0.1	11.3	22.8	<b>34.3</b>	8.4	6.2	10.6	13.1	<b>38.2</b>	27.5
BWSPM-18-04-S	0.0	0.0	0.0	7.9	22.9	<b>30.8</b>	11.7	7.0	9.4	11.3	<b>39.4</b>	29.9
BWSPM-18-05-S	0.0	0.0	0.0	5.5	17.7	<b>23.2</b>	11.7	9.2	10.4	13.6	<b>44.9</b>	31.9
BWSPM-18-06-S	0.0	0.0	0.1	8.5	19.5	<b>28.1</b>	8.9	8.1	12.1	15.5	<b>44.5</b>	27.3
BWSPM-18-07-S	0.0	0.0	0.1	7.0	13.7	<b>20.8</b>	9.1	9.8	14.0	16.3	<b>49.2</b>	30.0
BWSPM-18-08-S	0.0	0.0	0.5	9.2	13.7	<b>23.5</b>	8.4	10.0	14.5	15.8	<b>48.7</b>	27.8
BWSPM-18-09-S	0.0	0.0	2.0	16.1	15.8	<b>33.9</b>	7.1	8.5	11.5	12.9	<b>39.9</b>	26.2
BWSPM-18-10-S	0.0	0.0	0.0	11.5	37.0	<b>48.6</b>	14.7	3.7	7.6	7.9	<b>33.8</b>	17.6
BWSPM-18-11-S	0.0	0.0	0.3	36.0	54.6	<b>90.9</b>	2.5	0.7	1.7	1.0	<b>5.8</b>	3.3
BWSPM-18-12-S	0.0	0.0	0.8	43.0	54.0	<b>97.8</b>	2.2	0.0	0.0	0.0	<b>2.2</b>	0.0
BWSPM-18-13-S	0.0	0.0	1.5	47.8	49.3	<b>98.5</b>	1.5	0.0	0.0	0.0	<b>1.5</b>	0.0
BWSPM-18-14-S	0.0	0.0	0.6	16.0	19.7	<b>36.3</b>	4.5	8.7	14.8	15.0	<b>43.0</b>	20.7

**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Bluewater Texas Terminals LLC - Bluewater SPM Project**  
**February 2019**

**STATISTICS**



North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sediment  
File: HH-103387  
Date: 3-7-19

Sample ID	Median	Trask (mm)				Folk (phi)			
	(mm)	Mean	Sorting	Skewness	Kurtosis	Mean	Sorting	Skewness	Kurtosis
BWSPM-18-01-S	<b>0.0088</b>	0.0278	4.6152	1.7149	0.2251	6.6561	2.7224	-0.0539	0.7389
BWSPM-18-02-S	<b>0.0118</b>	0.0379	4.2839	2.0249	0.2926	6.2049	2.5235	-0.0270	0.7451
BWSPM-18-03-S	<b>0.0143</b>	0.0444	5.0322	1.4201	0.3163	6.1736	2.7020	0.0721	0.6965
BWSPM-18-04-S	<b>0.0150</b>	0.0390	5.1373	0.9561	0.3133	6.3090	2.7243	0.1487	0.6822
BWSPM-18-05-S	<b>0.0103</b>	0.0302	4.6467	1.4444	0.2681	6.5712	2.6375	0.0155	0.7038
BWSPM-18-06-S	<b>0.0115</b>	0.0377	4.5460	1.9051	0.2899	6.2872	2.5908	-0.0197	0.7204
BWSPM-18-07-S	<b>0.0092</b>	0.0251	3.9324	1.6816	0.2057	6.5501	2.5836	-0.0633	0.8033
BWSPM-18-08-S	<b>0.0104</b>	0.0298	4.0912	1.7621	0.2160	6.3849	2.6326	-0.0533	0.7982
BWSPM-18-09-S	<b>0.0150</b>	0.0509	5.1972	1.5755	0.2886	6.0256	2.8130	0.0397	0.7154
BWSPM-18-10-S	<b>0.0605</b>	0.0518	3.5808	0.1966	0.3453	5.1359	2.4174	0.6472	0.8429
BWSPM-18-11-S	<b>0.1104</b>	0.1129	1.2759	0.9856	0.2547	3.1968	0.8832	0.3319	2.3942
BWSPM-18-12-S	<b>0.1182</b>	0.1216	1.2659	1.0016	0.2638	3.0788	0.4866	-0.0067	0.9489
BWSPM-18-13-S	<b>0.1242</b>	0.1278	1.2688	1.0015	0.2636	3.0081	0.4912	-0.0063	0.9489
BWSPM-18-14-S	<b>0.0152</b>	0.0522	4.5170	2.0951	0.3172	5.8179	2.5539	-0.0154	0.7385

**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Bluewater Texas Terminals LLC - Bluewater SPM Project**  
**February 2019**

**LASER GRAIN SIZE SUMMARY**



North Water District Laboratory Services, Inc.  
 Phillips 66 - Bluewater SPM

Sediment  
 File: HH-103387  
 Date: 2-27-19

Sample ID	Gravel	Sand					Silt					Clay
	Grn %	Crs %	Med %	Fine %	Vf %	Total	Crs %	Med %	Fine %	Vf %	Total	Clay %
BWSPM-18-15-S	0.0	0.2	32.8	58.2	5.8	<b>97.0</b>	0.4	1.1	0.5	0.9	<b>2.8</b>	0.2
BWSPM-18-16-S	0.0	0.0	4.1	65.2	21.1	<b>90.4</b>	0.0	2.2	1.7	2.0	<b>6.0</b>	3.6
BWSPM-18-17-S	0.0	2.8	8.8	8.5	9.3	<b>29.5</b>	12.0	15.6	17.7	13.1	<b>58.4</b>	12.1
BWSPM-18-18-S	0.0	1.0	2.5	5.4	9.6	<b>18.5</b>	14.2	20.5	21.1	13.6	<b>69.3</b>	12.2

**Appendix F**  
**Electronic Data Deliverable (EDD): Raw Laboratory Results Data**  
**Bluewater Texas Terminals LLC - Bluewater SPM Project**  
**February 2019**

**STATISTICS**



North Water District Laboratory Services, Inc.  
 Phillips 66 - Bluewater SPM

Sediment  
 File: HH-103387  
 Date: 2-27-19

Sample ID	Median	Trask (mm)				Folk (phi)			
	(mm)	Mean	Sorting	Skewness	Kurtosis	Mean	Sorting	Skewness	Kurtosis
BWSPM-18-15-S	<b>0.2123</b>	0.2182	1.2875	0.9915	0.2609	2.2455	0.5410	0.0544	1.0125
BWSPM-18-16-S	<b>0.1486</b>	0.1505	1.2522	0.9751	0.2376	2.7829	1.0452	0.4157	3.3301
BWSPM-18-17-S	<b>0.0209</b>	0.0463	3.3125	1.5038	0.1390	5.2359	2.5391	-0.1189	0.9800
BWSPM-18-18-S	<b>0.0172</b>	0.0257	2.4016	1.1163	0.1646	5.7586	2.0500	-0.0253	1.1594

**Appendix F**  
**Chemistry and Grain Size Analysis Tables**

**Table 1**  
**Sampling Station GPS Locations and Analyses Performed**  
**Bluewater Texas Terminal LLC - Bluewater SPM Project**  
**February 2019**

<b>Sample ID</b>	<b>Sample Matrix</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Analyses<sup>1</sup></b>
BWSPM-18-01	Sediment, water	27.902577	-96.628119	W, S, E, GS
BWSPM-18-02	Sediment	27.889361	-96.651156	S, GS
BWSPM-18-03	Sediment	27.887297	-96.683696	S, GS
BWSPM-18-04	Sediment	27.885223	-96.716247	S, GS
BWSPM-18-05	Sediment	27.883666	-96.748782	S, E, GS
BWSPM-18-06	Sediment	27.885641	-96.781354	S, GS
BWSPM-18-07	Sediment	27.887607	-96.813931	S, GS
BWSPM-18-08	Sediment, water	27.889567	-96.846490	W, S, E, GS
BWSPM-18-09	Sediment	27.891524	-96.879098	S, GS
BWSPM-18-10	Sediment	27.893464	-96.911675	S, GS
BWSPM-18-11	Sediment	27.895095	-96.944210	S, GS
BWSPM-18-12	Sediment	27.881489	-96.971449	S, GS
BWSPM-18-13	Sediment	27.859111	-96.992137°	S, GS
BWSPM-18-14	Sediment, water	27.852562	-97.022913	W, S, E, GS
BWSPM-18-15	Sediment, water	27.852330	-97.059572	W, S, E, GS
BWSPM-18-16	Sediment	27.863864	-97.080982	S, GS
BWSPM-18-17	Sediment	27.889593	-97.109506	S, GS
BWSPM-18-18	Sediment, water	27.898071	-97.135225	W, S, E, GS

\*W = Analysis of a water sample

\*E = Analysis of an elutriate Sample

\*S = Analysis of a sediment sample

\*GS = Grain size analysis of sediment sample



**Table 2**  
**Parameters Determined by Chemical Analysis**  
**Bluewater Texas Terminal LLC - Bluewater SPM Project**  
**February 2019**

<b>Volatiles</b>		
Ethylbenzene	Trichloroethene	Xylenes, Total
Tetrachloroethene		
<b>Semivolatiles</b>		
1,2,4-Trichlorobenzene	4-Chloro-3-methylphenol	Diethyl phthalate
1,2-Dichlorobenzene	4-Nitrophenol	Dimethyl phthalate
1,2-Diphenylhydrazine as Azobenzene	Acenaphthene	Di-n-butyl phthalate
1,3-Dichlorobenzene	Acenaphthylene	Di-n-octyl Phthalate
1,4-Dichlorobenzene	Anthracene	Fluoranthene
2,4,6-Trichlorophenol	Benzidine	Fluorene
2,4-Dichlorophenol	Benzo(a)anthracene	Hexachlorobenzene
2,4-Dimethylphenol	Benzo(a)pyrene	Hexachlorobutadiene
2,4-Dinitrophenol	Benzo(b)fluoranthene	Hexachlorocyclopentadiene
2,4-Dinitrotoluene	Benzo(g,h,i)perylene	Hexachloroethane
2,6-Dinitrotoluene	Benzo(k)fluoranthene	Indeno(1,2,3-cd)pyrene
2-Chloronaphthalene	Benzoic acid	Isophorone
2-Chlorophenol	Benzyl alcohol	Naphthalene
2-Methylnaphthalene	Bis(2-chloroethoxy) methane	Nitrobenzene
2-Methylphenol	Bis(2-chloroethyl) ether	n-Nitrosodimethylamine
2-Nitrophenol	Bis(2-chloroisopropyl) ether	n-nitrosodi-n-propylamine
3,3-Dichlorobenzidine	Bis(2-ethylhexyl )phthalate	n-Nitrosodiphenylamine
3&4 Methylphenol	Butyl benzyl phthalate	Pentachlorophenol
4,6-Dinitro-2-methylphenol	Chrysene	Phenanthrene
4-Chlorophenyl phenyl ether	Dibenzo(a,h)anthracene	Phenol
4-Bromophenyl phenyl ether	Dibenzofuran	Pyrene
<b>Organochlorine Pesticides</b>		
4,4'-DDD	Chlordane	Endrin Aldehyde
4,4'-DDE	Delta-BHC (d-BHC)	Endrin Ketone
4,4'-DDT	Dieldrin	Gamma-BHC (g-BHC or y-BHC)
Alpha-BHC (a-BHC)	Endosulfan I	Heptachlor
Alpha-Chlordane (a-Chlordane)	Endosulfan II	Heptachlor Epoxide
Aldrin	Endosulfan Sulfate	Toxaphene
Beta-BHC (b-BHC)	Endrin	Gamma-Chlordane (g-Chlordane or y-Chlordane)
<b>Metals</b>		
Antimony	Copper	Thallium
Arsenic	Lead	Zinc
Beryllium	Nickel	Chromium(3+)
Cadmium	Selenium	Chromium(6+)
Chromium	Silver	Mercury
<b>Polychlorinated Biphenyls</b>		
Total PCB		
<b>Miscellaneous Parameters</b>		
Ammonia (Water/Elutriate Only)	Grain Size (sand)	Total Petroleum Hydrocarbons
Cyanides	Grain Size (silt)	Total Solids/ Dry Weight
Total Volatile Solids	Grain Size (clay)	Percent (%) Moisture
Total Organic Carbon		

**Table 3**  
**Water Chemistry Results**  
**Bluewater Texas Terminal LLC - Bluewater SPM Project**  
**February 2019**

Analyte	Units	TDL	WQS*	CMC*	Region 6	Sample Station							
						BWSPM-18-01	BWSPM-18-08	BWSPM-18-14	BWSPM-18-15	BWSPM-18-18			
<b>Metals</b>													
Antimony	ug/L	3.0	N/A	1500	500	BDL	1.19	J	BDL	BDL	BDL		
Arsenic	ug/L	0.3	149.0	69.0	78	1.99	J	1.89	J	1.82	J	2.11	J
Beryllium	ug/L	0.2	N/A	N/A	N/A	BDL	0.063	B	BDL	BDL	BDL		
Cadmium	ug/L	1.0	NA	NA	N/A	BDL	BDL	BDL	BDL	BDL			
Chromium	ug/L	1.0	N/A	N/A	103	BDL	0.409	J	BDL	BDL	BDL		
Copper	ug/L	1.0	13.5	4.8	3.6	BDL	BDL	BDL	1.12	J	1.49	J	
Lead	ug/L	1.0	133	210.0	5.3	BDL	BDL	BDL	BDL	BDL			
Mercury	ug/L	0.2	2.1	1.8	1.1	BDL	BDL	BDL	BDL	BDL			
Nickel	ug/L	1.0	118	74.0	13.1	0.587	J	0.555	J	0.631	J	0.807	J
Selenium	ug/L	2.0	564	290.0	N/A	4.46	J	0.464	J	4.05	J	3.12	J
Silver	ug/L	1.0	2	0.95	N/A	BDL	BDL	BDL	BDL	BDL			
Thallium	ug/L	1.0	N/A	N/A	N/A	BDL	BDL	BDL	BDL	BDL			
Zinc	ug/L	1.0	92.7	90	84	BDL	BDL	BDL	BDL	BDL			
Chromium(3+)	ug/L	1.0	N/A	N/A	NA	BDL	BDL	BDL	BDL	BDL			
Chromium(6+)	ug/L	1.0	N/A	N/A	N/A	BDL	BDL	BDL	BDL	BDL			
<b>Conventional Parameters</b>													
Ammonia	mg/L	0.03	N/A	N/A	N/A	0.680	0.629	0.688	0.392	0.373			
Total Cyanides	mg/L	0.1	N/A	1.0	N/A	BDL	BDL	BDL	BDL	BDL			
Total Organic Carbon (TOC)	%	0.1	N/A	N/A	N/A	0.000177	0.000201	0.000262	0.000324	0.000368			

\*BDL = Below Detection Limit

\*J = The reported value is between the Method Detection Limit (MDL) and the practical quantitation Reporting

\*P = Dual column results percent difference > 40%

\*TDL = Target Detection Level; Sample Detection Level

\*Region 6 = United States Army Corps Region 6 guideline used to determine a possible cause of concern if value exceeds Region 6 Benchmark.

**Table 4**  
**Elutriate Chemistry Results**  
**Bluewater Texas Terminal LLC - Bluewater SPM Project**  
**February 2019**

Analyte	Units	TDL	WQS*	CMC*	Region 6	Sample Station									
						BWSPM-18-01	BWSPM-18-05	BWSPM-18-14	BWSPM-18-15	BWSPM-18-18					
<b>Pesticides</b>															
Gamma-BHC	ug/L	0.1	N/A	N/A	N/A	BDL	BDL	0.00629	J	BDL	BDL				
<b>Metals</b>															
Antimony	ug/L	3.0	N/A	1500	500	1.43	J	BDL	BDL	BDL	BDL				
Arsenic	ug/L	1.0	149.0	69.0	78	12.60		5.63	4.51	2.24	J	62.1			
Beryllium	ug/L	0.2	N/A	N/A	N/A	BDL		BDL	BDL	BDL	BDL				
Cadmium	ug/L	1.0	NA	NA	N/A	BDL		BDL	BDL	BDL	BDL				
Chromium	ug/L	1.0	N/A	N/A	103	BDL		BDL	BDL	BDL	BDL				
Copper	ug/L	1.0	13.5	4.8	3.6	BDL		BDL	1.32	J	1.55	J	BDL		
Lead	ug/L	1.0	133	210.0	5.3	BDL		BDL	BDL	BDL	BDL				
Mercury	ug/L	0.2	2.1	1.8	1.1	BDL		BDL	BDL	BDL	BDL				
Nickel	ug/L	1.0	118	74.0	13.1	0.685	J	0.688	J	1.20	J	0.986	J	1.35	J
Selenium	ug/L	2.0	564	290.0	N/A	4.86	J	4.98	J	4.57	J	4.00	J	3.97	J
Silver	ug/L	1.0	2	0.95	N/A	BDL		BDL	BDL	BDL	BDL				
Thallium	ug/L	1.0	N/A	N/A	N/A	BDL		BDL	BDL	BDL	BDL				
Zinc	ug/L	1.0	92.7	90	84	BDL		BDL	1.09	B,J	1.23	J	1.10	B,J	
Chromium(3+)	ug/L	1.0	N/A	N/A		BDL		BDL	BDL	BDL	BDL				
Chromium(6+)	ug/L	1.0	N/A	N/A	N/A	2.69	J	BDL	1.67	J	BDL	BDL			
<b>Conventional Parameters</b>															
Ammonia	mg/L	0.03	N/A	N/A	N/A	1.18		1.21	1.64		7.01	6.90			
Total Cyanides	mg/L	0.1	N/A	1.0	N/A	BDL		BDL	BDL		BDL	BDL			
Total Organic Carbon (TOC)	%	0.1	N/A	N/A	N/A	0.000288		0.000333	0.000434		0.000294	0.000304			

\*BDL = Below Detection Limit

\*J = The reported value is between the Method Detection Limit (MDL) and the practical quantitation Reporting Limit (RL).

\*P = Dual column results percent difference > 40%

TDL = Target Detection Level; Sample Detection Level

\*Region 6 = United States Army Corps Region 6 guideline used to determine a possible cause of concern if value exceeds Region 6 Benchmark.

B = Analyte was found in the associated method blank.

**Table 5-1**  
**Sediment Chemistry Results, in dry weight**  
**Bluewater Texas Terminal LLC - Bluewater SPM Project**  
**February 2019**

Analyte	Units	NOAA ERL <sup>1</sup>	NOAA ERM <sup>2</sup>	TCEQ PCL <sup>3</sup>	Sample Station											
					BWSPM-18-01		BWSPM-18-02		BWSPM-18-03		BWSPM-18-04		BWSPM-18-05		BWSPM-18-06	
<b>Semivolatiles</b>																
Phenol	ug/kg	NA	NA	1.0E+03	6.18	B,J	5.29	B,J	5.34	B,J	5.38	B,J	4.69	B,J	4.92	B,J
<b>Metals</b>																
Antimony	mg/kg	N/A	N/A	1.5E+01	BDL		BDL		BDL		BDL		BDL		BDL	
Arsenic	mg/kg	8.2	70.0	2.4E+01	6.96		7.42		5.93		6.49		7.46		6.93	
Beryllium	mg/kg	N/A	N/A	3.8E+01	0.768		0.701		0.547		0.611		0.768		0.726	
Cadmium	mg/kg	1.2	9.6	5.1E+01	0.0442	J	0.0446	J	0.0303	J	0.0341	J	0.0387	J	0.0445	J
Chromium	mg/kg	81	370	2.7E+04	16.4		15.8		12.7		13.5		15.9		15.8	
Copper	mg/kg	34	270	1.3E+03	9.03		7.98		6.01		6.98		8.96		8.23	
Lead	mg/kg	46.7	218	N/A	13.7		12.3		10.4		11.6		12.4		12.6	
Mercury	mg/kg	0.15	0.71	2.1E+00	0.0365	J	0.0332	J	0.0271	J	0.0306		0.0301		0.0318	J
Nickel	mg/kg	20.9	51.6	8.4E+02	15.8		14.9		12.1		13.3		15.5		14.7	
Selenium	mg/kg	N/A	N/A	3.1E+02	1.05	J	1.09		0.854	J	1.05		1.11	J	1.06	J
Silver	mg/kg	1	3.7	9.7E+01	0.0271	J	0.0251	J	0.0217	J	0.0220	J	0.0239	J	0.0263	J
Thallium	mg/kg	N/A	N/A	5.3E+00	0.144		0.142		0.114		0.128		0.143		0.136	
Zinc	mg/kg	150	410	9.9E+03	54.1		52.1		44.9		47.2		52.5		51.1	
Chromium(3+)	mg/kg	N/A	N/A	2.7E+04	BDL		BDL		BDL		BDL		BDL		BDL	
Chromium(6+)	mg/kg	N/A	N/A	2.7E+04	BDL		0.180	J	BDL		BDL		0.154	J	BDL	
<b>Polychlorinated Biphenyls</b>																
Total PCBS	ug/kg	22.7	180	1.1E+03	BDL		BDL		BDL		BDL		BDL		BDL	
<b>Conventional Parameters</b>																
Ammonia	mg/kg	N/A	N/A	2.5E+03	130		100		75.7	J	91.8		139		91.0	
Total Petroleum Hydrocarbons	mg/kg	N/A	N/A	1.1E+03	BDL		BDL		BDL		BDL		BDL		BDL	
Total Cyanides	mg/kg	N/A	N/A	N/A	BDL		BDL		BDL		BDL		BDL		BDL	
Percent Solids	%	N/A	N/A	N/A	53.3		55.8		58.4		57.3		57.9		57.5	
Total Volatile Solids	%	N/A	N/A	N/A	3.20		2.83		2.79		3.39		2.95		3.53	
Total Organic Carbon (TOC)	%	N/A	N/A	N/A	0.651	V	0.504	V	0.359	V	0.438	V	0.448	V	0.433	V

1. NOAA ERL = Effects Range Low; NOAA guidelines used to determine a possible cause for concern if value exceeds ERL. Values highlighted were observed in exceedance of the ERL.

2. NOAA ERM = Effects Range Median; NOAA guidelines used to determine a possible cause for concern if value exceeds ERM.

3. TCEQ PCL = Protective Concentration Levels for Human Health are site-specific and path-specific calculated values to represent the results from the combined equations for ingestion of surface soil +dermal contacts with surface soil+ inhalation of surface soil volatiles and particulates + consumption of garden vegetables grown in contaminated surface soil. TCEQ PCL's presented in table are based on Tier 1 Residential Total Soil Combined PCLs (Table 4) Last Revised April 27, 2018.

BDL = Below Detection Limit.

J = The reported value is between the Method Detection Limit (MDL) and the practical quantitation Reporting Limit (RL).

P = Dual column results percent difference > 40%.

B = Analyte was found in the associated method blank.

V = Analyte was detected in both sample and method blank.

**Table 5-2**  
**Sediment Chemistry Results, in dry weight**  
**Bluewater Texas Terminal LLC - Bluewater SPM Project**  
**February 2019**

Analyte	Units	NOAA ERL <sup>1</sup>	NOAA ERM <sup>2</sup>	TCEQ PCL <sup>3</sup>	Sample Station											
					BWSPM-18-07		BWSPM-18-08		BWSPM-18-09		BWSPM-18-10		BWSPM-18-11		BWSPM-18-12	
<b>Semivolatiles</b>																
Phenol	ug/kg	NA	NA	1.0E+03	5.35	B,J	9.07	B,J	4.97	B,J	40.0	B	4.65	B,J	3.84	B,J
<b>Pesticides</b>																
Beta-BHC	ug/kg	N/A	N/A	5.4E+04	BDL		1.64	J	BDL		BDL		BDL		BDL	
<b>Metals</b>																
Antimony	mg/kg	N/A	N/A	1.5E+01	BDL		BDL		BDL		BDL		BDL		BDL	
Arsenic	mg/kg	8.2	70.0	2.4E+01	6.96		6.97		5.27		4.07		2.03		1.77	
Beryllium	mg/kg	N/A	N/A	3.8E+01	0.824		0.740		0.575		0.403		0.121		0.100	
Cadmium	mg/kg	1.2	9.6	5.1E+01	0.0530	J	0.0448	J	0.0406		0.0272	J	0.00977	J	0.00779	J
Chromium	mg/kg	81	370	2.7E+04	17.7		15.9		11.9		9.05		3.07		2.69	
Copper	mg/kg	34	270	1.3E+03	9.35		8.42		6.18		4.29		0.816		0.676	
Lead	mg/kg	46.7	218	N/A	14.3		13.6		10.5		8.50		3.75		3.65	
Mercury	mg/kg	0.15	0.71	2.1E+00	0.0347		0.0456		0.0261	J	0.0206	J	BDL		BDL	
Nickel	mg/kg	20.9	51.6	8.4E+02	16.1		14.8		11.2		9.31		3.24		2.76	
Selenium	mg/kg	N/A	N/A	3.1E+02	1.17		1.17		0.912	J	0.716	J	0.383	J	0.356	J
Silver	mg/kg	1	3.7	9.7E+01	0.0315	J	0.0306	J	0.0225	J	0.0160	J	0.00535	J	0.00405	J
Thallium	mg/kg	N/A	N/A	5.3E+00	0.146		0.139		0.105		0.0879		0.0288	J	0.0274	J
Zinc	mg/kg	150	410	9.9E+03	54.6		53.4		42.3		34.1		15.5		13.5	
Chromium(3+)	mg/kg	N/A	N/A	2.7E+04	BDL		BDL		BDL		BDL		BDL		BDL	
Chromium(6+)	mg/kg	N/A	N/A	2.7E+04	BDL		BDL		0.121	J	BDL		BDL		0.0813	J
<b>Polychlorinated Biphenyls</b>																
Total PCBS	ug/kg	22.7	180	1.1E+03	BDL		BDL		BDL		BDL		BDL		BDL	
<b>Conventional Parameters</b>																
Ammonia	mg/kg	N/A	N/A	2.5E+03	106		110		146		BDL		BDL		BDL	
Total Petroleum Hydrocarbons	mg/kg	N/A	N/A	1.1E+03	BDL		BDL		BDL		BDL		BDL		BDL	
Total Cyanides	mg/kg	N/A	N/A	N/A	BDL		BDL		BDL		BDL		BDL		BDL	
Percent Solids	%	N/A	N/A	N/A	53.8		53.1		60.6		67.0		74.9		76.2	
Total Volatile Solids	%	N/A	N/A	N/A	3.70		3.10		2.81		2.85		0.996		0.490	
Total Organic Carbon (TOC)	%	N/A	N/A	N/A	0.546	V	0.538	V	0.295	V	0.209	V	0.0450	V	0.0247	V

1. NOAA ERL = Effects Range Low; NOAA guidelines used to determine a possible cause for concern if value exceeds ERL. Values highlighted were observed in exceedance of the ERL.

2. NOAA ERM = Effects Range Median; NOAA guidelines used to determine a possible cause for concern if value exceeds ERM.

3. TCEQ PCL = Protective Concentration Levels for Human Health are site-specific and path-specific calculated values to represent the results from the combined equations for ingestion of surface soil +dermal contacts with surface soil+ inhalation of surface soil volatiles and particulates + consumption of garden vegetables grown in contaminated surface soil. TCEQ PCL's presented in table are based on Tier 1 Residential Total Soil Combined PCLs (Table 4)  
 Last Revised April 27, 2018

BDL = Below Detection Limit

J = The reported value is between the Method Detection Limit (MDL) and the practical quantitation Reporting Limit (RL).

P = Dual column results percent difference > 40%

B = Analyte was found in the associated method blank.

V = Analyte was detected in both sample and method blank.

**Table 5-3**  
**Sediment Chemistry Results, in dry weight**  
**Bluewater Texas Terminal LLC - Bluewater SPM Project**  
**February 2019**

Analyte	Units	NOAA ERL <sup>1</sup>	NOAA ERM <sup>2</sup>	TCEQ PCL <sup>3</sup>	Sample Station											
					BWSPM-18-13	BWSPM-18-14	BWSPM-18-15	BWSPM-18-16	BWSPM-18-17	BWSPM-18-18						
<b>Semivolatiles</b>																
Acenaphthylene	ug/kg	44	640	3.8E+06	BDL	BDL	BDL	BDL	9.43	J	11.1	J				
Anthracene	ug/kg	85.3	1100	1.8E+07	BDL	BDL	BDL	8.97	14.6		41.0					
Benz(a)anthracene	ug/kg	261	1600	4.1E+04	BDL	BDL	BDL	4.50	19.4		40.3					
Benzo(a)pyrene	ug/kg	430	1600	4.1E+03	BDL	BDL	BDL	2.63	J	27.9	36.5					
Benzo(b)fluoranthene	ug/kg	N/A	N/A	4.1E+04	BDL	BDL	BDL	3.79	29.2		43.1					
Benzo(g,h,i)perylene	ug/kg	N/A	N/A	1.8E+06	BDL	BDL	BDL	BDL	13.4		19.4					
Benzo(b&k)fluoranthene	ug/kg	N/A	N/A	4.1E+04	BDL	BDL	BDL	2.53	J	28.5	28.7					
Bis(2-ethylhexyl)phthalate	ug/kg	N/A	N/A	4.3E+04	BDL	BDL	BDL	BDL	51.2		14.0					
Chrysene	ug/kg	384	2800	4.1E+06	BDL	BDL	BDL	4.29	25.4		58.1					
Fluoranthene	ug/kg	600	5100	2.3E+06	BDL	BDL	BDL	13.6	14.9		32.3					
Fluorene	ug/kg	19	540	2.3E+06	BDL	BDL	BDL	2.03	J	6.40	J	8.35	J			
Indeno(1,2,3-cd) pyrene	ug/kg	N/A	N/A	4.2E+04	BDL	BDL	BDL	BDL	13.9		18.7					
Isophorone	ug/kg	N/A	N/A	4.9E+06	BDL	BDL	BDL	BDL	21.0		10.4	J				
Pentachlorophenol	mg/kg	N/A	N/A	3.6E+01	BDL	BDL	BDL	BDL	17.3		BDL					
Phenanthrene	ug/kg	240	1500	1.7E+06	BDL	BDL	BDL	9.12		BDL	23.5					
Phenol	ug/kg	NA	NA	1.0E+03	4.02	B,J	7.49	B,J	BDL	BDL	BDL	BDL				
Pyrene	ug/kg	665	2600	1.7E+06	BDL	BDL	BDL	BDL	21.2		69.6					
<b>Pesticides</b>																
Alpha-BHC	ug/kg	N/A	N/A	5.4E+04	BDL	0.673	J	BDL	BDL	BDL	1.54	J,P				
<b>Metals</b>																
Antimony	mg/kg	N/A	N/A	1.5E+01	BDL	BDL	BDL	BDL	BDL	BDL	BDL					
Arsenic	mg/kg	8.2	70.0	2.4E+01	1.83	4.56	0.687	1.20	7.74		9.49					
Beryllium	mg/kg	N/A	N/A	3.8E+01	0.100	0.521	0.0314	0.0894	1.00		1.04					
Cadmium	mg/kg	1.2	9.6	5.1E+01	BDL	0.0360	J	BDL	0.0152	J	0.394	J	0.482	J		
Chromium	mg/kg	81	370	2.7E+04	2.80	10.4	0.750	1.97	18.5		20.0					
Copper	mg/kg	34	270	1.3E+03	0.646	5.56	0.294	1.16	19.0		30.4					
Lead	mg/kg	46.7	218	N/A	3.92	10.1	1.20	2.09	17.6		18.4					
Mercury	mg/kg	0.15	0.71	2.1E+00	0.0116	J	0.0449	0.0152	J	0.0191	J	0.107	0.111			
Nickel	mg/kg	20.9	51.6	8.4E+02	2.62	9.94	0.569	1.59	15.6		16.3					
Selenium	mg/kg	N/A	N/A	3.1E+02	0.404	J	0.927	J	0.177	J	0.300	J	1.75	J	1.83	J
Silver	mg/kg	1	3.7	9.7E+01	0.00389	J	0.0196	J	0.00303	J	0.00825	J	0.0758	J	0.0870	J
Thallium	mg/kg	N/A	N/A	5.3E+00	0.0280	J	0.102	J	0.0183	J	0.0404	J	0.260	J	0.278	J
Zinc	mg/kg	150	410	9.9E+03	14.0	34.4	2.66	6.85	71.5		92.0					
Chromium(3+)	mg/kg	N/A	N/A	2.7E+04	BDL	BDL	BDL	BDL	BDL		BDL					
Chromium(6+)	mg/kg	N/A	N/A	2.7E+04	0.0980	J	0.184	J	BDL	0.191	0.439	J	0.409	J		
<b>Polychlorinated Biphenyls</b>																
Total PCBS	ug/kg	22.7	180	1.1E+03	BDL	BDL	BDL	BDL	BDL		BDL					
<b>Conventional Parameters</b>																
Ammonia	mg/kg	N/A	N/A	2.5E+03	BDL	BDL	BDL	BDL	BDL		BDL					
Total Petroleum Hydrocarbons	mg/kg	N/A	N/A	1.1E+03	BDL	BDL	BDL	BDL	BDL		BDL					
Total cyanides	mg/kg	N/A	N/A	N/A	BDL	BDL	BDL	BDL	BDL		BDL					
Percent Solids	%	N/A	N/A	N/A	76.0	49.4	101	72.0	23.8		20.5					
Total Volatile Solids	%	N/A	N/A	N/A	0.779	3.65	0.389	1.10	8.47		11.2					
Total Organic Carbon (TOC)	%	N/A	N/A	N/A	0.0251	V	0.468	V	0.0316	V	0.0810	V	1.15	V	1.46	V

1. NOAA ERL = Effects Range Low; NOAA guidelines used to determine a possible cause for concern if value exceeds ERL. Values highlighted were observed in exceedance of the ERL.

2. NOAA ERM = Effects Range Median; NOAA guidelines used to determine a possible cause for concern if value exceeds ERM.

3. TCEQ PCL = Protective Concentration Levels for Human Health are site-specific and path-specific calculated values to represent the results from the combined equations for ingestion of surface soil +dermal contacts with surface soil+ inhalation of surface soil volatiles and particulates + consumption of garden vegetables grown in contaminated surface soil. TCEQ PCL's presented in table are based on Tier 1 Residential Total Soil Combined PCLs (Table 4) Last Revised April 27, 2018

BDL = Below Detection Limit

J = The reported value is between the Method Detection Limit (MDL) and the practical quantitation Reporting Limit (RL).

P = Dual column results percent difference > 40%

B = Analyte was found in the associated method blank.

V = Analyte was detected in both sample and method blank.

**Table 6**  
**Grain Size Analyses Summary**  
**Bluewater Texas Terminal LLC - Bluewater SPM Project**  
**February 2019**

Sample ID	Gravel	Sand					Silt					Clay
	Crn %	Crs %	Med %	Fine %	Vf %	Total	Crs %	Med %	Fine %	Vf %	Total	Total %
<b>BWSPM-18-01</b>	0.0	0.0	0.2	7.7	14.5	<b>22.4</b>	8.7	8.7	12.6	14.6	<b>44.5</b>	33.0
<b>BWSPM-18-02</b>	0.0	0.0	0.1	8.2	20.2	<b>28.4</b>	9.1	7.8	13.5	16.3	<b>46.6</b>	24.9
<b>BWSPM-18-03</b>	0.0	0.0	0.1	11.3	22.8	<b>34.3</b>	8.4	6.2	10.6	13.1	<b>38.2</b>	27.5
<b>BWSPM-18-04</b>	0.0	0.0	0.0	7.9	22.9	<b>30.8</b>	11.7	7.0	9.4	11.3	<b>39.4</b>	29.9
<b>BWSPM-18-05</b>	0.0	0.0	0.0	5.5	17.7	<b>23.2</b>	11.7	9.2	10.4	13.6	<b>44.9</b>	31.9
<b>BWSPM-18-06</b>	0.0	0.0	0.1	8.5	19.5	<b>28.1</b>	8.9	8.1	12.1	15.5	<b>44.5</b>	27.3
<b>BWSPM-18-07</b>	0.0	0.0	0.1	7.0	13.7	<b>20.8</b>	9.1	9.8	14.0	16.3	<b>49.2</b>	30.0
<b>BWSPM-18-08</b>	0.0	0.0	0.5	9.2	13.7	<b>23.5</b>	8.4	10.0	14.5	15.8	<b>48.7</b>	27.8
<b>BWSPM-18-09</b>	0.0	0.0	2.0	16.1	15.8	<b>33.9</b>	7.1	8.5	11.5	12.9	<b>39.9</b>	26.2
<b>BWSPM-18-10</b>	0.0	0.0	0.0	11.5	37.0	<b>48.6</b>	14.7	3.7	7.6	7.9	<b>33.8</b>	17.6
<b>BWSPM-18-11</b>	0.0	0.0	0.3	36.0	54.6	<b>90.9</b>	2.5	0.7	1.7	1.0	<b>5.8</b>	3.3
<b>BWSPM-18-12</b>	0.0	0.0	0.8	43.0	54.0	<b>97.8</b>	2.2	0.0	0.0	0.0	<b>2.2</b>	0.0
<b>BWSPM-18-13</b>	0.0	0.0	1.5	47.8	49.3	<b>98.5</b>	1.5	0.0	0.0	0.0	<b>1.5</b>	0.0
<b>BWSPM-18-14</b>	0.0	0.0	0.6	16.0	19.7	<b>36.3</b>	4.5	8.7	14.8	15.0	<b>43.0</b>	20.7
<b>BWSPM-18-15</b>	0.0	0.2	32.8	58.2	5.8	<b>97.0</b>	0.4	1.1	0.5	0.9	<b>2.8</b>	0.2
<b>BWSPM-18-16</b>	0.0	0.0	4.1	65.2	21.1	<b>90.4</b>	0.0	2.2	1.7	2.0	<b>6.0</b>	3.6
<b>BWSPM-18-17</b>	0.0	2.8	8.8	8.5	9.3	<b>29.5</b>	12.0	15.6	17.7	13.1	<b>58.4</b>	12.1
<b>BWSPM-18-18</b>	0.0	1.0	2.5	5.4	9.6	<b>18.5</b>	14.2	20.5	21.1	13.6	<b>69.3</b>	12.2

**Table 7**  
**Statistical Summary of Sediment Grain Size Analysis**  
**Bluewater Texas Terminal LLC - Bluewater SPM Project**  
**February 2019**

Sample ID	Median (MM)	Trask (mm)				Folk (phi)			
		Mean	Sorting	Skewness	Kurtosis	Mean	Sorting	Skewness	Kurtosis
BWSPM-18-01	0.0088	0.0278	4.6152	1.7149	0.2251	6.6561	2.7224	-0.0539	0.7389
BWSPM-18-02	0.0118	0.0379	4.2839	2.0249	0.2926	6.2049	2.5235	-0.0270	0.7451
BWSPM-18-03	0.0143	0.0444	5.0322	1.4201	0.3163	6.1736	2.7020	0.0721	0.6965
BWSPM-18-04	0.0150	0.0390	5.1373	0.9561	0.3133	6.3090	2.7243	0.1487	0.6822
BWSPM-18-05	0.0103	0.0302	4.6467	1.4444	0.2681	6.5712	2.6375	0.0155	0.7038
BWSPM-18-06	0.0115	0.0377	4.5460	1.9051	0.2899	6.2872	2.5908	-0.0197	0.7204
BWSPM-18-07	0.0092	0.0251	3.9324	1.6816	0.2057	6.5501	2.5836	-0.0633	0.8033
BWSPM-18-08	0.0104	0.0298	4.0912	1.7621	0.2160	6.3849	2.6326	-0.0533	0.7982
BWSPM-18-09	0.0150	0.0509	5.1972	1.5755	0.2886	6.0256	2.8130	0.0397	0.7154
BWSPM-18-10	0.0605	0.0518	3.5808	0.1966	0.3453	5.1359	2.4174	0.6472	0.8429
BWSPM-18-11	0.1104	0.1129	1.2759	0.9856	0.2547	3.1968	0.8832	0.3319	2.3942
BWSPM-18-12	0.1182	0.1216	1.2659	1.0016	0.2638	3.0788	0.4866	-0.0067	0.9489
BWSPM-18-13	0.1242	0.1278	1.2688	1.0015	0.2636	3.0081	0.4912	-0.0063	0.9489
BWSPM-18-14	0.0152	0.0522	4.5170	2.0951	0.3172	5.8179	2.5539	-0.0154	0.7385
BWSPM-18-15	0.2123	0.2182	1.2875	0.9915	0.2609	2.2455	0.5410	0.0544	1.0125
BWSPM-18-16	0.1486	0.1505	1.2522	0.9751	0.2376	2.7829	1.0452	0.4157	3.3301
BWSPM-18-17	0.0209	0.0463	3.3125	1.5038	0.1390	5.2359	2.5391	-0.1189	0.9800
BWSPM-18-18	0.0172	0.0257	2.4016	1.1163	0.1646	5.7586	2.0500	-0.0253	1.1594



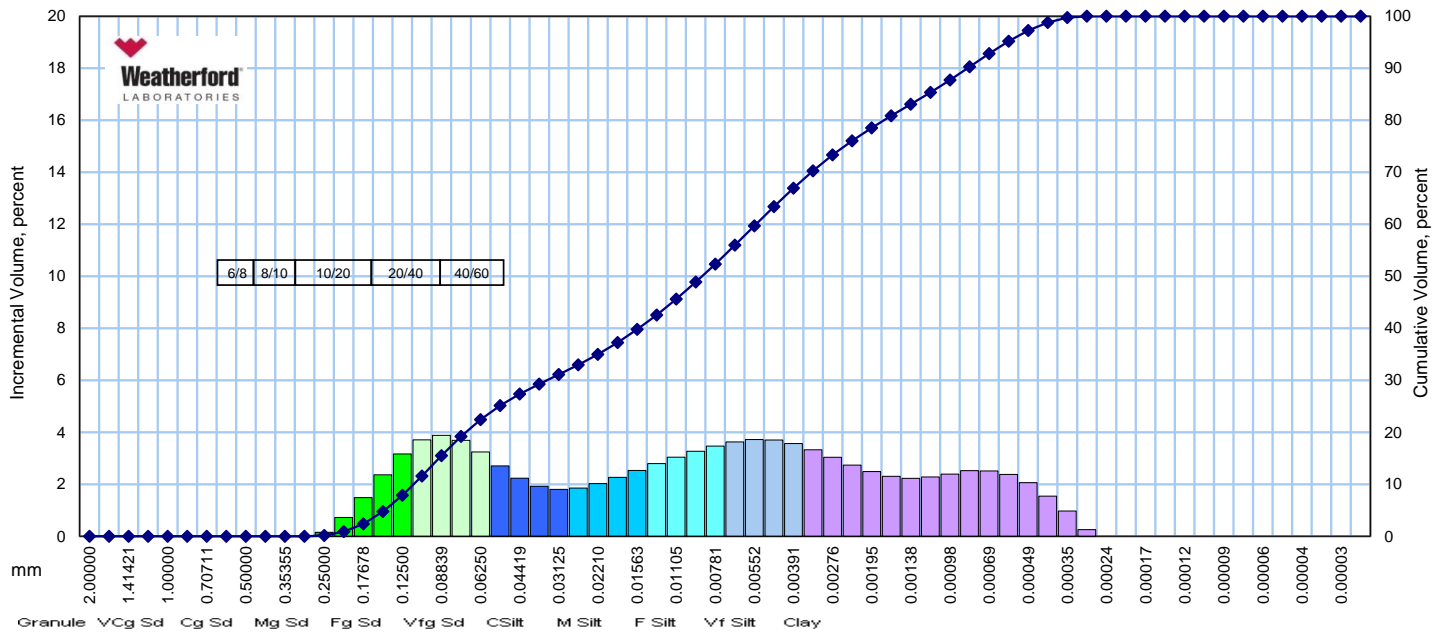
**Appendix G**  
**Grain Size Analysis Laboratory Data**

# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID: BWSPM-18-01-S  
File: HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Granule &gt;</b>	0.078740	2.00000	- 1.00	10	0.0	0.0
Vcg Sand	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
Cg Sand	0.033106	0.84090	0.25	20	0.0	0.0
	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.0	0.0
	0.009843	0.25000	2.00	60	0.2	0.2
Fg Sand	0.008277	0.21022	2.25	70	0.7	0.9
	0.006960	0.17678	2.50	80	1.5	2.4
	0.005852	0.14865	2.75	100	2.4	4.7
	0.004921	0.12500	3.00	120	3.2	7.9
Vfg Sand	0.004138	0.10511	3.25	140	3.7	11.6
	0.003480	0.08839	3.50	170	3.9	15.5
	0.002926	0.07433	3.75	200	3.7	19.2
	0.002461	0.06250	4.00	230	3.2	22.4
C Silt	0.002069	0.05256	4.25	270	2.7	25.1
	0.001740	0.04419	4.50	325	2.2	27.4
	0.001463	0.03716	4.75	400	1.9	29.3
	0.001230	0.03125	5.00	450	1.8	31.1
M Silt	0.001035	0.02628	5.25	500	1.9	32.9
	0.000870	0.02210	5.50	635	2.0	35.0
	0.000732	0.01858	5.75		2.3	37.2
	0.000615	0.01563	6.00		2.5	39.8
F Silt	0.000517	0.01314	6.25		2.8	42.6
	0.000435	0.01105	6.50		3.0	45.6
	0.000366	0.00929	6.75		3.3	48.9
	0.000308	0.00781	7.00		3.5	52.3
Vf Silt	0.000259	0.00657	7.25		3.6	56.0
	0.000217	0.00552	7.50		3.7	59.7
	0.000183	0.00465	7.75		3.7	63.4
	0.000154	0.00391	8.00		3.6	67.0

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Clay	0.000129	0.00329	8.25		3.3	70.3
	0.000109	0.00276	8.50		3.0	73.3
	0.000091	0.00232	8.75		2.7	76.1
	0.000077	0.00195	9.00		2.5	78.5
	0.000065	0.00164	9.25		2.3	80.9
	0.000054	0.00138	9.50		2.2	83.1
	0.000046	0.00116	9.75		2.3	85.4
	0.000038	0.00098	10.00		2.4	87.8
	0.000032	0.00082	10.25		2.5	90.3
	0.000027	0.00069	10.50		2.5	92.8
	0.000023	0.00058	10.75		2.4	95.2
	0.000019	0.00049	11.00		2.1	97.2
	0.000016	0.00041	11.25		1.5	98.8
	0.000014	0.00035	11.50		1.0	99.7
	0.000011	0.00029	11.75		0.3	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
0.000004	0.00010	13.25		0.0	100.0	
0.000003	0.00009	13.51		0.0	100.0	
0.000003	0.00007	13.74		0.0	100.0	
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.2
Fine Sand	120	7.7
Very Fine Sand	230	14.5
Coarse Silt	450	8.7
Medium Silt		8.7
Fine Silt		12.6
Very Fine Silt		14.6
Clay		33.0
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.7739	0.0058	0.1462
10	3.1449	0.0045	0.1131
16	3.5337	0.0034	0.0863
25	4.2375	0.0021	0.0530
50	6.8329	0.0003	0.0088
75	8.6502	0.0001	0.0025
84	9.6018	0.0001	0.0013
90	10.2225	0.0000	0.0008
95	10.7294	0.0000	0.0006

Measure	Trask, mm	Folk, phi	Inches
Median	0.0088	6.8329	0.0003
Mean	0.0278	6.6561	0.0011
Sorting	4.6152	2.7224	
Skewness	1.7149	-0.0539	
Kurtosis	0.2251	0.7389	

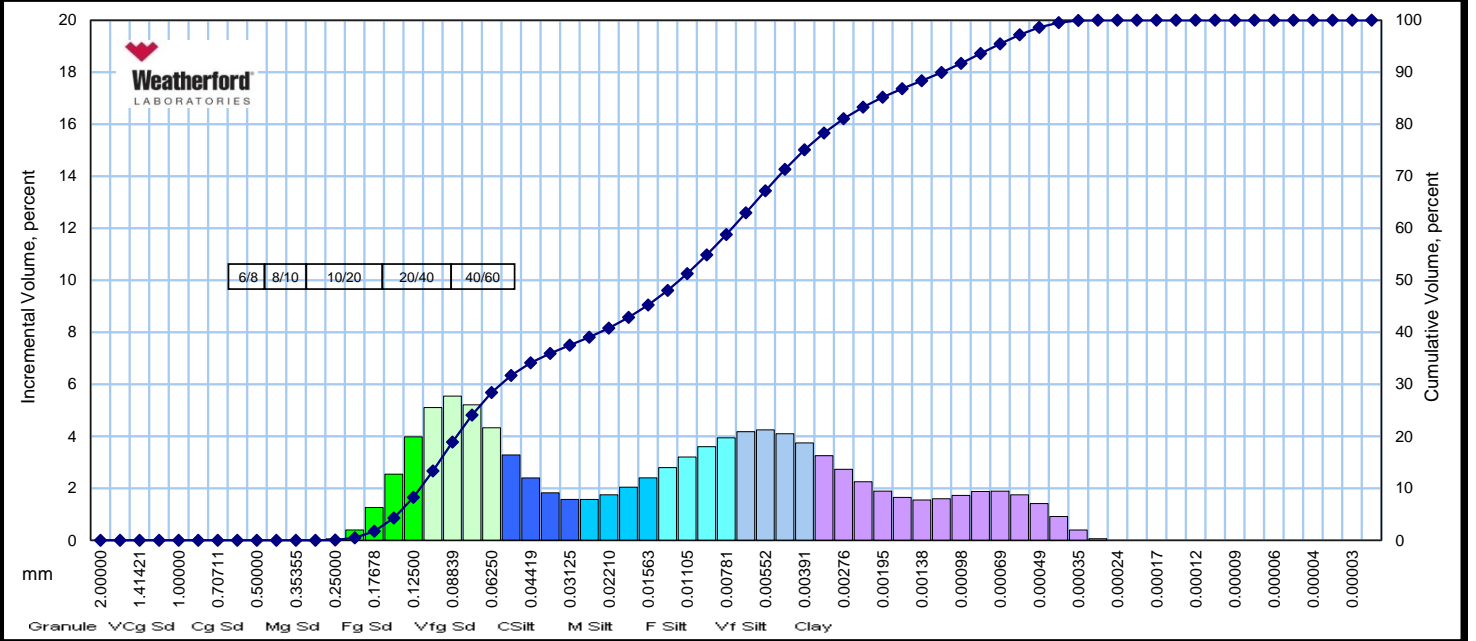
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-02-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Granule >	0.078740	2.00000	- 1.00	10	0.0	0.0
VcG Sand	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
Cg Sand	0.033106	0.84090	0.25	20	0.0	0.0
	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.0	0.0
	0.009843	0.25000	2.00	60	0.1	0.1
Fg Sand	0.008277	0.21022	2.25	70	0.4	0.5
	0.006960	0.17678	2.50	80	1.3	1.7
	0.005852	0.14865	2.75	100	2.5	4.3
	0.004921	0.12500	3.00	120	4.0	8.2
Vfg Sand	0.004138	0.10511	3.25	140	5.1	13.3
	0.003480	0.08839	3.50	170	5.5	18.9
	0.002926	0.07433	3.75	200	5.2	24.1
	0.002461	0.06250	4.00	230	4.3	28.4
C Silt	0.002069	0.05256	4.25	270	3.3	31.7
	0.001740	0.04419	4.50	325	2.4	34.1
	0.001463	0.03716	4.75	400	1.8	35.9
	0.001230	0.03125	5.00	450	1.6	37.5
M Silt	0.001035	0.02628	5.25	500	1.6	39.1
	0.000870	0.02210	5.50	635	1.7	40.8
	0.000732	0.01858	5.75		2.0	42.9
	0.000615	0.01563	6.00		2.4	45.3
F Silt	0.000517	0.01314	6.25		2.8	48.1
	0.000435	0.01105	6.50		3.2	51.3
	0.000366	0.00929	6.75		3.6	54.9
	0.000308	0.00781	7.00		3.9	58.8
Vf Silt	0.000259	0.00657	7.25		4.2	63.0
	0.000217	0.00552	7.50		4.2	67.2
	0.000183	0.00465	7.75		4.1	71.3
	0.000154	0.00391	8.00		3.7	75.1

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Clay	0.000129	0.00329	8.25		3.3	78.3
	0.000109	0.00276	8.50		2.7	81.0
	0.000091	0.00232	8.75		2.3	83.3
	0.000077	0.00195	9.00		1.9	85.2
	0.000065	0.00164	9.25		1.6	86.8
	0.000054	0.00138	9.50		1.5	88.4
	0.000046	0.00116	9.75		1.6	90.0
	0.000038	0.00098	10.00		1.7	91.7
	0.000032	0.00082	10.25		1.9	93.6
	0.000027	0.00069	10.50		1.9	95.5
	0.000023	0.00058	10.75		1.7	97.2
	0.000019	0.00049	11.00		1.4	98.6
	0.000016	0.00041	11.25		0.9	99.5
	0.000014	0.00035	11.50		0.4	99.9
	0.000011	0.00029	11.75		0.1	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
0.000004	0.00010	13.25		0.0	100.0	
0.000003	0.00009	13.51		0.0	100.0	
0.000003	0.00007	13.74		0.0	100.0	
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.1
Fine Sand	120	8.2
Very Fine Sand	230	20.2
Coarse Silt	450	9.1
Medium Silt		7.8
Fine Silt		13.5
Very Fine Silt		16.3
Clay		24.9
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.8039	0.0056	0.1432
10	3.0914	0.0046	0.1173
16	3.3703	0.0038	0.0967
25	3.7978	0.0028	0.0719
50	6.4057	0.0005	0.0118
75	7.9957	0.0002	0.0039
84	8.8388	0.0001	0.0022
90	9.7541	0.0000	0.0012
95	10.4357	0.0000	0.0007

Measure	Trask, mm	Folk, phi	Inches
Median	0.0118	6.4057	0.0005
Mean	0.0379	6.2049	0.0015
Sorting	4.2839	2.5235	
Skewness	2.0249	-0.0270	
Kurtosis	0.2926	0.7451	

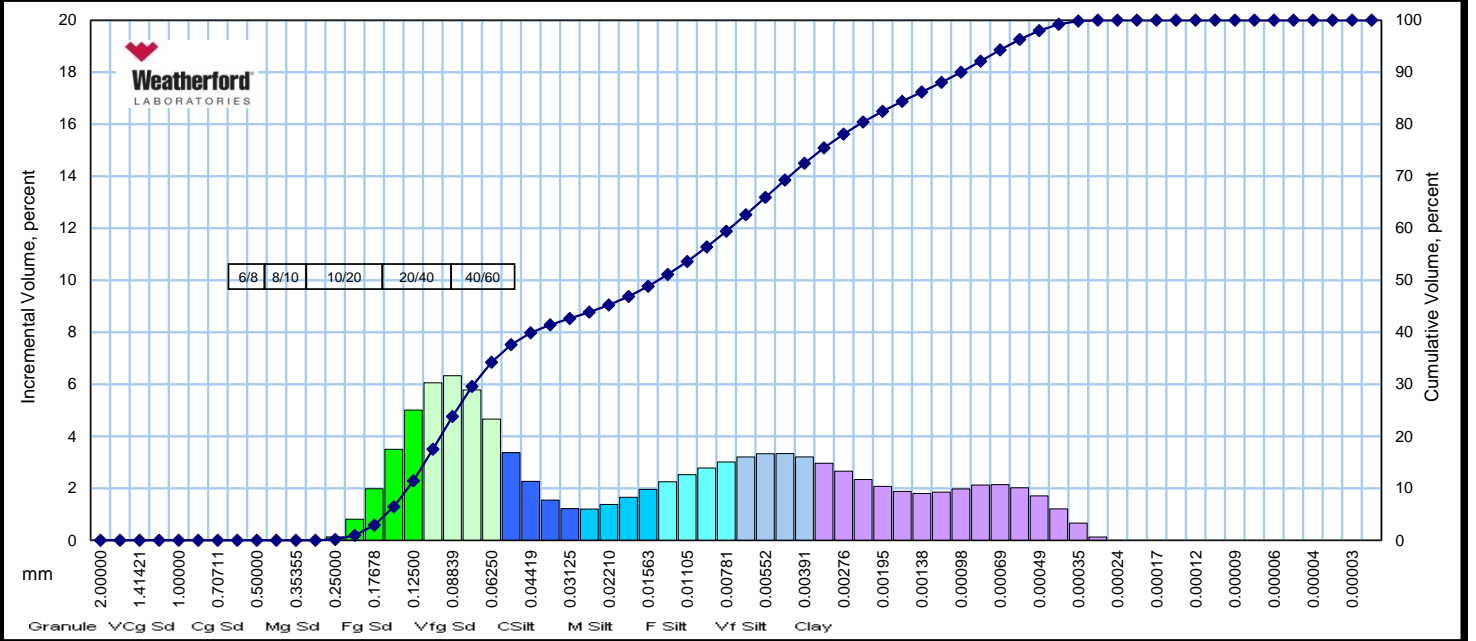
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-03-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Granule >	0.078740	2.00000	- 1.00	10	0.0	0.0
VcG Sand	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
	0.033106	0.84090	0.25	20	0.0	0.0
Cg Sand	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.0	0.0
	0.009843	0.25000	2.00	60	0.1	0.1
Fg Sand	0.008277	0.21022	2.25	70	0.8	0.9
	0.006960	0.17678	2.50	80	2.0	2.9
	0.005852	0.14865	2.75	100	3.5	6.4
	0.004921	0.12500	3.00	120	5.0	11.4
Vfg Sand	0.004138	0.10511	3.25	140	6.1	17.5
	0.003480	0.08839	3.50	170	6.3	23.8
	0.002926	0.07433	3.75	200	5.8	29.6
	0.002461	0.06250	4.00	230	4.7	34.3
C Silt	0.002069	0.05256	4.25	270	3.4	37.6
	0.001740	0.04419	4.50	325	2.3	39.9
	0.001463	0.03716	4.75	400	1.5	41.4
	0.001230	0.03125	5.00	450	1.2	42.7
M Silt	0.001035	0.02628	5.25	500	1.2	43.9
	0.000870	0.02210	5.50	635	1.4	45.2
	0.000732	0.01858	5.75		1.7	46.9
	0.000615	0.01563	6.00		2.0	48.8
F Silt	0.000517	0.01314	6.25		2.2	51.1
	0.000435	0.01105	6.50		2.5	53.6
	0.000366	0.00929	6.75		2.8	56.4
	0.000308	0.00781	7.00		3.0	59.4
Vf Silt	0.000259	0.00657	7.25		3.2	62.6
	0.000217	0.00552	7.50		3.3	65.9
	0.000183	0.00465	7.75		3.3	69.3
	0.000154	0.00391	8.00		3.2	72.5

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Clay	0.000129	0.00329	8.25		3.0	75.4
	0.000109	0.00276	8.50		2.7	78.1
	0.000091	0.00232	8.75		2.3	80.4
	0.000077	0.00195	9.00		2.1	82.5
	0.000065	0.00164	9.25		1.9	84.4
	0.000054	0.00138	9.50		1.8	86.2
	0.000046	0.00116	9.75		1.9	88.0
	0.000038	0.00098	10.00		2.0	90.0
	0.000032	0.00082	10.25		2.1	92.1
	0.000027	0.00069	10.50		2.1	94.3
	0.000023	0.00058	10.75		2.0	96.3
	0.000019	0.00049	11.00		1.7	98.0
	0.000016	0.00041	11.25		1.2	99.2
	0.000014	0.00035	11.50		0.7	99.9
	0.000011	0.00029	11.75		0.1	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
0.000004	0.00010	13.25		0.0	100.0	
0.000003	0.00009	13.51		0.0	100.0	
0.000003	0.00007	13.74		0.0	100.0	
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.1
Fine Sand	120	11.3
Very Fine Sand	230	22.8
Coarse Silt	450	8.4
Medium Silt		6.2
Fine Silt		10.6
Very Fine Silt		13.1
Clay		27.5
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.6614	0.0062	0.1581
10	2.9351	0.0051	0.1307
16	3.1912	0.0043	0.1095
25	3.5485	0.0034	0.0855
50	6.1327	0.0006	0.0143
75	8.2109	0.0001	0.0034
84	9.1969	0.0001	0.0017
90	9.9979	0.0000	0.0010
95	10.5851	0.0000	0.0007

Measure	Trask, mm	Folk, phi	Inches
Median	0.0143	6.1327	0.0006
Mean	0.0444	6.1736	0.0017
Sorting	5.0322	2.7020	
Skewness	1.4201	0.0721	
Kurtosis	0.3163	0.6965	

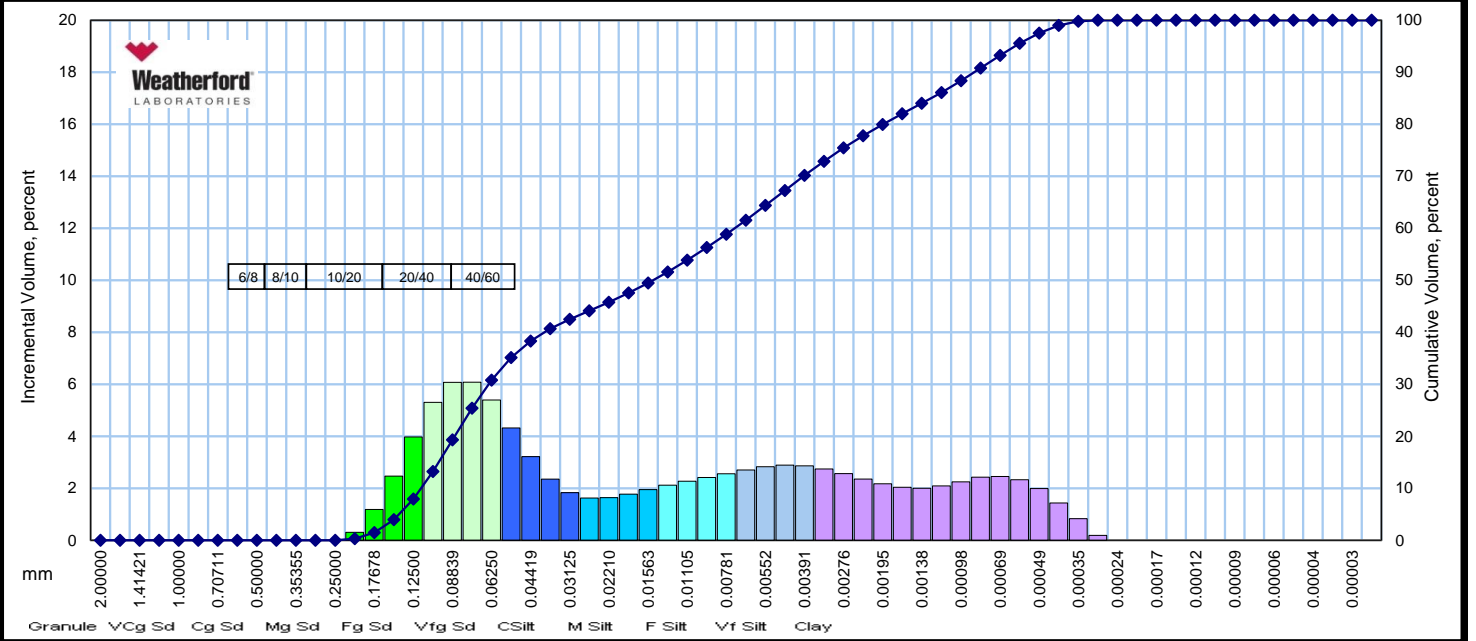
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-04-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent	Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent	
	Inches	Millimeters						Inches	Millimeters					
Granule >	0.078740	2.00000	- 1.00	10	0.0	0.0	Clay	0.000129	0.00329	8.25		2.7	72.9	
VCg Sand	0.066212	1.68179	- 0.75	12	0.0	0.0		0.000109	0.00276	8.50			2.6	75.4
	0.055678	1.41421	- 0.50	14	0.0	0.0		0.000091	0.00232	8.75			2.4	77.8
	0.046819	1.18921	- 0.25	16	0.0	0.0		0.000077	0.00195	9.00			2.2	80.0
	0.039370	1.00000	0.00	18	0.0	0.0		0.000065	0.00164	9.25			2.0	82.0
	0.033106	0.84090	0.25	20	0.0	0.0		0.000054	0.00138	9.50			2.0	84.0
Cg Sand	0.027839	0.70711	0.50	25	0.0	0.0		0.000046	0.00116	9.75			2.1	86.1
	0.023410	0.59460	0.75	30	0.0	0.0		0.000038	0.00098	10.00			2.2	88.3
	0.019685	0.50000	1.00	35	0.0	0.0		0.000032	0.00082	10.25			2.4	90.8
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0		0.000027	0.00069	10.50			2.5	93.2
	0.013919	0.35355	1.50	45	0.0	0.0		0.000023	0.00058	10.75			2.3	95.6
	0.011705	0.29730	1.75	50	0.0	0.0		0.000019	0.00049	11.00			2.0	97.5
	0.009843	0.25000	2.00	60	0.0	0.0		0.000016	0.00041	11.25			1.4	99.0
Fg Sand	0.008277	0.21022	2.25	70	0.3	0.3		0.000014	0.00035	11.50			0.8	99.8
	0.006960	0.17678	2.50	80	1.2	1.5		0.000011	0.00029	11.75			0.2	100.0
	0.005852	0.14865	2.75	100	2.5	4.0		0.000010	0.00024	12.00			0.0	100.0
	0.004921	0.12500	3.00	120	4.0	7.9		0.000008	0.00021	12.25			0.0	100.0
Vfg Sand	0.004138	0.10511	3.25	140	5.3	13.2		0.000007	0.00017	12.50			0.0	100.0
	0.003480	0.08839	3.50	170	6.1	19.3		0.000006	0.00015	12.75			0.0	100.0
	0.002926	0.07433	3.75	200	6.1	25.4		0.000005	0.00012	13.00			0.0	100.0
	0.002461	0.06250	4.00	230	5.4	30.8		0.000004	0.00010	13.25			0.0	100.0
C Silt	0.002069	0.05256	4.25	270	4.3	35.1		0.000003	0.00009	13.51			0.0	100.0
	0.001740	0.04419	4.50	325	3.2	38.3		0.000003	0.00007	13.74			0.0	100.0
	0.001463	0.03716	4.75	400	2.4	40.7		0.000002	0.00006	14.00			0.0	100.0
	0.001230	0.03125	5.00	450	1.8	42.5	0.000002	0.000051	14.26			0.0	100.0	
M Silt	0.001035	0.02628	5.25	500	1.6	44.1	0.000002	0.000043	14.51			0.0	100.0	
	0.000870	0.02210	5.50	635	1.6	45.8	0.000001	0.000036	14.76			0.0	100.0	
	0.000732	0.01858	5.75		1.8	47.5	0.000001	0.000031	14.98			0.0	100.0	
	0.000615	0.01563	6.00		1.9	49.5	0.000001	0.000026	15.23			0.0	100.0	
F Silt	0.000517	0.01314	6.25		2.1	51.6	<b>TOTALS</b>						100.0	100.0
	0.000435	0.01105	6.50		2.3	53.9								
	0.000366	0.00929	6.75		2.4	56.3								
	0.000308	0.00781	7.00		2.6	58.9								
Vf Silt	0.000259	0.00657	7.25		2.7	61.6								
	0.000217	0.00552	7.50		2.8	64.4								
	0.000183	0.00465	7.75		2.9	67.3								
	0.000154	0.00391	8.00		2.9	70.1								

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.0
Fine Sand	120	7.9
Very Fine Sand	230	22.9
Coarse Silt	450	11.7
Medium Silt		7.0
Fine Silt		9.4
Very Fine Silt		11.3
Clay		29.9
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.8254	0.0056	0.1411
10	3.1039	0.0046	0.1163
16	3.3659	0.0038	0.0970
25	3.7333	0.0030	0.0752
50	6.0620	0.0006	0.0150
75	8.4553	0.0001	0.0028
84	9.4990	0.0001	0.0014
90	10.1717	0.0000	0.0009
95	10.6860	0.0000	0.0006

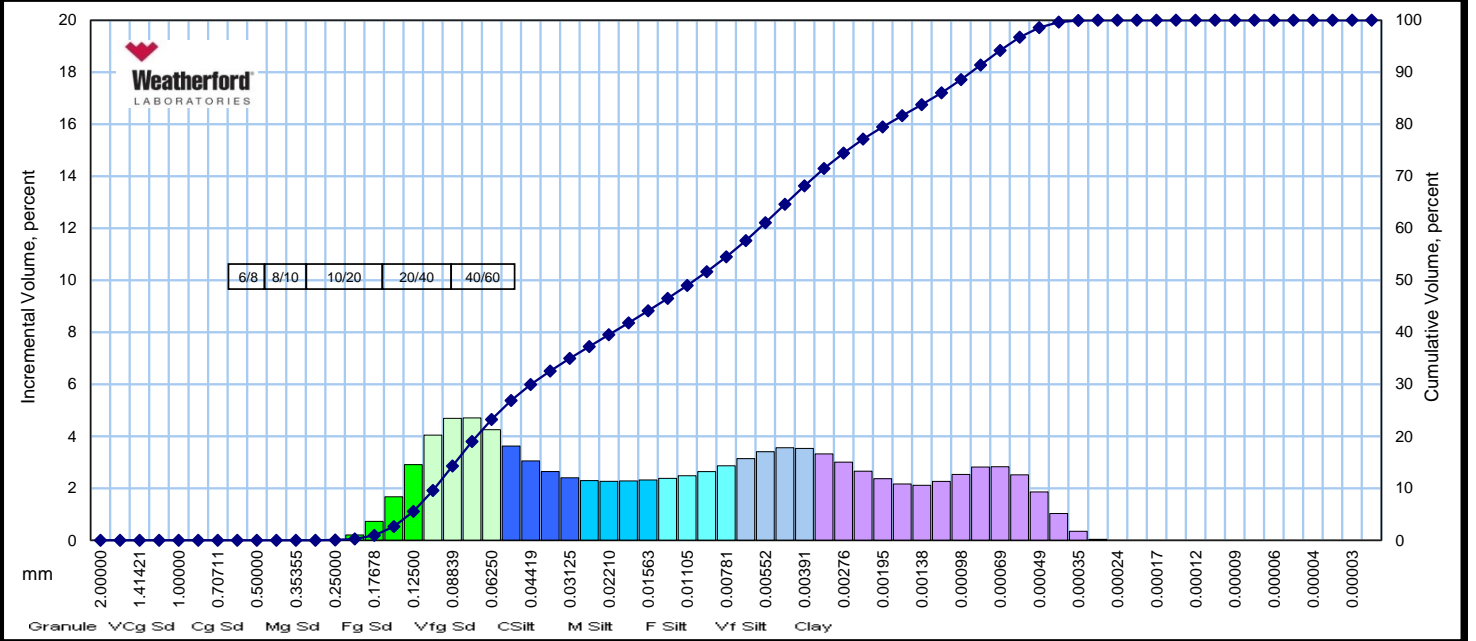
Measure	Trask, mm	Folk, phi	Inches
Median	0.0150	6.0620	0.0006
Mean	0.0390	6.3090	0.0015
Sorting	5.1373	2.7243	
Skewness	0.9561	0.1487	
Kurtosis	0.3133	0.6822	

# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID: BWSPM-18-05-S  
File: HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Granule >	0.078740	2.00000	- 1.00	10	0.0	0.0
VCg Sand	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
	0.033106	0.84090	0.25	20	0.0	0.0
Cg Sand	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.0	0.0
	0.009843	0.25000	2.00	60	0.0	0.0
Fg Sand	0.008277	0.21022	2.25	70	0.2	0.2
	0.006960	0.17678	2.50	80	0.7	1.0
	0.005852	0.14865	2.75	100	1.7	2.6
	0.004921	0.12500	3.00	120	2.9	5.5
Vfg Sand	0.004138	0.10511	3.25	140	4.0	9.6
	0.003480	0.08839	3.50	170	4.7	14.3
	0.002926	0.07433	3.75	200	4.7	19.0
	0.002461	0.06250	4.00	230	4.3	23.2
C Silt	0.002069	0.05256	4.25	270	3.6	26.9
	0.001740	0.04419	4.50	325	3.1	29.9
	0.001463	0.03716	4.75	400	2.6	32.6
	0.001230	0.03125	5.00	450	2.4	35.0
M Silt	0.001035	0.02628	5.25	500	2.3	37.3
	0.000870	0.02210	5.50	635	2.3	39.5
	0.000732	0.01858	5.75		2.3	41.8
	0.000615	0.01563	6.00		2.3	44.1
F Silt	0.000517	0.01314	6.25		2.4	46.5
	0.000435	0.01105	6.50		2.5	49.0
	0.000366	0.00929	6.75		2.6	51.6
	0.000308	0.00781	7.00		2.9	54.5
Vf Silt	0.000259	0.00657	7.25		3.1	57.6
	0.000217	0.00552	7.50		3.4	61.0
	0.000183	0.00465	7.75		3.6	64.6
	0.000154	0.00391	8.00		3.5	68.1

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Clay	0.000129	0.00329	8.25		3.3	71.5
	0.000109	0.00276	8.50		3.0	74.5
	0.000091	0.00232	8.75		2.7	77.1
	0.000077	0.00195	9.00		2.4	79.5
	0.000065	0.00164	9.25		2.2	81.7
	0.000054	0.00138	9.50		2.1	83.8
	0.000046	0.00116	9.75		2.3	86.0
	0.000038	0.00098	10.00		2.5	88.6
	0.000032	0.00082	10.25		2.8	91.4
	0.000027	0.00069	10.50		2.8	94.2
	0.000023	0.00058	10.75		2.5	96.7
	0.000019	0.00049	11.00		1.9	98.6
	0.000016	0.00041	11.25		1.0	99.6
	0.000014	0.00035	11.50		0.3	100.0
	0.000011	0.00029	11.75		0.0	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
	0.000004	0.00010	13.25		0.0	100.0
	0.000003	0.00009	13.51		0.0	100.0
	0.000003	0.00007	13.74		0.0	100.0
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.0
Fine Sand	120	5.5
Very Fine Sand	230	17.7
Coarse Silt	450	11.7
Medium Silt		9.2
Fine Silt		10.4
Very Fine Silt		13.6
Clay		31.9
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.9601	0.0051	0.1285
10	3.2726	0.0041	0.1035
16	3.5898	0.0033	0.0831
25	4.1160	0.0023	0.0577
50	6.5974	0.0004	0.0103
75	8.5484	0.0001	0.0027
84	9.5264	0.0001	0.0014
90	10.1291	0.0000	0.0009
95	10.5718	0.0000	0.0007

Measure	Trask, mm	Folk, phi	Inches
Median	0.0103	6.5974	0.0004
Mean	0.0302	6.5712	0.0012
Sorting	4.6467	2.6375	
Skewness	1.4444	0.0155	
Kurtosis	0.2681	0.7038	

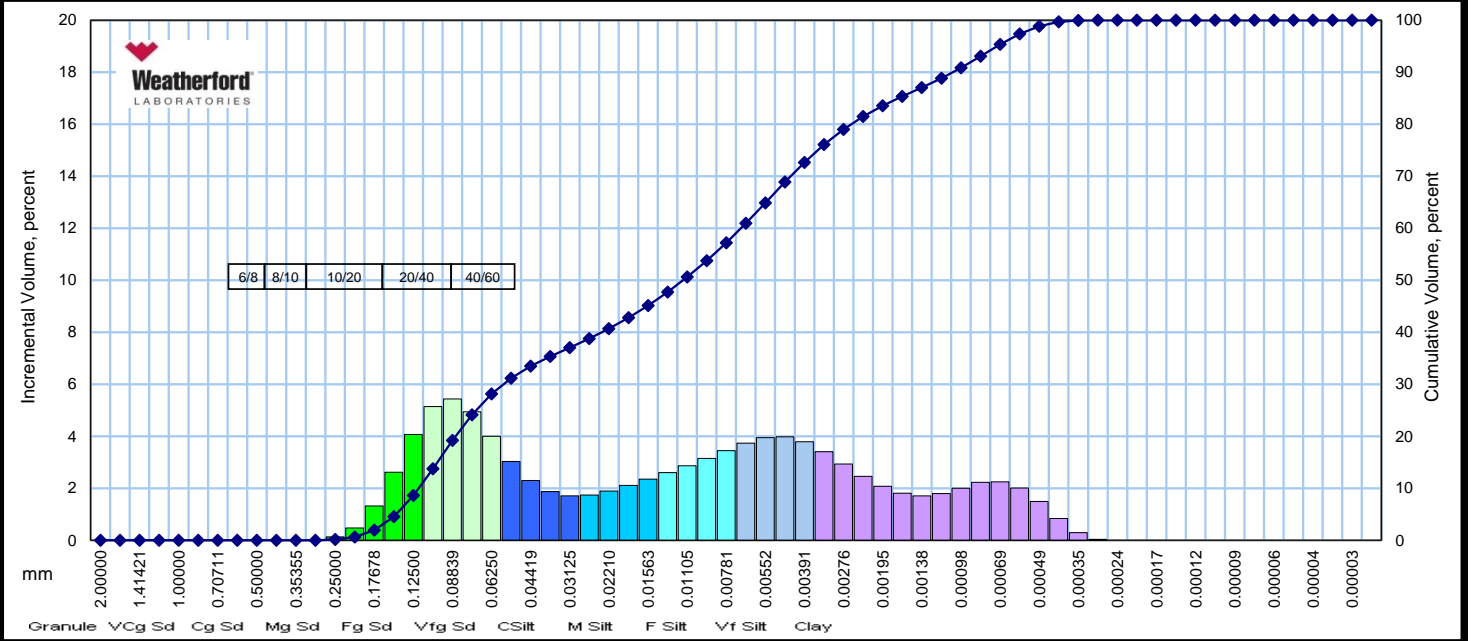
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-06-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Granule >	0.078740	2.00000	- 1.00	10	0.0	0.0
VcG Sand	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
Cg Sand	0.033106	0.84090	0.25	20	0.0	0.0
	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.0	0.0
	0.009843	0.25000	2.00	60	0.1	0.1
Fg Sand	0.008277	0.21022	2.25	70	0.5	0.6
	0.006960	0.17678	2.50	80	1.3	1.9
	0.005852	0.14865	2.75	100	2.6	4.6
	0.004921	0.12500	3.00	120	4.1	8.6
Vfg Sand	0.004138	0.10511	3.25	140	5.1	13.8
	0.003480	0.08839	3.50	170	5.4	19.2
	0.002926	0.07433	3.75	200	4.9	24.1
	0.002461	0.06250	4.00	230	4.0	28.1
C Silt	0.002069	0.05256	4.25	270	3.0	31.2
	0.001740	0.04419	4.50	325	2.3	33.5
	0.001463	0.03716	4.75	400	1.9	35.3
	0.001230	0.03125	5.00	450	1.7	37.1
M Silt	0.001035	0.02628	5.25	500	1.7	38.8
	0.000870	0.02210	5.50	635	1.9	40.7
	0.000732	0.01858	5.75		2.1	42.8
	0.000615	0.01563	6.00		2.4	45.1
F Silt	0.000517	0.01314	6.25		2.6	47.7
	0.000435	0.01105	6.50		2.9	50.6
	0.000366	0.00929	6.75		3.1	53.8
	0.000308	0.00781	7.00		3.4	57.2
Vf Silt	0.000259	0.00657	7.25		3.7	60.9
	0.000217	0.00552	7.50		3.9	64.9
	0.000183	0.00465	7.75		4.0	68.9
	0.000154	0.00391	8.00		3.8	72.7

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Clay	0.000129	0.00329	8.25		3.4	76.1
	0.000109	0.00276	8.50		2.9	79.0
	0.000091	0.00232	8.75		2.5	81.5
	0.000077	0.00195	9.00		2.1	83.5
	0.000065	0.00164	9.25		1.8	85.3
	0.000054	0.00138	9.50		1.7	87.1
	0.000046	0.00116	9.75		1.8	88.9
	0.000038	0.00098	10.00		2.0	90.9
	0.000032	0.00082	10.25		2.2	93.1
	0.000027	0.00069	10.50		2.2	95.3
	0.000023	0.00058	10.75		2.0	97.3
	0.000019	0.00049	11.00		1.5	98.8
	0.000016	0.00041	11.25		0.8	99.7
	0.000014	0.00035	11.50		0.3	100.0
	0.000011	0.00029	11.75		0.0	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
0.000004	0.00010	13.25		0.0	100.0	
0.000003	0.00009	13.51		0.0	100.0	
0.000003	0.00007	13.74		0.0	100.0	
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.1
Fine Sand	120	8.5
Very Fine Sand	230	19.5
Coarse Silt	450	8.9
Medium Silt		8.1
Fine Silt		12.1
Very Fine Silt		15.5
Clay		27.3
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.7824	0.0057	0.1454
10	3.0709	0.0047	0.1190
16	3.3522	0.0039	0.0979
25	3.7987	0.0028	0.0719
50	6.4483	0.0005	0.0115
75	8.1679	0.0001	0.0035
84	9.0612	0.0001	0.0019
90	9.8968	0.0000	0.0010
95	10.4619	0.0000	0.0007

Measure	Trask, mm	Folk, phi	Inches
Median	0.0115	6.4483	0.0005
Mean	0.0377	6.2872	0.0015
Sorting	4.5460	2.5908	
Skewness	1.9051	-0.0197	
Kurtosis	0.2899	0.7204	

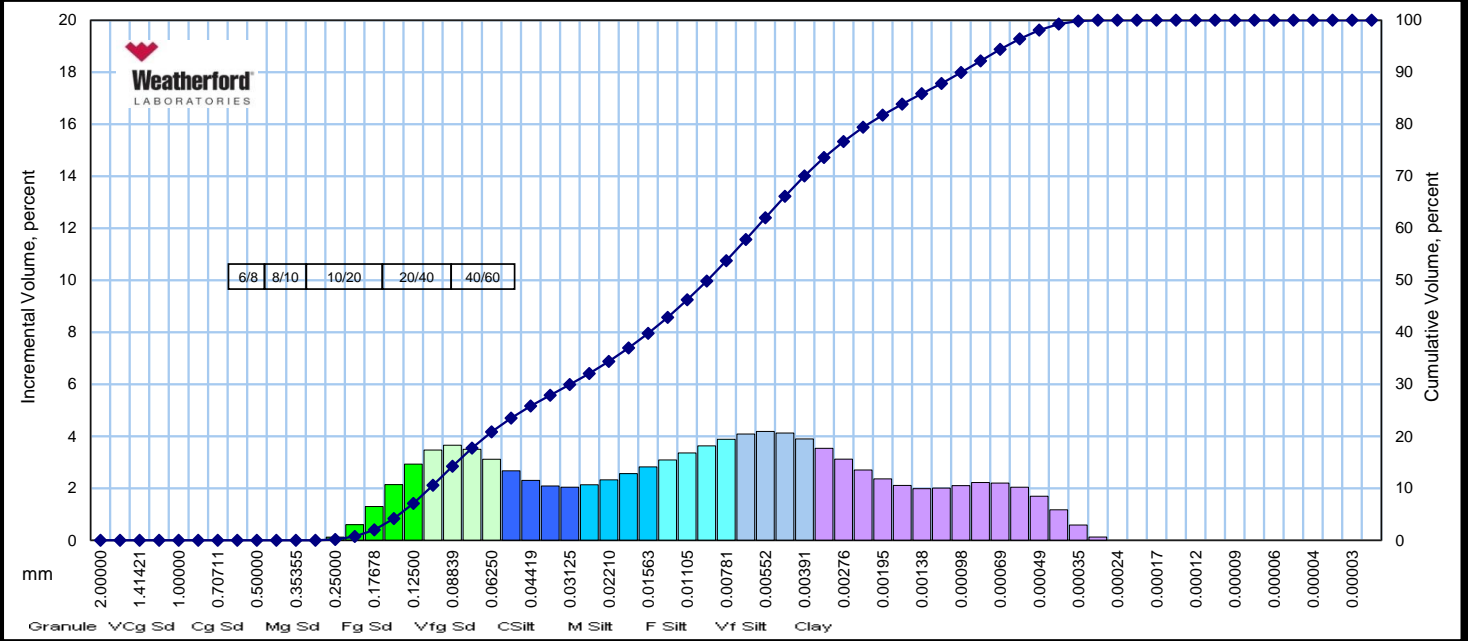
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-07-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Granule >	0.078740	2.00000	- 1.00	10	0.0	0.0
Vcg Sand	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
Cg Sand	0.033106	0.84090	0.25	20	0.0	0.0
	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.0	0.0
	0.009843	0.25000	2.00	60	0.1	0.1
Fg Sand	0.008277	0.21022	2.25	70	0.6	0.7
	0.006960	0.17678	2.50	80	1.3	2.0
	0.005852	0.14865	2.75	100	2.1	4.2
	0.004921	0.12500	3.00	120	2.9	7.1
Vfg Sand	0.004138	0.10511	3.25	140	3.5	10.6
	0.003480	0.08839	3.50	170	3.7	14.2
	0.002926	0.07433	3.75	200	3.5	17.7
	0.002461	0.06250	4.00	230	3.1	20.8
C Silt	0.002069	0.05256	4.25	270	2.7	23.5
	0.001740	0.04419	4.50	325	2.3	25.8
	0.001463	0.03716	4.75	400	2.1	27.9
	0.001230	0.03125	5.00	450	2.0	29.9
M Silt	0.001035	0.02628	5.25	500	2.1	32.1
	0.000870	0.02210	5.50	635	2.3	34.4
	0.000732	0.01858	5.75		2.6	37.0
	0.000615	0.01563	6.00		2.8	39.8
F Silt	0.000517	0.01314	6.25		3.1	42.9
	0.000435	0.01105	6.50		3.4	46.2
	0.000366	0.00929	6.75		3.6	49.9
	0.000308	0.00781	7.00		3.9	53.7
Vf Silt	0.000259	0.00657	7.25		4.1	57.8
	0.000217	0.00552	7.50		4.2	62.0
	0.000183	0.00465	7.75		4.1	66.1
	0.000154	0.00391	8.00		3.9	70.0

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Clay	0.000129	0.00329	8.25		3.5	73.6
	0.000109	0.00276	8.50		3.1	76.7
	0.000091	0.00232	8.75		2.7	79.4
	0.000077	0.00195	9.00		2.4	81.8
	0.000065	0.00164	9.25		2.1	83.9
	0.000054	0.00138	9.50		2.0	85.9
	0.000046	0.00116	9.75		2.0	87.9
	0.000038	0.00098	10.00		2.1	90.0
	0.000032	0.00082	10.25		2.2	92.2
	0.000027	0.00069	10.50		2.2	94.4
	0.000023	0.00058	10.75		2.0	96.4
	0.000019	0.00049	11.00		1.7	98.1
	0.000016	0.00041	11.25		1.2	99.3
	0.000014	0.00035	11.50		0.6	99.9
	0.000011	0.00029	11.75		0.1	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
	0.000004	0.00010	13.25		0.0	100.0
	0.000003	0.00009	13.51		0.0	100.0
	0.000003	0.00007	13.74		0.0	100.0
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.1
Fine Sand	120	7.0
Very Fine Sand	230	13.7
Coarse Silt	450	9.1
Medium Silt		9.8
Fine Silt		14.0
Very Fine Silt		16.3
Clay		30.0
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.8281	0.0055	0.1408
10	3.2112	0.0043	0.1080
16	3.6248	0.0032	0.0811
25	4.4090	0.0019	0.0471
50	6.7593	0.0004	0.0092
75	8.3598	0.0001	0.0030
84	9.2662	0.0001	0.0016
90	10.0038	0.0000	0.0010
95	10.5718	0.0000	0.0007

Measure	Trask, mm	Folk, phi	Inches
Median	0.0092	6.7593	0.0004
Mean	0.0251	6.5501	0.0010
Sorting	3.9324	2.5836	
Skewness	1.6816	-0.0633	
Kurtosis	0.2057	0.8033	



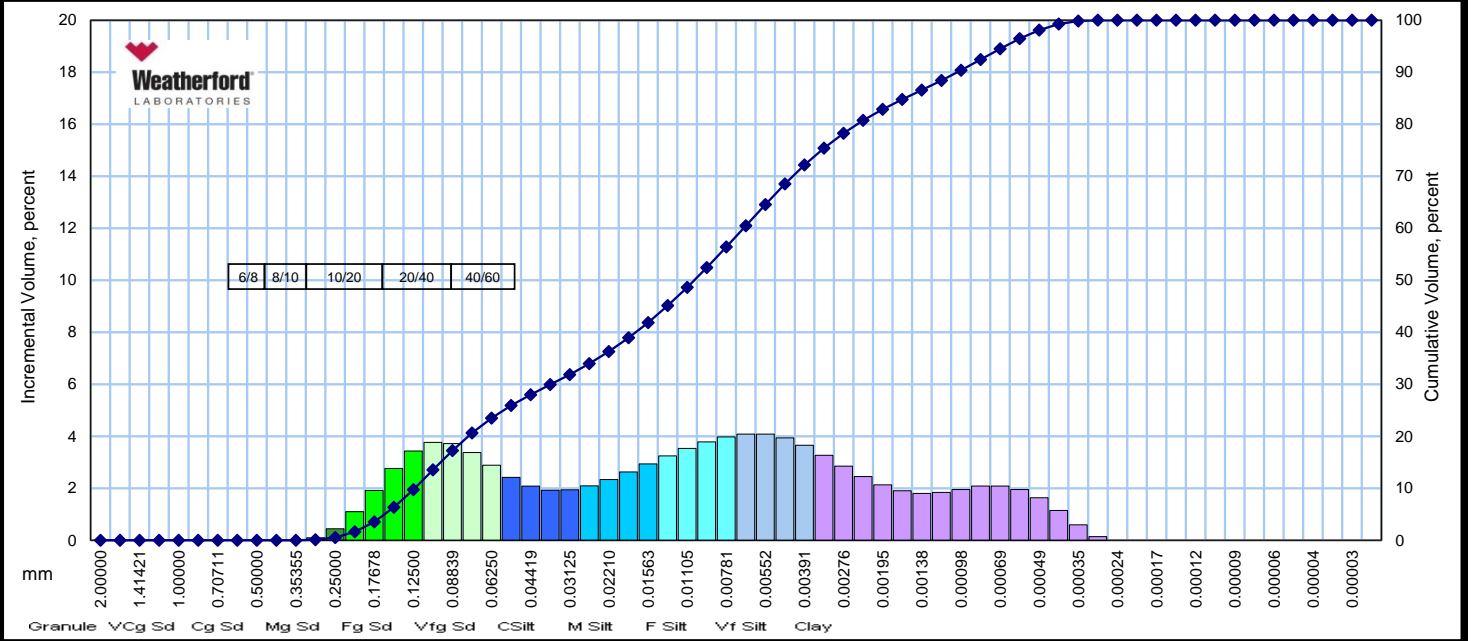
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-08-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Granule &amp; Vcg Sand</b>	0.078740	2.00000	- 1.00	10	0.0	0.0
	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
<b>Cg Sand</b>	0.033106	0.84090	0.25	20	0.0	0.0
	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
<b>Mg Sand</b>	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.1	0.1
	0.009843	0.25000	2.00	60	0.4	0.5
<b>Fg Sand</b>	0.008277	0.21022	2.25	70	1.1	1.6
	0.006960	0.17678	2.50	80	1.9	3.6
	0.005852	0.14865	2.75	100	2.8	6.3
	0.004921	0.12500	3.00	120	3.4	9.7
<b>Vfg Sand</b>	0.004138	0.10511	3.25	140	3.8	13.5
	0.003480	0.08839	3.50	170	3.7	17.2
	0.002926	0.07433	3.75	200	3.4	20.6
	0.002461	0.06250	4.00	230	2.9	23.5
<b>C Silt</b>	0.002069	0.05256	4.25	270	2.4	25.9
	0.001740	0.04419	4.50	325	2.1	28.0
	0.001463	0.03716	4.75	400	1.9	29.9
	0.001230	0.03125	5.00	450	1.9	31.9
<b>M Silt</b>	0.001035	0.02628	5.25	500	2.1	34.0
	0.000870	0.02210	5.50	635	2.3	36.3
	0.000732	0.01858	5.75		2.6	38.9
	0.000615	0.01563	6.00		2.9	41.9
<b>F Silt</b>	0.000517	0.01314	6.25		3.2	45.1
	0.000435	0.01105	6.50		3.5	48.6
	0.000366	0.00929	6.75		3.8	52.4
	0.000308	0.00781	7.00		4.0	56.4
<b>Vf Silt</b>	0.000259	0.00657	7.25		4.1	60.5
	0.000217	0.00552	7.50		4.1	64.6
	0.000183	0.00465	7.75		3.9	68.5
	0.000154	0.00391	8.00		3.7	72.2

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Clay</b>	0.000129	0.00329	8.25		3.3	75.4
	0.000109	0.00276	8.50		2.9	78.3
	0.000091	0.00232	8.75		2.5	80.7
	0.000077	0.00195	9.00		2.1	82.9
	0.000065	0.00164	9.25		1.9	84.8
	0.000054	0.00138	9.50		1.8	86.6
	0.000046	0.00116	9.75		1.8	88.4
	0.000038	0.00098	10.00		2.0	90.4
	0.000032	0.00082	10.25		2.1	92.4
	0.000027	0.00069	10.50		2.1	94.5
	0.000023	0.00058	10.75		2.0	96.5
	0.000019	0.00049	11.00		1.6	98.1
	0.000016	0.00041	11.25		1.1	99.3
	0.000014	0.00035	11.50		0.6	99.9
	0.000011	0.00029	11.75		0.1	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
0.000004	0.00010	13.25		0.0	100.0	
0.000003	0.00009	13.51		0.0	100.0	
0.000003	0.00007	13.74		0.0	100.0	
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					100.0	100.0

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.5
Fine Sand	120	9.2
Very Fine Sand	230	13.7
Coarse Silt	450	8.4
Medium Silt		10.0
Fine Silt		14.5
Very Fine Silt		15.8
Clay		27.8
<b>Total</b>		100.0

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.6397	0.0063	0.1605
10	3.0170	0.0049	0.1235
16	3.4154	0.0037	0.0937
25	4.1506	0.0022	0.0563
50	6.5917	0.0004	0.0104
75	8.2156	0.0001	0.0034
84	9.1478	0.0001	0.0018
90	9.9543	0.0000	0.0010
95	10.5565	0.0000	0.0007

Measure	Trask, mm	Folk, phi	Inches
Median	0.0104	6.5917	0.0004
Mean	0.0298	6.3849	0.0012
Sorting	4.0912	2.6326	
Skewness	1.7621	-0.0533	
Kurtosis	0.2160	0.7982	

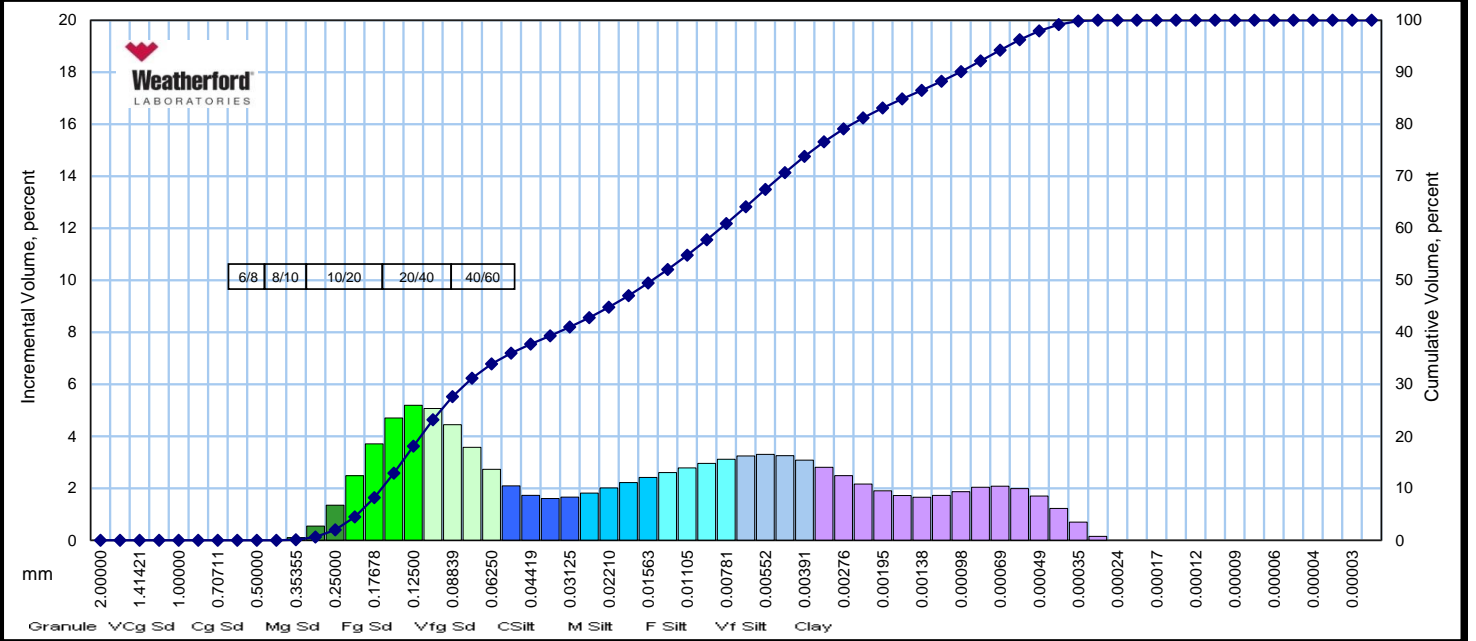
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-09-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Granule > 2.00000	0.078740	2.00000	- 1.00	10	0.0	0.0
VcG Sand	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
Cg Sand	0.033106	0.84090	0.25	20	0.0	0.0
	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.1	0.1
	0.011705	0.29730	1.75	50	0.5	0.6
	0.009843	0.25000	2.00	60	1.3	2.0
Fg Sand	0.008277	0.21022	2.25	70	2.5	4.5
	0.006960	0.17678	2.50	80	3.7	8.2
	0.005852	0.14865	2.75	100	4.7	12.9
	0.004921	0.12500	3.00	120	5.2	18.1
Vfg Sand	0.004138	0.10511	3.25	140	5.1	23.1
	0.003480	0.08839	3.50	170	4.4	27.6
	0.002926	0.07433	3.75	200	3.6	31.2
	0.002461	0.06250	4.00	230	2.7	33.9
C Silt	0.002069	0.05256	4.25	270	2.1	36.0
	0.001740	0.04419	4.50	325	1.7	37.7
	0.001463	0.03716	4.75	400	1.6	39.3
	0.001230	0.03125	5.00	450	1.7	41.0
M Silt	0.001035	0.02628	5.25	500	1.8	42.8
	0.000870	0.02210	5.50	635	2.0	44.8
	0.000732	0.01858	5.75		2.2	47.0
	0.000615	0.01563	6.00		2.4	49.4
F Silt	0.000517	0.01314	6.25		2.6	52.1
	0.000435	0.01105	6.50		2.8	54.8
	0.000366	0.00929	6.75		3.0	57.8
	0.000308	0.00781	7.00		3.1	60.9
Vf Silt	0.000259	0.00657	7.25		3.2	64.2
	0.000217	0.00552	7.50		3.3	67.5
	0.000183	0.00465	7.75		3.3	70.7
	0.000154	0.00391	8.00		3.1	73.8

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Clay	0.000129	0.00329	8.25		2.8	76.6
	0.000109	0.00276	8.50		2.5	79.1
	0.000091	0.00232	8.75		2.2	81.2
	0.000077	0.00195	9.00		1.9	83.1
	0.000065	0.00164	9.25		1.7	84.9
	0.000054	0.00138	9.50		1.7	86.5
	0.000046	0.00116	9.75		1.7	88.3
	0.000038	0.00098	10.00		1.9	90.1
	0.000032	0.00082	10.25		2.0	92.2
	0.000027	0.00069	10.50		2.1	94.2
	0.000023	0.00058	10.75		2.0	96.2
	0.000019	0.00049	11.00		1.7	97.9
	0.000016	0.00041	11.25		1.2	99.2
	0.000014	0.00035	11.50		0.7	99.8
	0.000011	0.00029	11.75		0.2	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
0.000004	0.00010	13.25		0.0	100.0	
0.000003	0.00009	13.51		0.0	100.0	
0.000003	0.00007	13.74		0.0	100.0	
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	2.0
Fine Sand	120	16.1
Very Fine Sand	230	15.8
Coarse Silt	450	7.1
Medium Silt		8.5
Fine Silt		11.5
Very Fine Silt		12.9
Clay		26.2
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.2906	0.0080	0.2044
10	2.6015	0.0065	0.1648
16	2.9007	0.0053	0.1339
25	3.3488	0.0039	0.0982
50	6.0544	0.0006	0.0150
75	8.1042	0.0001	0.0036
84	9.1218	0.0001	0.0018
90	9.9847	0.0000	0.0010
95	10.5917	0.0000	0.0006

Measure	Trask, mm	Folk, phi	Inches
Median	0.0150	6.0544	0.0006
Mean	0.0509	6.0256	0.0020
Sorting	5.1972	2.8130	
Skewness	1.5755	0.0397	
Kurtosis	0.2886	0.7154	

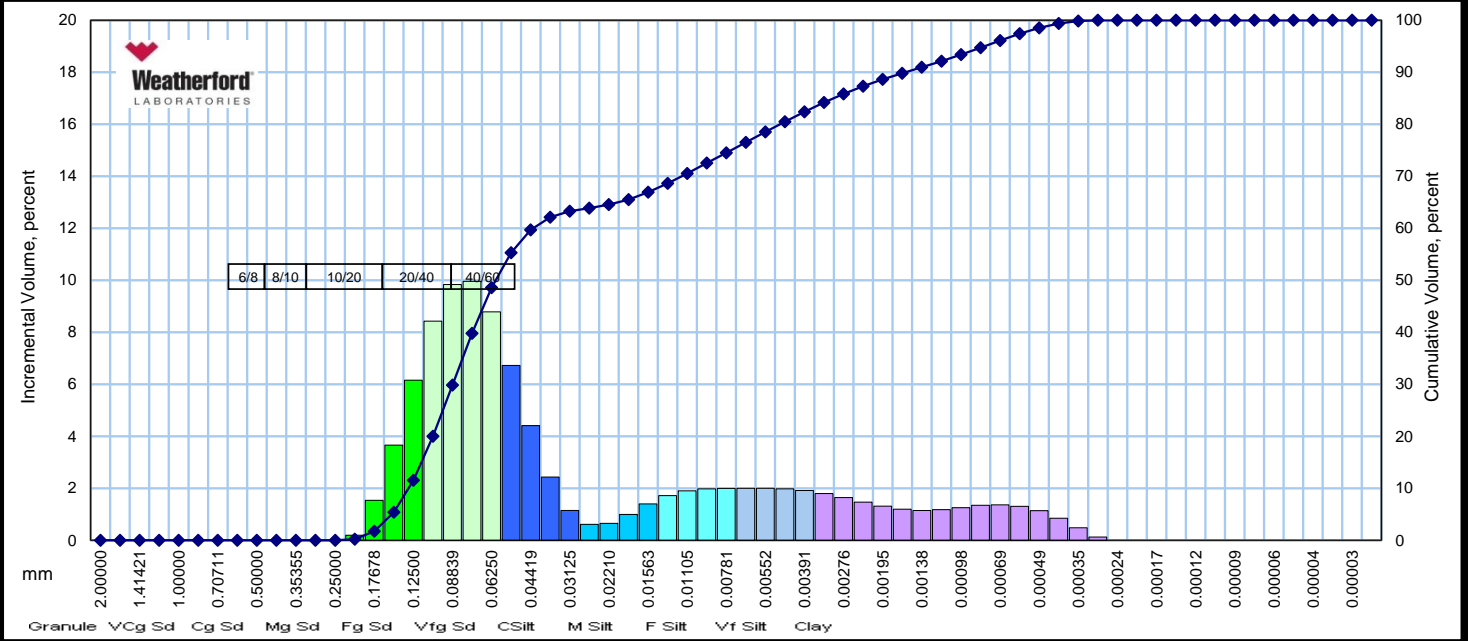
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-10-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Granule >	0.078740	2.00000	- 1.00	10	0.0	0.0
VcG Sand	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
	0.033106	0.84090	0.25	20	0.0	0.0
Cg Sand	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.0	0.0
	0.009843	0.25000	2.00	60	0.0	0.0
Fg Sand	0.008277	0.21022	2.25	70	0.2	0.2
	0.006960	0.17678	2.50	80	1.5	1.7
	0.005852	0.14865	2.75	100	3.7	5.4
	0.004921	0.12500	3.00	120	6.2	11.5
Vfg Sand	0.004138	0.10511	3.25	140	8.4	20.0
	0.003480	0.08839	3.50	170	9.8	29.8
	0.002926	0.07433	3.75	200	10.0	39.8
	0.002461	0.06250	4.00	230	8.8	48.6
C Silt	0.002069	0.05256	4.25	270	6.7	55.3
	0.001740	0.04419	4.50	325	4.4	59.7
	0.001463	0.03716	4.75	400	2.4	62.1
	0.001230	0.03125	5.00	450	1.1	63.3
M Silt	0.001035	0.02628	5.25	500	0.6	63.9
	0.000870	0.02210	5.50	635	0.7	64.5
	0.000732	0.01858	5.75		1.0	65.5
	0.000615	0.01563	6.00		1.4	66.9
F Silt	0.000517	0.01314	6.25		1.7	68.6
	0.000435	0.01105	6.50		1.9	70.5
	0.000366	0.00929	6.75		2.0	72.5
	0.000308	0.00781	7.00		2.0	74.5
Vf Silt	0.000259	0.00657	7.25		2.0	76.5
	0.000217	0.00552	7.50		2.0	78.5
	0.000183	0.00465	7.75		2.0	80.5
	0.000154	0.00391	8.00		1.9	82.4

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Clay	0.000129	0.00329	8.25		1.8	84.2
	0.000109	0.00276	8.50		1.6	85.8
	0.000091	0.00232	8.75		1.5	87.3
	0.000077	0.00195	9.00		1.3	88.6
	0.000065	0.00164	9.25		1.2	89.8
	0.000054	0.00138	9.50		1.1	91.0
	0.000046	0.00116	9.75		1.2	92.1
	0.000038	0.00098	10.00		1.3	93.4
	0.000032	0.00082	10.25		1.3	94.7
	0.000027	0.00069	10.50		1.4	96.1
	0.000023	0.00058	10.75		1.3	97.4
	0.000019	0.00049	11.00		1.1	98.5
	0.000016	0.00041	11.25		0.8	99.4
	0.000014	0.00035	11.50		0.5	99.9
	0.000011	0.00029	11.75		0.1	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
0.000004	0.00010	13.25		0.0	100.0	
0.000003	0.00009	13.51		0.0	100.0	
0.000003	0.00007	13.74		0.0	100.0	
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.0
Fine Sand	120	11.5
Very Fine Sand	230	37.0
Coarse Silt	450	14.7
Medium Silt		3.7
Fine Silt		7.6
Very Fine Silt		7.9
Clay		17.6
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.7293	0.0059	0.1508
10	2.9456	0.0051	0.1298
16	3.1391	0.0045	0.1135
25	3.3803	0.0038	0.0960
50	4.0473	0.0024	0.0605
75	7.0608	0.0003	0.0075
84	8.2212	0.0001	0.0034
90	9.2895	0.0001	0.0016
95	10.2986	0.0000	0.0008

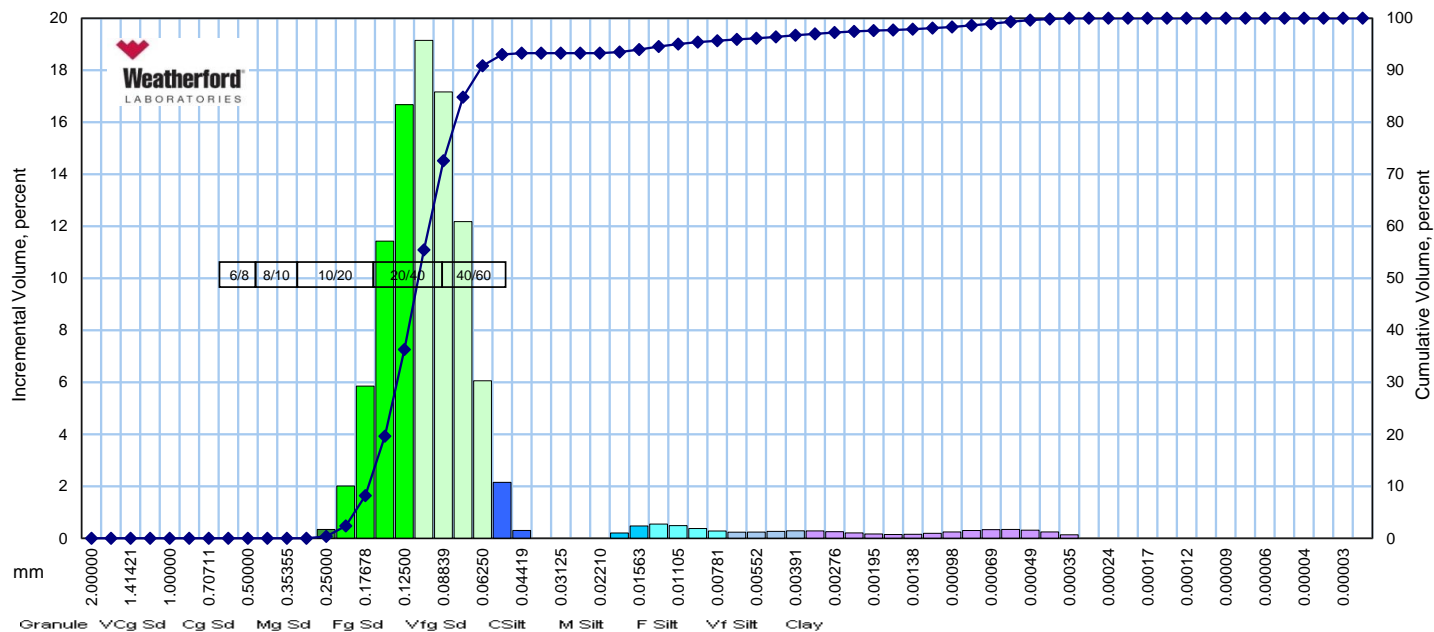
Measure	Trask, mm	Folk, phi	Inches
Median	0.0605	4.0473	0.0024
Mean	0.0518	5.1359	0.0020
Sorting	3.5808	2.4174	
Skewness	0.1966	0.6472	
Kurtosis	0.3453	0.8429	

# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID: BWSPM-18-11-S  
File: HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Granule &gt;</b>	0.078740	2.00000	- 1.00	10	0.0	0.0
<b>VcG Sand</b>	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
	0.033106	0.84090	0.25	20	0.0	0.0
<b>Cg Sand</b>	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
<b>Mg Sand</b>	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.0	0.0
	0.009843	0.25000	2.00	60	0.3	0.3
<b>Fg Sand</b>	0.008277	0.21022	2.25	70	2.0	2.3
	0.006960	0.17678	2.50	80	5.9	8.2
	0.005852	0.14865	2.75	100	11.4	19.6
	0.004921	0.12500	3.00	120	16.7	36.3
<b>Vfg Sand</b>	0.004138	0.10511	3.25	140	19.1	55.5
	0.003480	0.08839	3.50	170	17.2	72.6
	0.002926	0.07433	3.75	200	12.2	84.8
	0.002461	0.06250	4.00	230	6.1	90.9
<b>C Silt</b>	0.002069	0.05256	4.25	270	2.2	93.0
	0.001740	0.04419	4.50	325	0.3	93.3
	0.001463	0.03716	4.75	400	0.0	93.3
	0.001230	0.03125	5.00	450	0.0	93.3
<b>M Silt</b>	0.001035	0.02628	5.25	500	0.0	93.3
	0.000870	0.02210	5.50	635	0.0	93.3
	0.000732	0.01858	5.75		0.2	93.5
	0.000615	0.01563	6.00		0.5	94.0
<b>F Silt</b>	0.000517	0.01314	6.25		0.5	94.5
	0.000435	0.01105	6.50		0.5	95.0
	0.000366	0.00929	6.75		0.4	95.4
	0.000308	0.00781	7.00		0.3	95.7
<b>Vf Silt</b>	0.000259	0.00657	7.25		0.2	95.9
	0.000217	0.00552	7.50		0.2	96.1
	0.000183	0.00465	7.75		0.3	96.4
	0.000154	0.00391	8.00		0.3	96.7

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.3
Fine Sand	120	36.0
Very Fine Sand	230	54.6
Coarse Silt	450	2.5
Medium Silt		0.7
Fine Silt		1.7
Very Fine Silt		1.0
Clay		3.3
<b>Total</b>		<b>100.0</b>

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Clay</b>	0.000129	0.00329	8.25		0.3	97.0
	0.000109	0.00276	8.50		0.3	97.2
	0.000091	0.00232	8.75		0.2	97.4
	0.000077	0.00195	9.00		0.2	97.6
	0.000065	0.00164	9.25		0.1	97.8
	0.000054	0.00138	9.50		0.2	97.9
	0.000046	0.00116	9.75		0.2	98.1
	0.000038	0.00098	10.00		0.2	98.3
	0.000032	0.00082	10.25		0.3	98.6
	0.000027	0.00069	10.50		0.3	99.0
	0.000023	0.00058	10.75		0.3	99.3
	0.000019	0.00049	11.00		0.3	99.6
	0.000016	0.00041	11.25		0.2	99.9
	0.000014	0.00035	11.50		0.1	100.0
	0.000011	0.00029	11.75		0.0	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
	0.000004	0.00010	13.25		0.0	100.0
	0.000003	0.00009	13.51		0.0	100.0
	0.000003	0.00007	13.74		0.0	100.0
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.3815	0.0076	0.1919
10	2.5523	0.0067	0.1705
16	2.6841	0.0061	0.1556
25	2.8377	0.0055	0.1399
50	3.1787	0.0043	0.1104
75	3.5408	0.0034	0.0859
84	3.7277	0.0030	0.0755
90	3.9533	0.0025	0.0646
95	6.4886	0.0004	0.0111

Measure	Trask, mm	Folk, phi	Inches
Median	0.1104	3.1787	0.0043
Mean	0.1129	3.1968	0.0044
Sorting	1.2759	0.8832	
Skewness	0.9856	0.3319	
Kurtosis	0.2547	2.3942	

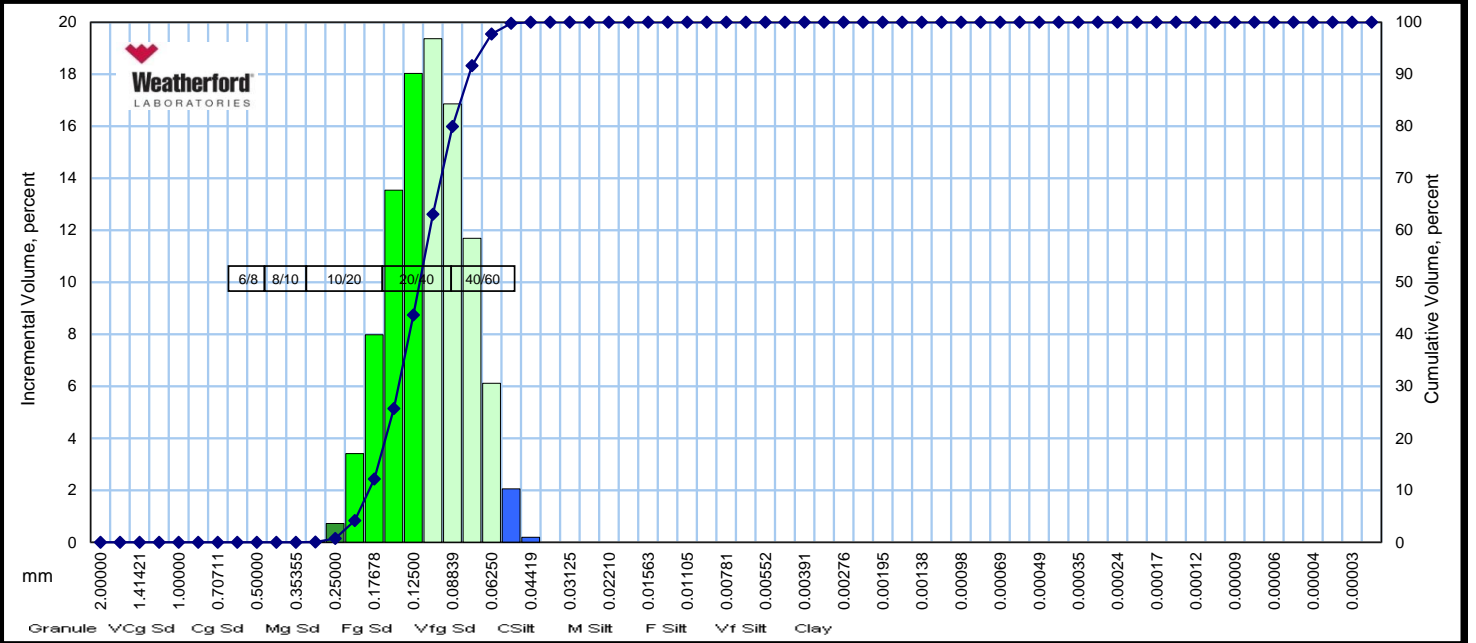
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-12-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent	Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters						Inches	Millimeters				
Granule >	0.078740	2.00000	- 1.00	10	0.0	0.0	Clay	0.000129	0.00329	8.25		0.0	100.0
VCg Sand	0.066212	1.68179	- 0.75	12	0.0	0.0		0.000109	0.00276	8.50		0.0	100.0
	0.055678	1.41421	- 0.50	14	0.0	0.0		0.000091	0.00232	8.75		0.0	100.0
	0.046819	1.18921	- 0.25	16	0.0	0.0		0.000077	0.00195	9.00		0.0	100.0
	0.039370	1.00000	0.00	18	0.0	0.0		0.000065	0.00164	9.25		0.0	100.0
Cg Sand	0.033106	0.84090	0.25	20	0.0	0.0		0.000054	0.00138	9.50		0.0	100.0
	0.027839	0.70711	0.50	25	0.0	0.0		0.000046	0.00116	9.75		0.0	100.0
	0.023410	0.59460	0.75	30	0.0	0.0		0.000038	0.00098	10.00		0.0	100.0
	0.019685	0.50000	1.00	35	0.0	0.0		0.000032	0.00082	10.25		0.0	100.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0		0.000027	0.00069	10.50		0.0	100.0
	0.013919	0.35355	1.50	45	0.0	0.0		0.000023	0.00058	10.75		0.0	100.0
	0.011705	0.29730	1.75	50	0.0	0.0		0.000019	0.00049	11.00		0.0	100.0
	0.009843	0.25000	2.00	60	0.7	0.8		0.000016	0.00041	11.25		0.0	100.0
Fg Sand	0.008277	0.21022	2.25	70	3.4	4.2		0.000014	0.00035	11.50		0.0	100.0
	0.006960	0.17678	2.50	80	8.0	12.1		0.000011	0.00029	11.75		0.0	100.0
	0.005852	0.14865	2.75	100	13.5	25.7		0.000010	0.00024	12.00		0.0	100.0
	0.004921	0.12500	3.00	120	18.0	43.7		0.000008	0.00021	12.25		0.0	100.0
Vfg Sand	0.004138	0.10511	3.25	140	19.4	63.1		0.000007	0.00017	12.50		0.0	100.0
	0.003480	0.08839	3.50	170	16.9	79.9		0.000006	0.00015	12.75		0.0	100.0
	0.002926	0.07433	3.75	200	11.7	91.6		0.000005	0.00012	13.00		0.0	100.0
	0.002461	0.06250	4.00	230	6.1	97.8	0.000004	0.00010	13.25		0.0	100.0	
C Silt	0.002069	0.05256	4.25	270	2.1	99.8	0.000003	0.00009	13.51		0.0	100.0	
	0.001740	0.04419	4.50	325	0.2	100.0	0.000003	0.00007	13.74		0.0	100.0	
	0.001463	0.03716	4.75	400	0.0	100.0	0.000002	0.00006	14.00		0.0	100.0	
	0.001230	0.03125	5.00	450	0.0	100.0	0.000002	0.000051	14.26		0.0	100.0	
M Silt	0.001035	0.02628	5.25	500	0.0	100.0	0.000002	0.000043	14.51		0.0	100.0	
	0.000870	0.02210	5.50	635	0.0	100.0	0.000001	0.000036	14.76		0.0	100.0	
	0.000732	0.01858	5.75		0.0	100.0	0.000001	0.000031	14.98		0.0	100.0	
	0.000615	0.01563	6.00		0.0	100.0	0.000001	0.000026	15.23		0.0	100.0	
F Silt	0.000517	0.01314	6.25		0.0	100.0	<b>TOTALS</b>						
	0.000435	0.01105	6.50		0.0	100.0					100.0	100.0	
	0.000366	0.00929	6.75		0.0	100.0							
	0.000308	0.00781	7.00		0.0	100.0							
Vf Silt	0.000259	0.00657	7.25		0.0	100.0							
	0.000217	0.00552	7.50		0.0	100.0							
	0.000183	0.00465	7.75		0.0	100.0							
	0.000154	0.00391	8.00		0.0	100.0							

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.8
Fine Sand	120	43.0
Very Fine Sand	230	54.0
Coarse Silt	450	2.2
Medium Silt		0.0
Fine Silt		0.0
Very Fine Silt		0.0
Clay		0.0
Total		100.0

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.2864	0.0081	0.2050
10	2.4470	0.0072	0.1834
16	2.5822	0.0066	0.1670
25	2.7392	0.0059	0.1498
50	3.0805	0.0047	0.1182
75	3.4196	0.0037	0.0935
84	3.5737	0.0033	0.0840
90	3.7059	0.0030	0.0766
95	3.8617	0.0027	0.0688

Measure	Trask, mm	Folk, phi	Inches
Median	0.1182	3.0805	0.0047
Mean	0.1216	3.0788	0.0048
Sorting	1.2659	0.4866	
Skewness	1.0016	-0.0067	
Kurtosis	0.2638	0.9489	

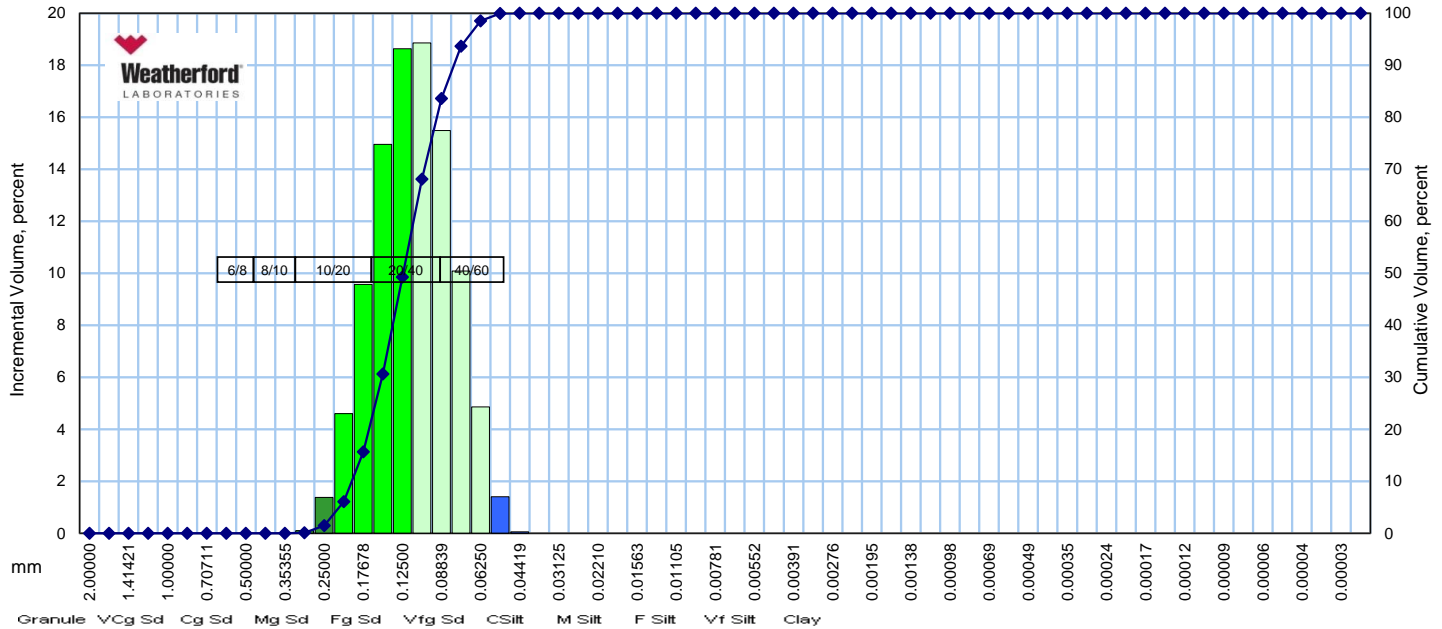
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-13-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Granule > 2.00000	0.078740	2.00000	- 1.00	10	0.0	0.0
VCg Sand	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
Cg Sand	0.033106	0.84090	0.25	20	0.0	0.0
	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.1	0.1
	0.009843	0.25000	2.00	60	1.4	1.5
Fg Sand	0.008277	0.21022	2.25	70	4.6	6.1
	0.006960	0.17678	2.50	80	9.6	15.7
	0.005852	0.14865	2.75	100	15.0	30.6
	0.004921	0.12500	3.00	120	18.6	49.2
Vfg Sand	0.004138	0.10511	3.25	140	18.9	68.1
	0.003480	0.08839	3.50	170	15.5	83.6
	0.002926	0.07433	3.75	200	10.1	93.7
	0.002461	0.06250	4.00	230	4.9	98.5
C Silt	0.002069	0.05256	4.25	270	1.4	99.9
	0.001740	0.04419	4.50	325	0.1	100.0
	0.001463	0.03716	4.75	400	0.0	100.0
	0.001230	0.03125	5.00	450	0.0	100.0
M Silt	0.001035	0.02628	5.25	500	0.0	100.0
	0.000870	0.02210	5.50	635	0.0	100.0
	0.000732	0.01858	5.75		0.0	100.0
	0.000615	0.01563	6.00		0.0	100.0
F Silt	0.000517	0.01314	6.25		0.0	100.0
	0.000435	0.01105	6.50		0.0	100.0
	0.000366	0.00929	6.75		0.0	100.0
	0.000308	0.00781	7.00		0.0	100.0
Vf Silt	0.000259	0.00657	7.25		0.0	100.0
	0.000217	0.00552	7.50		0.0	100.0
	0.000183	0.00465	7.75		0.0	100.0
	0.000154	0.00391	8.00		0.0	100.0

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Clay	0.000129	0.00329	8.25		0.0	100.0
	0.000109	0.00276	8.50		0.0	100.0
	0.000091	0.00232	8.75		0.0	100.0
	0.000077	0.00195	9.00		0.0	100.0
	0.000065	0.00164	9.25		0.0	100.0
	0.000054	0.00138	9.50		0.0	100.0
	0.000046	0.00116	9.75		0.0	100.0
	0.000038	0.00098	10.00		0.0	100.0
	0.000032	0.00082	10.25		0.0	100.0
	0.000027	0.00069	10.50		0.0	100.0
	0.000023	0.00058	10.75		0.0	100.0
	0.000019	0.00049	11.00		0.0	100.0
	0.000016	0.00041	11.25		0.0	100.0
	0.000014	0.00035	11.50		0.0	100.0
	0.000011	0.00029	11.75		0.0	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
0.000004	0.00010	13.25		0.0	100.0	
0.000003	0.00009	13.51		0.0	100.0	
0.000003	0.00007	13.74		0.0	100.0	
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	1.5
Fine Sand	120	47.8
Very Fine Sand	230	49.3
Coarse Silt	450	1.5
Medium Silt		0.0
Fine Silt		0.0
Very Fine Silt		0.0
Clay		0.0
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.2083	0.0085	0.2164
10	2.3702	0.0076	0.1934
16	2.5069	0.0069	0.1759
25	2.6652	0.0062	0.1577
50	3.0097	0.0049	0.1242
75	3.3521	0.0039	0.0979
84	3.5078	0.0035	0.0879
90	3.6414	0.0032	0.0801
95	3.7986	0.0028	0.0719

Measure	Trask, mm	Folk, phi	Inches
Median	0.1242	3.0097	0.0049
Mean	0.1278	3.0081	0.0050
Sorting	1.2688	0.4912	
Skewness	1.0015	-0.0063	
Kurtosis	0.2636	0.9489	

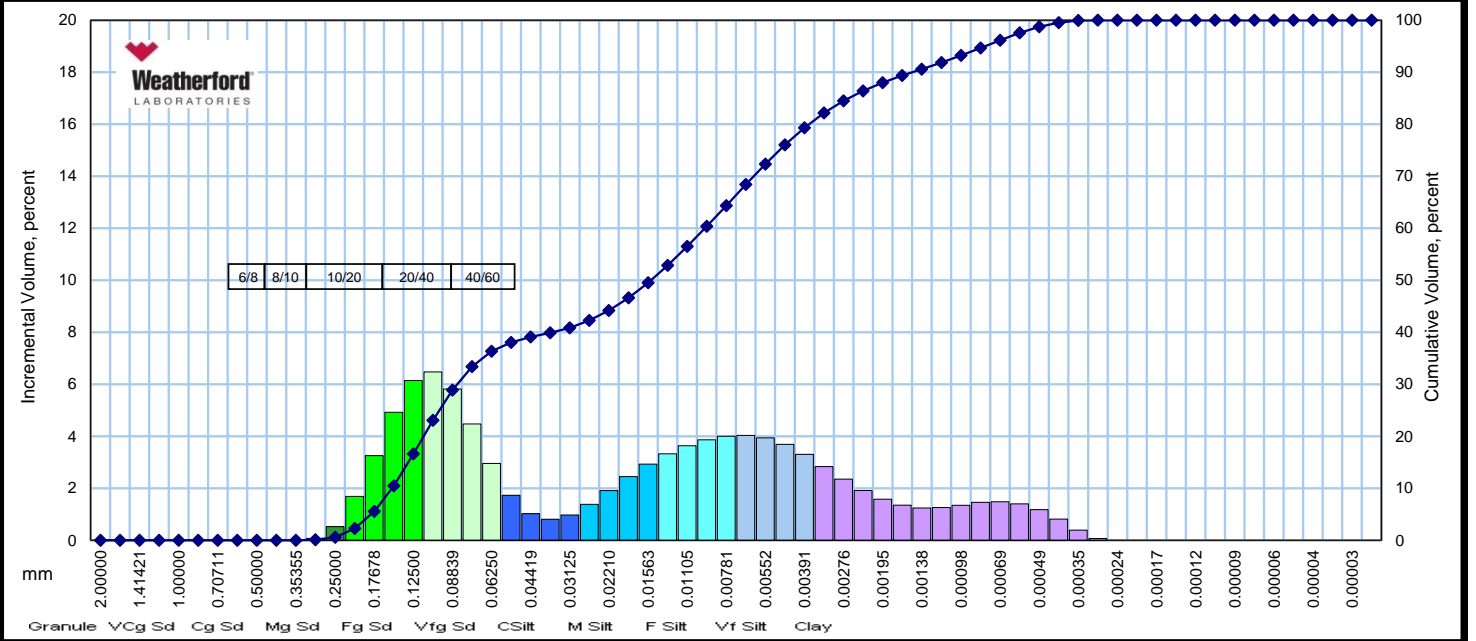
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-14-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Granule > VcG Sand	0.078740	2.00000	- 1.00	10	0.0	0.0
VcG Sand	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
Cg Sand	0.033106	0.84090	0.25	20	0.0	0.0
	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.0	0.0
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0
	0.013919	0.35355	1.50	45	0.0	0.0
	0.011705	0.29730	1.75	50	0.1	0.1
	0.009843	0.25000	2.00	60	0.5	0.6
Fg Sand	0.008277	0.21022	2.25	70	1.7	2.3
	0.006960	0.17678	2.50	80	3.3	5.5
	0.005852	0.14865	2.75	100	4.9	10.5
	0.004921	0.12500	3.00	120	6.1	16.6
Vfg Sand	0.004138	0.10511	3.25	140	6.5	23.1
	0.003480	0.08839	3.50	170	5.8	28.9
	0.002926	0.07433	3.75	200	4.5	33.4
	0.002461	0.06250	4.00	230	3.0	36.3
C Silt	0.002069	0.05256	4.25	270	1.7	38.1
	0.001740	0.04419	4.50	325	1.0	39.1
	0.001463	0.03716	4.75	400	0.8	39.9
	0.001230	0.03125	5.00	450	1.0	40.9
M Silt	0.001035	0.02628	5.25	500	1.4	42.2
	0.000870	0.02210	5.50	635	1.9	44.2
	0.000732	0.01858	5.75		2.4	46.6
	0.000615	0.01563	6.00		2.9	49.5
F Silt	0.000517	0.01314	6.25		3.3	52.9
	0.000435	0.01105	6.50		3.6	56.5
	0.000366	0.00929	6.75		3.9	60.4
	0.000308	0.00781	7.00		4.0	64.4
Vf Silt	0.000259	0.00657	7.25		4.0	68.4
	0.000217	0.00552	7.50		3.9	72.3
	0.000183	0.00465	7.75		3.7	76.0
	0.000154	0.00391	8.00		3.3	79.3

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
Clay	0.000129	0.00329	8.25		2.8	82.2
	0.000109	0.00276	8.50		2.4	84.5
	0.000091	0.00232	8.75		1.9	86.4
	0.000077	0.00195	9.00		1.6	88.0
	0.000065	0.00164	9.25		1.4	89.4
	0.000054	0.00138	9.50		1.2	90.6
	0.000046	0.00116	9.75		1.3	91.9
	0.000038	0.00098	10.00		1.3	93.2
	0.000032	0.00082	10.25		1.5	94.7
	0.000027	0.00069	10.50		1.5	96.1
	0.000023	0.00058	10.75		1.4	97.6
	0.000019	0.00049	11.00		1.2	98.7
	0.000016	0.00041	11.25		0.8	99.5
	0.000014	0.00035	11.50		0.4	99.9
	0.000011	0.00029	11.75		0.1	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
0.000004	0.00010	13.25		0.0	100.0	
0.000003	0.00009	13.51		0.0	100.0	
0.000003	0.00007	13.74		0.0	100.0	
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					<b>100.0</b>	<b>100.0</b>

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	0.6
Fine Sand	120	16.0
Very Fine Sand	230	19.7
Coarse Silt	450	4.5
Medium Silt		8.7
Fine Silt		14.8
Very Fine Silt		15.0
Clay		20.7
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.4663	0.0071	0.1810
10	2.7292	0.0059	0.1508
16	2.9765	0.0050	0.1271
25	3.3276	0.0039	0.0996
50	6.0365	0.0006	0.0152
75	7.6783	0.0002	0.0049
84	8.4407	0.0001	0.0029
90	9.3779	0.0001	0.0015
95	10.3059	0.0000	0.0008

Measure	Trask, mm	Folk, phi	Inches
Median	0.0152	6.0365	0.0006
Mean	0.0522	5.8179	0.0021
Sorting	4.5170	2.5539	
Skewness	2.0951	-0.0154	
Kurtosis	0.3172	0.7385	



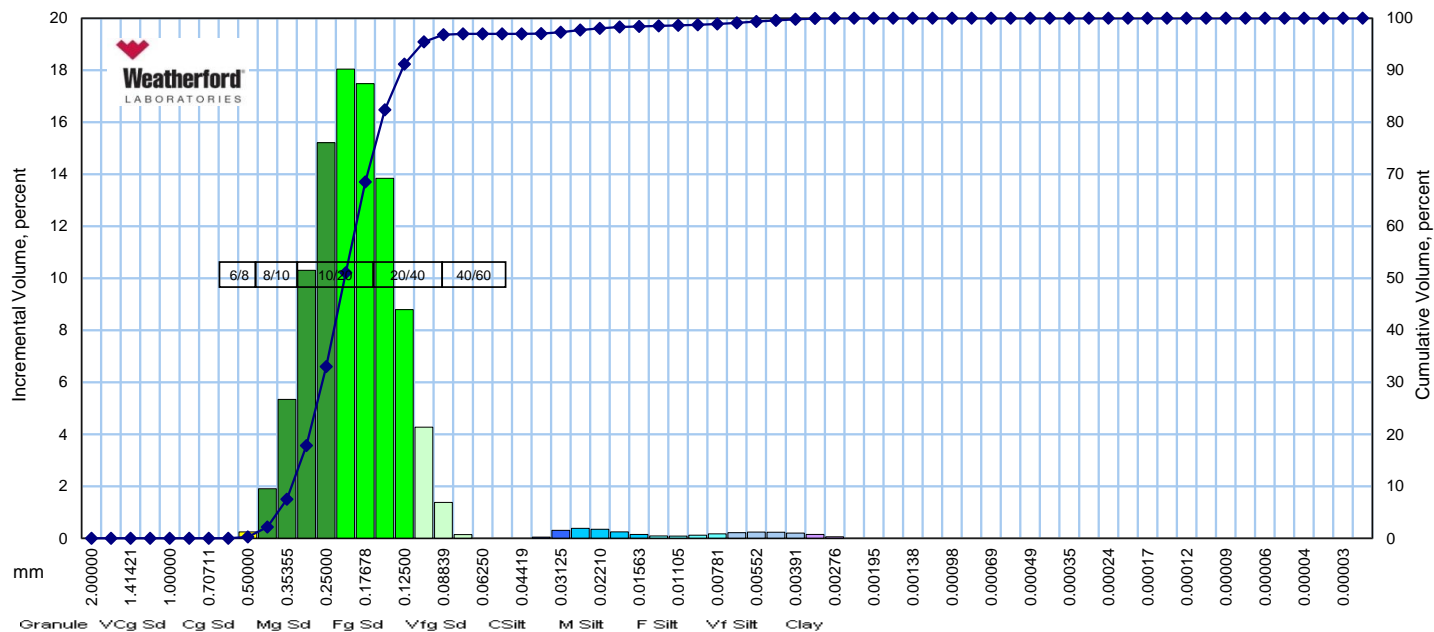
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-15-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Granule &amp; Vcg Sand</b>	0.078740	2.00000	- 1.00	10	0.0	0.0
	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
<b>Cg Sand</b>	0.033106	0.84090	0.25	20	0.0	0.0
	0.027839	0.70711	0.50	25	0.0	0.0
	0.023410	0.59460	0.75	30	0.0	0.0
	0.019685	0.50000	1.00	35	0.2	0.2
<b>Mg Sand</b>	0.016553	0.42045	1.25	40	1.9	2.2
	0.013919	0.35355	1.50	45	5.3	7.5
	0.011705	0.29730	1.75	50	10.3	17.8
	0.009843	0.25000	2.00	60	15.2	33.0
<b>Fg Sand</b>	0.008277	0.21022	2.25	70	18.0	51.1
	0.006960	0.17678	2.50	80	17.5	68.5
	0.005852	0.14865	2.75	100	13.8	82.4
	0.004921	0.12500	3.00	120	8.8	91.2
<b>Vfg Sand</b>	0.004138	0.10511	3.25	140	4.3	95.5
	0.003480	0.08839	3.50	170	1.4	96.8
	0.002926	0.07433	3.75	200	0.1	97.0
	0.002461	0.06250	4.00	230	0.0	97.0
<b>C Silt</b>	0.002069	0.05256	4.25	270	0.0	97.0
	0.001740	0.04419	4.50	325	0.0	97.0
	0.001463	0.03716	4.75	400	0.0	97.0
	0.001230	0.03125	5.00	450	0.3	97.3
<b>M Silt</b>	0.001035	0.02628	5.25	500	0.4	97.7
	0.000870	0.02210	5.50	635	0.3	98.1
	0.000732	0.01858	5.75		0.2	98.3
	0.000615	0.01563	6.00		0.1	98.4
<b>F Silt</b>	0.000517	0.01314	6.25		0.1	98.5
	0.000435	0.01105	6.50		0.1	98.6
	0.000366	0.00929	6.75		0.1	98.7
	0.000308	0.00781	7.00		0.2	98.9
<b>Vf Silt</b>	0.000259	0.00657	7.25		0.2	99.1
	0.000217	0.00552	7.50		0.2	99.4
	0.000183	0.00465	7.75		0.2	99.6
	0.000154	0.00391	8.00		0.2	99.8

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Clay</b>	0.000129	0.00329	8.25		0.1	99.9
	0.000109	0.00276	8.50		0.1	100.0
	0.000091	0.00232	8.75		0.0	100.0
	0.000077	0.00195	9.00		0.0	100.0
	0.000065	0.00164	9.25		0.0	100.0
	0.000054	0.00138	9.50		0.0	100.0
	0.000046	0.00116	9.75		0.0	100.0
	0.000038	0.00098	10.00		0.0	100.0
	0.000032	0.00082	10.25		0.0	100.0
	0.000027	0.00069	10.50		0.0	100.0
	0.000023	0.00058	10.75		0.0	100.0
	0.000019	0.00049	11.00		0.0	100.0
	0.000016	0.00041	11.25		0.0	100.0
	0.000014	0.00035	11.50		0.0	100.0
	0.000011	0.00029	11.75		0.0	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
0.000004	0.00010	13.25		0.0	100.0	
0.000003	0.00009	13.51		0.0	100.0	
0.000003	0.00007	13.74		0.0	100.0	
0.000002	0.00006	14.00		0.0	100.0	
0.000002	0.000051	14.26		0.0	100.0	
0.000002	0.000043	14.51		0.0	100.0	
0.000001	0.000036	14.76		0.0	100.0	
0.000001	0.000031	14.98		0.0	100.0	
0.000001	0.000026	15.23		0.0	100.0	
<b>TOTALS</b>					100.0	100.0

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.2
Medium Sand	60	32.8
Fine Sand	120	58.2
Very Fine Sand	230	5.8
Coarse Silt	450	0.4
Medium Silt		1.1
Fine Silt		0.5
Very Fine Silt		0.9
Clay		0.2
<b>Total</b>		100.0

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	1.4080	0.0148	0.3768
10	1.5744	0.0132	0.3358
16	1.7142	0.0120	0.3048
25	1.8772	0.0107	0.2722
50	2.2356	0.0084	0.2123
75	2.6063	0.0065	0.1642
84	2.7867	0.0057	0.1449
90	2.9563	0.0051	0.1288
95	3.2092	0.0043	0.1081

Measure	Trask, mm	Folk, phi	Inches
Median	0.2123	2.2356	0.0084
Mean	0.2182	2.2455	0.0086
Sorting	1.2875	0.5410	
Skewness	0.9915	0.0544	
Kurtosis	0.2609	1.0125	



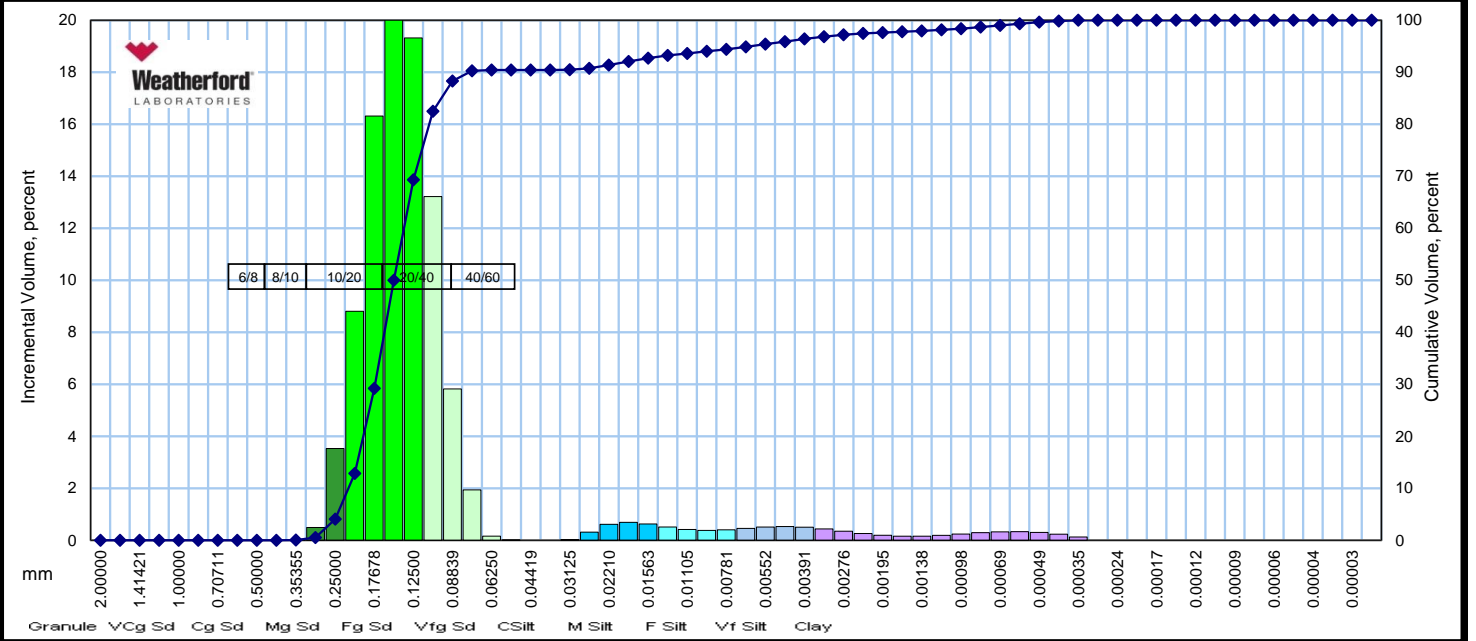
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-16-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent	Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters						Inches	Millimeters				
Granule > 2.00000	0.078740	2.00000	- 1.00	10	0.0	0.0	Clay	0.000129	0.00329	8.25		0.4	96.8
VCg Sand	0.066212	1.68179	- 0.75	12	0.0	0.0		0.000109	0.00276	8.50		0.3	97.2
	0.055678	1.41421	- 0.50	14	0.0	0.0		0.000091	0.00232	8.75		0.3	97.5
	0.046819	1.18921	- 0.25	16	0.0	0.0		0.000077	0.00195	9.00		0.2	97.6
	0.039370	1.00000	0.00	18	0.0	0.0		0.000065	0.00164	9.25		0.2	97.8
Cg Sand	0.033106	0.84090	0.25	20	0.0	0.0		0.000054	0.00138	9.50		0.2	98.0
	0.027839	0.70711	0.50	25	0.0	0.0		0.000046	0.00116	9.75		0.2	98.2
	0.023410	0.59460	0.75	30	0.0	0.0		0.000038	0.00098	10.00		0.2	98.4
	0.019685	0.50000	1.00	35	0.0	0.0		0.000032	0.00082	10.25		0.3	98.7
Mg Sand	0.016553	0.42045	1.25	40	0.0	0.0		0.000027	0.00069	10.50		0.3	99.0
	0.013919	0.35355	1.50	45	0.0	0.0		0.000023	0.00058	10.75		0.3	99.3
	0.011705	0.29730	1.75	50	0.5	0.5		0.000019	0.00049	11.00		0.3	99.6
	0.009843	0.25000	2.00	60	3.5	4.1		0.000016	0.00041	11.25		0.2	99.9
Fg Sand	0.008277	0.21022	2.25	70	8.8	12.9		0.000014	0.00035	11.50		0.1	100.0
	0.006960	0.17678	2.50	80	16.3	29.2		0.000011	0.00029	11.75		0.0	100.0
	0.005852	0.14865	2.75	100	20.8	50.0		0.000010	0.00024	12.00		0.0	100.0
	0.004921	0.12500	3.00	120	19.3	69.3		0.000008	0.00021	12.25		0.0	100.0
Vfg Sand	0.004138	0.10511	3.25	140	13.2	82.5		0.000007	0.00017	12.50		0.0	100.0
	0.003480	0.08839	3.50	170	5.8	88.3		0.000006	0.00015	12.75		0.0	100.0
	0.002926	0.07433	3.75	200	1.9	90.3		0.000005	0.00012	13.00		0.0	100.0
	0.002461	0.06250	4.00	230	0.2	90.4	0.000004	0.00010	13.25		0.0	100.0	
C Silt	0.002069	0.05256	4.25	270	0.0	90.4	0.000003	0.00009	13.51		0.0	100.0	
	0.001740	0.04419	4.50	325	0.0	90.4	0.000003	0.00007	13.74		0.0	100.0	
	0.001463	0.03716	4.75	400	0.0	90.4	0.000002	0.00006	14.00		0.0	100.0	
	0.001230	0.03125	5.00	450	0.0	90.5	0.000002	0.000051	14.26		0.0	100.0	
M Silt	0.001035	0.02628	5.25	500	0.3	90.8	0.000002	0.000043	14.51		0.0	100.0	
	0.000870	0.02210	5.50	635	0.6	91.4	0.000001	0.000036	14.76		0.0	100.0	
	0.000732	0.01858	5.75		0.7	92.1	0.000001	0.000031	14.98		0.0	100.0	
	0.000615	0.01563	6.00		0.6	92.7	0.000001	0.000026	15.23		0.0	100.0	
F Silt	0.000517	0.01314	6.25		0.5	93.2	<b>TOTALS</b>						
	0.000435	0.01105	6.50		0.4	93.6					100.0	100.0	
	0.000366	0.00929	6.75		0.4	94.0							
	0.000308	0.00781	7.00		0.4	94.4							
Vf Silt	0.000259	0.00657	7.25		0.5	94.9							
	0.000217	0.00552	7.50		0.5	95.4							
	0.000183	0.00465	7.75		0.5	95.9							
	0.000154	0.00391	8.00		0.5	96.4							

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	0.0
Medium Sand	60	4.1
Fine Sand	120	65.2
Very Fine Sand	230	21.1
Coarse Silt	450	0.0
Medium Silt		2.2
Fine Silt		1.7
Very Fine Silt		2.0
Clay		3.6
<b>Total</b>		<b>100.0</b>

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.0439	0.0095	0.2425
10	2.1914	0.0086	0.2189
16	2.3067	0.0080	0.2021
25	2.4440	0.0072	0.1838
50	2.7503	0.0059	0.1486
75	3.0929	0.0046	0.1172
84	3.2918	0.0040	0.1021
90	3.6644	0.0031	0.0789
95	7.3166	0.0002	0.0063

Measure	Trask, mm	Folk, phi	Inches
Median	0.1486	2.7503	0.0059
Mean	0.1505	2.7829	0.0059
Sorting	1.2522	1.0452	
Skewness	0.9751	0.4157	
Kurtosis	0.2376	3.3301	

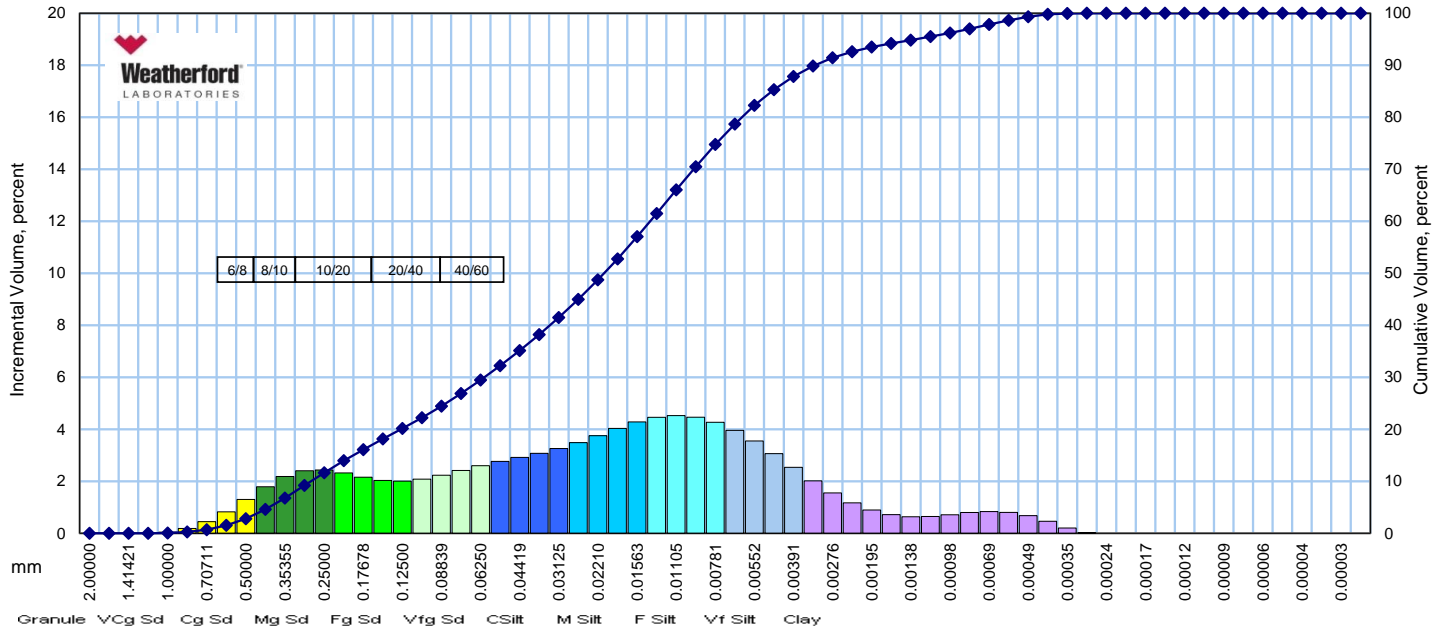
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-17-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Granule &amp; VcG Sand</b>	0.078740	2.00000	- 1.00	10	0.0	0.0
	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
<b>Cg Sand</b>	0.033106	0.84090	0.25	20	0.2	0.2
	0.027839	0.70711	0.50	25	0.4	0.7
	0.023410	0.59460	0.75	30	0.8	1.5
	0.019685	0.50000	1.00	35	1.3	2.8
<b>Mg Sand</b>	0.016553	0.42045	1.25	40	1.8	4.6
	0.013919	0.35355	1.50	45	2.2	6.8
	0.011705	0.29730	1.75	50	2.4	9.2
	0.009843	0.25000	2.00	60	2.4	11.6
<b>Fg Sand</b>	0.008277	0.21022	2.25	70	2.3	13.9
	0.006960	0.17678	2.50	80	2.2	16.1
	0.005852	0.14865	2.75	100	2.0	18.1
	0.004921	0.12500	3.00	120	2.0	20.1
<b>Vfg Sand</b>	0.004138	0.10511	3.25	140	2.1	22.2
	0.003480	0.08839	3.50	170	2.2	24.4
	0.002926	0.07433	3.75	200	2.4	26.9
	0.002461	0.06250	4.00	230	2.6	29.5
<b>C Silt</b>	0.002069	0.05256	4.25	270	2.8	32.2
	0.001740	0.04419	4.50	325	2.9	35.1
	0.001463	0.03716	4.75	400	3.1	38.2
	0.001230	0.03125	5.00	450	3.3	41.5
<b>M Silt</b>	0.001035	0.02628	5.25	500	3.5	45.0
	0.000870	0.02210	5.50	635	3.8	48.7
	0.000732	0.01858	5.75		4.0	52.7
	0.000615	0.01563	6.00		4.3	57.0
<b>F Silt</b>	0.000517	0.01314	6.25		4.5	61.5
	0.000435	0.01105	6.50		4.5	66.0
	0.000366	0.00929	6.75		4.5	70.5
	0.000308	0.00781	7.00		4.3	74.7
<b>Vf Silt</b>	0.000259	0.00657	7.25		4.0	78.7
	0.000217	0.00552	7.50		3.6	82.3
	0.000183	0.00465	7.75		3.1	85.3
	0.000154	0.00391	8.00		2.5	87.9

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Clay</b>	0.000129	0.00329	8.25		2.0	89.9
	0.000109	0.00276	8.50		1.6	91.4
	0.000091	0.00232	8.75		1.2	92.6
	0.000077	0.00195	9.00		0.9	93.5
	0.000065	0.00164	9.25		0.7	94.2
	0.000054	0.00138	9.50		0.6	94.8
	0.000046	0.00116	9.75		0.6	95.5
	0.000038	0.00098	10.00		0.7	96.2
	0.000032	0.00082	10.25		0.8	97.0
	0.000027	0.00069	10.50		0.8	97.8
	0.000023	0.00058	10.75		0.8	98.6
	0.000019	0.00049	11.00		0.7	99.3
	0.000016	0.00041	11.25		0.5	99.8
	0.000014	0.00035	11.50		0.2	100.0
	0.000011	0.00029	11.75		0.0	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
	0.000004	0.00010	13.25		0.0	100.0
	0.000003	0.00009	13.51		0.0	100.0
	0.000003	0.00007	13.74		0.0	100.0
	0.000002	0.00006	14.00		0.0	100.0
	0.000002	0.000051	14.26		0.0	100.0
	0.000002	0.000043	14.51		0.0	100.0
	0.000001	0.000036	14.76		0.0	100.0
	0.000001	0.000031	14.98		0.0	100.0
	0.000001	0.000026	15.23		0.0	100.0
<b>TOTALS</b>					100.0	100.0

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	2.8
Medium Sand	60	8.8
Fine Sand	120	8.5
Very Fine Sand	230	9.3
Coarse Silt	450	12.0
Medium Silt		15.6
Fine Silt		17.7
Very Fine Silt		13.1
Clay		12.1
<b>Total</b>		100.0

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	1.2998	0.0160	0.4062
10	1.8336	0.0110	0.2806
16	2.4889	0.0070	0.1781
25	3.5593	0.0033	0.0848
50	5.5815	0.0008	0.0209
75	7.0151	0.0003	0.0077
84	7.6372	0.0002	0.0050
90	8.2680	0.0001	0.0032
95	9.5631	0.0001	0.0013

Measure	Trask, mm	Folk, phi	Inches
Median	0.0209	5.5815	0.0008
Mean	0.0463	5.2359	0.0018
Sorting	3.3125	2.5391	
Skewness	1.5038	-0.1189	
Kurtosis	0.1390	0.9800	

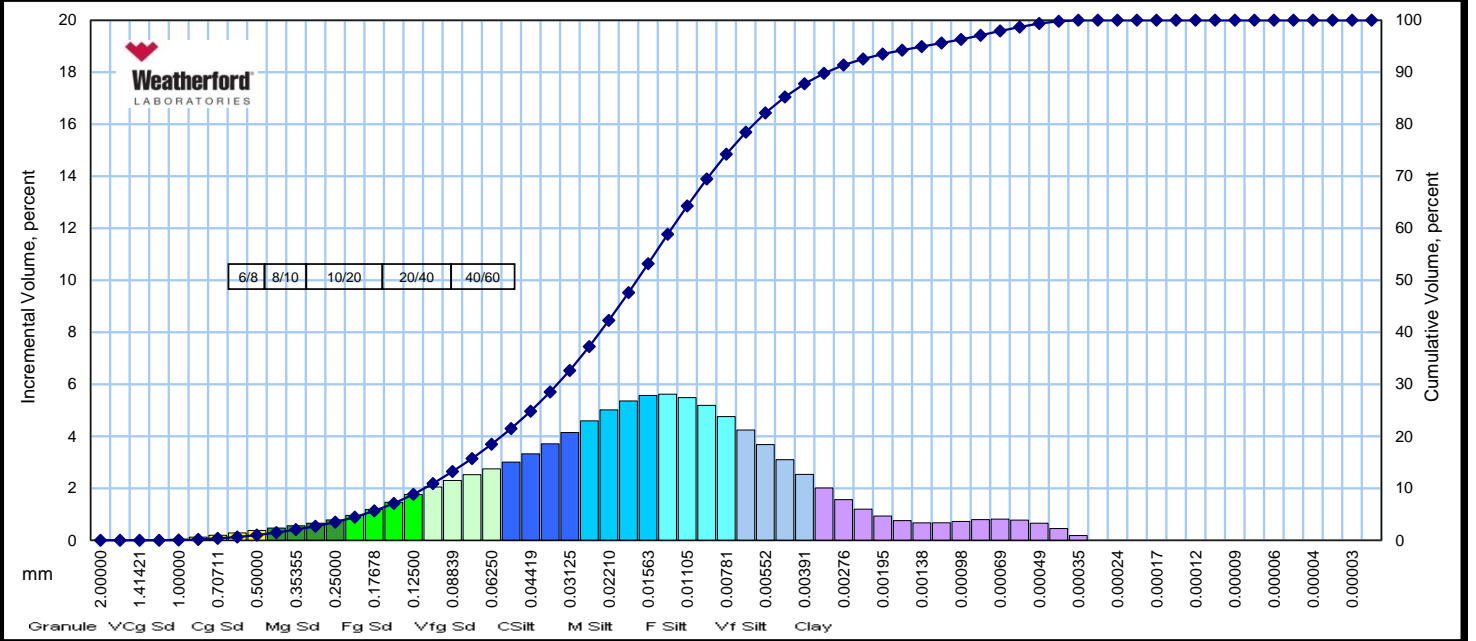
# LASER GRAIN SIZE ANALYSIS

Sediment

North Water District Laboratory Services, Inc.  
Phillips 66 - Bluewater SPM

Sample ID:  
File:

BWSPM-18-18-S  
HH-103387



Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Granule &amp; Vcg Sand</b>	0.078740	2.00000	- 1.00	10	0.0	0.0
	0.066212	1.68179	- 0.75	12	0.0	0.0
	0.055678	1.41421	- 0.50	14	0.0	0.0
	0.046819	1.18921	- 0.25	16	0.0	0.0
	0.039370	1.00000	0.00	18	0.0	0.0
<b>Cg Sand</b>	0.033106	0.84090	0.25	20	0.1	0.2
	0.027839	0.70711	0.50	25	0.2	0.4
	0.023410	0.59460	0.75	30	0.3	0.6
	0.019685	0.50000	1.00	35	0.4	1.0
<b>Mg Sand</b>	0.016553	0.42045	1.25	40	0.5	1.5
	0.013919	0.35355	1.50	45	0.6	2.0
	0.011705	0.29730	1.75	50	0.7	2.7
	0.009843	0.25000	2.00	60	0.8	3.5
<b>Fg Sand</b>	0.008277	0.21022	2.25	70	1.0	4.4
	0.006960	0.17678	2.50	80	1.2	5.6
	0.005852	0.14865	2.75	100	1.5	7.1
	0.004921	0.12500	3.00	120	1.8	8.9
<b>Vfg Sand</b>	0.004138	0.10511	3.25	140	2.0	10.9
	0.003480	0.08839	3.50	170	2.3	13.2
	0.002926	0.07433	3.75	200	2.5	15.7
	0.002461	0.06250	4.00	230	2.7	18.5
<b>C Silt</b>	0.002069	0.05256	4.25	270	3.0	21.5
	0.001740	0.04419	4.50	325	3.3	24.8
	0.001463	0.03716	4.75	400	3.7	28.5
	0.001230	0.03125	5.00	450	4.1	32.7
<b>M Silt</b>	0.001035	0.02628	5.25	500	4.6	37.3
	0.000870	0.02210	5.50	635	5.0	42.3
	0.000732	0.01858	5.75		5.4	47.6
	0.000615	0.01563	6.00		5.6	53.2
<b>F Silt</b>	0.000517	0.01314	6.25		5.6	58.8
	0.000435	0.01105	6.50		5.5	64.3
	0.000366	0.00929	6.75		5.2	69.5
	0.000308	0.00781	7.00		4.8	74.2
<b>Vf Silt</b>	0.000259	0.00657	7.25		4.2	78.5
	0.000217	0.00552	7.50		3.7	82.2
	0.000183	0.00465	7.75		3.1	85.3
	0.000154	0.00391	8.00		2.5	87.8

Wentworth Size Class	Mesh Size		Phi of Screen	U.S. Sieve No.	Incremental Volume, percent	Cumulative Volume, percent
	Inches	Millimeters				
<b>Clay</b>	0.000129	0.00329	8.25		2.0	89.8
	0.000109	0.00276	8.50		1.6	91.4
	0.000091	0.00232	8.75		1.2	92.6
	0.000077	0.00195	9.00		0.9	93.5
	0.000065	0.00164	9.25		0.8	94.3
	0.000054	0.00138	9.50		0.7	94.9
	0.000046	0.00116	9.75		0.7	95.6
	0.000038	0.00098	10.00		0.7	96.3
	0.000032	0.00082	10.25		0.8	97.1
	0.000027	0.00069	10.50		0.8	97.9
	0.000023	0.00058	10.75		0.8	98.7
	0.000019	0.00049	11.00		0.7	99.4
	0.000016	0.00041	11.25		0.5	99.8
	0.000014	0.00035	11.50		0.2	100.0
	0.000011	0.00029	11.75		0.0	100.0
	0.000010	0.00024	12.00		0.0	100.0
	0.000008	0.00021	12.25		0.0	100.0
	0.000007	0.00017	12.50		0.0	100.0
	0.000006	0.00015	12.75		0.0	100.0
	0.000005	0.00012	13.00		0.0	100.0
	0.000004	0.00010	13.25		0.0	100.0
	0.000003	0.00009	13.51		0.0	100.0
	0.000003	0.00007	13.74		0.0	100.0
	0.000002	0.00006	14.00		0.0	100.0
	0.000002	0.000051	14.26		0.0	100.0
	0.000002	0.000043	14.51		0.0	100.0
	0.000001	0.000036	14.76		0.0	100.0
	0.000001	0.000031	14.98		0.0	100.0
	0.000001	0.000026	15.23		0.0	100.0
<b>TOTALS</b>					100.0	100.0

Description	Sieve Size	Volume Percent
Granule	10	0.0
Very Coarse Sand	18	0.0
Coarse Sand	35	1.0
Medium Sand	60	2.5
Fine Sand	120	5.4
Very Fine Sand	230	9.6
Coarse Silt	450	14.2
Medium Silt		20.5
Fine Silt		21.1
Very Fine Silt		13.6
Clay		12.2
<b>Total</b>		100.0

Percentile	Phi Value	Particle Size	
		Inches	Millimeters
5	2.3748	0.0076	0.1928
10	3.1443	0.0045	0.1131
16	3.7762	0.0029	0.0730
25	4.5140	0.0017	0.0438
50	5.8574	0.0007	0.0172
75	7.0421	0.0003	0.0076
84	7.6421	0.0002	0.0050
90	8.2769	0.0001	0.0032
95	9.5264	0.0001	0.0014

Measure	Trask, mm	Folk, phi	Inches
Median	0.0172	5.8574	0.0007
Mean	0.0257	5.7586	0.0010
Sorting	2.4016	2.0500	
Skewness	1.1163	-0.0253	
Kurtosis	0.1646	1.1594	